



pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

SECRETARY

August 10, 2015

Mr. Shawn M. Garvin
Regional Administrator
U.S. Environmental Protection Agency, Region III
1650 Arch Street (Mail Code: 3RA00)
Philadelphia, PA 19103-2029

Dear Mr. Garvin:

I am pleased to submit to the U.S. Environmental Protection Agency the attainment demonstration for the North Reading Nonattainment Area for the 2008 lead National Ambient Air Quality Standard (NAAQS). This State Implementation Plan (SIP) revision, which also includes the comprehensive emissions inventory required under Section 172(c)(3) of the Clean Air Act, must be processed expeditiously to avoid the imposition of mandatory sanctions on August 25, 2015 (79 FR 1039; February 25, 2014).

On Saturday, June 20, 2015, the Department of Environmental Protection (DEP) opened a public comment period on the proposed attainment demonstration and emissions inventory and held a public hearing in Reading, PA (45 Pa.B. 3278). No one provided testimony during the hearing and one person, Attorney Alexandra C. Chiaruttini of Stock and Leader, submitted written comments to DEP on behalf of Berks County. The comment period closed on July 23, 2015.

The following documents are enclosed for your approval:

1. Attainment Plan State Implementation Plan revision, which includes the comprehensive emissions inventory;
2. Certification of public participation activities; and
3. A comment and response document.

A paper copy of each document and a disc containing electronic copies are enclosed. I certify that the electronic files are exact duplicates of the hard copies. The Commonwealth followed all of the applicable procedural requirements of the State's laws and constitution in conducting and completing the issuance of the SIP revision.

Thank you in advance for the expeditious processing of this SIP submittal. Should you have questions or need additional information, please contact Joyce E. Epps, Director, Bureau of Air Quality, by e-mail at jeepps@pa.gov or by telephone at 717.787.9702.

Sincerely,

John Quigley
Secretary

Enclosures

Commonwealth of Pennsylvania



State Implementation Plan Revision: Attainment Demonstration and Base Year Inventory

North Reading Nonattainment Area, Berks County for the 2008 Lead National Ambient Air Quality Standards

August 2015

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EXECUTIVE SUMMARY

On October 15, 2008, the United States Environmental Protection Agency (EPA) substantially strengthened the primary (health-based) national ambient air quality standard (NAAQS) for lead (lead or Pb). The revised 2008 lead standards are 10 times tighter than the 1978 standards. The EPA lowered the level of the primary lead standard from 1.5 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), to $0.15 \mu\text{g}/\text{m}^3$, measured as total suspended particles (TSP). The secondary (welfare-based) lead standard is identical in all respects to the primary standard. These revised lead standards were effective on January 12, 2009. See 73 FR 66964, November 12, 2008.

In conjunction with strengthening the lead NAAQS, the EPA required states to improve the existing lead ambient air monitoring network. Monitors were in place by January 2010 near sources that emit one ton per year (tpy) of lead or more. On December 27, 2010, the EPA lowered the monitoring requirement for stationary sources that emit 0.5 tpy of lead and changed the population monitoring requirement to require monitors at NCore sites in Core Based Statistical Area (CBSA) with a population greater than 500,000. (As defined by EPA, NCore is a multi-pollutant network that integrates several advanced measurement systems for particles, pollutant gases and meteorology.) These monitors were in place in Pennsylvania by December 27, 2011.

In November 2010, the EPA designated three areas in Pennsylvania as lead nonattainment areas based on air quality monitoring data from 2007-2009. The designations for the Lyons and North Reading areas in Berks County and the Lower Beaver Valley Area in Beaver County were effective on December 31, 2010. See 75 FR 71033, November 22, 2010. The North Reading Nonattainment Area includes: Laureldale Borough, Muhlenberg Township and Alsace Township.

