STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

OCT 15 2014

Mr. Karl Brooks
Regional Administrator
U.S. EPA, Region VII
11201 Renner Boulevard
Lenexa, KS 66219

Dear Mr. Brooks:

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) hereby submits the following Missouri State Implementation Plan (SIP) revision for your approval:

2008 Lead (Pb) National Ambient Air Quality Standard (NAAQS) Compliance Plan – Exide Technologies-Canon Hollow Facility

Through this SIP submittal, the Air Program is requesting that EPA approve the consent judgment in order to strengthen the Missouri SIP to address violations of the 2008 Lead NAAQS near the Exide Technologies-Canon Hollow facility in Holt County, MO.

The Missouri Air Conservation Commission adopted this plan at the September 25, 2014 commission meeting. A public hearing for the proposed plan was held on August 28, 2014. A 30-day public comment period opened by July 28, 2014 and closed on September 4, 2014. During the public comment period, the Air Program received comments from three sources. All comments were received as public hearing testimonies. A summary of the comments received and our responses are attached.

In order to comply with Attachment A of the "Regional Consistency for the Administrative Requirements of State Implementation Plan Submittals and the Use of 'Letter Notices'" memo dated April 6, 2011, a searchable pdf version of this document will be emailed to the EPA Regional Office. Within three business days, this complete submittal package will be posted on our website at http://dnr.mo.gov/env/apcp/stateplans.htm.

Also, due to their size, paper copies of the appendices to the plan are not included in this package. The disk(s) included with this package include an electronic copy of the plan and appendices.

Recycled Paper

Thank you for your attention to this matter. If you have any questions regarding this submittal, please contact Ms. Wendy Vit with the Missouri Department of Natural Resources' Air Pollution Control Program at P.O. Box 176, Jefferson City, MO 65102 or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Original signed by Kyra L. Moore

Kyra L. Moore
Director

KLM:jwc

Enclosures:

Copy of plan (paper copies of the appendices are not included)
Copy of the court-lodged, signed Consent Judgment
Copy of commission signature page certifying Missouri Air Conservation Commission adoption
Copy of public hearing notices
Copy of public hearing transcript introductory statement
Copy of recommendation for adoption
Copy of the summary of comments and responses
CD with electronic copy of the plan and appendices

c: Missouri Air Conservation Commission
File# 2008-Lead-3C Exide

# Missouri State Implementation Plan Revision

---

## 2008 Lead (Pb)
## National Ambient Air Quality Standard (NAAQS)
## Compliance Plan
## –
## Exide Technologies-Canon Hollow Facility

---

**Adoption**
**September 25, 2014**

**Prepared for the**
**Missouri Air Conservation Commission**

**Missouri Department of Natural Resources**
**Division of Environmental Quality**
**Air Pollution Control Program**
**Jefferson City, Missouri**

Project # 2008-Lead-3C Exide

# Table of Contents


**1. PURPOSE ..... 1**

**2. BACKGROUND AND AIR QUALITY MONITORING ..... 1**

**3. EMISSIONS INVENTORY ..... 6**

**4. CONTROL STRATEGY ..... 7**

4.1 MACT Controls ..... 9

4.2 Non-MACT Controls ..... 10

**5. AIR DISPERSION MODELING ..... 14**

5.1 Model Selection and Settings ..... 15

5.2 Modeled Pollutants and Averaging Periods ..... 15

5.3 Modeled Sources and Their Release Parameters ..... 15

5.3.1 Point Sources Emissions and Release Parameters ..... 16

5.3.2 Volume Sources ..... 18

5.3.3 Area Sources ..... 20

5.4 Terrain Data ..... 25

5.5 Building Downwash ..... 27

5.6 Meteorological Data Set ..... 27

5.7 Receptors ..... 29

5.8 Model Input, Output, and Results ..... 30

5.9 Background Lead Concentration ..... 30

5.10 Post Processing in LEADPOST ..... 32

5.11 Description of Modeling Results ..... 33

**6. CONTINGENCY MEASURES ..... 34**

**7. PUBLIC PARTICIPATION ..... 35**

**8. CONCLUSION ..... 36**

## List of Appendices


Appendix A – Consent Judgment

Appendix B – Standard Operating Procedures Manual for Fugitive Dust Sources & Baghouses (Exide-Canon Hollow plant)

Appendix C – Meteorological Station Settlement Agreement

Appendix D – ENVIRON – Exide-Canon Hollow Final Modeling Report

Appendix E – Exide Airport Selection Analysis

Appendix F – AERMOD Input and Output Files

# 1. PURPOSE

As required by Section 110(a) of the federal Clean Air Act Amendments of 1990 (CAA), Missouri's State Implementation Plan (SIP) must ensure attainment and maintenance of all National Ambient Air Quality Standards (NAAQS). The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) is amending and strengthening the Missouri SIP to address violations of the 2008 Lead NAAQS measured at the Forest City monitoring site in Northwest Missouri. This site is located near the Exide Technologies-Canon Hollow plant, a secondary lead smelter which recycles lead from lead-acid automobile batteries.

This SIP revision contains a demonstration of NAAQS compliance through air dispersion modeling and a consent judgment detailing control projects, record keeping, new work practices, provisions for public access preclusion to non-ambient areas, as well as a contingency measure plan in case lead NAAQS violations continue. Furthermore, a margin of safety was built into the entire attainment modeling analysis by using conservative assumptions in the establishment of an ambient background concentration and the fact that emissions were modeled as being worst-case rather than typical facility operating conditions.

After this proposed SIP revision undergoes the appropriate requisite public participation procedures to include 30-day public notice and comment period, public hearing and adoption before the Missouri Air Conservation Commission, the Air Program intends to submit this plan to the U.S. Environmental Protection Agency (EPA) for inclusion into the Missouri State Implementation plan at 40 CFR §52.1320.

# 2. BACKGROUND AND AIR QUALITY MONITORING

The Clean Air Act requires the EPA to establish NAAQS for lead and five other criteria air pollutants impacting public health and the environment. The other criteria pollutants are ozone, particulate matter (including $PM_{10}$ and $PM_{2.5}$), nitrogen dioxide, carbon monoxide, and sulfur dioxide. The CAA also requires EPA to periodically review the standards and the latest scientific information to ensure they provide adequate health and environmental protection, and to update those standards as necessary.

Lead is a metal found naturally in the environment, as well as in manufactured products. The major sources of lead emissions have historically been motor vehicles and industrial sources. As a result of the permanent phase-out of leaded gasoline and other national and state regulations, airborne lead concentrations have decreased in the U.S. by 94 percent between 1980 and 2007. Industrial processes are now the major source of airborne lead emissions, including lead smelters, waste incinerators, utilities, and lead-acid battery manufacturers.

While lead emissions have been greatly reduced nationwide, scientific evidence about the impact of lead on health has expanded dramatically since the U.S. Environmental Protection Agency (EPA) first issued a lead standard in 1978. Lead can be emitted into the air in the form of particles small enough to stay suspended in the air. Lead emitted into the air can be inhaled directly or ingested after it settles onto surfaces or soils. Once in the body, lead is rapidly absorbed into the bloodstream and accumulates in the bones. Lead exposure is associated with

several health effects that have an adverse impact on the cardiovascular system, central nervous system, kidneys, and immune system.

Children are more susceptible to the damaging effects of airborne lead than adults because they breathe in more air per minute, typically spend more time outdoors, and exhibit greater hand-to-mouth activity than adults. Children are also more vulnerable to the health effects of lead because their minds and bodies are developing rapidly.

For information on lead as a criteria pollutant, including more details on the NAAQS revision, the health effects of lead and other useful links, please see the Air Program's airborne lead webpage: http://www.dnr.mo.gov/env/apcp/airbornelead.htm.

On October 15, 2008, EPA established a new lead NAAQS of 0.15 micrograms per cubic meter ($\mu g/m^3$), measured as a rolling three-month average [73 *Federal Register* 66964; November 12, 2008]. This new lead standard is 10 times more stringent than the previous 1978 standard of 1.5 µg/m3 based on a quarterly average.

The Missouri Department of Natural Resources' (department) conducted monitoring of airborne lead concentrations near the Schuylkill Metals facility (now the Exide-Canon Hollow facility) under the 1978 NAAQS from 1990 to 2000. Based on air monitoring data originally reported by the department and retrieved from the EPA's Air Quality System (AQS), that standard was violated only once, in 1994.

EPA promulgated the regulations necessary to implement the 2008 standard at the same time that they revised the standard. These regulations required the state to operate a monitoring station near facilities estimated to emit 1.0 tons of lead per year. The monitor provisions were later modified to require monitoring near facilities that are estimated to emit 0.5 or more ton of lead per year [75 FR 81126].

On May 19, 2011, EPA proposed revisions to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Secondary Lead Smelters. In supporting documentation for this proposal, lead emissions from the Exide-Canon Hollow facility were estimated to be greater than 0.5 ton per year [76 FR 29031]. Therefore, the department resumed airborne lead monitoring near the Exide facility at a site called Forest City, Exide Levee. **Figure 1** shows the location of this monitoring site and the Exide facility on an aerial photograph. For more details on the recent upgrade to Missouri's Air Quality monitoring network at Forest City see the 2011 monitoring network plan at: http://dnr.mo.gov/env/apcp/docs/2011monitoringnetwork.pdf

Monitoring was begun using a sampler that collects airborne particulate matter smaller than 10 micrometers aerodynamic diameter ($PM_{10}$) on March 1, 2012 on an every-sixth-day schedule. On August 1, 2012, monitoring was begun at the same location on the same schedule with a total suspended particulate matter (TSP) sampler, as known as a hi-volume sampler. The $PM_{10}$ lead concentration can be used to show violation of the standard, but the TSP lead concentration is most directly comparable to the NAAQS, and only the TSP lead concentration can be used to show attainment of the standard. Compliance with the lead standard is based on averaging the

every-sixth-day monitored concentrations of lead the ambient air over a 3-month period and comparing that average to 0.15 $\mu g/m^3$ [40 CFR 50.16(a)]. Since this is done on a three-month rolling basis, there is a concentration value to be compared to the standard generated every month.

Three-month rolling average airborne lead concentrations resulting from this monitoring through April 30, 2014 are listed in **Table 1** and shown in **Figure 2**. The TSP lead concentration was at or below the level of the standard for two (overlapping) 3-month periods– December 2012 through March 2013 (0.151 $\mu g/m^3$ would meet the standard, because it rounds to 0.15) and for the four most recent (overlapping) 3-month periods for which data are available, November 2013 through April 2014. The $PM_{10}$ lead concentrations show violations of the standard except for three (overlapping) periods from November 2012 through March 2013 and the three most recent (overlapping) 3-month periods from December 2013 through March 2014. $PM_{10}$ monitoring at this site was discontinued at the end of March 2014.

Monitoring with the TSP sampler at this location will need to continue at least until the site achieves three years of continuous compliant data, because three years of monitoring results at or below the level of the standard are required to show attainment [40 CFR 50.16(b)].

Missouri's most recent monitoring network plan may be found at http://dnr.mo.gov/env/apcp/monitoring/monitoringnetworkplan.pdf .

A map of the statewide lead monitoring network along with the state's current lead Air Quality data and analysis may be found at: http://dnr.mo.gov/env/apcp/docs/leadmonitordata.pdf .

Subsequently, on November 6, 2012, the Air Program hosted a meeting with Exide staff, their environmental consultant– ENVIRON, and EPA Region VII staff for the purpose of coordinating the development of this compliance plan to address the measured violation of the Lead NAAQS. Since that initial meeting there have been numerous and regularly-scheduled conference calls, meetings and discussions culminating in this robust compliance plan that demonstrates attainment and maintenance of the 2008 lead NAAQS in the vicinity of Forest City, Missouri through air dispersion modeling. This plan was developed with the consensus and cooperation of the Air Program, Exide Technologies, EPA Region VII and the Missouri Attorney General.

Concurrent to the development of this plan, the Exide Technology-Canon Hollow facility (Exide) installed, and is operating, new air pollution control equipment to comply with the provisions of the revised Secondary Lead Smelting NESHAP, promulgated on January 5, 2012 [77 FR 556]. These federal control requirements, also known as the Maximum Achievable Control Technology (MACT) are found at 40 CFR 63 Subpart X and include fully enclosing all lead process operations and achieving a negative pressure differential to these lead process buildings through baghouse-filtered ventilation. For this purpose, Exide constructed two new baghouses (Negative Pressure #1 & #2 with associated stacks and a 40-foot stack for the Acid Demister. Pursuant to the MACT, these projects were completed and operating by January 6, 2014.

In addition to the revised MACT, other requirements of this plan, such as plant truck traffic restrictions to limit fugitive lead dust on the roadways and stack emission limitations, will be enforced through the court-lodged consent judgment among the department, the Missouri Attorney General, and Exide Technologies.

Lastly, though an attachment to this plan, Exide voluntarily agrees to collect complete, accurate onsite weather data for trend analysis or in case an additional air dispersion modeling analysis becomes necessary. (For this plan, air dispersion modeling used meteorological data obtained from the nearby Brenner, Nebraska airfield because no onsite meteorological existed during the development of this plan.)

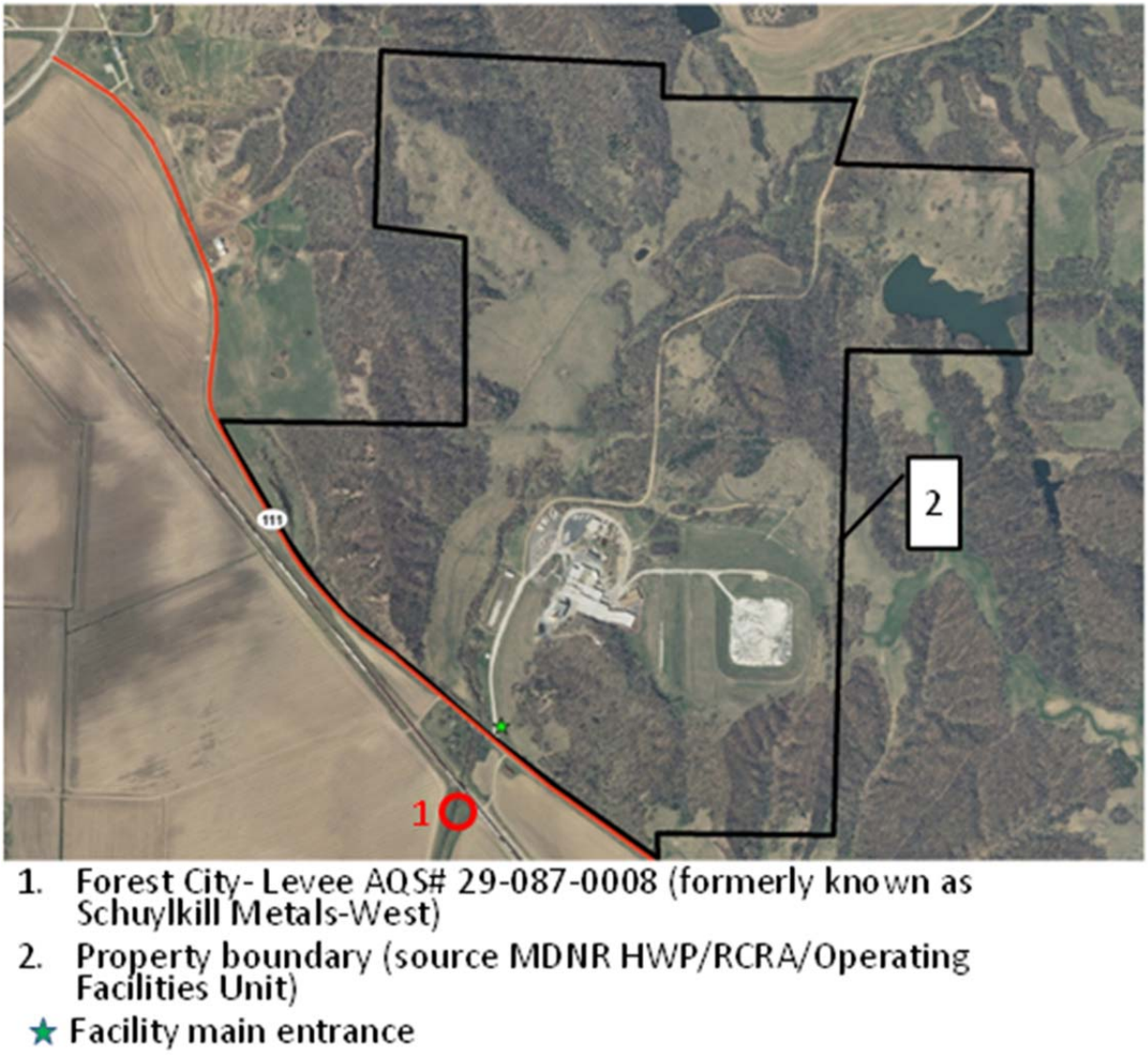



**Figure 1.** Aerial photograph of the Exide-Canon Hollow facility and surrounding area, showing the facility boundary and the location of the Forest City, Exide Levee monitoring site.

**Table 1**. 3-month rolling average lead concentrations (μg/m$^3$) measured at the Forest City, Exide Levee site. **Note:** 3-month averages are calculated from monthly averages of concentrations originally reported by the department and retrieved from the EPA's Air Quality System (AQS), except for the February-March-April 2014 average, which uses preliminary data for April.

| **3-Month Period** | **$PM_{10}$** | **TSP** |
|---|---|---|
| March-May 2012 | 0.285 | |
| April-June 2012 | 0.252 | |
| May-July 2012 | 0.341 | |
| June-August 2012 | 0.438 | |
| July-September 2012 | 0.674 | |
| August-October 2012 | 0.543 | 0.993 |
| September-November 2012 | 0.396 | 0.634 |
| October-December 2012 | 0.158 | 0.270 |
| November 2012-January 2013 | 0.100 | 0.193 |
| December 2012-February 2013 | 0.073 | 0.151 |
| January-March 2013 | 0.070 | 0.116 |
| February-April 2013 | 0.196 | 0.362 |
| March-May 2013 | 0.496 | 0.680 |
| April-June 2013 | 0.521 | 0.725 |
| May-July 2013 | 0.492 | 0.612 |
| June-August 2013 | 0.250 | 0.379 |
| July-September 2013 | 0.332 | 0.541 |
| August-October 2013 | 0.346 | 0.547 |
| September-November 2013 | 0.368 | 0.572 |
| October-December 2013 | 0.215 | 0.299 |
| November 2013-January 2014 | 0.095 | 0.150 |
| December 2013-February 2014 | 0.021 | 0.063 |
| January-March 2014 | 0.019 | 0.054 |
| February-April 2014 | | 0.053 |

**Source:** Missouri Department of Natural Resources' Environmental Services Program - Air Quality Monitoring Section (as reported to EPA's *Air Quality System* (AQS)).

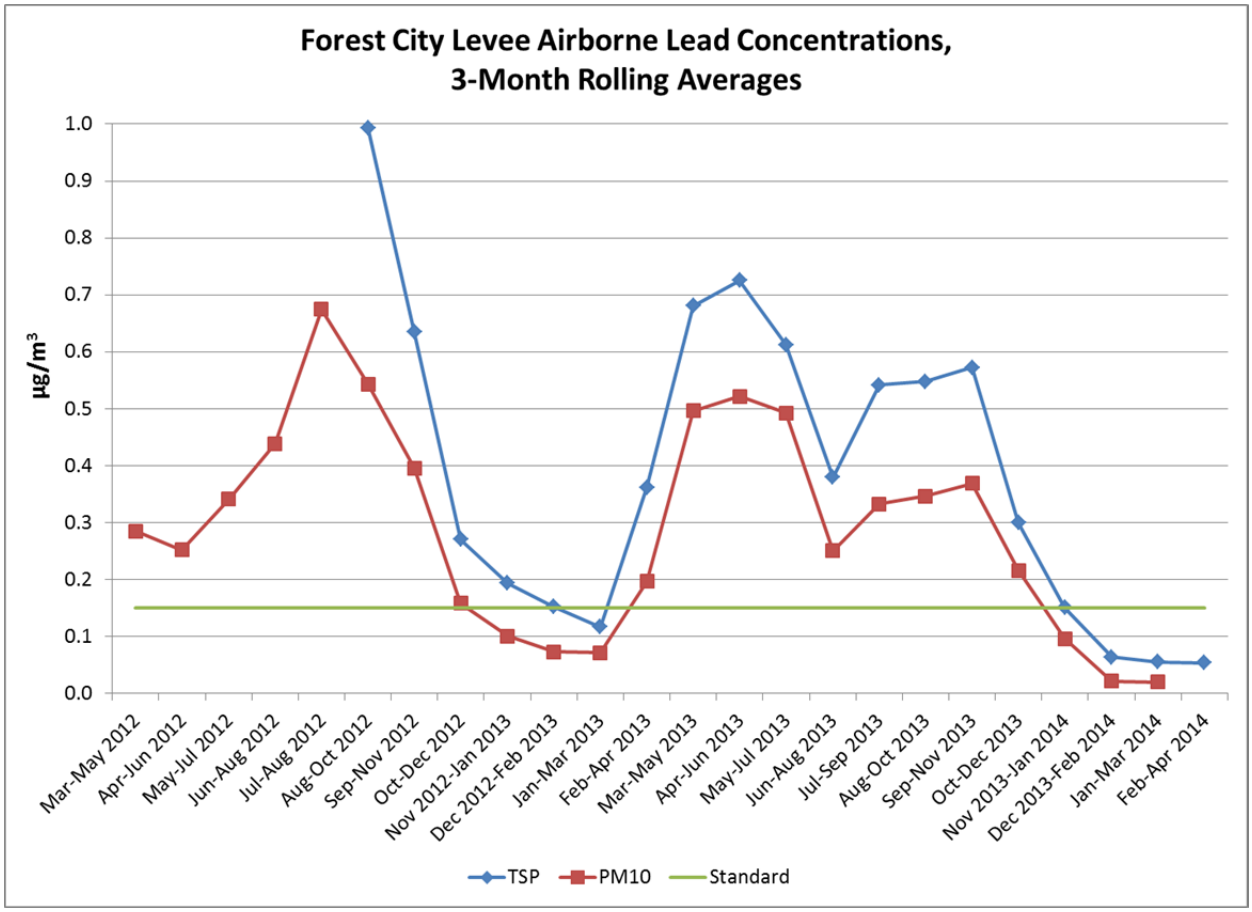



**Figure 2.** Time series graphs of 3-month rolling average lead concentrations measured at the Forest City, Exide Levee site.

# 3. EMISSIONS INVENTORY

The Air Program creates air emission inventories for criteria pollutants and hazardous air pollutants to meet federal reporting requirements under EPA's Air Emissions Reporting Rule to provide data that supports the functions of the Air Program, including SIP inventory needs. The lead emission inventory includes anthropogenic emissions from point source facilities like industrial plants, mobile source emissions from aircraft, and nonpoint sources of emissions where many small sources are estimated at the county level. Point source facility emissions are reported directly by permitted sources in Missouri, while nonpoint and mobile source emissions are estimated using EPA guidelines and state-specific data.

For the purposes of this plan, the area of interest is Holt County Missouri, the county encompassing Exide Technologies. The emission inventory data presented is only for lead emissions. A single point source drives the lead inventory for the area, but other smaller (nonpoint) sources are also described for completeness. Nonpoint sources are too numerous to inventory at the individual source level; nonpoint lead sources include aviation gasoline distribution and human cremation. Mobile sources of lead emissions are also considered

including piston-driven aircraft, commercial marine vessels, and diesel locomotives. Both the nonpoint and mobile source inventory included below are for all of Holt County.

Large emitters with Part 70 (P70) operating permits, such as Exide Technologies, submit their emissions inventory annually. The 2012 emission inventory year corresponds to the start of the current air quality sampling effort at the Forest City levee monitoring site as well as the most recent year at the commencement of this plan's development. Nonpoint and mobile source emissions are from the 2011 National Emissions Inventory (NEI), a dataset prepared triennially through state, tribal, and EPA cooperation. Exide Technologies submitted their 2012 inventory data to the state of Missouri, and that data was quality assured prior to forwarding to EPA for further review. The 2012 lead emission totals for Exide Technologies are 5.0045 tons per year. There are no other point sources in the county that have reported lead emissions to the Emissions Inventory Unit. **Table 2** below shows the emissions inventory information for Exide Technologies and the reported lead emissions for 2010, 2011, and 2012.