Section 191 of the federal Clean Air Act (CAA), 42 U.S.C.A. § 7514, requires the submission of attainment demonstrations as revisions to the State Implementation Plan (SIP) with 18 months of designations. Nonattainment areas must attain the 2008 NAAQS as expeditiously as practicable but no later than five years from effective date of designations, which is December 31, 2015 for the 2010 designations, as required under Section 192 of the CAA, 42 U.S.C.A. § 7514a.

As required under Section 172 of the CAA, 42 U.S.C.A. § 7502, this revision to the State Implementation Plan (SIP) contains information on lead ambient air concentrations and lead emissions, and demonstrates that the North Reading Nonattainment Area meets all requirements necessary for an approvable attainment demonstration for the 2008 lead NAAQS.

Lead is a metal found naturally in the environment and present in some manufactured products. Larger industrial sources of lead emissions currently include metals processing, particularly primary and secondary lead smelters. Exide Technologies (Exide) owns and has operated a lead acid battery recycling facility in the Borough of Laureldale and Muhlenberg Township in Berks County, Pennsylvania pursuant to applicable federal and state laws and regulations and Title V Operating Permit No. 06-05066. The Exide facility consists of a secondary lead smelter that recycles spent lead-acid batteries and other lead-containing materials, and associated material handling and processing operations. The Exide facility is the only facility that has emitted more

than 0.5 tons per year of lead in the North Reading Nonattainment Area. There is one other facility located within the boundaries of the lead nonattainment area, Yuasa Battery, Inc. (Yuasa). Yuasa operates a lead-acid battery assembly plant directly east across the street from the Exide facility.

Both monitors in the North Reading Nonattainment Area had 2013 design values that exceeded the lead NAAQS limit of $0.15 \mu\text{g}/\text{m}^3$. A “design value” is a statistic that describes the air quality status of a given location relative to the level of a specific NAAQS. For the 2008 lead NAAQS, it is calculated by assessing the rolling 3-month averages over 36 consecutive valid periods, specifically for a three calendar year period and the two previous months.¹ This design value is based on air quality data from 2010-2013.

The primary permanent and enforceable control measures that enable the North Reading Nonattainment Area to demonstrate attainment of the 2008 lead NAAQS include implementation of, and compliance with, the National Emission Standards for Hazardous Air Pollution from Secondary Lead Smelting, 40 C.F.R. Part 63, Subpart X at the Exide facility upon reactivation of the currently idled lead operations. These measures include totally enclosing existing buildings, adding new control equipment, redirecting emissions from existing named sources to new or differently named control devices, eliminating some existing control devices and modifying the refining kettles. Furthermore, measures are named in the Consent Order and Agreement (COA) between the Department and Exide, namely emission limits, and installation and maintenance of the facility fence line around the Exide property, that are also necessary for attainment of the 2008 lead NAAQS. Stack testing, recordkeeping, monitoring and semi-annual notification with progress reports are required to ensure enforceability and compliance with the control measures. The control measures in the Yuasa COA are: the installation of a fence around a portion of the facility to delineate the ambient air boundary and individual stack emission limits that are more stringent than the current operating limits. Stack testing, recordkeeping, monitoring and semi-annual notification with progress reports are also required by the COA to ensure enforceability and compliance with the control measures.

The 2008 lead NAAQS attainment demonstration is based on dispersion modeling. Modeling must take into consideration all sources of lead emissions within the nonattainment area that may be required to be controlled. The modeling demonstration accounted for lead emissions from both Exide and Yuasa facilities. The modeling demonstrates that the area will attain the NAAQS due to implementation of control measures in this SIP revision.

The modeling predicted that the North Reading Nonattainment Area’s maximum 3-month rolling average based on the lead emissions expected after the implementation of the control measures would be $0.1411 \mu\text{g}/\text{m}^3$ (0.1291 modeled maximum + 0.012 background concentration), which is below the $0.15 \mu\text{g}/\text{m}^3$ lead NAAQS. The area, therefore, will attain the NAAQS. However, due to monitored violations of the lead standard in January 2013, the area will not attain the NAAQS by December 2015 based on ambient air quality over 36 consecutive 3-month periods. There

¹ Appendix R to Part 50-EPA document: Interpretation of the National Ambient Air Quality Standards for Lead, Section 4.

have been no 3-month periods which exceeded the lead NAAQS since the idling of the Exide facility in February 2013.