**Table 2** – Point Source Facility Inventory in Holt County

| | 2012 | 2011 | 2010 |
|---|---|---|---|
| **Exide Lead Emissions (tons per year)** | 5.0045[a] | 0.0146 | 0.1801 |

[a] Emission reporting includes fugitive emissions from smelting, kettle, and casting processes in 2012. These areas were unreported in prior years, and they do not constitute an increase in emissions or activity, or a decrease in control.

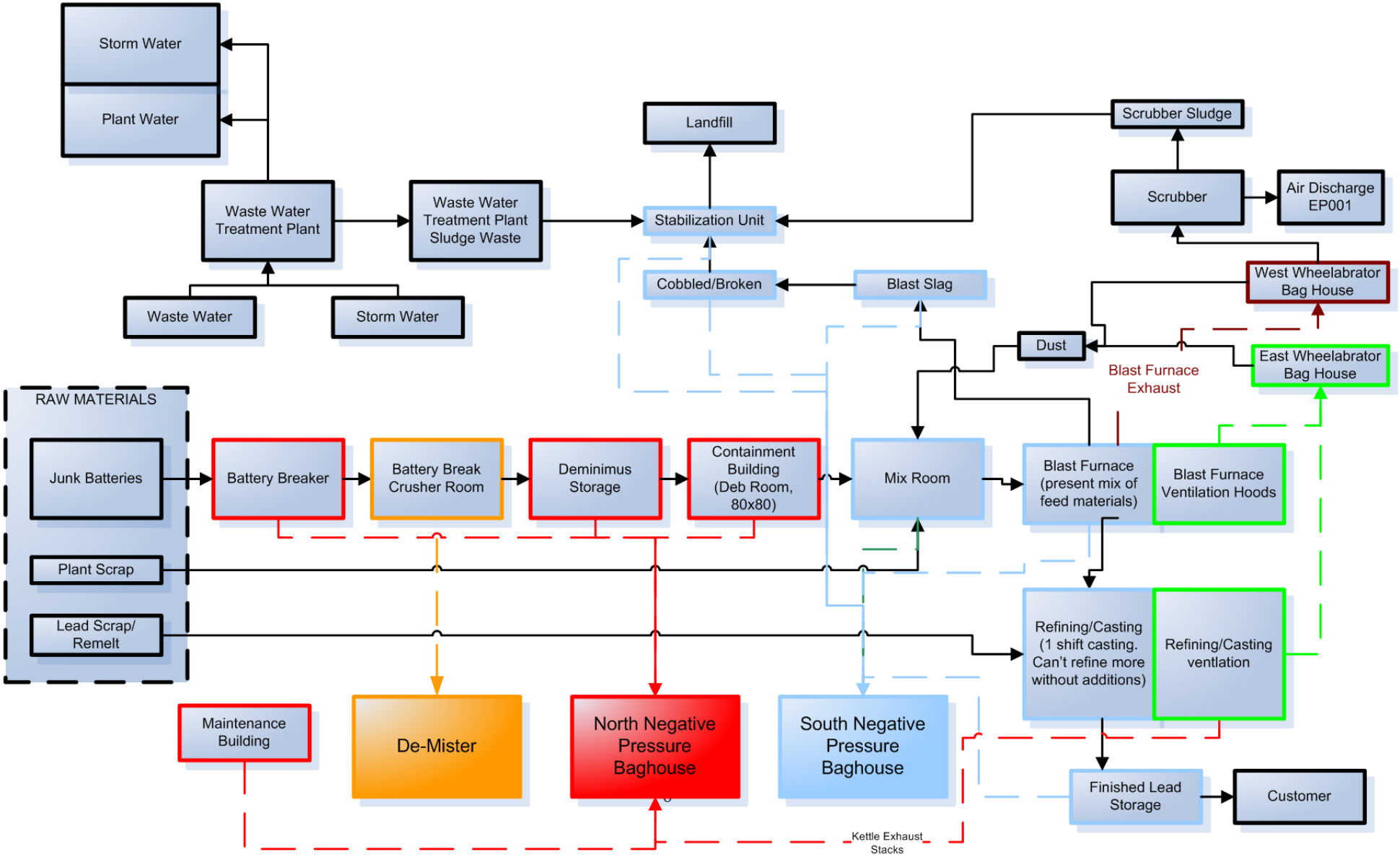
# 4. CONTROL STRATEGY

The process at the Exide Technologies–Canon Hollow facility near Forest City, MO is typical of secondary lead smelters. Secondary lead smelters perform three basic unit operations: battery breaking, smelting, and refining (includes alloying and casting). Battery breaking is accomplished by crushing or cutting junk batteries into pieces. The plastic, spent acid, and lead-bearing materials are then separated. Lead-bearing materials are then processed in the blast furnace. Molten lead from this furnace is further processed in refinery kettles and subsequently cast into molds for use in new car battery manufacturing. **Figure 3** is a process flow diagram of the Exide plant including the new controls added as a result of the revised Secondary lead MACT and this plan.

Figure 3

# Canon Hollow Process Flow Diagram

Canon Hollow Recycling Facility



There are three types of emission sources at secondary lead facilities. This plan proposes controls at each of these emissions points---process sources, process fugitive sources, and fugitive dust sources.

1. Process sources include lead emission from process stacks. Dust filtration systems called baghouses are used to control process emissions
2. Process fugitive sources of lead emissions are characterized by the uncaptured portion of lead particulate matter that are generated by lead smelting processes but might otherwise escape from going up the stack. Controls for process fugitives include process hoods (local exhaust ventilation), and baghouse filtered hygiene ventilation of the process building to negative pressure.
3. Examples of Fugitive dust sources include uncaptured lead escaping a process building and lead dust kicked up by truck traffic on haul routes and wind-blown re-entrainment. Total enclosure of the process buildings and work practices such as haul route sweeping and truck frequency restrictions help control fugitive dust sources.

## *4.1 MACT Controls*

The development of this plan coincides with the implementation of the revised Secondary Lead Smelting NESHAP or MACT Subpart X promulgated on January 5, 2012 [77 FR 556] and effective on January 6, 2014. The majority of the emission reductions used to demonstrate compliance with the 2008 lead standard result from this federal regulation. The revised MACT is used to control lead as an air toxic or hazardous air pollutant (HAP), while this plan was developed to demonstrate compliance with the standards for lead as a criteria pollutant. The MACT regulation is designed to control emissions of all HAPs from secondary smelters including arsenic, mercury, dioxin and furans.

According to EPA, the revised secondary lead MACT will cut lead and arsenic emissions by 68 percent from their previous levels. Some of the provisions of the revised MACT that are used by this plan to demonstrate compliance with the lead NAAQS include–

- Requiring facilities to fully enclose all operations within a building and vent emissions through a controlled stack;
- Ventilating lead process buildings to a control device and maintaining a negative differential pressure of at least 0.013 millimeters of Mercury (mm Hg);
- Lowering the emissions limit for lead to 0.2 mg/dry standard cubic meter (dscm) from 2.0 mg/dscm;
- Establishing a fugitive dust control plan and implementing comprehensive work practices to reduce fugitive lead emissions.

Pursuant to the MACT, Exide has complied with these requirements by January 6, 2014 through a capital improvement and construction campaign that includes the following projects:

- Improvements to lead process building enclosures;
- Construction of two new baghouses, each with a flow capacity of approximately 315,000 cubic feet per minute -

1. Negative Pressure Baghouse #1 to improve refinery ventilation *
2. Negative Pressure Baghouse #2 to improve lead process building hygiene ventilation **;

- Construct a stack for the Acid Demister with a minimum height of 40 feet.

[**Note**: *During the development of this plan, the naming convention for the newly-constructed baghouses had changed. * - Negative Pressure Baghouse #1 may have been referred to as South Baghouse due to its location, or, in the Baghouse SOP manual of Appendix B, it is called West Baghouse #2 because it provides negative pressure ventilation to the West side of the process buildings. ** - Negative Pressure Baghouse #2 is called North Baghouse in the Baghouse SOP manual of Appendix B.]*

The work practices requirements of the MACT regulation include a Fugitive Dust Control & Baghouse Operation plan enforced via a Standard Operating Procedure (SOP) manual. Exide developed a fugitive dust control plan and submitted the SOP manual to the Air Program by the deadline of January 5, 2013. The Air Program approved the plan on August 19, 2013. The SOP includes work practices and plant-specific controls for fugitive dust on the plant roadways, material storage/transportation, operation and maintenance of the Baghouses, housekeeping within the process buildings and recordkeeping to name just a few. Exide's *Standard Operating Procedures Manual for Fugitive Dust Sources* & *Standard Operating Procedures Manual for Baghouses* (along with the department's approval letter) are attached to this plan for reference as **Appendix B**.

A specific example of a work practice to be maintained by Exide pursuant to the Fugitive Dust SOP is found on page 2 of the manual. Exide must clean all in-plant roadways and parking lots by wet washing or vacuum sweeping at least twice daily between 7:00 am and 7:00 pm. Attachment A of the SOP manual is a map of the plant campus showing the corresponding areas to be cleaned. To further reduce lead fugitive being kicked up by vehicle traffic, a 5 mile per hour speed limit is enforced on all plant roadways.

Moreover, pursuant to 40 CFR 63.548 of the Secondary Lead Smelting NESHAP, Exide shall operate at all times according to the Baghouse SOP of Appendix B that describes in detail procedures for inspection, maintenance, bag leak detection and corrective action plans for all baghouses that are used to control process, process fugitive or fugitive dust emissions from any applicable source including those used to control emissions from building ventilation.

## *4.2 Non-MACT Controls*

In addition to the reductions to be achieved by the MACT, two other control measures not found in the MACT were also used in this attainment demo: Stack Emission Limits and Truck Traffic Restrictions. For this plan, the workgroup has chosen to make these two control measures enforceable through a Consent Judgment to be lodged with the court. This Consent Judgment was developed in conjunction with this plan and is included in this plan as **Appendix A**. The enforceable provisions for these lead emission reductions may be found in Paragraph V.7. *Required Practices and Procedures* of the Consent Judgment in Appendix A. The installation, operation and schedule for the control projects (including the MACT-related ones) are outlined in Paragraph V. 6. of the Consent Judgment. The parties to the Consent Judgment are the

department, the Missouri Attorney General and Exide technologies. The parties shall sign and be bound by the Consent Judgment once it has been adopted by the Missouri Air Conservation Commission after appropriate opportunities has been made by the public or any interested parties during the 37-day public hearing and comment process as discussed in chapter 7 of this document.

The MACT prescribes a plant-wide stack emission limitation of below 0.20 milligrams of lead per dry standard cubic meter. This is an aggregate flow-weighted average concentration of all the lead process stacks at the facility. To translate this aggregated average limit into a worst-case impact for modeling purposes, each stack was assigned an individual limit in pounds per hour (lb/hr).

For this compliance plan, Exide agrees to limit emissions from each of their stacks/emission points at the rate (in lb/hr) shown in Paragraph V.7.E. of the Consent Judgment and **Table 3** below. These were the maximum emission rates used to model attainment and employ a margin of safety through their conservative estimation. Enforcement of these emission limits shall be through regular stack tests in the same manner and schedule required by the revised secondary lead smelter MACT.

**Table 3** – Stack Emission Limits

| Emission Point | Control Device | Emission Source / Description | Emission Rate (lb/hr) |
|---|---|---|---|
| AD | Acid Demister (CD007) | Battery Break Crusher Room | 0.024 |
| EP01 | Wheelabrator Air Pollution Control System | Blast Furnace, Refinery & Casting Process Hoods | 0.322 |
| BH01 | Negative Pressure Baghouse #1 (CD005) | Blast Furnace, Refinery & Casting Bldg. Neg. Pressure | 0.236 |
| BH02 | Negative Pressure Baghouse #2 (CD006) | Other Building Negative Pressure | 0.196 |

Similarly, to further reduce fugitive dust emissions and to demonstrate attainment of the lead standard, Exide agrees to limit truck traffic, frequency and hours of operation on the plant roads to the schedules outlined in Table 4 below [Paragraph V.7.F. of the Consent Judgment]. For

more information on truck haul route emissions, see paragraph 5.3.3 *Area Sources* of this document.

**Table 4** – Truck Traffic Restrictions: Frequency and Hours of Operations

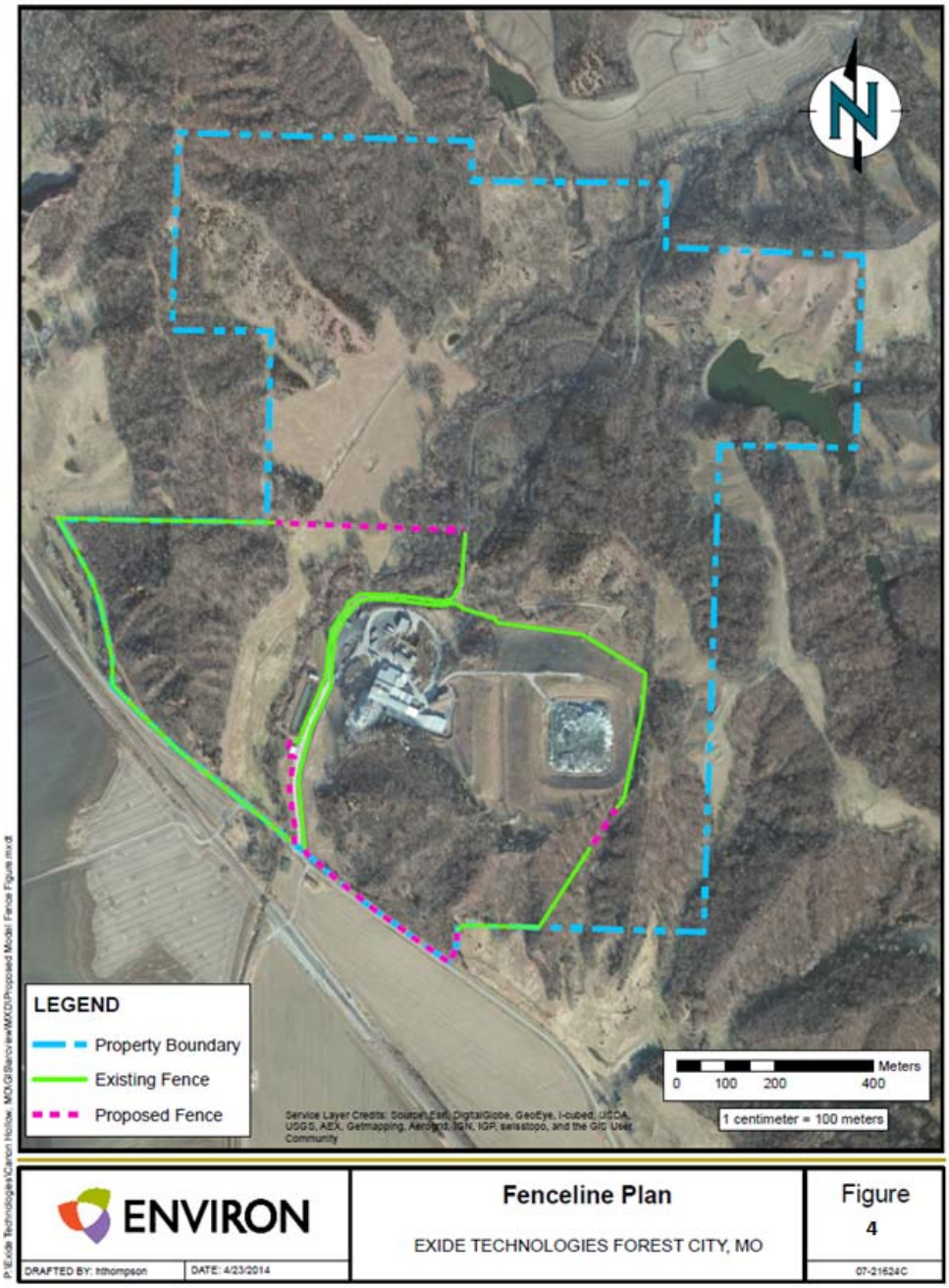
| Group | Route Description | Total Trips Per Month | Unrestricted Trips Per Month* |
|---|---|---|---|
| A | Cores/Scrap | 368 | 0 |
| | Industrials | | |
| B | Furnace Coke | 87 | 4 |
| | Lime (bulk) | | |
| | Furnace Fluxes | | |
| C | Trash | 61 | 3 |
| | Acid (bulk) | | |
| | Plastic Chips | | |
| D | Cement (bulk) | 22 | 1 |
| | Oxygen (liquid) | | |
| E | Lead Products | 260 | 13 |
| F | Slag Mix to Landfill | 217 | 11 |
| G | Service | 26 | 1 |
| **Total** | | **1040** | **34** |

*Note: Restricted trips only use the haul roads 12 hours per day (7AM-7PM). Unrestricted trips use the haul roads 24 hours per day.

The previous secondary lead smelting NESHAP promulgated in 1999, called for total enclosures of lead process buildings or the operation of local exhaust ventilation process hoods (LEV's). The new secondary lead smelting NESHAP revised as of 2012 requires both total building enclosures and negative pressure differential filtered-ventilation. It no longer specifies the operation of LEV's. Nevertheless, to optimize the capture, containment and control of lead-bearing particles in the lead process buildings, Exide agrees, through this plan, to operate LEV's at the following emission units when the units are operating: (1) Blast Furnace charging, (2) Furnace lead and slag tapping, and (3) refinery kettles. [Paragraph 7.C. of the Consent Judgment]

Section 5 of this document on Air Dispersion Modeling demonstrates that the control strategy mentioned above reduces emissions sufficiently to attain and maintain the 2008 lead standard in all areas of ambient air. The maximum modeled concentration of lead in the ambient air (including background concentration) is 0.1498 $\mu g/m^3$ at a model receptor site located about 600 yards northwest of the lead process buildings on the Exide property. Figure 1 above shows Exide's property boundary at the Canon Hollow facility. Air is considered to be ambient even within a facility's property boundaries if public access has not been sufficiently precluded. Exide has chosen a smaller area than their property boundary to be considered non-ambient. Pursuant to Paragraph V.7.D. of the Consent Judgment, Exide shall maintain fencing or otherwise preclude public access on two perimeters or quadrants within their grounds. One

quadrant is west of Canon Hollow Road and north of Highway (HWY) 111 to a line about midway through their property. The other quadrant extends east of Canon Hollow Road and North of HWY 111 to surround their active processing plant campus, parking lots and hazardous waste landfill site. **Figure 4** shows the two public access preclusion zones to be maintained. The existing fencing is in green while and the new fencing to be built is highlighted in purple. This map and a list of "fenceline" coordinates with 10-meter spacing are attached to the Consent Judgment. 10-meter spacing is appropriate because it represents the approximate distance between hypothetical "fence posts" that may later be used to define a fenceline. Any change to the fencelines that would allow public access to these two preclusion zones will require a SIP revision as well as a new modeled attainment demonstration.



# 5. AIR DISPERSION MODELING

The lead-specific State Implementation Plan (SIP) regulations found at 40 CFR 51.117 (entitled "Additional provisions for lead") require the use of dispersion modeling for the demonstration of attainment. Air quality dispersion modeling is a computer simulation that predicts air quality concentrations from various types of emission sources. For pollutants emitted through a stack, it considers the emission rate, stack height, stack diameter, and stack gas temperature and velocity, as well as the effect of nearby buildings and terrain. Other emission sources like vehicle traffic or wind erosion from storage piles are represented as 2-dimensional area sources or 3-dimensional volume sources.

Air quality dispersion models use meteorological data such as temperature, wind direction, and wind speed to calculate concentrations for selected modeling receptor grids. Five years of National Weather Service (NWS) meteorological data is typically used for air quality modeling according to 40 CFR 51 Appendix W [*Guideline on Air Quality Models*]. In some cases one or more year(s) of on-site meteorological data is used.

Model results are compared to ambient air standards to determine if they meet state and federal requirements. Sometimes results are used to help site ambient air monitors or they may be input into human health risk assessments or ecological risk assessments.

Typically, in a SIP modeling exercise, two dispersion modeling analyses are used. One is used to verify the accuracy of the modeled inputs by comparing the monitored data to the modeled results (base case). The second analysis examines the effectiveness of the proposed emission controls (future case) necessary to demonstrate attainment. In order to conduct a base case model, emissions, monitoring and meteorological data must all be representative, concurrent and correlative. For this plan, a representative corresponding period of matching data sets for establishing a base case scenario did not exist.

At the start of the development of this plan in late 2012, no on-site meteorological data was available. Also, at this time, there were only a couple months of NAAQS-comparable monitoring data available. (For more information see chapter 2 *Background and Air Quality Monitoring).* So that compliance with the lead air quality standard may be achieved as expeditiously as possible, the Air Program moved forward with the plan using meteorological data from a representative National Weather Service site despite its potential limitations due to terrain differences. Exide has agreed to conduct on-site meteorological monitoring for trend analysis or in case future air dispersion modeling should become necessary. The on-site meteorological station became operational in early 2014. (See also section 5.6 *Meteorological Data Set).* Lastly, Exide started process changes and construction projects related to the newly revised secondary lead MACT control measures that changed the facility's "baseline." Consequently, there was an inability to establish concurrent and correlative model inputs necessary for a base case evaluation. The decision to move forward with the plan without a base case modeling analysis was made in coordination with EPA Region VII staff.

The Air Program is confident that all lead sources have been appropriately identified and characterized in the model because this plan uses the same source accounting analysis utilized by

the State in other recent SIP revisions for similar lead smelting facilities and by the EPA in their recent MACT lead residual risk assessment.

The following section is based on Exide's modeling report (attached to this plan as Appendix D) that was prepared by ENVIRON International Corporation (ENVIRON). The Air Program completed its own independent modeling analysis and verification study and concurs with the results.

## *5.1 Model Selection and Settings*

Modeling procedures used in this attainment demonstration follow current air quality modeling guidelines as contained in 40 CFR 51 Appendix W. The EPA's recommended dispersion model for addressing lead is the AMS/EPA Regulatory Model (AERMOD). AERMOD can predict the concentration distribution of pollutants from surface and elevated releases located within simple or complex terrain. The model allows for the input of multiple sources, terrain elevations, structure effects, various grid receptors, wet and dry depletion calculations, urban or rural terrain, and averaging period ranging from one hour to one year. The latest available version of AERMOD (13350), was used in this attainment demonstration, as well as its pre- and post-processors: AERMAP, AERMET, BPIPPRM, and LEADPOST.

This analysis was conducted using AERMOD with all regulatory defaults. The following regulatory default modeling control options were included:

- adjusting stack heights for stack-tip downwash,
- using upper-bound concentration estimates for sources influenced by building downwash from super-squat buildings,
- incorporating the effects of elevated terrain,
- employing the calms processing routine, and
- employing the missing data processing routine

## *5.2 Modeled Pollutants and Averaging Periods*

The only pollutant that was modeled is lead (CAS Number: 7439-92-1). Calculation of chemical concentrations for use in demonstrating attainment of the 2008 Lead NAAQS (EPA 2008b) requires the selection of appropriate concentration averaging times. To demonstrate agreement with the 2008 Lead NAAQS, the Air Program and ENVIRON executed the AERMOD model and generated POST files using a monthly averaging period. These POST files were processed through the EPA's LEADPOST (Version 12114) FORTRAN based computer program to generate consecutive three-month rolling averages for comparison against the lead NAAQS.

## *5.3 Modeled Sources and Their Release Parameters*

This modeling analysis included the following lead emitting sources and their associated control devices at the Exide facility: the blast furnace exhaust is routed to the west Wheelabrator baghouse. The blast furnace and refining/casting ventilation hoods are routed to the east Wheelabrator baghouse. Both west and east baghouses share one stack (EP01) and it is called the Wheelabrator air pollution control system. Refining/Casting ventilations, Battery Breaker

area, Deminimis Storage area, Containment Building, Maintenance Building are routed to the Negative Pressure Baghouse #2, one of the newly constructed baghouses (CD006). Some of the Blast Furnace and Refining/Casting areas are routed to the other newly-constructed baghouse, Negative Pressure Baghouse #1 (CD005). Other areas that are controlled by the acid demister baghouse (CD007) are the Stabilization Unit, Blast Slag, and Mixing areas. The battery break/crushing area is routed to CD007. The source identifiers for the point sources used in this AERMOD modeling were chosen based on the designations used by the facility. Process fugitives and haul roads emissions were modeled as volume and area sources respectively. No other emission sources besides Exide were modeled. Any other small mobile or nonpoint sources of lead are contributors to background concentration which is discussed in section 5.9 of this document. The following sections describe the how the emission rates and model parameters were determined for each type of source.