Under Section 172(c)(9) of the CAA, 42 U.S.C.A. § 7502(c)(9), the North Reading Nonattainment Area for the 2008 lead NAAQS is required to have a contingency plan in the event that the area does not attain the 2008 lead NAAQS by December 31, 2015. The attainment demonstration complies with the numerical criterion for contingency measures by showing air quality improvements and also includes several contingency measures that would bring the area back into attainment should lead concentrations exceed the 2008 NAAQS.

I. INTRODUCTION

On October 15, 2008, the U.S. Environmental Protection Agency (EPA) promulgated revised primary and secondary National Ambient Air Quality Standards for lead, the maximum limits for lead pollution allowed in the ambient air. The 2008 primary lead NAAQS, which is set at a level to protect public health from adverse effects, is 0.15 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$). The secondary standard, which is set at a level requisite to protect the public welfare from adverse effects, has been set identical to the primary standard. See 73 FR 66964, November 12, 2008. The revised lead standards provide a greater level of protection to at-risk populations than the older 1.5 $\mu\text{g}/\text{m}^3$ standard.

The lead NAAQS is measured as a rolling three-month average of the monthly mean concentrations. This rolling average is evaluated over a three-year period for purposes of verifying that an area has reached and maintains attainment with the NAAQS.

This revision to the State Implementation Plan describes the air quality demonstration mandated under the federal Clean Air Act for attainment of the primary 2008 lead NAAQS in the North Reading Nonattainment Area.

A. Health and Environmental Effects of Lead

Maintaining concentrations of lead below the health-based standard is important because lead is a serious human health threat. Lead that is emitted into the air can be inhaled or, after it settles out of the air, can be ingested. Ingestion of lead that has settled onto surfaces is the main route of human exposure to lead originally released into the air. Once in the body, lead is rapidly absorbed into the bloodstream and results in a broad range of health effects.

Children are most vulnerable to the damaging effects of lead because they are more likely to ingest lead due to hand-to-mouth activity and their bodies are developing rapidly. No safe level of lead in the blood has been identified. Effects in children include:

- Effects on the developing nervous system including the brain. This can lead to IQ loss, poor academic achievement, permanent learning disabilities, and delinquent behavior. The effects can generally persist into early adulthood and can affect lifetime education and achievement;
- Damage to red blood cells; and
- Weakened immune system.

Effects in adults include:

- Increased blood pressure;
- Cardiovascular disease; and
- Decreased kidney function.

EPA's comprehensive overview of the health effects of lead exposure is provided in the Preamble for the final rule concerning the *National Ambient Air Quality Standards for Lead*. This rule was published in the *Federal Register* on November 12, 2008 (73 FR 66964).

B. Lead in the North Reading Nonattainment Area

Lead is a metal found naturally in the environment and present in some manufactured products. Because of the large molecular weight of lead, it settles out of the air quickly and stays close to the source. Therefore, lead emitting sources have a very localized area surrounding them for nonattainment compared to many other pollutants.

The major sources of lead air emissions have historically been motor vehicles (such as cars and trucks) and industrial sources. Lead emissions from motor vehicles have been dramatically reduced with the phase-out of leaded gasoline for surface vehicles. Fuel for general aviation aircraft, however, still contains lead. Permitted stationary source emissions comprised almost all of the lead emissions in the nonattainment area.