### 5.3.1 Point Sources Emissions and Release Parameters

In order to demonstrate ambient impacts less than the 2008 Lead NAAQS (0.15 $\mu g/m^3$) and all relevant federal New Source Performance Standard (NSPS) and NESHAP standards applicable to the sources involved, the Wheelabrator Air Pollution Control System was modeled based on a lead concentration of 1 milligram per dry standard cubic meter (mg/dscm), and the other point sources were modeled based on 0.2 mg/dscm, with exception of Negative Pressure Baghouse # 2 (CD005) which was modeled based on 0.17 mg/dscm. The emission rate for the Wheelabrator Air Pollution Control System is the maximum allowed for any one source under the NESHAP. It is higher than the most recent stack test emission rate in order to ensure that normal operational variations would not create conditions where the lead NAAQS is exceeded. The emission rates for the two negative pressure baghouses and the acid demister were set in accordance with the facility wide, flow weighted average lead emission limit set in the NESHAP for secondary lead smelters; however, the actual emission rates from these sources are expected to be less than the modeled values. The emission rate for each source is calculated in **Table 5**. All of the stacks were modeled as vertical point sources with unrestricted flow. **Table 6** includes a list of the point source inputs that were included in this modeling exercise. **Figure 5** shows the location of all point sources within the facility. The modeled stack velocities for the two new baghouses (CD005 and CD006) are corresponding to conservatively assumed flow rates that still achieve the negative pressure requirements of §63.544(c)(1) of 40 CFR 63 Subpart X; however, the emission rates for those two sources were conservatively modeled assuming 100 percent flow.

**Table 5-** Point Source Emissions Calculations

| Emission Point/ID | Description | Emission Source | Air Flow | | | Capacity | Modeled Lead Concentration | Modeled Lead Emission Rate | |
|---|---|---|---|---|---|---|---|---|---|
| | | | acfm | $m^3/s$ | dscfm | % | mg/dscm | lb/hr | g/s |
| AD | Acid Demister | Battery Break Crusher Room | 32000 | 15.10 | 0 | 100% | 0.20 | 0.024 | 3.02E-03 |
| WBH | Wheelabrator Air Pollution Control System | Blast Furnace, Refining /Casting Process Hoods | 83160 | 39.25 | 86074 | 100% | 1.00 | 0.322 | 4.06E-02 |
| BH01 | Negative Pressure Baghouse 1 | Blast Furnace, Refining/Casting bldg. Neg. Pressure | 315000 | 148.66 | 0 | 100% | 0.20 | 0.236 | 2.97E-02 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| BH02 | Negative Pressure Baghouse 2 | Other Building Negative Pressure | 315000 | 148.66 | 0 | 100% | 0.17 | 0.196 | 2.53E-02 |

**Table 6-** Point Source Inputs to AERMOD

| Source ID | Description | X-Coordinate (m) | Y-Coordinate (m) | Base Elevation (m) | Stack Height Above Grade (m) | Stack Temp. (K)[a] | Stack Velocity (m/s) | Stack Diameter (m) |
|---|---|---|---|---|---|---|---|---|
| AD | Acid Demister | 309533.77 | 4433697.58 | 279.81 | 12.19 | 0 | 15.40 | 1.12 |
| WBH | Wheelabrator Air Pollution Control System | 309412.20 | 4433607.01 | 285.92 | 39.00 | 326.11 | 14.94 | 1.83 |
| BH01 | Negative Pressure Baghouse 1 | 309383.71 | 4433596.53 | 286.05 | 27.89 | 299.82 | 18.19 | 2.79 |
| BH02 | Negative Pressure Baghouse 2 | 309556.87 | 4433717.66 | 280.26 | 25.45 | 299.82 | 18.19 | 2.79 |

[a] The Acid Demister stack is assumed to be at ambient temperature. The input file contains a value of 0 for this source parameter. AERMOD will apply the hourly ambient temperature to the stack

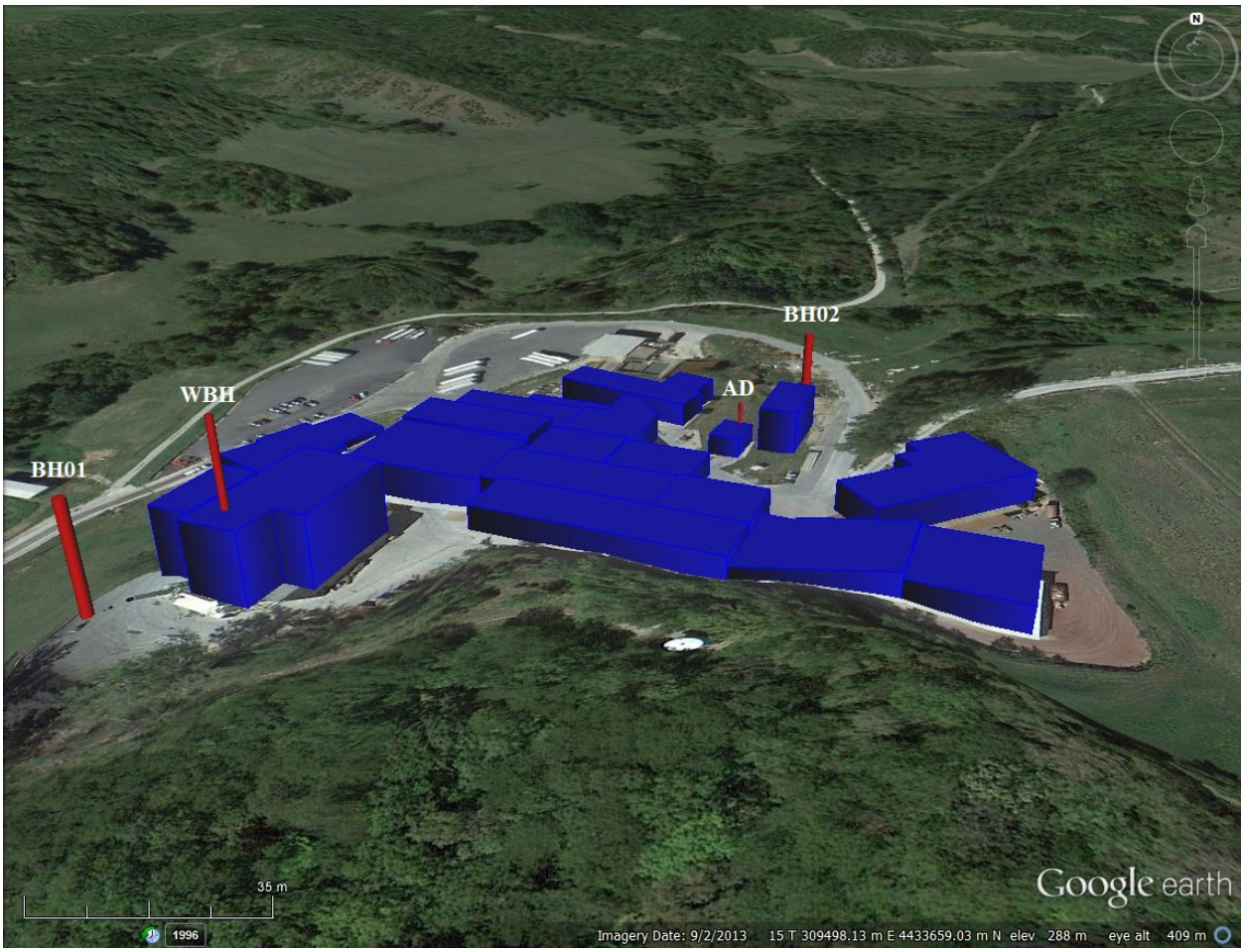


**Figure 5**- Point Emission Sources within Exide

### 5.3.2 Volume Sources

The source group designated FUG was included to represent process fugitive emissions from the furnace, refining, and casting that may escape through openings in the facility buildings. §63.544(c)(1) of 40 CFR 63 Subpart X requires continuous ventilation of the total enclosure to ensure negative pressure values of at least 0.007 inches of water column. Assuming a worst case scenario with all external equipment doors open at the same time, the facility's future negative pressure total enclosure design will achieve the minimum of 0.007 inches water column. However, measures will be put in place to ensure that under normal operating conditions, all exterior doors will not be open at the same time, and the facility will exceed the minimum of 0.007 inches of water as explained below.

Additionally, Exide will implement design and housekeeping provisions that go beyond the NESHAP requirements; these provisions include equipment door designs that minimize building inflow and the use of local exhaust ventilation (LEV) hoods. Service vehicle or equipment door openings will be equipped with airlocks, speed doors, dock seals, metal roll up doors, or other controls to minimize changes in differential pressure or building inflow during occasional but necessary traffic. Exide intends to keep all doors closed during normal operation barring the protection of employee welfare. Exide will continue to operate and maintain LEV's at the Blast Furnace (both charging and tapping) and at the refinery kettles to reduce process fugitive

emissions after installation of the new baghouses. EPA's Secondary Lead Smelting Background Information Document for Proposed Standards (EPA 1994, page D-58) suggests that the capture efficiency of local exhaust ventilation hoods is 95%. Exide used 95% building capture efficiency in this modeling exercise. The effect of the local exhaust ventilation hoods and the negative pressure total enclosure reduced the fugitive emissions from this source group to less than 31.33 lb/yr. **Table 7** shows the calculation of the process fugitive emissions, both before and after the installation of the total enclosure negative pressure ventilation system. The emission rate in **Table 7** was divided evenly across all of the modeled volume sources in the source group FUG.

The fugitive process emissions were characterized as volume sources with square area footprints. It was assumed that fugitive emissions that may escape the building will escape from open equipment doors to the manufacturing area; therefore, those equipment doors were represented as volume sources in the model (**Figure 6**). The height and width of each door were used to calculate the initial lateral dimension and the initial vertical dimension for each volume source. Per EPA's User's Guide for the AMS/EPA Regulatory Model – AERMOD (EPA 2004), the initial lateral dimension was set as the length of the square area footprint divided by 4.3, and the initial vertical dimension was set as the doorway height divided by 2.15. **Table 8** includes a listing of the fugitive volume sources and their parameters for input into AERMOD.

**Table 7**- Process Fugitive Emissions (Controlled)

| Source | AP-42 Factor (lb/ton) | Process Rate (tons/yr) | Uncontrolled Emissions (lb/yr) | Hood % Capture | Current Fugitive (lb/yr) | Bldg % Capture | Controlled Emissions (lb/yr) | Controlled Emissions (g/s) |
|---|---|---|---|---|---|---|---|---|
| Furnace | 0.2 | 58,400 | 11,680 | 95 | 584 | 95 | 29.2 | 4.20E-04 |
| Refining | 0.0006 | 58,400 | 35.04 | 95 | 1.752 | 95 | 0.0876 | 1.26E-06 |
| Casting | 0.0007 | 58,400 | 40.88 | 0 | 40.88 | 95 | 2.044 | 2.94E-05 |
| **Sum** | | | | | **627** | | **31.33** | **4.51E-04** |

**Table 8**- Volume Source Inputs to AERMOD

| Source ID | Description | X-Coordinate (m) | Y-Coordinate (m) | Elevation (m)[a] | Emission Rate (g/s)[b] | Release Height (m) | Initial Lateral Dimension (m) | Initial Vertical Dimension (m) |
|---|---|---|---|---|---|---|---|---|
| FUG1 | Exterior Door A | 309430.36 | 4433662.71 | 277.37 | 3.00E-05 | 2.13 | 0.99 | 1.98 |
| FUG2 | Exterior Door B | 309440.73 | 4433686.63 | 277.37 | 3.00E-05 | 2.34 | 1.13 | 2.17 |
| FUG3 | Exterior Door C | 309456.82 | 4433712.77 | 276.15 | 3.00E-05 | 2.06 | 0.99 | 1.91 |
| FUG4 | Exterior Door D | 309463.59 | 4433709.70 | 276.15 | 3.00E-05 | 2.06 | 0.99 | 1.91 |
| FUG5 | Exterior Door J | 309442.14 | 4433645.06 | 284.99 | 3.00E-05 | 1.37 | 0.85 | 1.28 |
| FUG6 | Exterior Door K | 309451.30 | 4433641.13 | 284.99 | 3.00E-05 | 0.30 | 0.28 | 0.28 |
| FUG7 | Exterior Door N | 309461.54 | 4433623.08 | 284.99 | 3.00E-05 | 2.44 | 0.99 | 2.27 |
| FUG8 | Exterior Door Q | 309531.32 | 4433620.90 | 283.77 | 3.00E-05 | 1.52 | 0.64 | 1.42 |
| FUG9 | Exterior Door R | 309534.39 | 4433619.63 | 283.77 | 3.00E-05 | 1.52 | 0.64 | 1.42 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| FUG10 | Exterior Door S | 309539.79 | 4433619.21 | 283.77 | 3.00E-05 | 2.44 | 1.17 | 2.27 |
| FUG11 | Exterior Door W | 309590.17 | 4433606.81 | 284.38 | 3.00E-05 | 2.13 | 1.49 | 1.98 |
| FUG12 | Exterior Door X | 309513.01 | 4433642.07 | 282.24 | 3.00E-05 | 2.13 | 0.85 | 1.98 |
| FUG13 | Exterior Door Y | 309503.07 | 4433666.52 | 282.24 | 3.00E-05 | 2.13 | 1.35 | 1.98 |
| FUG14 | Exterior Door Z | 309506.92 | 4433685.97 | 277.06 | 3.00E-05 | 2.13 | 1.35 | 1.98 |
| FUG15 | Exterior Door AA | 309506.24 | 4433701.76 | 277.06 | 3.00E-05 | 2.13 | 1.13 | 1.98 |

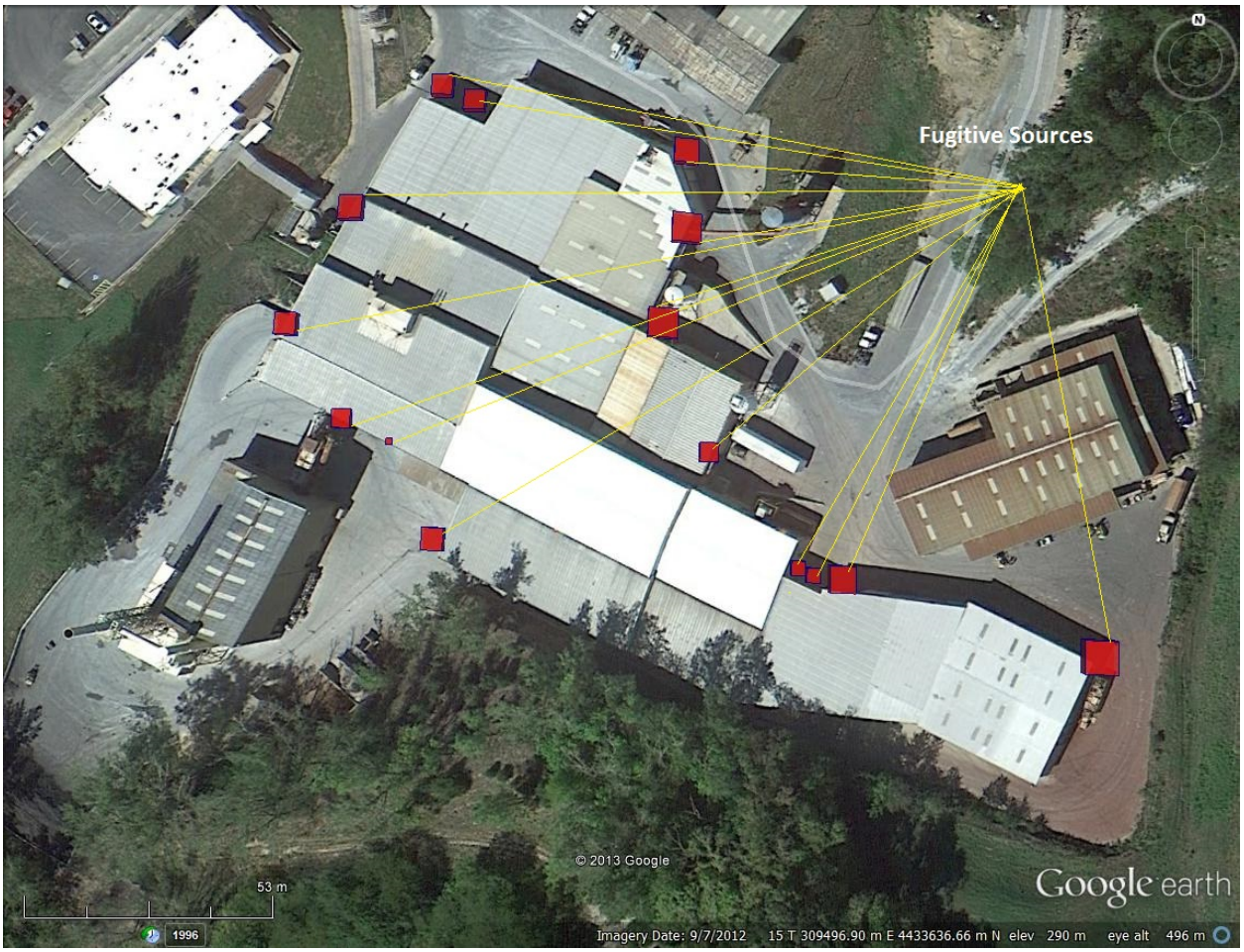



**Figure 6-** Volume Sources Locations

### 5.3.3 Area Sources

In addition to the fugitive process emissions, fugitive emissions due to re-entrainment of surface dust from traffic were taken into account in the model. Semi-trailers, roll-offs, dump trucks, loaders, and forklifts regularly drive on the facility roads and contribute to these fugitive emissions. Vehicular fugitive emissions were modeled as ground level area sources with input parameters calculated according to the guidance provided in the EPA's Haul Road Workgroup Final Report (March 2, 2012). All of the haul roads were assumed to be 8-meters wide and have two lanes; therefore the width of each area source was set to 14 meters (six meters plus the road width). The other release parameters of each area source (release height, initial vertical dimension, etc.) were calculated based on the fleet average vehicle height for each road segment. The approximate dimensions of the vehicles and corresponding area sources that were included

in the model are in **Table 9**. Traffic patterns for each vehicle type were split into equal width rectangles to represent the area sources (**Figure 7**). A description of the traffic patterns including the vehicle type, number of trips, frequency of trips, and hours of day are in **Table 10**. **Table 11** includes a list of the haul road area sources and their release parameters that were included in the modeling.

**Table 9**- Area Source Parameters for Haul Roads

| Parameter | Approximate Vehicle and Plume Dimensions (meters) | | | | |
|---|---|---|---|---|---|
| | **Semi-Trailer** | **Roll-Off** | **Dump Truck** | **Loader** | **Forklift** |
| Vehicle Height[a] | 4.11 | 3.66 | 3.44 | 3.81 | 2.13 |
| Vehicle Width[a] | 2.59 | 3.05 | 2.87 | 2.46 | 1.16 |
| Top of Plume Height[b] | 7.00 | 6.22 | 5.86 | 6.48 | 3.63 |
| Release Height[b] | 3.50 | 3.11 | 2.93 | 3.24 | 1.81 |
| Plume Width[b] | 8.59 | 9.05 | 8.87 | 8.46 | 7.16 |
| Sigma Z[b] | 3.25 | 2.89 | 2.72 | 3.01 | 1.69 |

[a] Approximate average dimensions of the vehicles at the facility.
[b] Determined by using the Recommended Area Source Configuration from EPA's Haul Road Workgroup Final Report (March 2, 2012)

**Table 10**- Haul Road Vehicle Trips

| Route No. | Route Description | Vehicle Type | % Restricted Trips* | Time of Day | Weekly Restricted Trips | Monthly Restricted Trips | Monthly Unrestricted Trips |
|---|---|---|---|---|---|---|---|
| 1 | Cores/Scrap | Semi-Trailer | 100% | 7AM - 7PM | 60 | 303 | 0 |
| 2 | Industrials | Semi-Trailer | 100% | 7AM - 7PM | 12 | 65 | 0 |
| 3 | Furnace Coke | Semi-Trailer | 95% | 7AM - 7PM | 4 | 16 | 1 |
| 4 | Lime (bulk) | Semi-Trailer | 95% | 7AM - 7PM | 3 | 16 | 1 |
| 5 | Trash | Roll-Off | 95% | 7AM - 7PM | 4 | 21 | 1 |
| 6 | Cement (bulk) | Semi-Trailer | 95% | 7AM - 7PM | 2 | 12 | 1 |
| 7 | Acid (bulk) | Semi-Trailer | 95% | 7AM - 7PM | 6 | 25 | 1 |
| 8 | Oxygen (liquid) | Semi-Trailer | 95% | 7AM - 7PM | 2 | 8 | 0 |
| 9 | Furnace Fluxes | Semi-Trailer | 95% | 7AM - 7PM | 3 | 49 | 3 |
| 10 | Lead Products | Semi-Trailer | 95% | 7AM - 7PM | 50 | 247 | 13 |
| 11 | Plastic Chips | Semi-Trailer | 95% | 7AM - 7PM | 3 | 12 | 1 |
| 12 | Slag Mix *to* Landfill | Dump Truck | 95% | 7AM - 7PM | 50 | 206 | 11 |
| 13 | Service | Loader & Forklift | 95% | 7AM - 3PM | 3 | 25 | 1 |

*Note: Restricted trips only use the haul roads 12 hours per day (7AM-7PM). Unrestricted trips use the roads 24 hours per day.