Larger industrial sources of lead emissions currently include metals processing, particularly primary and secondary lead smelters. There is only one industrial source of lead in the North Reading Nonattainment Area that has emitted more than 0.5 tons per year (tpy). This is the secondary lead smelter plant owned and operated by Exide Technologies (Exide) in the Borough of Laureldale and Muhlenberg Township, pursuant to Title V Operating Permit (No. 06-05066) issued by the Pennsylvania Department of Environmental Protection (DEP or Department) on September 23, 2010. The Berks County Exide facility is currently in an idled state with none of its lead smelting processes in operation.² Deactivation began on a phased basis in February 2013 and was completed by January 6, 2014.

There is also one smaller industrial source of lead in the nonattainment area, Yuasa Battery (Yuasa), with a State-only Operating Permit (No. 06-03029) issued by DEP on February 5, 2010.

C. Purpose and Structure of this Attainment Demonstration

In 2010, EPA designated three areas in Pennsylvania as nonattainment areas for the 2008 lead NAAQS based on air quality monitoring data from 2007-2009.³ The North Reading Nonattainment Area is comprised of Laureldale Borough,

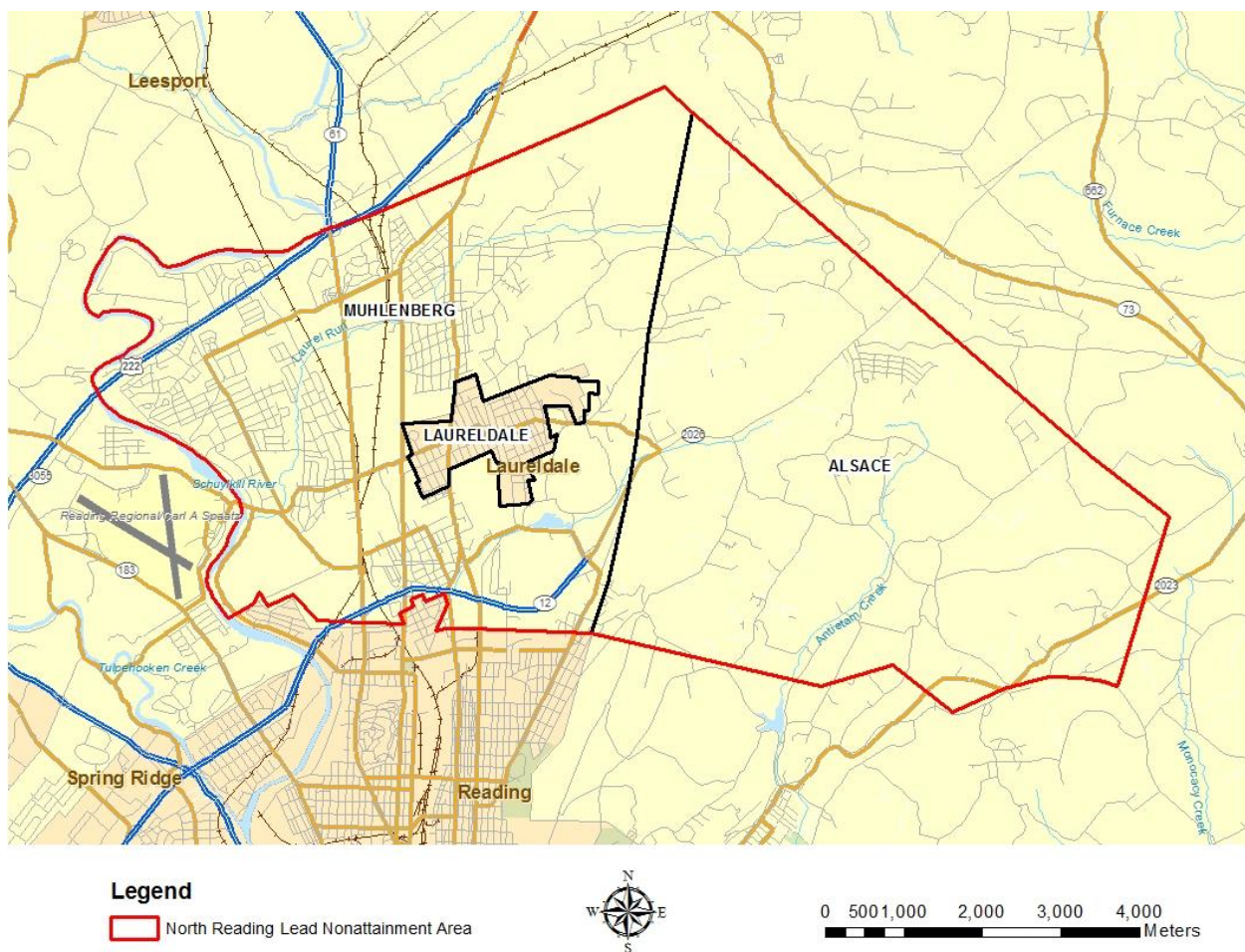
² A statement about the idling is publicly available online in Exide's February 6, 2013 filing, United States Securities and Exchange Commission Form 10-Q, page 21-22, <http://ir.exide.com/sec.cfm>

³ Air Quality Designations for the 2008 Lead (Pb) National Ambient Air Quality Standard, 75 FR 71033, (November 22, 2010).

Muhlenberg Township and Alsace Township in Berks County as shown in Figure 1. The other designated nonattainment areas in Pennsylvania are the Lyons Area (Kutztown Borough, Lyons Borough, Maxatawny Township and Richmond Township) in Berks County and the Lower Beaver Valley area (Vanport, Potter and Center Townships) in Beaver County.

In January 2010, the Department commenced operation of a new source-oriented lead monitor (referred to as the Laureldale North monitor, AQS 42-011-0020, Berks County) associated with the Exide facility. This source-oriented lead monitoring site was installed in accordance with EPA's network design requirements for the 2008 lead NAAQS. (73 FR 66964, November 12, 2008).

Figure 1: North Reading Nonattainment Area



In accordance with Section 192 of the CAA, 42 U.S.C.A. § 7514a, the North Reading Nonattainment Area is required to attain the 2008 lead standard by December 31, 2015, as expeditiously as practicable but no later than five years from the effective date of the 2008 lead NAAQS designations.

Under Sections 172 and 192 of the CAA, 42 U.S.C.A. §§ 7502 and 7514a, States are required to develop revisions to the SIP to demonstrate how each nonattainment area within their borders will attain the standards by the required date and meet emission reduction requirements in the CAA. The state must ensure that in the event of a future violation or failure to meet emission reduction milestones, the area is brought back to attainment as quickly as possible. Under Section 191(a) of the CAA, 42 U.S.C.A. § 7514(a), the plans were due to the EPA 18 months from the effective date of the 2008 lead NAAQS nonattainment designations, which was June 30, 2012.

The EPA Administrator is authorized under Section 179(a) of the CAA, 42 U.S.C.A. § 7509, to impose sanctions after making a finding, determination, or disapproving a SIP revision, in whole or part. Mandatory sanctions would be imposed for:

- (1) A state's failure to submit a plan or plan element meeting the minimum criteria of Section 110(k) of the CAA, 42 U.S.C.A. § 7410(k);
- (2) The EPA's disapproval of a State plan in whole or in part;
- (3) A state's failure to make any required submission satisfying the minimum criteria of Section 110(k); and
- (4) A state's failure to implement any requirement of an approved plan.

If the State fails to correct any SIP deficiency within 18 months from the Administrator's finding, determination or disapproval, "offset" limitations on certain developments in affected areas would be imposed such that each new or modified stationary emission source of lead must reduce emissions by double the amount of increased emissions from the new source. If the State fails to correct the deficiency with 24 months, limitations on certain federal transportation funding must be imposed. Where the EPA has published in the *Federal Register* a clean data determination for an area, a state's obligation to submit RACM/RACT, contingency measures, RFP and attainment demonstrations for that area are suspended as of the effective date of the clean air determination.