**Table 11**- Area Source Inputs to AERMOD

| Source ID | X-Coordinate (m) | Y-Coordinate (m) | Elevation (m) | Width (m) | Length (m) | Emission Rate ($g/sm^2$) | Release Height (m) | Initial Vertical Dimension (m) |
|---|---|---|---|---|---|---|---|---|
| HR01 | 308867.94 | 4433711.35 | 261.65 | 14.00 | 41.14 | 4.17E-08 | 3.49 | 3.24 |
| HR02 | 308899.51 | 4433668.52 | 262.41 | 14.00 | 42.47 | 4.17E-08 | 3.49 | 3.24 |
| HR03 | 308937.53 | 4433628.71 | 264.06 | 14.00 | 43.21 | 4.17E-08 | 3.49 | 3.24 |
| HR04 | 308975.06 | 4433587.93 | 263.93 | 14.00 | 206.26 | 4.17E-08 | 3.49 | 3.24 |
| HR05 | 309281.6 | 4433339.76 | 265.86 | 14.00 | 95.96 | 4.17E-08 | 3.49 | 3.24 |
| HR06 | 309281.11 | 4433339.87 | 265.86 | 14.00 | 38.97 | 4.63E-09 | 3.49 | 3.24 |
| HR07 | 309317.97 | 4433304.43 | 266.13 | 14.00 | 58.96 | 4.63E-09 | 3.49 | 3.24 |
| HR08 | 309377.52 | 4433256.5 | 266.09 | 14.00 | 199.68 | 4.63E-09 | 3.49 | 3.24 |
| HR09 | 309283.97 | 4433382.58 | 264.79 | 14.00 | 29.56 | 4.63E-08 | 3.49 | 3.24 |
| HR10 | 309284.12 | 4433379.92 | 264.92 | 14.00 | 65.40 | 4.63E-08 | 3.49 | 3.24 |
| HR11 | 309274.78 | 4433464.7 | 266.49 | 14.00 | 25.97 | 4.63E-08 | 3.49 | 3.24 |
| HR12 | 309273.72 | 4433499.08 | 267.29 | 14.00 | 67.38 | 4.63E-08 | 3.49 | 3.24 |
| HR13 | 309305.08 | 4433579.75 | 269.78 | 14.00 | 86.72 | 4.63E-08 | 3.49 | 3.24 |
| HR14 | 309343.89 | 4433687.11 | 270.15 | 14.00 | 81.32 | 4.63E-08 | 3.49 | 3.24 |
| HR15 | 309413.82 | 4433762.09 | 273.66 | 14.00 | 46.57 | 3.09E-08 | 3.49 | 3.24 |
| HR16 | 309432.13 | 4433826.13 | 272.86 | 14.00 | 14.14 | 2.99E-08 | 3.48 | 3.24 |
| HR17 | 309506.25 | 4433837.19 | 275.15 | 14.00 | 44.96 | 2.99E-08 | 3.48 | 3.24 |
| HR18 | 309547.76 | 4433813.41 | 278.18 | 14.00 | 36.57 | 2.99E-08 | 3.48 | 3.24 |
| HR19 | 309576.12 | 4433770.76 | 280.75 | 14.00 | 39.22 | 2.99E-08 | 3.48 | 3.24 |
| HR20 | 309581.79 | 4433737.45 | 283.11 | 14.00 | 24.55 | 2.99E-08 | 3.48 | 3.24 |
| HR21 | 309503.12 | 4433702.86 | 279.51 | 14.00 | 66.58 | 3.95E-08 | 3.29 | 3.06 |
| HR22 | 309536.87 | 4433651.1 | 284.34 | 14.00 | 72.37 | 2.99E-08 | 3.48 | 3.24 |
| HR23 | 309543.5 | 4433622.24 | 286.62 | 14.00 | 41.67 | 8.80E-09 | 3.50 | 3.25 |
| HR24 | 309590.63 | 4433616.33 | 287.77 | 14.00 | 32.16 | 5.03E-09 | 3.50 | 3.25 |
| HR25 | 309582.83 | 4433575.11 | 290.10 | 14.00 | 98.01 | 5.03E-09 | 3.50 | 3.25 |
| HR26 | 309458.58 | 4433615.02 | 294.24 | 14.00 | 21.77 | 5.03E-09 | 3.50 | 3.25 |
| HR27 | 309459.87 | 4433622.87 | 291.78 | 14.00 | 59.89 | 5.03E-09 | 3.50 | 3.25 |
| HR28 | 309391.87 | 4433571.98 | 284.86 | 14.00 | 15.34 | 5.03E-09 | 3.50 | 3.25 |
| HR29 | 309539.21 | 4433633.23 | 285.79 | 14.00 | 12.83 | 1.82E-08 | 3.42 | 3.18 |
| HR30 | 309535.81 | 4433646.71 | 284.72 | 14.00 | 16.20 | 2.01E-09 | 3.25 | 3.03 |
| HR31 | 309522.27 | 4433672.42 | 282.84 | 14.00 | 15.22 | 1.51E-09 | 3.50 | 3.25 |
| HR32 | 309465.16 | 4433744.97 | 276.15 | 14.00 | 46.50 | 7.55E-10 | 3.50 | 3.25 |
| HR33 | 309460.09 | 4433734.84 | 276.79 | 14.00 | 17.67 | 1.51E-08 | 3.50 | 3.25 |
| HR34 | 309423.8 | 4433747.03 | 274.57 | 14.00 | 30.81 | 1.63E-08 | 3.50 | 3.25 |
| HR35 | 309435.83 | 4433692.24 | 280.15 | 14.00 | 38.44 | 5.03E-10 | 3.50 | 3.25 |
| HR36 | 309426.1 | 4433753.19 | 274.50 | 14.00 | 47.61 | 1.98E-09 | 3.50 | 3.25 |
| HR37 | 309469.11 | 4433798.59 | 274.23 | 14.00 | 28.20 | 1.98E-09 | 3.50 | 3.25 |
| HR38 | 309449.29 | 4433823.61 | 273.33 | 14.00 | 26.47 | 1.98E-09 | 3.50 | 3.25 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| HR39 | 309420.76 | 4433779.42 | 273.85 | 14.00 | 37.33 | 1.98E-09 | 3.50 | 3.25 |
| HR40 | 309392.53 | 4433796.56 | 271.71 | 14.00 | 34.07 | 1.98E-09 | 3.50 | 3.25 |
| HR41 | 309552.33 | 4433650.9 | 284.32 | 14.00 | 56.52 | 9.02E-09 | 2.93 | 2.72 |
| HR42 | 309603.08 | 4433707.57 | 287.03 | 14.00 | 112.40 | 9.02E-09 | 2.93 | 2.72 |
| HR43 | 309754.81 | 4433705.47 | 303.86 | 14.00 | 66.95 | 9.02E-09 | 2.93 | 2.72 |
| HR44 | 309800.32 | 4433635.98 | 316.15 | 14.00 | 73.32 | 2.84E-08 | 2.93 | 2.72 |
| HR45 | 309810.05 | 4433640.74 | 312.60 | 14.00 | 20.39 | 2.84E-08 | 2.93 | 2.72 |
| HR46 | 309828.96 | 4433628 | 315.06 | 14.00 | 19.37 | 2.84E-08 | 2.93 | 2.72 |
| HR47 | 309815.46 | 4433582.8 | 324.27 | 14.00 | 31.31 | 2.84E-08 | 2.93 | 2.72 |
| HR48 | 309809.59 | 4433544.49 | 324.93 | 14.00 | 60.58 | 2.84E-08 | 2.93 | 2.72 |
| HR49 | 309893.22 | 4433563.73 | 310.58 | 14.00 | 34.57 | 2.84E-08 | 2.93 | 2.72 |
| HR50 | 309863.34 | 4433563.38 | 319.40 | 14.00 | 31.32 | 2.84E-08 | 2.93 | 2.72 |
| HR51 | 309846.04 | 4433608.26 | 315.84 | 14.00 | 34.73 | 2.84E-08 | 2.93 | 2.72 |
| HR52 | 309801.33 | 4433542.37 | 323.67 | 14.00 | 27.23 | 2.84E-08 | 2.93 | 2.72 |
| HR53 | 309821.14 | 4433503.98 | 326.79 | 14.00 | 62.34 | 2.84E-08 | 2.93 | 2.72 |
| HR54 | 309903.4 | 4433530.83 | 314.54 | 14.00 | 18.71 | 2.84E-08 | 2.93 | 2.72 |

Traffic fugitive emissions were quantified using the Paved Roads section of Chapter 13.2.1 from AP-42 (EPA 2011). The equations in AP-42 require site specific data including the fleet average vehicle weight, vehicle kilometers traveled, and a silt loading value for paved roads. The site-specific silt and lead content sampling have recently been completed for a similar Exide facility in Vernon, California which is currently totally enclosed, consistent with the pending NESHAP. These parameters were used in the AP-42 equations to estimate the future traffic fugitive emissions on paved roads at the Canon Hollow facility when the enclosure project is completed. Exide conducted site-specific sampling for silt loading and lead content on the landfill at the Canon Hollow facility to estimate the emissions from dump trucks driving on the landfill. There was no evaluation of windblown lead emissions from the landfill since the Exide-Canon Hollow's landfill is comprised throughout of a concrete-like substance that stabilizes and fixates the lead-bearing material contained within, preventing the surface from creating dust to be picked up by the wind. Furthermore, the tires of all trucks are washed before exiting the landfill to prevent track-out.

The version of the equation used for Exide's future truck traffic fugitive emissions calculations takes precipitation into account by applying a corresponding correction term. This equation yields total suspended particulate (TSP) emission factors in grams per vehicle kilometer traveled (g/VKT) for each vehicle type and road surface as shown in **Table 12**.

**Table 12**- Paved Roads Emission Factor Equation for Daily Basis[a]

$$E_{ext} = k(sL)^{0.91} \times W^{1.02}](1 - \frac{P}{4N})$$

| Variable | Description | Value | | Units |
|---|---|---|---|---|
| | | Roads | Landfill | |

| | | | | |
|---|---|---|---|---|
| k | particle size multiplier for particle size range and units of interest | 3.23 | | g/VKT[b] |
| sL[c] | road surface silt loading | 0.23 | 327 | $g/m^2$ |
| W | average weight of the vehicles traveling the road | 24.30[c] | 19.50[d] | ton |
| P[e] | number of "wet" days with at least 0.254 mm (0.01 in) of precipitation during the averaging period | 103.9 | | day |
| N | number of days in the averaging period (e.g., 365 for annual, 91 for seasonal, 30 for monthly) | 365 | | day |
| $E_{ext}$ | annual average particulate matter (TSP or PM-30) emission factor | 20.40 | 12056.33 | g/VKT |
| % Pb | lead content | 4.70 | 0.02 | |

a Equation 2 from AP42, Fifth Edition, Volume I, Chapter 13, Section 13.2.1: Paved Roads (http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf)
b VKT = Vehicle kilometers traveled
c,d Values were provided by ENVIRON and take into account truck weight by type
e Based on weather data collected from the Brenner Field Airport, in Falls City, Nebraska, from 1981 to 2010, for the National Oceanic and Atmospheric Administration (NOAA) National Climatic Data Center.
Source: http://www1.ncdc.noaa.gov/pub/data/normals/1981-2010/station-inventories/prcp-inventory.txt

The TSP emission factor for HR01 haul road, for example, was multiplied by the path length and number of passes per year in the future facility configuration to estimate annual emissions of TSP. The percentage of particulate measured to be lead is then used to estimate the annual lead emissions from each roadway segment. The lead emission rates were then divided by the area of each area source for input to AERMOD. The lead emissions from each area source were distributed throughout the hours of the day based on the fraction of traffic through each road segment that occurs during restricted hours (7 AM – 7 PM) or unrestricted hours (24 hours per day) using the Hour of Day (HROFDY) emissions scaling factor in AERMOD (Table 8 of the Modeling Report). An example of these scaling factors that were used for HR01 is:

```
SO EMISFACT  HR01     HROFDY  0.027  0.027  0.027  0.027  0.027  0.027  0.027
SO EMISFACT  HR01     HROFDY  1.973  1.973  1.973  1.973  1.973  1.973  1.973
SO EMISFACT  HR01     HROFDY  1.973  1.973  1.973  1.973  1.973  0.027  0.027
SO EMISFACT  HR01     HROFDY  0.027  0.027  0.027
```

$$Pb\ Emissions\ \left(\frac{g}{sm^2}\right) = E_{ext}\ \left(\frac{g}{VKT}\right) X \left(\frac{VKT}{hr}\right) X \left(\frac{1hr}{60min}\right) X \left(\frac{1min}{60s}\right) X \left(\frac{1}{area\ (m^2)}\right) X\ \%Pb$$

$E_{ext}$ (g/VKT) = 20.40
VKT/hr = 8.99E-02 for HR01
min/hr = 60
seconds/min = 60
Area ($m^2$) = 575.91
%Pb = 4.70% lead content on paved road

HR01 Pb Emissions = 20.40 X 8.99E-02 X 1/60 X 1/60 X 1/575.91 X 0.047 = 4.18E-08

**Figure 7**- Modeled Area Sources (Haul Roads)

## *5.4 Terrain Data*

Terrain elevations were incorporated into the model using version 11103 of AERMAP, AERMOD's terrain preprocessor, as per EPA guidance (2009). Terrain elevation data for the entire modeling domain were extracted from 1/3-arc second National Elevation Data (NED) files with a resolution of approximately 10 meters. These NED files were obtained from the U.S. Geological Survey's Seamless Data Server (http://seamless.usgs.gov). AERMAP was configured to assign elevations for all roadway volume sources and receptors in the modeling domain. Because the terrain varies across the facility, elevations of buildings (**Table 13 & Figure 8**) and other sources above mean sea level were assigned based on data provided by Exide's own surveying.

**Table 13-** Buildings Heights and Their Base Elevations

| AERMOD Building ID | Description | Building Base Elevation (meters)[a] | Building Height Above Grade (feet)[a] | Building Height (meters)[a] |
|---|---|---|---|---|
| B01 | Storage Area | 284.38 | 22 | 6.71 |
| B02 | New Battery Storage | 284.38 | 27 | 8.23 |
| B03 | Air Pollution System | 284.99 | 60 | 18.29 |
| B04 | Main Office | 271.27 | 12 | 3.66 |
| B05 | Shops | 276.15 | 24 | 7.32 |
| B06 | Battery Recycling Area | 282.24 | 21 | 6.40 |
| B07 | Smelting/Casting Area | 277.37 | 35 | 10.67 |
| B08 | Charge Floor | 284.99 | 30 | 9.14 |
| B09 | Slag Product Work Area | 282.24 | 21 | 6.40 |
| B10 | Plate Storage Area, Battery Breaking, Misc. | 284.99 | 25 | 7.62 |
| B11 | Furnace/Refinery | 284.99 | 21 | 6.40 |
| B12 | Dock Entry Building | 283.77 | 23 | 7.01 |
| B13 | Battery Storage | 283.77 | 27 | 8.23 |
| B14 | Stabilization Area, Slag Treatment, Slag Storage | 277.06 | 25 | 7.62 |
| B15 | Reagent Building | 276.15 | 25 | 7.62 |
| B16 | Finished Goods | 276.15 | 25 | 7.62 |
| B17 | North Baghouse (BH-2) | 282.24 | 43 | 13.11 |
| B18 | Demister Building | 279.81 | 20 | 6.10 |
| B19 | South Baghouse (BH-1) | 285.90 | 60 | 18.29 |

a Building heights and base elevations provided by Exide.

**Figure 8**- Exide's Buildings

## *5.5 Building Downwash*

Building downwash algorithms incorporated into AERMOD account for the plume dispersion effects of the aerodynamic wakes and eddies produced by buildings and structures. The Building Profile Input Program - Plume Rise Model Enhancements (BPIPPRM) model (incorporated into AERMOD) is used to determine the direction-specific building downwash parameters. Buildings on Exide property including the new two baghouses structures (**Figure 5**) were placed into the model then the BPIPPRM program (Version 04274) was executed on the point sources.

## *5.6 Meteorological Data Set*

No quality-assured on-site meteorological data was available during the development of this plan. The air dispersion modeling described in this section uses surface met data from the Brenner Field Airport (KFNB) near Falls City, Nebraska about 22 miles west of the Exide-Canon Hollow facility. For off-site met data, generally five years' worth of complete data is used. As little as one year's worth of data may be appropriate if quality-assured on-site met data is available. To this end, Exide has agreed to aid the State's air quality analysis efforts by installing a 10-meter met tower at the Forest City levee monitoring site and operating the met station under a Quality Assurance Project Plan (QAPP). That agreement is attached to this

document as **Appendix C**. The Exide meteorological station became operational in about April 2014. This met data will be used for trend data and for any future air dispersion modeling, should it become necessary.

AERMOD requires a meteorological input file to characterize the transport and dispersion of pollutants in the atmosphere. Surface and upper air meteorological data inputs as well as surface parameter data describing the land use and surface characteristics near the site were first processed using AERMET, the meteorological preprocessor to AERMOD. The output files generated by AERMET are the meteorological input files required by AERMOD. Details of AERMET and AERMOD meteorological data needs are described in EPA guidance documents (EPA 2004a, 2004b).

Based on EPA modeling guidance, it is preferable that one year or more, up to five years, of on-site meteorological data be used in the dispersion modeling exercise (40 CFR Part 51 Appendix W (November 2005)). EPA's Meteorological Monitoring Guidance for Regulatory Modeling Applications (EPA 2000) describes the criteria that should be considered when siting meteorological instruments for modeling purposes. Typically, wind instruments should be placed on a boom that is located at least two meters away from an open lattice ten-meter tower in an area that is free from obstructions. The placement of wind instruments on buildings, cooling towers or stacks should be avoided due to the potential for downwash influences. The effect on the wind speed and direction can be significant and can result in non-representative, poor quality data. If an instrument is placed on a building, the probe would have to be clear of any wake zones that are present and should be representative of the conditions that are occurring at the point of release (minimum of ten meters). Due to the fact that Exide's meteorological station is located on a roof of a building, it was determined that data collected by it is not appropriate for a SIP attainment demonstration modeling evaluation, and the collection of one year of on-site meteorological data is not feasible at this time. Instead, meteorological data collected at a representative airport was used for the SIP modeling analysis.

The Air Program evaluated three airports' meteorological data (Kansas City International Airport, Rosecrans Memorial Airport, and Brenner Field located near Falls City, Nebraska) to determine which data most closely represent conditions at the facility. These airports were selected due to their proximity to Exide. Other airports, located farther away, have weather patterns which were deemed different from that of the facility.

By taking into account the distance from the site and comparing the surface roughness, albedo, and Bowen ratio at each airport to those parameters at the site, the Air Program determined that the characteristics of the Brenner Field Airport station (KFNB), in Nebraska, most closely resembles those at Exide. Therefore, Brenner meteorological data was used in this modeling exercise. The Airport Selection Analysis may be found in **Appendix E**. Wind speed, wind direction, ambient temperature, atmospheric pressure, and cloud cover data were chosen from KFNB the five years from 2007 to 2011 as the most representative available data for use in the air dispersion analysis of the Exide facility.

The 2007 to 2011 surface data for KFNB were prepared using TD-3505 surface data and TD-6805 AERMINUTE data. The data were processed using the AERMET meteorological data

processor (version 13350). Upper air data for the period of 2007 to 2011 was selected by the Air Program from the Topeka, KS Airport station (KTOP). KTOP was chosen based on its proximity to both Brenner Field and the facility.

## *5.7 Receptors*

With exception of the path of Canon Hollow Road, ground-level lead concentrations located inside the facility boundaries were excluded from the impact assessment because the general public does not have ready access to the Exide property. The Exide property within the fenced perimeter was considered on-site for purposes of determining the property line as recommended by the Air Program and EPA. Ground level receptors along the property line and Canon Hollow Road were placed at 10-meter and 25-meter spacing intervals respectively (**Figure 9**). All denoted property boundaries will be fenced to preclude public access. It should be noted that Exide has elected to use these zones of public access preclusions as the ambient air/receptor boundaries instead of the property boundary outlined in **Figure 1**.

In addition to the fence line receptors, a Cartesian grid of receptors with 50-m spacing extending from the fence line to approximately 250-m beyond the fence line was utilized. Receptors with 100-m spacing were extended from approximately 250 m to 500 m beyond the fence line. Lastly, a receptor grid with 200-m spacing was extended from approximately 500 m to 1000 m beyond the fence line. Additional 10-m grid spacing was utilized around the area of highest concentration (**Figure 11**). In addition to the aforementioned fence line and gridded discrete receptors, one ground-level, discrete receptor was placed at the approximate location of the ambient lead monitor, located southwest of the site (UTMx = 309221, UTMy = 4433181). All receptor elevations and Hill Height Scales were assigned by AERMAP (Version 11103) using NED 1/3 Arc Second resolution elevation data from USGS's Seamless Data Server. Refer to ENVIRON's modeling report (**Appendix D**) for additional aerial photos of the receptors and property boundary.

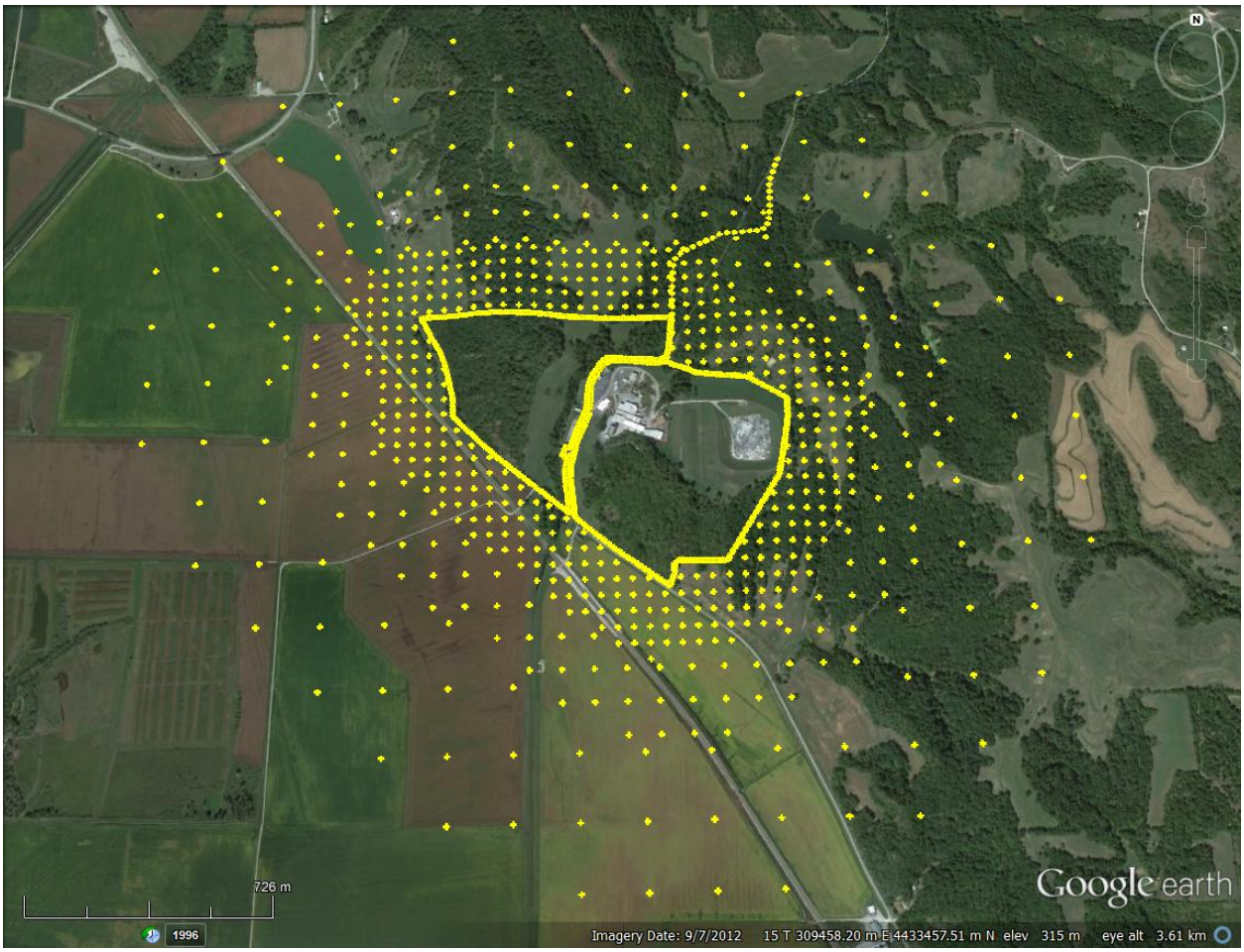


**Figure 9**- Exide's Modeling Receptors

## *5.8 Model Input, Output, and Results*

All AERMOD model system input and impact output files are included in **Appendix F**. The input files include background concentration for all receptors 24 hours and monthly lead concentrations. The monthly lead concentrations were post-processed using LEADPOST program.

## *5.9 Background Lead Concentration*

Per EPA's *Guideline on Air Quality Models* [40 CFR 51 Appendix W] background concentrations must be considered when determining compliance with the NAAQS. Background concentrations include impacts attributable to natural sources, nearby sources (excluding the dominant source(s)), and unidentified sources. This calculated background concentration includes all sources of lead not already explicitly included in the model. However, the assumption that emissions from the plant do not contribute to background concentrations is not entirely correct. Contributors to the background concentration are distant sources of lead, which may have originally derived from the plant, mobile and nonpoint sources, or naturally occurring lead in the atmosphere. Nonpoint and mobile sources from the 2011 NEI were reviewed. The data indicates that 2011 nonpoint and mobile sources combined make up approximately 0.08%

of the point source emissions total in 2012, and as such are not included in the modeling exercise as discreet sources but may influence the background concentration.

In general, the background value is calculated by averaging the monitored concentrations at one or more monitoring sites outside the area of immediate dominant source impact and on days when the predominant wind direction was not blowing from the dominant source to the monitor(s). In this case all monitored days were reviewed to identify days with no measured one-hour average wind direction coming from the facility. This was accomplished by excluding days when any one-hour wind average was from the Exide property to the Forest City levee monitoring site. The monitor was examined in conjunction with an acceptable wind fan and the concentrations were averaged on days with no predominant winds from the facility. The resultant concentration from all the monitors in the evaluation is the background concentration for the area.