In addition, if Pennsylvania has not submitted and the EPA has not approved the required attainment plans for nonattainment areas by no later than 24 months after the effective date of the finding, the EPA must promulgate a federal implementation plan (FIP) for the affected nonattainment area.

On February 25, 2014, the EPA made a finding that the Commonwealth failed to submit the required attainment demonstration SIP revisions for the 2008 lead NAAQS nonattainment areas by June 30, 2012. The finding was effective upon date of publication in the *Federal Register* on February 25, 2014. (79 FR 10391). This finding started a mandatory sanctions "clock" for the imposition of sanctions

under Section 179 of the CAA. On February 27, 2015 and March 3, 2015, respectively, EPA notified the Department that the Lower Beaver Valley SIP revision and the Lyons Base Year Inventory SIP revisions were administratively and technically complete. On June 9, 2015 EPA proposed approval of the Lyons Area Base Year Emission Inventory SIP in the *Federal Register*. (80 FR 32522). On the same date, EPA published notice in the *Federal Register* of a direct final rule approving the Lyons Area Base Year Emission Inventory SIP. (80 FR 32474). No comments were received on the proposal during the public comment period; therefore the SIP approval will become effective August 10, 2015. (80 FR 32474).

This North Reading Nonattainment Area lead NAAQS attainment demonstration will be submitted to the EPA for approval as a SIP revision. An EPA determination that Pennsylvania has submitted a technically and administrative “complete” SIP revision will stop the sanctions “clock.” EPA approval of the SIP revision will stop the FIP “clock.”

In addition to the Introduction in Section I, this SIP revision contains the following sections:

Section II examines current lead monitoring information and analyzes trends in lead along with meteorological trends.

Section III describes emission inventories for lead and demonstrates that the sources in the North Reading Nonattainment Area have and will reduce lead between 2010, the base year and 2015, the attainment year.

Section IV describes the control measures implemented in the North Reading Nonattainment Area that produced, and will produce, emission reductions in order to attain the NAAQS expeditiously. This section also describes the required analysis of Reasonably Available Control Measures/Reasonably Available Control Technology.

Section V demonstrates how the area meets the Reasonable Further Progress requirement.

Section VI describes the dispersion modeling that was done to demonstrate that the maximum concentration of lead will be below the 2008 lead NAAQS.

Section VI contains contingency measures that the Commonwealth will implement to address unanticipated failures to meet reasonable further progress goals or attain and maintain the 2008 lead NAAQS.

D. Public Participation

Requirements for a public participation process including a public hearing are set forth in Section 110(a)(2) of the CAA (42 U.S.C.A. § 7410(a)(2)), 40 C.F.R. § 51.102(d) and 35 P.S. § 4007.5. On Saturday, June 20, 2015, the Department provided notice in the *Pennsylvania Bulletin* of a public comment period on the proposed SIP revision and of a public hearing on Wednesday, July 22, 2015. There were no persons wishing to provide testimony during the public hearing held at the Muhlenberg Township Recreation Building (3025 River Road, Reading, PA). The 34-day public comment period closed on July 23, 2015. One commentator submitted comments during the public comment period. The comments are addressed in the Comment and Response Document that is being submitted with this SIP revision.

II. AIR QUALITY MONITORING

A. Summary of Approved Network and Equipment

The DEP establishes, operates, and maintains a network of ambient air monitors throughout Pennsylvania. (Local air pollution control agencies operate ambient air monitors in Philadelphia and Allegheny counties.)

1. Samplers and Laboratory Analysis

The Pennsylvania lead monitoring network (comprised of the monitoring network operated by the Department and local air pollution control agencies in Philadelphia and Allegheny County) consists only of lead monitors that have been designated by the EPA as either Reference or Equivalent monitors. All ambient air monitors are subjected to the Federal Quality Assurance requirements of 40 C.F.R. Part 58, Appendix A. In addition, all samplers are located at sites that have met the minimum siting requirements of Part 58, Appendices D and E.