Ambient monitoring for lead near the Exide Technologies-Canon Hollow facility began in May 2012 for low-volume lead-in-PM10 sampling (Pb-PM10) and in August 2012 for hi-volume lead-in-TSP sampling (Pb-TSP). The Air Program calculated Exide's background concentration by averaging the hi-volume ambient monitoring data near the facility on days in which the monitor was upwind of the facility and there was a minimum of 2 m/s wind speed to preclude the inclusion of calm conditions. The monitor would be upwind of the facility on days in which there were no one-hour wind averages blowing from the facility toward the monitor. Therefore, monitored values that included corresponding winds from the 90 degree sector upwind of the monitor location were excluded from consideration as a representative background value (40 CFR 51 Appendix W Section 8.2.2(b)). Winds from this sector were defined as those between 350 degrees and 80 degrees, where zero degree was defined as true north. However, this sector included days with high concentrations that were suspected to be coming from the facility. These days with their corresponding concentrations are 09/18/2012 (1.33 $\mu g/m^3$), 10/06/2012 (0.8 $\mu g/m^3$) and 12/17/2012 ($\mu g/m^3$). The resulting calculated background concentration from this sector was 0.195 $\mu g/m^3$ which is higher than the lead NAAQS.

To reduce Exide's influence on the monitor during this background concentration analysis, the Air Program evaluated the sector from 300 degrees to 80 degrees (**Figure 10**). This excluded HWY 11 and Canon Hollow road from consideration in the background, which required these emission sources to be included in the model. In addition, HWY 111 along the facility fence and Canon Hollow Road section leading to the facility's gate were modeled as area sources to make sure any dust blown by truck traffic in these two roads is accounted for in the overall lead concentration from the facility. **Figure 10** shows ambient monitor, the facility, and the proposed wind directions to exclude from the background calculation.

Six concentrations resulted from this sector as shown in **Table 14**. The average of these six concentrations, 0.023 $\mu g/m^3$, is the background concentration.

**Table 14**- TSP Monitoring Data for Days Exide had no Contribution

| **Date** | **11/17/2012** | **01/4/2013** | **02/09/2013** | **06/21/2013** | **08/20/2013** | **08/26/2013** | **Average** |
|---|---|---|---|---|---|---|---|
| **Concentration** | 0.021 | 0.020 | 0.016 | 0.034 | 0.027 | 0.019 | 0.023 |

The estimation of background is conservative and provides a margin of safety when combined with the modeled maximum receptor concentration. The conservative nature for this method of background determination is due to the potential for some double-accounting: the background inclusion zones are very generous and could also include non-predominant periods of winds from the direction of the facility or modeled sources within the hourly averaging period. In other words, the chosen hourly wind averages do not eliminate all wind directions and influences from the plant to the monitor.

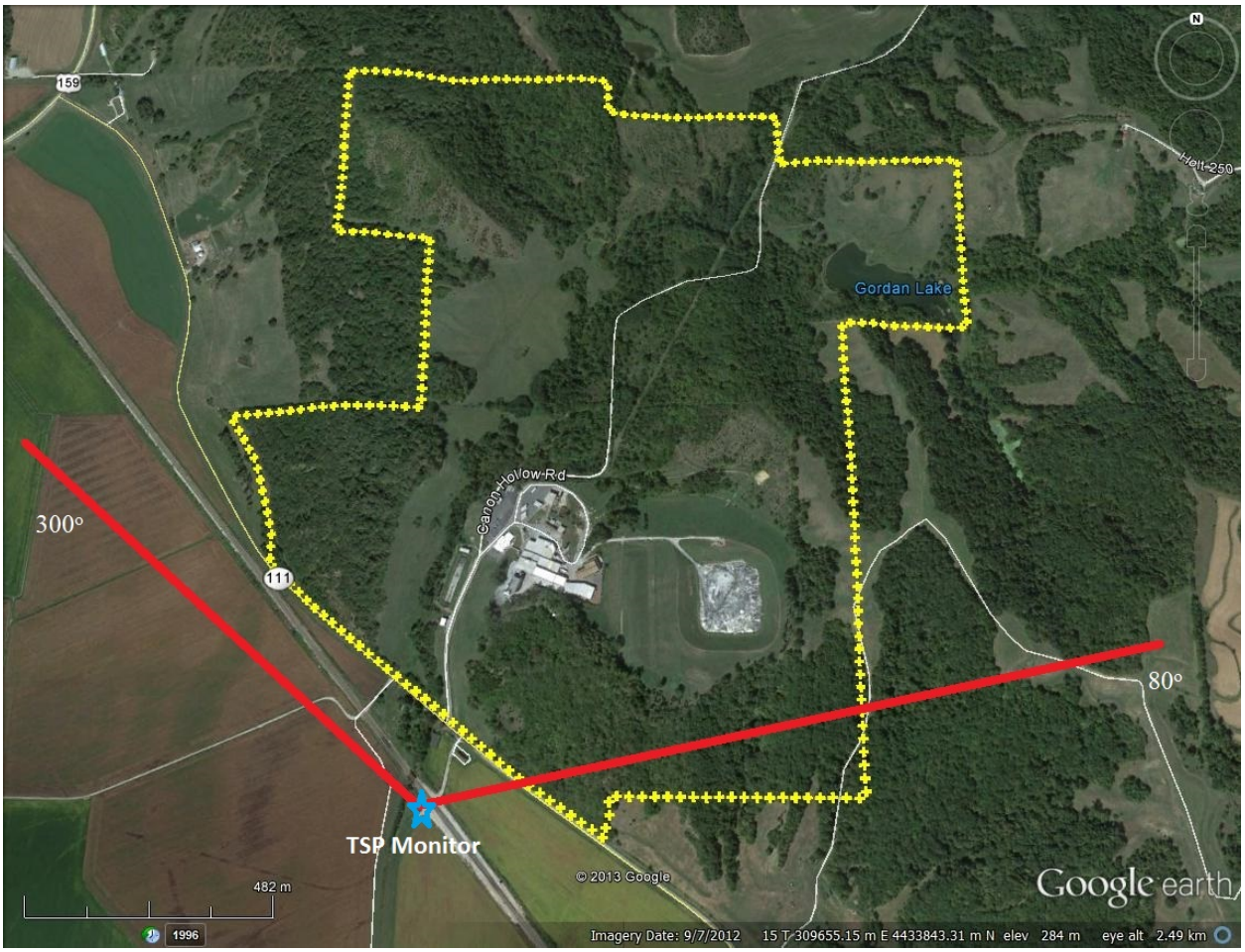



**Figure 10**- Exclusion Zone for Calculating Background Concentration

## *5.10 Post Processing in LEADPOST*

The averaging period chosen for this model was monthly as recommended by EPA (2009d) for use with EPA's LEADPOST software program. The POST files were processed through the LEADPOST program to calculate three month average lead concentrations for each receptor location. The software created output text files corresponding to total receptor average concentrations across all source groups (a Source Group ALL was created to represent facility-wide emissions).

## *5.11 Description of Modeling Results*

The LEADPOST output file of modeled maximum three month rolling average lead concentrations for all source groups were added to the background concentration (that was determined according to the steps described in section 5.8 of this document), to determine the cumulative impact at each receptor. **Table 15** shows the maximum impacted receptor located northwest of the facility with a concentration of 0.1498 μg/m$^3$. No receptors violated the lead NAAQS as shown in the table. **Figures 11 and 12** show the location of the highest impacted receptor and the lead concentrations contour plot around Exide, respectively.

**Table 15-** Maximum 3-Month Average Lead Concentration

| X-Coordinate (m) | Y-Coordinate (m) | Modeled Concentration (μg/m$^3$) | Background Concentration (μg/m$^3$) | Total Concentration ( μg/m$^3$ ) | NAAQS for Lead (μg/m$^3$) |
|---|---|---|---|---|---|
| 309169.66 | 4434082.50 | 0.126837 | 0.023 | 0.149837 | 0.15 |

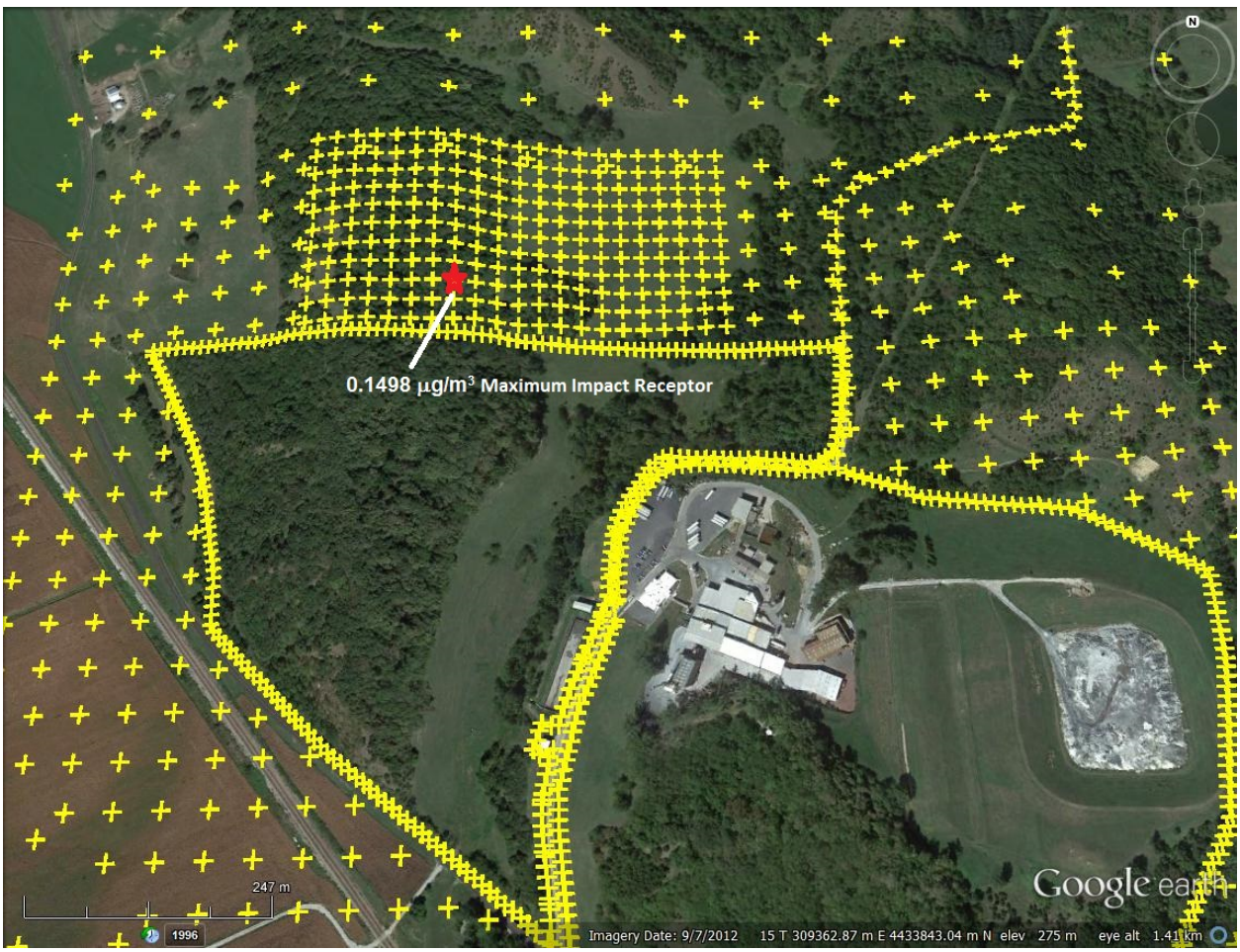



**Figure 11-** Location of Maximum Modeled Concentration Receptor

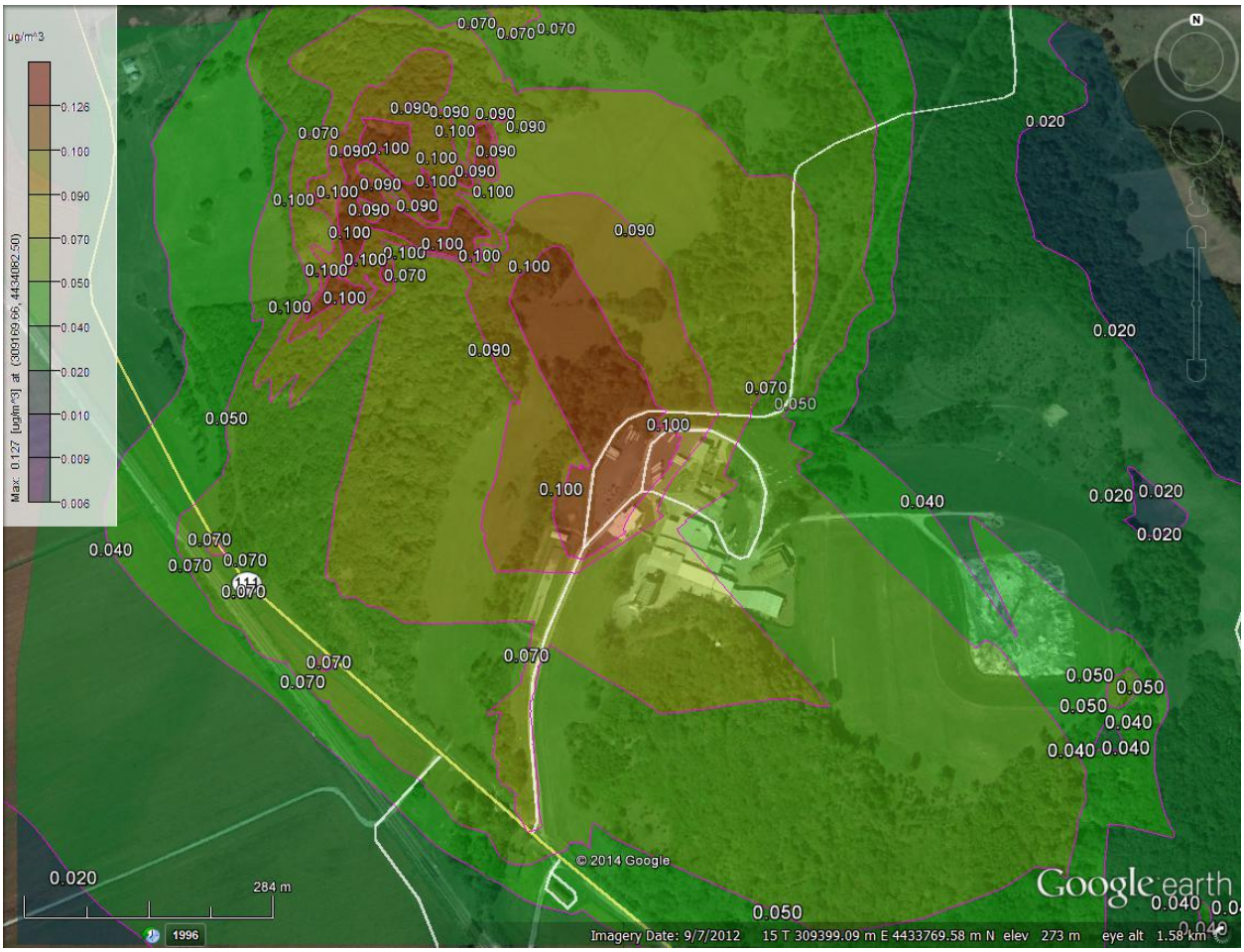



**Figure 12**- Contour Plot of Lead Concentrations around Exide

# 6. CONTINGENCY MEASURES

As part of this plan, a contingency strategy has been developed that will be implemented in the event that the area has failed to attain and maintain the 2008 Lead NAAQS 180 days after the effective date of the Consent Judgment and the implementation of the new control measures. The contingency plan is detailed in Paragraph V. 9. of the Consent Judgment (**Appendix A**). The department shall notify Exide of any violations of the NAAQS and to start implementation of any necessary contingency measures.

The contingency measure strategy consists of two parts. The first part is a measure that may be implemented immediately after any rolling three-month average violates the 2008 lead standard. The second part is a study to identify likely causes contributing to the violation followed by implementation of a proposed action plan of the most effective control measures.

Immediately after notification that the lead air quality monitoring results for the Forest City area show a violation of the 0.15 $\mu g/m^3$ three-month rolling average lead standard, Exide shall increase the in-plant road cleaning to 10 hours each working day. Currently, plant roadways and parking lots are cleaned with wet wash or vacuum cleaning at least twice a day between 7 am

and 7 pm [Exide Fugitive Dust Source SOP Manual, pg. 2, **Appendix B**]. The implementation of this contingency measure is expected to prevent the re-entrainment of at least 7 pounds of lead dust per year into the air. Exide may cease this increased road cleaning schedule only after a more effective replacement control measure has been identified and implemented as a result of the fugitive dust control study in the second phase of the contingency strategy as outlined below.

There are few other remaining effective lead emission reduction techniques to be used as contingencies remaining at this facility. The limited control options that were still available form the basis of the main control strategy used to demonstrate attainment within this plan. Therefore, the second phase of this plan's contingency strategy involves a study or review of best practices and best available technologies at facilities with similar fugitive emissions control challenges. The purpose of this contingency project is to help pinpoint the source of the errant fugitive emissions and to implement the identified measures in the future (if needed) as close as possible to the time the contingency measure triggering event occurs. This project's concept is the same as the contingency project adopted as part of the EPA-approved 2007 Herculaneum Lead SIP revision. Missouri asserts that a comprehensive evaluation of all known lead emissions sources has already been accomplished and that sufficient levels of controls will be implemented by the control measures section of this plan to attain the lead standard. However, any ongoing violations of the NAAQS (triggering this contingency measure) would indicate that another evaluation of fugitive emissions would be needed. This contingency project will allow additional strategies to be identified to meet the 2008 lead standard in light of the new conditions created after the implementation of all required controls as part of this attainment demonstration.

Furthermore, the Consent Judgment allows for the submission of additional new contingency measures when other contingency measures (identified by the fugitive control study contingency project) have been exhausted.

# 7. PUBLIC PARTICIPATION

In accordance with Section 110(a)(2) of the CAA, the Missouri Air Conservation Commission is required to hold a public hearing prior to adoption of this plan and the subsequent submittal to the EPA. The department will notify the public and other interested parties of an upcoming public hearing and comment period thirty (30) days prior to holding such hearing for this SIP revision as follows:

- Notice of availability of the SIP revision was posted on the Department of Natural Resources' Air Pollution Control Program website on July 28, 2014: http://www.dnr.mo.gov/env/apcp/stateplanrevisions.htm
- The public hearing was held on August 28, 2014 beginning at 9:00 a.m. at the Elm Street Conference Center, in Bennett Springs Conference Room, 1730 East Elm Street, Jefferson City, MO 65101.
- The public comment period for the plan opened when it was posted on the Department of Natural Resources' Air Pollution Control Program website on July 28, 2014, and closed on September 4, 2014, seven days after the public hearing.

# 8. CONCLUSION

The department hereby asserts that the State has met its CAA Section 110 obligations to attain and maintain the 2008 Lead NAAQS in all areas of the State (not designated as nonattainment) including, specifically through this plan, the area in the vicinity of Forest City, MO. The nearby Exide Technologies–Canon Hollow secondary lead smelting facility has added emission controls pursuant to the Secondary Lead Smelting NESHAP [40 CFR 63 Subpart X revised as of January 5, 2012] and in conjunction with this plan, has agreed, through a court-lodged consent judgment, to additional emission reductions to include emission limitations and work practices. These control strategies combine to demonstrate attainment of the 2008 Lead NAAQS in the area though air dispersion modeling included in this plan. Furthermore, this plan contains a contingency strategy to act as a backstop in case of a continued NAAQS violation after implementation of the control measures.

The Missouri Air Conservation Commission **ADOPTS** the following action on this 25th day of September, 2014:

Missouri State Implementation Plan Revision – 2008 Lead National Ambient Air Quality Standard Compliance Plan – Exide Technologies Canon Hollow Facility

Original signed by Commissioners:

Gary J Pendergrass, Chairman

_, Vice Chairman

Jack C Baker, Member

_____, Member

_____, Member

_____, Member

_____, Member

The Missouri Air Conservation Commission **ADOPTS** the following action on this 25th day of September, 2014:

Missouri State Implementation Plan Revision – 2008 Lead National Ambient Air Quality Standard Compliance Plan – Exide Technologies Canon Hollow Facility

Original signed by Commissioners:

Mark Garnett

_, Chairman

_, Vice Chairman

_, Member

_____, Member

_____, Member

_____, Member

_____, Member

The Missouri Air Conservation Commission **ADOPTS** the following action on this 25th day of September, 2014:

Missouri State Implementation Plan Revision – 2008 Lead National Ambient Air Quality Standard Compliance Plan – Exide Technologies Canon Hollow Facility

_____, Chairman

_____, Vice Chairman

Original signed by Commissioners:

_____, Member

David C. Zimmermann

_____, Member

_____, Member

_____, Member

_____, Member

IN THE CIRCUIT COURT OF HOLT COUNTY
STATE OF MISSOURI

FILED

OCT 10 2014

VICKI BOOK
CIRCUIT CLERK - DIV. I
HOLT COUNTY, MISSOURI

| | | |
|---|---|---|
| STATE OF MISSOURI ex rel., Attorney General Chris Koster and Missouri Department of Natural Resources and the Missouri Air Conservation Commission, | ) | |
| Plaintiff | ) | |
| v. | ) | Case No. 14HO-CC00064 |
| Exide Technologies | ) | |
| Respondent. | ) | |

**CONSENT JUDGMENT**

Plaintiff State of Missouri, at the relation of Chris Koster, Attorney General, the Missouri Department of Natural Resources (MDNR), and the Missouri Air Conservation Commission (Commission), and respondent, the Exide Technologies Canon Hollow Recycling Facility located 4 miles northwest of Forest City, Missouri (Exide), by and through counsel, hereby consent to the entry of this Consent Judgment.

**WHEREAS**, the State of Missouri, through MDNR, in consideration of Exide's agreement to complete the control strategies within the time schedules as more fully set forth in the Consent Judgment below, and Exide, in consideration of the State of Missouri's agreement to accept the implementation of said control strategies as sufficient, under current

information and belief, to attain and maintain the federal and Missouri ambient air quality standard for lead and to accept the time schedules for completion of such control strategies as being as expeditious as practicable, agree to entry of this Consent Judgment.

**WHEREAS**, in 2008, Environmental Protection Agency revised the National Ambient Air Quality Standard for lead (2008 Lead NAAQS). 73 Fed. Reg. 66,964 (Nov. 12, 2008). The revision reduced the NAAQS for lead from 1.5 micrograms per cubic meter ($\mu g/m^3$) to 0.15 $\mu g/m^3$ over specified monitoring and averaging periods. Starting in Spring 2012, some lead air quality monitoring results at the MDNR's recently-installed Forest City / Exide levee monitoring site in northwestern Missouri showed violations of the 2008 lead NAAQS. Ambient air readings violating a NAAQS may trigger State duties to adopt legal requirements to ensure that NAAQS are achieved and maintained.

**WHEREAS**, MDNR and the Commission are preparing a State Implementation Plan (SIP) revision to achieve attainment and maintenance of the 2008 Lead NAAQS in the area near the Forest City / Exide levee monitoring site, and it is the intent of MDNR and the Commission that this Consent Judgment establish the requirements of the SIP applicable to Exide.

**WHEREAS**, as part of the 2014 Lead NAAQS Attainment Demonstration SIP, MDNR, the Commission, and Exide hereby agree that

the Court may enter this Consent Judgment, to be binding on the parties, providing for a lead emission reduction program which Exide hereby agrees to undertake and complete on the schedule set forth in this Consent Judgment. The parties, by their signatures hereto, acknowledge that they have read and understand the terms of this Consent Judgment and agree to be bound thereby. The Court is advised that the parties have consented to the terms in this Consent Judgment for settlement purposes only, and that their consent is conditioned upon the Court approving the Consent Judgment in its entirety. The parties understand and agree that the terms of this Consent Judgment are enforceable by further order of this Court, and, to that end, the Court retains jurisdiction of the matter in order to enforce the terms of this Consent Judgment.

**WHEREAS**, this matter comes before the Court on the petition filed by the State of Missouri concurrently with this Consent Judgment.

**WHEREAS**, by agreeing to the terms of this Consent Judgment, Exide does not admit any liability or any violation of law arising from the allegations set forth in the State's Petition.

NOW THEREFORE, without adjudication or admission of any issue of fact and with the consent of the parties, IT IS THEREFORE ORDERED, ADJUDGED AND DECREED as follows:

## I. Objectives of the Parties

1. The objectives of the parties to this Consent Judgment are to implement control measures set forth herein in furtherance of the attainment and maintenance of the 2008 Lead NAAQS.

## II. Jurisdiction

2. This Court has jurisdiction over the subject matter herein and of the parties consenting hereto pursuant to Section 643.151, RSMo, of the Missouri Air Conservation Law.

## III. Parties Bound

3. The provisions of this Consent Judgment shall be binding upon the parties to this action as well as their agents, servants, employees, heirs, successors, assigns, and to all persons, firms, corporations, and other entities who are, or who will be, acting in concert or privity with, or on behalf of the parties to this action or their agents, servants, employees, heirs, successors, and assigns.

## IV. Satisfaction

4. Upon completion of the terms of this Consent Judgment, Exide is relieved of liability for violations alleged in the State's Petition.

## V. Injunctive Relief

5. Exide shall undertake and complete the following lead emission reduction program on the schedule set forth below. These control measures

and the associated schedules are the control measures to be implemented to attain and maintain the 2008 Lead NAAQS pursuant to Section 110 of the federal Clean Air Act.

6. Projects Required: Exide shall install the following lead emission control measures:

A. By the date Exide signs this Consent Judgment, Exide has installed South baghouse ("Negative Pressure Baghouse 1") with a minimum design flow rate of 315,000 standard cubic feet per minute ("SCFM") to improve refinery ventilation.

B. By the date Exide signs this Consent Judgment, Exide has installed North baghouse ("Negative Pressure Baghouse 2") with a minimum design flow rate of 315,000 SCFM to improve hygiene ventilation.

C. By the date Exide signs this Consent Judgment, Exide has installed Acid Demister stack with a minimum height of 40 feet

D. By the date Exide signs this Consent Judgment, Exide has enclosed all buildings containing the following processes: battery breaking, blast furnace, refining and casting, and slag processing. Exide shall operate the Negative Pressure baghouses 1 and 2 as needed based on furnace operations and the ventilation associated with those operations to achieve negative pressure in the operating process

buildings consistent with the National Emission Standards for Hazardous Air Pollutants for Secondary Lead Smelting, 40 C.F.R. 63 Subpart X (Secondary Lead NESHAP), revised as of January 5, 2012.

E. Changes may be made to the installed equipment during replacement as long as the replacement equipment assures attainment of the 2008 Lead and compliance with the Secondary Lead NESHAP.

7. Required Practices and Procedures.

A. Baghouse Standard Operating Procedures (SOP): Exide has a Baghouse SOP Manual approved by MDNR on August 19, 2013 pursuant to the Secondary Lead NESHAP, revised as of January 5, 2012, for sources at the facility subject to the Secondary Lead NESHAP. After the applicable deadline for any baghouse projects installed pursuant to Paragraph V.6 (Projects Required) or Paragraph 9 (Projects Required as Contingency Control Measures) and that is not otherwise subject to the Secondary Lead NESHAP, any such newly installed baghouse(s) shall be subject to the Baghouse SOP, and the SOP Manual shall be amended to add procedures applicable to each such baghouse.

B. Baghouse Maintenance or Extended Periods of Non-Production (Shut Downs): Exide may cease the operation of any of the ventilation system units used to achieve the appropriate amounts of

negative pressure as required by paragraph 6.D above in order to perform maintenance on the ventilation system, or if all of the lead processing units within a given building have been turned off and all corresponding production has ceased.

C. Local Exhaust Ventilation (LEV) Operation: Exide shall operate LEVs at the following emission units when the units are operating: (1) Blast Furnace Charging, (2) Furnace lead and slag tapping, and (3) refinery kettles.

D. Fenceline Maintenance: Appendix A indicates the areas where modeling has shown the potential for lead levels in ambient air to violate the 2008 Lead NAAQS. Appendix A contains a map and table of ambient air boundary coordinates as provided in the 2014 Lead NAAQS Attainment Demonstration SIP. Exide must preclude public access at a minimum distance from the facility as indicated by the boundary established in Appendix A. Exide shall notify MDNR of its intent to modify the location of any fenceline used to demonstrate compliance with this paragraph at least ninety (90) days prior to the commencement of construction.

E. Stack Emission Limits. Exide shall limit lead emissions to the atmosphere from certain emission points as set forth in the following table:

| Emission Point | Control Device | Emission Source / Description | Emission Rate (lb/hr) |
|---|---|---|---|
| AD | Acid Demister (CD007) | Battery Break Crusher Room | 0.024 |
| EP01 | Wheelabrator Air Pollution Control System | Blast Furnace, Refinery & Casting Process Hoods | 0.322 |
| BH01 | Negative Pressure Baghouse #1 (CD005) | Blast Furnace, Refinery & Casting Bldg. Neg. Pressure | 0.236 |
| BH02 | Negative Pressure Baghouse #2 (CD006) | Other Building Negative Pressure | 0.196 |

Compliance will be determined via stack testing requirements and on a schedule that is consistent with the Secondary Lead NESHAP, revised as of January 5, 2012, except as follows. If any test does not show compliance with the limits herein, Exide will test the stack that tested above the limit within ninety (90) days after the receipt of the stack test report or results. If this subsequent test shows compliance, the prior exceedance will not be considered a violation of this Consent Judgment and compliance testing will return to a schedule consistent with the Secondary Lead NESHAP, revised as of January 5, 2012.

F. Truck Traffic: Frequency and Hours of Operation. Exide shall limit truck traffic to the frequency and hours of operation as set forth in the following table.

| Group | Route Description | Total Trips Per Month | Unrestricted Trips Per Month* |
|---|---|---|---|
| A | Cores/Scrap | 368 | 0 |
| | Industrials | | |
| B | Furnace Coke | 87 | 4 |
| | Lime (bulk) | | |
| | Furnace Fluxes | | |
| C | Trash | 61 | 3 |
| | Acid (bulk) | | |
| | Plastic Chips | | |
| D | Cement (bulk) | 22 | 1 |
| | Oxygen (liquid) | | |
| E | Lead Products | 260 | 13 |
| F | Slag Mix to Landfill | 217 | 11 |
| G | Service | 26 | 1 |
| **Total** | | **1040** | **34** |

*Note: Restricted trips only use the haul roads 12 hours per day (7AM-7PM). Unrestricted trips use the haul roads 24 hours per day.

G. Recordkeeping and Reporting. Recordkeeping and reporting under this Consent Judgment are addressed by the recordkeeping and reporting requirements applicable to the facility pursuant to the Secondary Lead NESHAP, revised as of January 5, 2012. In addition, Exide shall keep records of truck traffic as necessary to demonstrate compliance with the hours of operation and monthly frequency limits established in this paragraph.

8. Property Acquisitions in Monitoring Areas

Exide shall notify MDNR of any real property it acquires or transfers in the Forest City area where an MDNR monitor is located or where an Exide fenceline required by paragraph V.7.D. to preclude public access is located within ninety (90) days of the transaction. This notification shall include a copy of the deed or a legal description of the property, the interest to be acquired or transferred and the parties to the transaction.

9. Projects required as Contingency Control Measures

A. Exide shall complete construction or installation, commence operation of project and control measures, and achieve normal operations within one hundred eighty (180) days of the effective date of this Consent Judgment. If the valid and accepted air quality data for any rolling three-month average after that date violates the 0.15 $\mu g/m^3$ three-month rolling average lead standard, Exide shall undertake the Immediate contingency measure specified in the following table.

| Facility | Contingency Measure Number | Contingency Measure Description | Time Frame |
|---|---|---|---|
| Canon Hollow | 1 | Increase the in-plant road cleaning to 10 hours each working day | Immediately after receipt of results |

Additionally, within 180 days from receipt of written or electronic notification from MDNR, submit to MDNR an investigative study identifying the potential or likely source(s) of emissions principally contributing to the exceedance so that a strategy may be developed to eliminate the likelihood of another exceedance. The study will list all best practices and best available technologies identified from industrial smelter or metal manufacturing facilities with similar fugitive emissions control challenges, and, for each technology or practice, will (i) identify those technologies and/or practices that Exide deems technically feasible and cost effective, (ii) quantify associated emissions reductions expected to result from the use of the practices or technologies, and (iii) provide a time frame for implementation of each in a manner that allows attainment of the NAAQS in the most cost-effective manner and schedule. Exide will provide justification for any projects deemed not to be technically feasible or cost effective or necessary for attainment.

projects deemed not to be technically feasible or cost effective or necessary for attainment.

B. Within 60 days of its receipt of the study, MDNR will advise Exide whether the projects and timelines proposed by Exide are acceptable and if MDNR agrees that any of the identified technologies or practices are not technically feasible or cost effective or necessary. Upon approval or after 60 days with no comment, those projects identified in the study for completion and the deadlines therein shall become a part of this Consent Judgment and fully enforceable hereunder as contingency measures and shall be completed pursuant to the deadlines. The immediate contingency measure specified above need not be a contingency measure proposed under the study if it is not selected under the study criteria, and may be halted upon completion of the measures specified in the approved study plan.

C. Exide shall notify MDNR within twenty (20) business days of Exide's completion of those contingency projects required by paragraph A above. Within 60 days of completion of all required contingency projects, Exide shall propose additional contingency measure(s) and a proposed timeframe for completion to be added to this Consent Judgment. In proposing the additional contingency measure(s), Exide shall revisit any of the best practices and best

available technologies that were identified in the study above and previously deemed not to be technically-feasible or cost effective. Upon approval by MDNR, the additional contingency measure(s) shall become a part of this Consent Judgment and be fully enforceable hereunder If Exide identifies and demonstrates to MDNR's satisfaction alternative control measure(s) that would achieve attainment with the NAAQS, Exide may substitute the new measure(s) for the contingency measure(s) identified above, upon approval of the MDNR's Director of the Air Pollution Control Program. Any substitute contingency measure shall be implemented under a reasonable time frame to be established with the approval of the State as a modified contingency schedule.

D. Nothing in this agreement shall prevent Exide from implementing the contingency measures prior to receiving notification from MDNR.

## VI. Stipulated Penalties and Force Majeure

10.

A. If Exide fails to complete construction of the control measures set out in this Consent Judgment by the dates specified, Exide may be subject to stipulated penalties according to the following schedule. The penalties are per day, per violation, and may be assessed

by MDNR beginning with the first day of violation after the scheduled deadline date.

| Period of Noncompliance | Penalty per Day of Violation |
|---|---|
| First through 30th day of noncompliance | $500.00 |
| 31st through 60th day of noncompliance | $2,000.00 |
| 61st through 90th day of noncompliance | $3,000.00 |
| 91st day of noncompliance and beyond | $5,000.00 |

B. If a performance test conducted under the requirements of Paragraph 7.E of this Consent Judgment fails to demonstrate compliance with the emission limits stated therein, Exide may be subject to stipulated penalties according to the following schedule:

First test failure - $1,000

Second test failure - $2,000

Third test failure - $3,000

Fourth (and beyond) test failure – $5,000

C. If Exide fails to comply with any other requirements of this Consent Judgment, Exide may be subject to stipulated penalties according to the following schedule. The penalties are per day, per

violation, and may be assessed by MDNR beginning with the first day of violation after the scheduled deadline date.

| Period of Noncompliance | Penalty per Day of Violation |
|---|---|
| First through 30th day of noncompliance | $200.00 |
| 31st through 60th day of noncompliance | $400.00 |
| 61st through 90th day of noncompliance | $600.00 |
| 91st day of noncompliance and beyond | $800.00 |

11. If any violation is enforceable under more than one provision of this Consent Judgment or regulatory requirement, MDNR will only seek to enforce the Stipulated Penalties under this Consent Judgment , but not both, against Exide.

12. All penalties assessed shall be paid within forty-five (45) days of the date of receipt of notification of the assessment of a stipulated penalty from MDNR unless Exide challenges the penalty pursuant to the Dispute Resolution procedure outlined in Section VII. If the penalty is challenged, it shall be paid thirty (30) days after the Commission's determination that Exide owes the stipulated penalty, and that Exide has failed to use, or has exhausted, its rights to review the Commission's decision. If Exide exercises

its right to appeal a decision of the Commission, payment will be due thirty (30) days after a final decision on appeal.

13. All penalties shall be paid by check made payable to the State of Missouri (Holt County Treasurer), and delivered to the Collections Specialist, Attorney General of Missouri, P.O. Box 899, Jefferson City, Missouri 65102-0899.

14. The penalties set forth herein shall not apply in the event of a force majeure, as defined in this section. For the purposes of this Consent Judgment, force majeure shall be defined as any event arising from causes beyond the control of Exide or its contractors and of any entity controlled by Exide or its contractors, which delays or interferes with the performance of any obligation under this Consent Judgment notwithstanding Exide's best efforts to avoid such an event and fulfill the obligation. The requirement that Exide exercise "best efforts to avoid such an event" includes using best efforts to anticipate any potential force majeure event and best efforts to address the effects of any force majeure event (1) as it is occurring, and (2) following the force majeure event such that the adverse effect or delay is minimized to the greatest extent practicable. Examples of events that are not force majeure events include, but are not limited to, increased costs or expenses of any work to be performed under this Consent Judgment, changed financial circumstances, or other financial or budgetary issues. Failure to apply for a

required permit or approval, or to provide in a timely manner all information required to obtain a permit or approval necessary to meet the requirements of the Consent Judgment, are not Force Majeure events.

15. If any event occurs that is likely to delay or interfere with the performance of an obligation under this Consent Judgment, whether or not caused by a force majeure event, Exide shall notify MDNR by telephone within five (5) business days of Exide becoming aware of such event. Within ten (10) business days thereafter, Exide shall provide in writing to the State an explanation and description of the reasons for the delay; the anticipated duration of the delay; all actions taken or to be taken to prevent or minimize its effects; a schedule for implementation of any measures to be taken to mitigate the event; and a statement as to whether, in the opinion of Exide, such an event may cause or contribute to the endangerment of public health, public welfare, or the environment. Exide shall include with any notice all available documentation supporting the claims that the delay was attributable to a force majeure. Failure to comply with these requirements shall preclude Exide from asserting any claim of force majeure.

16. If the State agrees that the delay or anticipated delay is attributable to a force majeure event, then the State may agree to extend the time for Exide to perform the obligation(s) under this Consent Judgment that is affected by the force majeure event for the time necessary to complete

these obligations. The State will notify Exide in writing of the length of the extension, if any, for performance of the obligations affected by the force majeure event. An extension of the time for performance of the obligations affected by the force majeure event shall not, by itself, extend the time for performance of any other obligation.

17. If the State does not agree that a force majeure event has occurred, or does not agree on the length of any time extension sought by Exide, Exide may seek review of the State's decision on the issue pursuant to the Dispute Resolution procedures set forth in Section VII of this Consent Judgment. In any such proceeding, to qualify for a force majeure defense Exide shall have the burden of demonstrating by a preponderance of the evidence that the delay or noncompliance has been or will be caused by a force majeure event, that its duration was or will be warranted under the circumstances, that Exide exercised or is exercising due diligence by using its best efforts to avoid and mitigate its effects, and that Exide complied with the requirements of Paragraphs 15-16 above. Should Exide carry the burden set forth in this section, the delay or noncompliance at issue shall be deemed not to be a violation of the affected obligation of this Consent Judgment.

## VII. Dispute Resolution

18. Any dispute that arises with respect to the meaning, application or implementation for any provision of this Consent Judgment may be subject

to dispute resolution as provided herein, unless the Consent Judgment provision provides that dispute resolution is not available. Any dispute which arises with respect to the meaning, application or implementation of this Consent Judgment shall in the first instance be the subject of informal negotiations between Exide and MDNR. Notice of a dispute shall be given by the party alleging the dispute, shall be addressed in writing to the MDNR Director, and copied to the opposing party. Such notice shall state the specific grounds for the dispute, including any supporting documentation and the relief requested.

19. The MDNR and Exide shall have thirty (30) days from the receipt of the notice of the dispute to resolve the dispute. If agreement is reached, the resolution shall be reduced to writing and this Consent Judgment modified, if appropriate. If the parties to the dispute are unable to reach agreement within the thirty (30) day period and this period is not extended in writing by mutual agreement of the parties, the matter will be submitted to the Commission. The opposing party may file suggestions in opposition and include any documentation relevant to deciding the dispute. Said suggestions and documentation shall be submitted within fourteen days of submission of the matter to the Commission. The Commission will issue a written decision following its review of the record submitted by the parties.

20. The parties will then be entitled to judicial review pursuant to Section 536.140, RSMo. The filing of a notice of dispute shall not automatically extend, postpone, or affect any party's obligations under this Consent Judgment with respect to the disputed issue. This provision shall not be construed to prevent either party from requesting a stay of the party's obligations under this Consent Judgment.

## IX. Reservations

21. Nothing in this agreement shall be construed as a waiver of any obligation of Exide or as a permit to Exide under any other environmental laws applicable to Exide.

## X. Modifications

22. This Consent Judgment may be modified or amended only by written modification between the parties and with the approval of the Court.

23. In the event Exide ceases operation of lead emission units subject to this Consent Judgment, Exide shall notify MDNR and will be relieved of the injunctive relief or other required practices that were for the purpose of reducing lead emissions from the subject unit.

## XI. Contacts

24. All notices, reports, submissions, correspondence, or communications on requirements of this Consent Judgment shall be directed by mail or electronic mail as follows:

If to the State:

To the Missouri Department of Natural Resources:

Planning Section Chief
Air Pollution Control Program
Missouri Department of Natural Resources
1659 East Elm Street
Jefferson City, Missouri 65101With copies to

Chief Counsel
Agriculture and Environment Division
Missouri Attorney General's Office
P.O. Box 899
Jefferson City, MO 65102

If to Exide:

Plant Manager
25102 Exide Drive
Forest City, MO 64451

With copies to

Frederick Ganster
Exide Technologies
3000 Montrose Avenue
Reading, PA 19605

## XII. Termination

25. In the event the specific control requirements, emission standards, or record keeping and monitoring requirements are incorporated into other federally enforceable documents such as construction permits or regulations that have been approved by the U.S. Environmental Protection

Agency as part of Missouri's SIP, the parties may terminate the corresponding provisions of this Consent Judgment by written agreement. The parties agree to meet and discuss measures to allow for the substitution of enforceable requirements in other documents and the termination of this agreement upon the request of either party.

## XIII. Effective Date

26. This Consent Judgment is effective upon entry by the Court.

## SIGNATURES

EXIDE TECHNOLOGIES

BY: Original signed by David McKercher, Interim Plant Manager

DATE: 9/25/14

MISSOURI DEPARTMENT OF NATURAL RESOURCES

BY: Original signed by Kyra L. Moore

for Leanne Tippett Mosby, Director
Division of Environmental Quality

DATE: 9/25/14

MISSOURI AIR CONSERVATION COMMISSION

BY: Original signed by Gary J. Pendergrass

~~David Zimmerman~~, Chairperson
Gary Pendergrass

DATE: 09-25-14

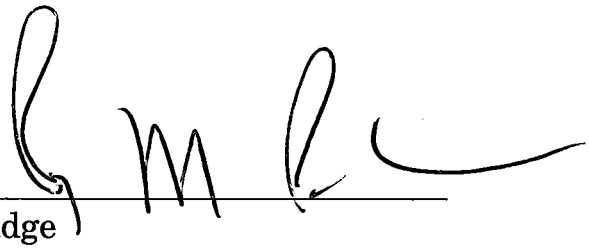
ATTORNEY GENERAL OF MISSOURI
Chris Koster, Attorney General

BY: Original signed by Timothy P. Duggan, for:

Kara Valentine
Assistant Attorney General

DATE: 9-25-14

**SO ORDERED.**



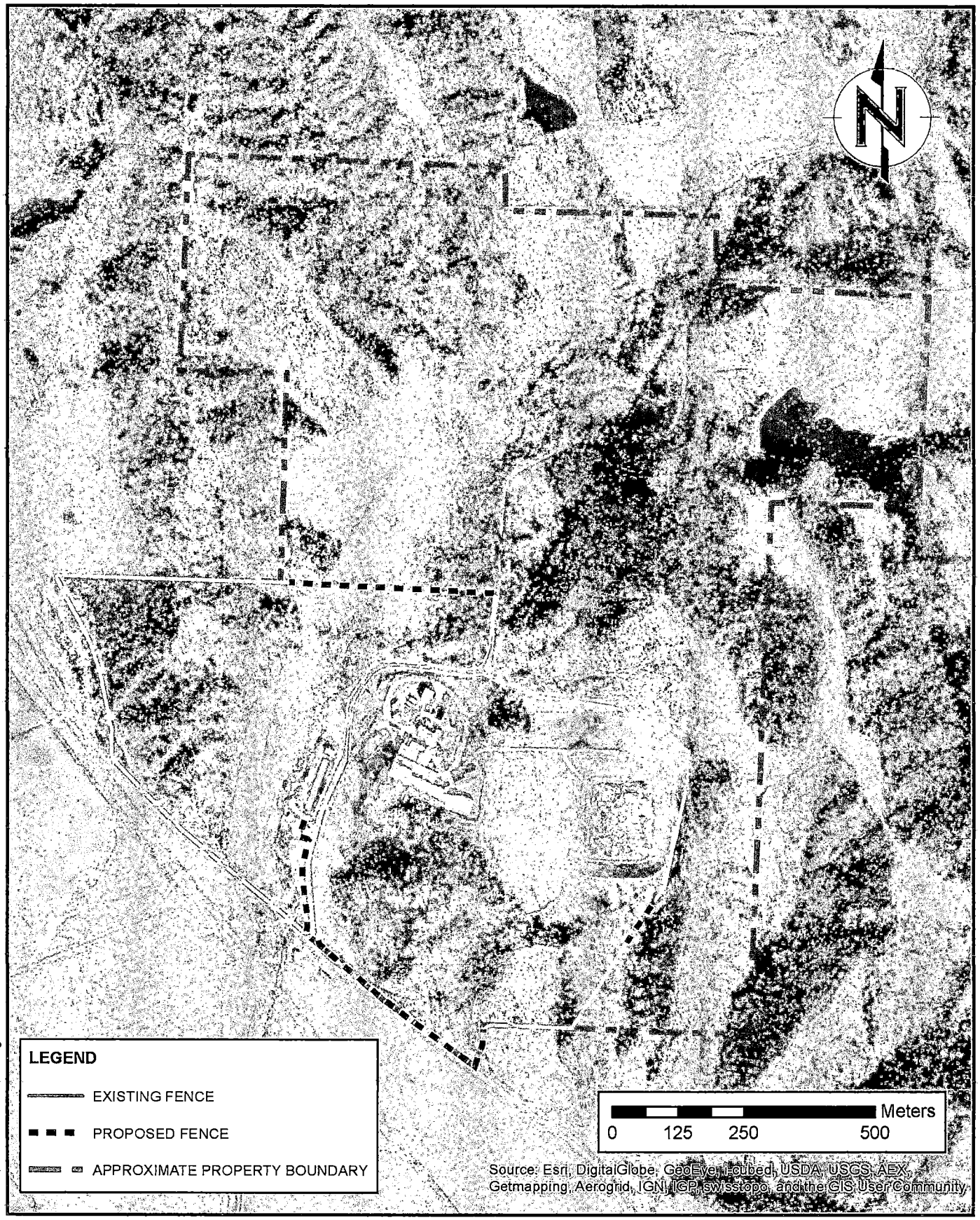
Circuit Judge

Date: Oct 10, 2014

# APPENDIX A

## Zone of Public Access Preclusion Map & Coordinates

(per Paragraph V.7.D. of the Consent Judgment)




P:\Exide Technologies\Canon Hollow, MO\GIS\arcview\MXD\Figure 1. Site Location. 5.1.14.mxdt

ENVIRON

DRAFTED BY: hthompson | DATE: 5/2/2014

**SITE LOCATION MAP**

EXIDE TECHNOLOGIES FOREST CITY, MO

Figure 1

07-21824C

**Fenceline Receptor Coordinates (UTM)**
**(Approximately 10 meter spacing between receptors)**

| Receptor | Easting | Northing |
|---|---|---|
| 1 | 309300 | 4433352 |
| 2 | 309299 | 4433362 |
| 3 | 309298 | 4433372 |
| 4 | 309297 | 4433382 |
| 5 | 309296 | 4433392 |
| 6 | 309295 | 4433402 |
| 7 | 309294 | 4433412 |
| 8 | 309293 | 4433422 |
| 9 | 309292 | 4433432 |
| 10 | 309291 | 4433442 |
| 11 | 309290 | 4433452 |
| 12 | 309289 | 4433462 |
| 13 | 309289 | 4433472 |
| 14 | 309289 | 4433482 |
| 15 | 309289 | 4433492 |
| 16 | 309289 | 4433502 |
| 17 | 309292 | 4433511 |
| 18 | 309294 | 4433521 |
| 19 | 309297 | 4433531 |
| 20 | 309299 | 4433540 |
| 21 | 309302 | 4433550 |
| 22 | 309304 | 4433560 |
| 23 | 309307 | 4433569 |
| 24 | 309309 | 4433579 |
| 25 | 309312 | 4433589 |
| 26 | 309317 | 4433598 |
| 27 | 309321 | 4433607 |
| 28 | 309325 | 4433616 |
| 29 | 309329 | 4433625 |
| 30 | 309333 | 4433634 |
| 31 | 309337 | 4433643 |
| 32 | 309341 | 4433652 |
| 33 | 309345 | 4433662 |
| 34 | 309349 | 4433671 |
| 35 | 309352 | 4433677 |
| 36 | 309351 | 4433696 |
| 37 | 309354 | 4433700 |
| 38 | 309355 | 4433710 |
| 39 | 309356 | 4433720 |
| 40 | 309356 | 4433730 |
| 41 | 309357 | 4433740 |
| 42 | 309358 | 4433750 |
| 43 | 309359 | 4433760 |
| 44 | 309359 | 4433770 |
| 45 | 309362 | 4433779 |
| 46 | 309367 | 4433788 |
| 47 | 309371 | 4433797 |
| 48 | 309375 | 4433807 |
| 49 | 309380 | 4433815 |
| 50 | 309386 | 4433823 |
| 51 | 309392 | 4433831 |
| 52 | 309398 | 4433839 |
| 53 | 309405 | 4433846 |
| 54 | 309414 | 4433851 |
| 55 | 309423 | 4433855 |
| 56 | 309433 | 4433856 |
| 57 | 309443 | 4433857 |
| 58 | 309453 | 4433857 |
| 59 | 309463 | 4433857 |
| 60 | 309473 | 4433856 |
| 61 | 309483 | 4433855 |
| 62 | 309493 | 4433854 |
| 63 | 309503 | 4433853 |
| 64 | 309512 | 4433851 |
| 65 | 309522 | 4433850 |
| 66 | 309532 | 4433849 |
| 67 | 309542 | 4433847 |
| 68 | 309552 | 4433846 |
| 69 | 309562 | 4433845 |
| 70 | 309572 | 4433844 |
| 71 | 309582 | 4433844 |
| 72 | 309592 | 4433846 |
| 73 | 309601 | 4433848 |
| 74 | 309611 | 4433846 |
| 75 | 309620 | 4433841 |
| 76 | 309629 | 4433837 |
| 77 | 309638 | 4433834 |
| 78 | 309648 | 4433830 |
| 79 | 309657 | 4433827 |
| 80 | 309666 | 4433823 |
| 81 | 309676 | 4433820 |
| 82 | 309685 | 4433818 |
| 83 | 309692 | 4433810 |
| 84 | 309702 | 4433807 |
| 85 | 309711 | 4433806 |
| 86 | 309721 | 4433805 |
| 87 | 309731 | 4433803 |
| 88 | 309741 | 4433802 |
| 89 | 309751 | 4433801 |
| 90 | 309761 | 4433799 |
| 91 | 309771 | 4433798 |
| 92 | 309781 | 4433796 |
| 93 | 309791 | 4433795 |
| 94 | 309801 | 4433794 |
| 95 | 309810 | 4433792 |
| 96 | 309820 | 4433791 |
| 97 | 309830 | 4433790 |
| 98 | 309840 | 4433788 |
| 99 | 309850 | 4433787 |
| 100 | 309860 | 4433786 |
| 101 | 309869 | 4433782 |
| 102 | 309878 | 4433777 |
| 103 | 309886 | 4433772 |
| 104 | 309895 | 4433767 |
| 105 | 309903 | 4433761 |
| 106 | 309912 | 4433756 |
| 107 | 309920 | 4433751 |
| 108 | 309929 | 4433746 |
| 109 | 309937 | 4433740 |
| 110 | 309946 | 4433735 |
| 111 | 309954 | 4433730 |
| 112 | 309963 | 4433725 |
| 113 | 309971 | 4433719 |
| 114 | 309980 | 4433714 |
| 115 | 309988 | 4433709 |
| 116 | 309992 | 4433701 |
| 117 | 309991 | 4433691 |
| 118 | 309990 | 4433681 |
| 119 | 309990 | 4433671 |
| 120 | 309989 | 4433661 |
| 121 | 309989 | 4433651 |
| 122 | 309988 | 4433641 |
| 123 | 309987 | 4433631 |
| 124 | 309985 | 4433621 |
| 125 | 309983 | 4433611 |
| 126 | 309981 | 4433602 |
| 127 | 309979 | 4433592 |
| 128 | 309977 | 4433582 |
| 129 | 309975 | 4433572 |
| 130 | 309973 | 4433562 |
| 131 | 309971 | 4433553 |
| 132 | 309969 | 4433543 |
| 133 | 309967 | 4433533 |
| 134 | 309965 | 4433523 |
| 135 | 309963 | 4433514 |
| 136 | 309960 | 4433504 |
| 137 | 309958 | 4433494 |
| 138 | 309956 | 4433484 |
| 139 | 309954 | 4433474 |
| 140 | 309952 | 4433465 |
| 141 | 309950 | 4433455 |

**Fenceline Receptor Coordinates (UTM)**
**(Approximately 10 meter spacing between receptors)**

| | | | | | |
|---|---|---|---|---|---|
| 142 | 309945 4433446 | 190 | 309610 4433180 | 238 | 309280 4433388 |
| 143 | 309940 4433438 | 191 | 309610 4433170 | 239 | 309279 4433393 |
| 144 | 309934 4433430 | 192 | 309610 4433160 | 240 | 309279 4433398 |
| 145 | 309929 4433421 | 193 | 309608 4433150 | 241 | 309278 4433408 |
| 146 | 309923 4433413 | 194 | 309604 4433141 | 242 | 309277 4433418 |
| 147 | 309918 4433404 | 195 | 309601 4433131 | 243 | 309276 4433428 |
| 148 | 309912 4433396 | 196 | 309598 4433122 | 244 | 309275 4433438 |
| 149 | 309907 4433388 | 197 | 309593 4433117 | 245 | 309274 4433448 |
| 150 | 309901 4433379 | 198 | 309585 4433123 | 246 | 309273 4433458 |
| 151 | 309896 4433371 | 199 | 309576 4433128 | 247 | 309272 4433468 |
| 152 | 309890 4433363 | 200 | 309568 4433134 | 248 | 309272 4433478 |
| 153 | 309885 4433354 | 201 | 309560 4433140 | 249 | 309272 4433488 |
| 154 | 309879 4433346 | 202 | 309552 4433146 | 250 | 309273 4433498 |
| 155 | 309874 4433338 | 203 | 309544 4433151 | 251 | 309275 4433507 |
| 156 | 309868 4433329 | 204 | 309536 4433157 | 252 | 309277 4433517 |
| 157 | 309863 4433321 | 205 | 309528 4433163 | 253 | 309279 4433527 |
| 158 | 309857 4433313 | 206 | 309519 4433169 | 254 | 309279 4433535 |
| 159 | 309852 4433304 | 207 | 309511 4433175 | 255 | 309269 4433538 |
| 160 | 309846 4433296 | 208 | 309503 4433180 | 256 | 309263 4433543 |
| 161 | 309841 4433288 | 209 | 309495 4433186 | 257 | 309266 4433552 |
| 162 | 309835 4433279 | 210 | 309487 4433192 | 258 | 309269 4433562 |
| 163 | 309830 4433271 | 211 | 309479 4433198 | 259 | 309272 4433570 |
| 164 | 309824 4433262 | 212 | 309470 4433204 | 260 | 309282 4433567 |
| 165 | 309819 4433254 | 213 | 309462 4433209 | 261 | 309290 4433567 |
| 166 | 309813 4433246 | 214 | 309454 4433215 | 262 | 309292 4433576 |
| 167 | 309808 4433237 | 215 | 309446 4433221 | 263 | 309295 4433586 |
| 168 | 309802 4433229 | 216 | 309438 4433227 | 264 | 309299 4433595 |
| 169 | 309797 4433221 | 217 | 309430 4433233 | 265 | 309302 4433605 |
| 170 | 309791 4433212 | 218 | 309422 4433239 | 266 | 309306 4433614 |
| 171 | 309786 4433204 | 219 | 309414 4433245 | 267 | 309310 4433623 |
| 172 | 309780 4433196 | 220 | 309407 4433252 | 268 | 309314 4433632 |
| 173 | 309775 4433187 | 221 | 309399 4433258 | 269 | 309318 4433641 |
| 174 | 309765 4433187 | 222 | 309391 4433264 | 270 | 309322 4433650 |
| 175 | 309755 4433188 | 223 | 309383 4433271 | 271 | 309326 4433660 |
| 176 | 309745 4433188 | 224 | 309376 4433277 | 272 | 309330 4433669 |
| 177 | 309735 4433188 | 225 | 309368 4433283 | 273 | 309334 4433678 |
| 178 | 309725 4433189 | 226 | 309360 4433290 | 274 | 309338 4433687 |
| 179 | 309715 4433189 | 227 | 309353 4433296 | 275 | 309342 4433696 |
| 180 | 309705 4433189 | 228 | 309345 4433303 | 276 | 309345 4433706 |
| 181 | 309695 4433190 | 229 | 309337 4433309 | 277 | 309346 4433716 |
| 182 | 309685 4433190 | 230 | 309330 4433316 | 278 | 309347 4433726 |
| 183 | 309675 4433190 | 231 | 309322 4433322 | 279 | 309347 4433736 |
| 184 | 309665 4433191 | 232 | 309315 4433329 | 280 | 309348 4433746 |
| 185 | 309655 4433191 | 233 | 309308 4433336 | 281 | 309350 4433756 |
| 186 | 309645 4433191 | 234 | 309301 4433343 | 282 | 309351 4433766 |
| 187 | 309635 4433192 | 235 | 309278 4433358 | 283 | 309352 4433776 |
| 188 | 309625 4433192 | 236 | 309281 4433368 | 284 | 309355 4433785 |
| 189 | 309617 4433186 | 237 | 309280 4433378 | 285 | 309358 4433795 |

**Fenceline Receptor Coordinates (UTM)**
**(Approximately 10 meter spacing between receptors)**

| | | | | | |
|---|---|---|---|---|---|
| 286 | 309362 4433804 | 334 | 309563 4434000 | 382 | 309083 4434016 |
| 287 | 309367 4433813 | 335 | 309553 4434001 | 383 | 309073 4434016 |
| 288 | 309372 4433821 | 336 | 309543 4434001 | 384 | 309063 4434016 |
| 289 | 309378 4433829 | 337 | 309533 4434002 | 385 | 309053 4434016 |
| 290 | 309384 4433837 | 338 | 309523 4434002 | 386 | 309043 4434017 |
| 291 | 309389 4433846 | 339 | 309513 4434002 | 387 | 309033 4434017 |
| 292 | 309395 4433854 | 340 | 309503 4434003 | 388 | 309023 4434017 |
| 293 | 309402 4433860 | 341 | 309493 4434003 | 389 | 309013 4434017 |
| 294 | 309411 4433865 | 342 | 309483 4434003 | 390 | 309003 4434017 |
| 295 | 309421 4433868 | 343 | 309473 4434004 | 391 | 308993 4434017 |
| 296 | 309431 4433867 | 344 | 309463 4434004 | 392 | 308983 4434018 |
| 297 | 309441 4433867 | 345 | 309453 4434004 | 393 | 308973 4434018 |
| 298 | 309451 4433866 | 346 | 309443 4434005 | 394 | 308963 4434018 |
| 299 | 309461 4433866 | 347 | 309433 4434005 | 395 | 308953 4434018 |
| 300 | 309471 4433865 | 348 | 309423 4434005 | 396 | 308943 4434018 |
| 301 | 309481 4433864 | 349 | 309413 4434006 | 397 | 308933 4434018 |
| 302 | 309490 4433863 | 350 | 309403 4434006 | 398 | 308924 4434018 |
| 303 | 309500 4433862 | 351 | 309393 4434006 | 399 | 308914 4434019 |
| 304 | 309510 4433861 | 352 | 309383 4434007 | 400 | 308904 4434019 |
| 305 | 309520 4433860 | 353 | 309373 4434007 | 401 | 308894 4434019 |
| 306 | 309530 4433858 | 354 | 309363 4434008 | 402 | 308884 4434019 |
| 307 | 309540 4433857 | 355 | 309353 4434008 | 403 | 308874 4434019 |
| 308 | 309550 4433856 | 356 | 309343 4434008 | 404 | 308864 4434019 |
| 309 | 309560 4433855 | 357 | 309333 4434009 | 405 | 308854 4434019 |
| 310 | 309570 4433854 | 358 | 309323 4434009 | 406 | 308844 4434020 |
| 311 | 309580 4433853 | 359 | 309313 4434009 | 407 | 308834 4434020 |
| 312 | 309590 4433855 | 360 | 309303 4434010 | 408 | 308824 4434020 |
| 313 | 309598 4433860 | 361 | 309293 4434010 | 409 | 308814 4434020 |
| 314 | 309606 4433866 | 362 | 309283 4434011 | 410 | 308804 4434020 |
| 315 | 309611 4433874 | 363 | 309273 4434011 | 411 | 308804 4434014 |
| 316 | 309614 4433884 | 364 | 309263 4434012 | 412 | 308809 4434005 |
| 317 | 309617 4433893 | 365 | 309253 4434012 | 413 | 308814 4433996 |
| 318 | 309618 4433903 | 366 | 309243 4434013 | 414 | 308818 4433987 |
| 319 | 309619 4433913 | 367 | 309233 4434013 | 415 | 308823 4433979 |
| 320 | 309620 4433923 | 368 | 309223 4434014 | 416 | 308828 4433970 |
| 321 | 309621 4433933 | 369 | 309213 4434014 | 417 | 308833 4433961 |
| 322 | 309622 4433943 | 370 | 309203 4434014 | 418 | 308837 4433952 |
| 323 | 309624 4433953 | 371 | 309193 4434014 | 419 | 308842 4433943 |
| 324 | 309625 4433963 | 372 | 309183 4434015 | 420 | 308847 4433934 |
| 325 | 309626 4433973 | 373 | 309173 4434015 | 421 | 308852 4433926 |
| 326 | 309627 4433983 | 374 | 309163 4434015 | 422 | 308856 4433917 |
| 327 | 309627 4433993 | 375 | 309153 4434015 | 423 | 308861 4433908 |
| 328 | 309623 4433998 | 376 | 309143 4434015 | 424 | 308866 4433899 |
| 329 | 309613 4433999 | 377 | 309133 4434015 | 425 | 308869 4433890 |
| 330 | 309603 4433999 | 378 | 309123 4434015 | 426 | 308873 4433880 |
| 331 | 309593 4433999 | 379 | 309113 4434016 | 427 | 308876 4433871 |
| 332 | 309583 4434000 | 380 | 309103 4434016 | 428 | 308880 4433862 |
| 333 | 309573 4434000 | 381 | 309093 4434016 | 429 | 308883 4433852 |

**Fenceline Receptor Coordinates (UTM)**
**(Approximately 10 meter spacing between receptors)**

| | | |
|---|---|---|
| 430 | 308885 | 4433843 |
| 431 | 308888 | 4433833 |
| 432 | 308890 | 4433823 |
| 433 | 308892 | 4433813 |
| 434 | 308894 | 4433804 |
| 435 | 308897 | 4433794 |
| 436 | 308899 | 4433784 |
| 437 | 308901 | 4433774 |
| 438 | 308903 | 4433765 |
| 439 | 308906 | 4433755 |
| 440 | 308908 | 4433745 |
| 441 | 308909 | 4433735 |
| 442 | 308909 | 4433725 |
| 443 | 308909 | 4433715 |
| 444 | 308909 | 4433705 |
| 445 | 308909 | 4433695 |
| 446 | 308909 | 4433685 |
| 447 | 308913 | 4433677 |
| 448 | 308920 | 4433670 |
| 449 | 308927 | 4433663 |
| 450 | 308934 | 4433656 |
| 451 | 308941 | 4433649 |
| 452 | 308948 | 4433642 |
| 453 | 308955 | 4433635 |
| 454 | 308962 | 4433628 |
| 455 | 308970 | 4433621 |
| 456 | 308977 | 4433614 |
| 457 | 308984 | 4433607 |
| 458 | 308991 | 4433600 |
| 459 | 308998 | 4433593 |
| 460 | 309005 | 4433586 |
| 461 | 309012 | 4433579 |
| 462 | 309019 | 4433572 |
| 463 | 309027 | 4433565 |
| 464 | 309034 | 4433558 |
| 465 | 309041 | 4433551 |
| 466 | 309049 | 4433544 |
| 467 | 309056 | 4433538 |
| 468 | 309064 | 4433532 |
| 469 | 309072 | 4433526 |
| 470 | 309080 | 4433519 |
| 471 | 309088 | 4433513 |
| 472 | 309095 | 4433507 |
| 473 | 309103 | 4433500 |
| 474 | 309111 | 4433494 |
| 475 | 309119 | 4433488 |
| 476 | 309126 | 4433481 |
| 477 | 309134 | 4433475 |
| 478 | 309142 | 4433469 |
| 479 | 309150 | 4433463 |
| 480 | 309157 | 4433456 |
| 481 | 309165 | 4433450 |
| 482 | 309173 | 4433444 |
| 483 | 309181 | 4433437 |
| 484 | 309189 | 4433431 |
| 485 | 309196 | 4433425 |
| 486 | 309204 | 4433419 |
| 487 | 309212 | 4433412 |
| 488 | 309220 | 4433406 |
| 489 | 309227 | 4433400 |
| 490 | 309235 | 4433393 |
| 491 | 309243 | 4433387 |
| 492 | 309251 | 4433381 |
| 493 | 309258 | 4433374 |
| 494 | 309266 | 4433368 |
| 495 | 309274 | 4433362 |

## Bechtel, Cheri

**From:** Missouri DNR <MODNR@public.govdelivery.com>
**Sent:** Saturday, July 26, 2014 8:10 AM
**To:** Bungart, Renee; Archer, Larry; Lovejoy, Victoria; Moore, Kyra; Vit, Wendy; Bechtel, Cheri; Crawford, Betsy; Terlizzi, Gena
**Subject:** Courtesy Copy: Air Public Notices Update - Missouri Air Conservation Commission Public Hearing, August 28, 2014

**This is a courtesy copy of an email bulletin sent by Cheri Bechtel.**

**This bulletin was sent to the following groups of people:**

Subscribers of Air Public Notices (593 recipients)

---

Missouri Department of
# Natural Resources

Having trouble viewing this email? View it as a Web page.

SHARE

MISSOURI AIR CONSERVATION COMMISSION
WILL HOLD PUBLIC HEARING

JEFFERSON CITY, MO -- The Missouri Air Conservation Commission will hold a public hearing on Thursday, August 28, 2014 beginning at 9 a.m. at the Elm Street Conference Center, 1730 East Elm Street, Lower Level, Bennett Springs Conference Room, Jefferson City, Missouri. The commission will hear testimony related to the following proposed action(s):

* Missouri State Implementation Plan – 2008 Lead NAAQS Compliance Plan – Exide Technologies Canon Hollow Facility

  As required by Section 110(a) of the Clean Air Act, Missouri's State Implementation Plan (SIP) must ensure attainment and maintenance of all National Ambient Air Quality Standards (NAAQS). The Missouri Department of Natural Resources' Air Pollution Control Program is proposing to amend and strengthen the Missouri SIP to address violations of the 2008 Lead (Pb) NAAQS of 0.15 micrograms per cubic meter ($\mu g/m^3$), based on a rolling three-month average. These violations are located in the vicinity of Forest City in Holt County, MO near the Exide Technologies Canon Hollow Secondary Lead Smelting Facility. This plan was developed in conjunction with the revised National Emission Standards for Secondary Lead Smelters [40 CFR 63 Subpart X] which took effect on January 6, 2014. The SIP revision includes an attainment demonstration using air dispersion modeling and a consent judgment containing emission limitations and contingency measures.

If the Commission adopts the action, it will be the Department's intention to submit the action to the U.S. Environmental Protection Agency to be included in Missouri's State Implementation Plan.

Documents for the above item(s) will be available for review at the Missouri Department of Natural Resources, Air Pollution Control Program, 1659 Elm Street, Jefferson City, (573) 751-4817 and in the Public Notices section of the program web site http://dnr.mo.gov/env/apcp/public-notices.htm. This information will be available at least 30 days prior to the public hearing date.

The Department will accept written or email comments for the record until 5 p.m. on September 4, 2014. Please send written comments to Chief, Air Quality Planning Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176. Email comments may be submitted via the program web site noted above. All written and email comments and public hearing testimony will be equally considered.

Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 526-3420. The Department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the Program directly at (573) 751-4817, the Division of Environmental Quality's toll free number at (800) 361-4827, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

40 years

Missouri Department of Natural Resources

*Celebrating 40 years of taking care of Missouri's natural resources. To learn more visit dnr.mo.gov.*

---

Update your subscriptions, modify your password or email address, or stop subscriptions at any time on your Subscriber Preferences Page. You will need to use your email address to log in. If you have questions or problems with the subscription service, please contact subscriberhelp.govdelivery.com.

This service is provided to you at no charge by Missouri DNR.

Jay Nixon, Governor
Sara Parker Pauley, Director

# Air Pollution Control Program

Click to receive updates on this issue.

## State Plan Actions

On Public Notice | Proposed for Adoption

### On Public Notice

**Missouri State Implementation Plan Revision – 2008 Lead NAAQS Compliance Plan – Exide Technologies Canon Hollow Facility**

As required by Section 110(a) of the Clean Air Act, Missouri's State Implementation Plan (SIP) must ensure attainment and maintenance of all National Ambient Air Quality Standards (NAAQS). The Missouri Department of Natural Resources' Air Pollution Control Program is proposing to amend and strengthen the Missouri SIP to address violations of the 2008 Lead (Pb) NAAQS of 0.15 micrograms per cubic meter ($\mu g/m^3$), based on a rolling three-month average. These violations are located in the vicinity of Forest City in Holt County, MO near the Exide Technologies Canon Hollow Secondary Lead Smelting Facility. This plan was developed in conjunction with the revised National Emission Standards for Secondary Lead Smelters [40 CFR 63 Subpart X] which took effect on January 6, 2014. The SIP revision includes an attainment demonstration using air dispersion modeling and a consent judgment containing emission limitations and contingency measures.

2008 Lead NAAQS Compliance Plan – Exide

Appendix A
Appendix B
Appendix C
Appendix D
Appendix E
Appendix F

Submit Comments Now

A public hearing is scheduled for this plan action on August 28, 2014. Comments about this plan action will be accepted through the close of business on September 4, 2014.

**Proposed for Adoption**

**Missouri State Implementation Plan Revision – Regional Haze Plan 5-Year Progress Report**

The federal Clean Air Act establishes requirements for the protection of visibility in Class I areas, consisting of national parks and wilderness areas. States are required to submit state implementation plans (SIPs) that demonstrate reasonable progress toward meeting the national goal of a return to natural visibility conditions in Class I areas by 2064. There are two Class I areas in Missouri: Hercules Glades Wilderness Area and Mingo National Wildlife Refuge. Missouri's regional haze SIP, which was submitted to the U.S. Environmental Protection Agency in August 2009, established visibility goals for the year 2018 for each of the state's Class I areas in order to make reasonable progress toward the 2064 goal. The purpose of this report is to assess progress made toward the 2018 visibility goals in Hercules Glades and Mingo in the five years since Missouri's regional haze SIP was submitted to EPA. This 5-year progress report demonstrates that both of Missouri's Class I areas are expected to meet their 2018 visibility goals based on control strategies currently in place, which largely consist of sulfur dioxide and nitrogen oxides emission reduction measures for utilities, industrial boilers, and other sources.

Regional Haze Plan 5-Year Progress Report
Appendices

A public hearing for this plan action was held on May 29, 2014. Comments about this plan action were accepted through the close of business on June 5, 2014.

**Missouri State Implementation Plan Revision – Marginal Area Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 2008 8-Hour Ground Level Ozone National Ambient Air Quality Standard**

The purpose of this State Implementation Plan (SIP) revision is to address the emissions inventory and other marginal ozone nonattainment area requirements pursuant to Clean Air Act Section 182(a) for the Missouri portion of the St. Louis nonattainment area under the 2008 8-hour ozone national ambient air quality standard (NAAQS). The Missouri portion of the St. Louis nonattainment area includes the City of St. Louis and the Counties of St. Louis, St. Charles, Franklin, and Jefferson, which were designated as a marginal nonattainment area under the 2008 8-hour ozone NAAQS on May 21, 2012.

Marginal Area Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 2008 8-Hour Ground Level Ozone National Ambient Air Quality Standard

Appendix A
Appendix B

Appendix B-1
Appendix B-2
Appendix B-3
Appendix B-4
Appendix B-5

Appendix B-6
Appendix B-7

A public hearing for this plan action was held on May 29, 2014. Comments about this plan action were accepted through the close of business on June 5, 2014.

Back to top

1 BEFORE THE MISSOURI AIR CONSERVATION COMMISSION
2
3
4 IN RE:
Missouri State Implementation Plan - 2008 Lead National
5 Ambient Air Quality Standard Compliance Plan - Exide
Technologies Canon Hollow Facility
6
7 PUBLIC HEARING
8 August 28, 2014
Lewis and Clark State Office Building
9 1101 Riverside Drive
LaCharrette and Nightingale Conference Room
10 Jefferson City, MO 65101
11
12 Before:
13 Gary Pendergrass - Chair
Jack Baker - Member
14 Mark Garnett - Member
David Zimmermann - Member
15
16
17 THE COURT REPORTER:
18 Jenna Petree
MIDWEST LITIGATION SERVICES
19 401 Locust Street
Columbia, MO 65201
20 573-449-0561
21
22
23
24
25

1 PROCEEDINGS

2 MR. PENDERGRASS: The hearing will come to
3 order. Let the record show the following commissioners are
4 present: Jack Baker, Mark Garnett, Gary Pendergrass, and
5 David Zimmermann. The Air Conservation Commission of the
6 State of Missouri has called this public hearing pursuant
7 to Section 643.070, Revised Statutes of Missouri; EPA
8 promulgated Rule 40 CFR 51.102, for the purpose of hearing
9 testimony relating to: Missouri State Implementation Plan
10 Revision - 2008 Lead NAAQS Compliance Plan Exide
11 Technologies Canon Hollow Facility.
12 The hearing record will close at 5:00 p.m. on
13 September 4, 2014. Anyone who has not been scheduled to
14 appear but who wishes to be heard should indicate that you
15 wish to speak on the sign-in sheets available at the door.
16 Section 643.100 of the Missouri Statutes
17 provides that all oral testimony be given under oath.
18 Accordingly, when you called to testify, please present
19 yourself to the court reporter first to be sworn in. When
20 you testify, please state your name, business address, and
21 your occupation or affiliation. If are you have a prepared
22 a statement, it will be helpful if you will provide a copy
23 to the Staff Director, court reporter, and members of the
24 Commission.
25 Ms. Kyra Moore.

1 MR. WINKELMANN: Mr. Chairman, members of the
2 Commission. My name is Joe Winkelmann. I am employed as
3 an Environmental Engineer with the Missouri Department of
4 Natural Resources' Air Pollution and Control Program. I
5 work at 1659 East Elm Street, Jefferson City, Missouri.
6 I am here today to present testimony on the
7 proposed Missouri State Implementation Plan or SIP revision
8 entitled 2008 Lead National Ambient Air Quality Standard
9 (NAAQS) Compliance Plan for the Exide Technologies-Canon
10 Hollow Facility. The summary for the plan starts on page
11 77 of the briefing document.
12 As required by Section 110(a) of the federal
13 Clean Air Act, Missouri's SIP must ensure attainment and
14 maintenance of all NAAQS. The purpose of this compliance
15 plan is to amend and strengthen the Missouri SIP to address
16 violations of the 2008 lead NAAQS, which is 0.15 micrograms
17 per cubic meter averaged over three months. The violations
18 occurred at the Forest City levee lead air quality
19 monitoring site in Holt County, Missouri near the Exide
20 Technologies-Canon Hollow Secondary Lead Smelting Facility.
21 This plan was developed with the consensus and cooperation
22 of the Missouri Department of Natural Resources' Air
23 Pollution Control Program, Exide Technologies, U.S.
24 Environmental Protection Agency Revion VII and the Missouri
25 Attorney General.

**RECOMMENDATION FOR ADOPTION**

**PROPOSED REVISION TO**

**MISSOURI STATE IMPLEMENTATION PLAN –**

**2008 LEAD (PB) NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS) COMPLIANCE PLAN**
**–**
**EXIDE TECHNOLOGIES-CANON HOLLOW FACILITY**

On August 28, the Missouri Air Conservation Commission held a public hearing for a revision to the Missouri State Implementation Plan (SIP) titled **–** *2008 Lead (Pb) National Ambient Air Quality Standard (NAAQS) Compliance Plan – Exide Technologies-Canon Hollow Facility*. A summary of comments received and the Air Program's corresponding responses is included on the following page. Revisions were made to the proposed plan as a result of comments received.

The revised plan has not been reprinted in the briefing document due to its volume. The entire revised plan is available for review at the Missouri Department of Natural Resources' Air Pollution Control Program, 1659 East Elm Street, Jefferson City, Missouri, 65101, (573)751-4817. It is also available online at http://dnr.mo.gov/env/apcp/stateplanrevisions.htm.

The Air Program recommends the commission adopt the plan as revised. If the commission adopts this plan, it will be the department's intention to submit it to the U.S. Environmental Protection Agency for inclusion in the Missouri State Implementation Plan.

MISSOURI DEPARTMENT OF NATURAL RESOURCES

**COMMENTS AND RESPONSES ON**

**PROPOSED REVISION TO**

**MISSOURI STATE IMPLEMENTATION PLAN –**

**2008 LEAD (PB) NATIONAL AMBIENT AIR QUALITY STANDARD (NAAQS) COMPLIANCE PLAN – EXIDE TECHNOLOGIES-CANON HOLLOW FACILITY**

The public comment period for the proposed revision to the Missouri State Implementation Plan (SIP) titled *2008 Lead (Pb) National Ambient Air Quality Standard (NAAQS) Compliance Plan – Exide Technologies-Canon Hollow Facility* opened on July 28, 2014 and closed on September 4, 2014. Revisions to the proposed plan were made as a result of comments.

The following is a summary of comments received and the Missouri Department of Natural Resources' Air Pollution Control Program's (Air Program's) corresponding responses. Any changes to the proposed plan are included in the response to comments.

SUMMARY OF COMMENTS: During the public comment period for the proposed plan, the Air Program received comments from 3 sources: Dr. Rex McAliley, U.S Environmental Protection Agency (EPA) and Exide Technologies (Exide). Dr. McAliley submitted written comments in addition to his verbal testimony.

COMMENT #1: Both EPA and Exide commented in support of the proposed plan. EPA noted the high level of coordination involved in the plan's development and emphasized that the plan came together without the Federal issuance of a nonattainment designation or SIP call.

RESPONSE: The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) appreciates the commenters' support and cooperation during the development of this plan. As noted by EPA, this compliance plan was developed proactively, pursuant to Section 110 of the federal Clean Air Act (CAA), to attain and maintain the 2008 lead NAAQS in the vicinity of Forest City and prior to the issuance of a formal nonattainment designation by EPA. Since the area has not been designated nonattainment, certain provisions of CAA Section 172, such as a formal attainment demonstration, are not required of this plan. Nonetheless, to make this plan as robust as possible and to be consistent with the State's other lead SIPs, this plan demonstrates attainment using air dispersion modeling based on the most conservative assumptions (worst-case scenarios) and the best available data. The plan includes a contingency measure strategy in case of any further violations of the lead standard. No changes to the plan were made as a result of this comment.

The remaining comments were all made by Rex McAliley, Ph.D.:

COMMENT #2: Dr. Rex McAliley, a university professor and former environmental consultant, having an interest in regional air quality expresses general concerns about the Exide-Canon

Hollow secondary smelter in Holt County as a resident of nearby Nodaway County. One concern is that the company's Chapter 11 bankruptcy last year may affect Exide's ability to fund pollution control measures.

RESPONSE: The Air Program encourages public participation and appreciates the commenter's concerns about air quality.

All the control projects used to demonstrate attainment in this plan have already been installed including those required by the revised federal Maximum Achievable Control Technology (MACT) regulation for secondary lead smelters promulgated on January 5, 2012. The monitored values have so far not recorded a violation of the 2008 lead air quality standard since the implementation of the control strategy of this plan. Furthermore, Exide has expressed its commitment to maintaining environmental compliance throughout the bankruptcy process. The Consent Judgment portion of this SIP revision makes that commitment permanent and enforceable for the controls relevant to this plan.

No changes to the plan were made as a result of this comment.

COMMENT #3: The commenter raises several concerns about the location of Forest City levee monitoring site. He notes reasons why the site is not ideal because of the direction of the prevailing wind, topography, and other siting criteria. Because of the location of the plan's maximum modeled result, he suggests a monitor location to the Northwest of the facility.

RESPONSE: The Missouri ambient air monitoring network is designed by the State of Missouri and approved by US EPA Region VII consistent with 40 CFR 58 through the annual Monitoring Network Plan proposal and approval process cited in 40 CFR 58.10. The Air Program's 2011 Monitoring Network Plan [http://dnr.mo.gov/env/apcp/docs/2011monitoringnetwork.pdf] describes the rationale for resuming monitoring in the area surrounding the Exide Canon Hollow facility and the 2012 Monitoring Network Plan [http://dnr.mo.gov/env/apcp/docs/2012monitoringnetwork.pdf] discusses the monitoring site selection process. Both monitoring network plans are approved by EPA.

Although the plan's modeling results suggest that the estimated area of maximum airborne lead impact from the facility's current emission sources is to the Northwest of the smelter, this area is densely forested and close to the facility fence line. Based on EPA's network design requirements for lead ambient air monitoring, 40 CFR 58 Appendix D, paragraph 4.5, the State can take into account the logistics and potential for population exposure. The logistical issues related to installing a monitoring station in this area include the removal of a wide tract of trees and other land disturbance activities to facilitate appropriate monitoring siting criteria, installation of electrical power, and potential construction of gravel roads to access the site. Additionally, population exposure in this area appears unlikely now and for the foreseeable future since this property is owned by the Exide facility. Relying on regulatory dispersion modeling to characterize airborne lead impacts is appropriate for this area where monitoring is logistically difficult.

The Exide Levee ambient air monitoring site [EPA's Air Quality System (AQS) Site ID: 29-087-0008] is located approximately southwest of the smelter facility in an area that is subject to public access and considered in the ambient air. Analyses conducted by Air Program staff indicates that calm wind conditions tend to correlate with increasing airborne lead concentrations which suggests fugitive emissions are likely to be monitored at the Levee site despite the predominant wind direction. See **Chart 1** below. This weight of evidence supports the continued use of the levee site as an indicator of how effective the new emission controls and management practices are at controlling fugitive airborne lead emissions and provide airborne lead data for demonstrating that the area meets the lead NAAQS.

No changes to the plan were made as a result of this comment.

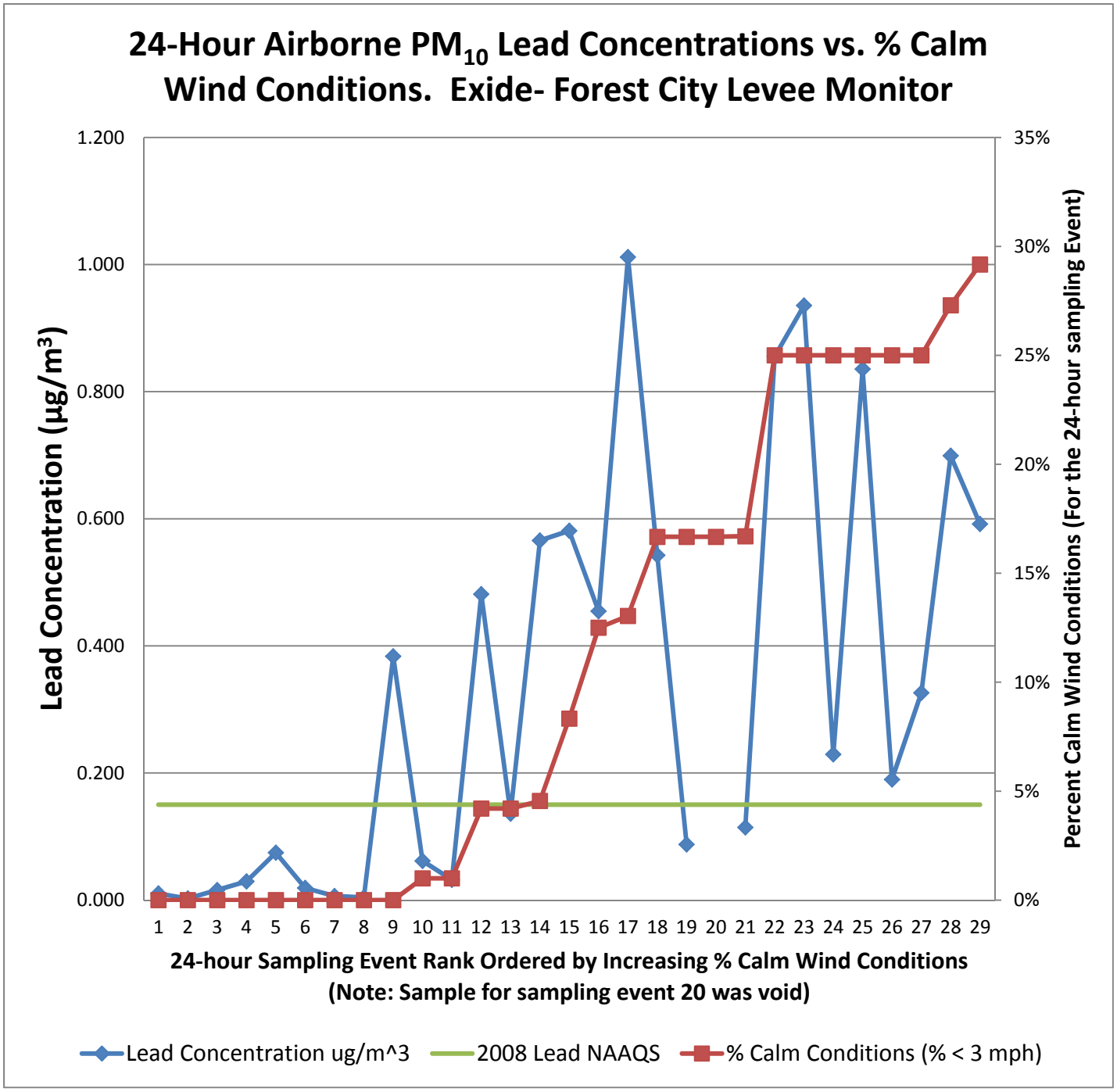



**Chart 1**
24-Hour Airborne PM10 Lead Concentrations vs. % Calm Wind Conditions at the Exide- Forest City Levee Monitor

COMMENT #4: The commenter noted that the Toxic Release Inventory (TRI) data reported by this facility showed no information for arsenic despite other information from EPA showing 5.5 pounds per year of arsenic emissions.

RESPONSE: The TRI data is reported by the facility to the national TRI database which is maintained by EPA. The Air Program is not responsible for quality assurance of the TRI submissions, so we have no additional response regarding the TRI data. No changes to the plan were made as a result of this comment.

COMMENT #5: The commenter asks for a review of the modeling since it results in such a small margin of attainment and because Exide has updated the way it reports fugitive emissions in recent years.

RESPONSE: This comment is referencing Exide's reported emissions on the Emission Inventory Questionnaire (EIQ). Exide is required by State rule 10 CSR 10-6.110 *Reporting Emission Data, Emission Fees, and Process Information* to submit actual emissions on an annual basis in the form of an EIQ. This plan demonstrates modeled attainment with the lead NAAQS through conservative assumptions and worst-case scenario modeling, which includes a modeling inventory that was developed separately from the EIQ. The plan's modeling effort is an independent accounting of potential emissions from all area, point and volume sources of lead at the facility. Therefore, Exide's previous accounting and reporting of actual fugitive emissions for the EIQ was not used in the model development. Furthermore, the plan contains a contingency measure strategy to act as a backstop in case of any future violations of the 2008 lead NAAQS. No changes to the plan were made as a result of this comment.

COMMENT #6: Dr. McAliley commented that no baseline assessment or base case modeling analysis was conducted. He questions how we can be sure that all lead emission sources causing previous monitored violations have been properly quantified. He notes that typically modeling underestimates impacts when compared to actual lead monitoring data likely due to lack of proper accounting of the reentrainment of previously emitted and deposited particles.

RESPONSE AND EXPLANATION OF CHANGE: A base case modeling analysis verifies the accuracy of the modeled inputs by comparing the monitored data to the modeled results. The Air Program is confident that all lead sources have been appropriately identified and characterized in the model despite not having a base case for Exide. Because Missouri has been at the forefront of developing SIPs for lead since the late 1970's, we have developed decades of in-depth knowledge and experience with lead's characteristics as a pollutant, specifically in regards to modeling, fugitive source accounting and control techniques. This plan uses the same source accounting analysis utilized by the State in other recent SIP revisions for similar lead smelting facilities and by the EPA in their recent MACT lead residual risk assessment. The decision to move forward with the plan without a base case modeling analysis was made in coordination with EPA Region VII staff.

In addition, a base case evaluation is typically driven by the need to evaluate the source of potential controls on the existing facility. Early in the development of this plan, the Air Program, in consultation with EPA, decided to pursue the implementation of controls in a timely

fashion in lieu of waiting for the collection of on-site data before beginning development of this plan. As a result, Exide started process changes and construction projects related to the newly revised secondary lead MACT control measures that changed the facility's "baseline." Consequently, there was an inability to establish baseline emissions due to the commencement of process changes and construction projects related to the newly revised secondary lead MACT. This proactive approach to early reductions at the facility removed the necessity for a base case evaluation.

Furthermore, in order to conduct a base case model, emissions, monitoring and meteorological data must all be representative, concurrent and correlative. For this plan, a representative corresponding period of matching data sets for establishing a base case scenario did not exist. At the start of the development of this plan in late 2012, on-site meteorological data was not available. So that compliance with the lead air quality standard may be achieved as expeditiously as possible, the Air Program moved forward with the plan using meteorological data from a representative National Weather Service site despite its potential limitations due to terrain differences. Exide has agreed to conduct on-site meteorological monitoring for trend analysis or in case future air dispersion modeling should become necessary. The on-site meteorological station became operational in March 2014.

To address the concern about the underestimation of actual modeled emissions, the Air Program reiterates that the attainment demonstration model is based on an analysis using conservative assumptions of potential to emit not actual emissions. In addition, emissions due to reentrainment are accounted for in this plan's model through the addition of a background concentration to the source emissions modeled concentration. The estimation of background includes windblown fugitive emissions from lead dust previously deposited by the facility. [SIP document, section 5.9, pg. 29].

As a result of this comment, chapter 5 (Air Dispersion Modeling) of the SIP document has been amended to provide additional clarification on why a base case modeling scenario was not necessary.

COMMENT #7: The commenter questioned the method used to determine the background concentration. In light of prevailing wind data, he commented on why the wind compass points were modified to exclude three data appoints that averaged higher than the NAAQS and whether the use of meteorological data from a station 19 miles away in Nebraska represents localized weather for such evaluations as background concentrations.

RESPONSE: Background concentrations need to include all sources of lead from the facility that are not explicitly modeled. The monitor that was chosen to evaluate the background concentration was the Exide Levee monitor, which collects data on a sampling period of 24 hours. To eliminate the impacts from the plant, the data points used corresponded to periods when the winds were not blowing from the plant for all 24 of the hourly wind values for that day regardless of the prevailing wind. This accounts for the few data points available in the background evaluation. The three data points referenced by the commenter were excluded from background determination because they did not represent distant sources of lead but rather impacts from the facility by nearby sources. The wind zone first chosen to evaluate background

influence included fugitive emissions from Highway 111 and Canon Hollow. Subsequently, the wind zone was appropriately adjusted to exclude these impacts, and the fugitive emissions from these road sources were then included as emission inputs to the model. Because there is still the possibility of some influences from the plant, the estimation of background concentration is conservative and lends to the attainment demonstration's overall margin of safety. This rationale and method for determining the background is discussed in section 5.9 of the SIP document on pages 30-31.

To illustrate both the effectiveness of the plan's control strategy at attaining the 2008 NAAQS and the appropriateness of the plan's background concentration determination, it should be noted that the monitored average lead air quality concentration for the month of March 2014 is 0.023µg/m$^3$. This is the same concentration as the plan's estimated background value despite the plant operations' impact to the monitor during that month.

No changes to the plan were made as a result of this comment.

COMMENT #8: The commenter states that the impact from fugitive emissions is typically greater on calm or low wind velocity days and the inclusion of 1-minute meteorological data is important for conducting an accurate evaluation to fill the hourly gaps caused by calm / missing data. He comments that the plan does not seem to indicate the inclusion of 1-minute meteorological data.

RESPONSE: As addressed by section 5.6 of the SIP document, for the attainment demonstration model, the Air Program did run the modeling pre-processor software called AERMINUTE to develop 1-minute meteorological data for the purposes of addressing missing or calm wind days. This is also explained in the Final Modeling Report (Appendix D), on page 8.

No changes to the plan were made as a result of this comment.

COMMENT #9: The commenter notes that the SIP revision does not address control measures for hazardous air pollutants like arsenic and cadmium. He urges that the plan should address these pollutants before being adopted to achieve the goal of protecting human health and the environment.

RESPONSE: State Implementation Plans pursuant to the CAA are plans intended to address the six criteria pollutants, including lead. Lead is the only pollutant that is both a criteria pollutant and a hazardous air pollutant (HAP). Arsenic and cadmium are HAPs. HAPs are regulated pursuant to CAA Section112 and are controlled by the federal MACT regulations. The revised secondary lead smelter MACT is a key building block of this plan so in that regard this plan does address arsenic emissions from the facility. EPA notes that the controls of this revised MACT cut arsenic emissions by 68% [77 Federal Register 575].

Since the control strategies and devices for reducing arsenic and cadmium are the same as that for lead, additional reductions in lead emission are expected to yield similar reductions in arsenic and cadmium. This plan adds work practices and emission limitations over and above those of the MACT, so we would expect similar additional reductions in arsenic and cadmium as well.

No changes to the plan were made as a result of this comment.

COMMENT #10: The commenter suggests that the impact of fugitive emissions is further discounted because there are no windblown lead emissions from sources such as the landfill.

RESPONSE AND EXPLANATION OF CHANGE: The commenter is correct that the model identifies fugitive emissions from truck traffic on the paved surfaces and haul routes including the landfill but does not estimate any emissions from the landfill itself. The slag landfill at the Exide-Canon Hollow facility is not typical of other landfills that might be characterized by loose fill that would lend itself to fugitive emissions from windblown erosion. This landfill is comprised throughout of a concrete-like substance that stabilizes and fixates the lead-bearing material contained within, preventing the surface from creating dust to be picked up by the wind. When the slag is brought to the landfill, it is completely mixed with this cement compound and deposited wet where it cures like concrete. The landfill's only source of lead fugitive emissions is from the truck traffic over the hardened landfill surface. Furthermore, the tires of all trucks are washed before exiting the landfill to prevent track-out.

In light of this comment, text has been added to chapter 5 (Air Dispersion Modeling) of the proposed plan to better describe the landfill and its fugitive emission characteristics.