Lead is sampled using discrete sampling methods. A discrete method is generally defined as a “manual” method of sampling, most commonly using an air filter to trap air pollutants from ambient air on a filter substrate for a defined or “discrete” period of time. The filter is then removed from the collection site and analyzed by the Department’s Bureau of Laboratories in Harrisburg, Pennsylvania.

The laboratory analysis conducted before January 2011 used the Inductively Coupled Argon Plasma – Optical Emission Spectrometry (ICP-OES). The laboratory analysis conducted after January 2011 used Inductively Coupled Argon Plasma – Mass Spectrometry (ICP-MS). These analysis methods were approved by the EPA as equivalent analysis methods as EQL-0592-086 (57 FR 20823, May 15, 1992) and

EQL-0710-192 (75 FR 45627, August 3, 2010), respectively. The increased sensitivity of the ICP-MS method over the ICP-OES method allowed for a significant decrease of the Method Detection Limit (MDL). Due to the improved sensitivity of the new method, lead concentrations corresponding to the reporting limits for the two methods decreased from a value of approximately 0.04 µg/m³ to 0.01 µg/m³.

The manual method lead samplers take 24-hour samples on a schedule of one in every six days using high-volume air quality total suspended particulate (TSP) filters. The TSP filters are manually collected between the scheduled sample dates, a new filter is installed and the sampler is prepared for the next sampling event. The daily lead values, as calculated by the laboratory analysis, are averaged to generate the monthly values. The monthly values are averaged to generate a 3-month rolling average.

2. *Network Design*

As required in 40 C.F.R. § 58.10, an annual network design plan is required to be submitted to the EPA Regional Administrator by July 1 each year for concurrence with any proposed monitoring changes. The network design document informs both the EPA and the public of any planned changes to the sampling network for the next year. The annual network design plan provides a description of the current monitoring network, a reason for each change, and any other information relevant to any change. In addition, the Department and the local air agencies provide EPA Region III with prior notification of any planned changes to the network between formal network design submissions. As needed, details of these changes are communicated to and approved by the EPA.

The Department operated a lead monitoring network as required for the maintenance of the lead NAAQS promulgated in October 1978. The EPA promulgated revised monitoring requirements as part of the promulgation of the revised NAAQS in 2008. Those amendments include revisions to sampler specifications, quality assurance requirements, reporting requirements and, most importantly, network design. Other provisions, such as sampling frequency, remained unchanged. The EPA regulations codified at 40 C.F.R. §§ 58.10 and 58.13 required states to identify additional source-oriented monitors in the annual network design plan submitted by July 2009, with monitoring operation to begin no later than January 1, 2010.⁴ The EPA, at that time, required states to identify sources emitting 1.0 tpy of lead or more. Source-oriented monitors were sited at a location that could measure the maximum lead concentration in ambient

⁴ Pennsylvania's *Ambient Air Monitoring Network Plan – 2010*, dated June 18, 2009 was submitted to the EPA on June 29, 2009.

air associated with the source, taking into account logistics and potential for population exposure (40 C.F.R. Part 58, Appendix D, Section 4.5).

In addition, the EPA revised its monitoring requirements for lead sources equal to or greater than 0.5 tpy on December 27, 2010 (75 FR 81126). The Department began operating two additional source-oriented lead samplers to meet these requirements, one in Lancaster County and one in Carbon County. Two sources identified by the EPA were excluded from the source-oriented monitoring requirement because lead emissions were less than 0.5 tpy and four other potential sources received EPA waivers based on the Department's modeled impacts of the lead emissions. The EPA allows waivers if the modeled impacts from the source are 50 percent or less of the NAAQS. None of these newly monitored or waived sources are in or near the North Reading Nonattainment Area for the lead NAAQS.

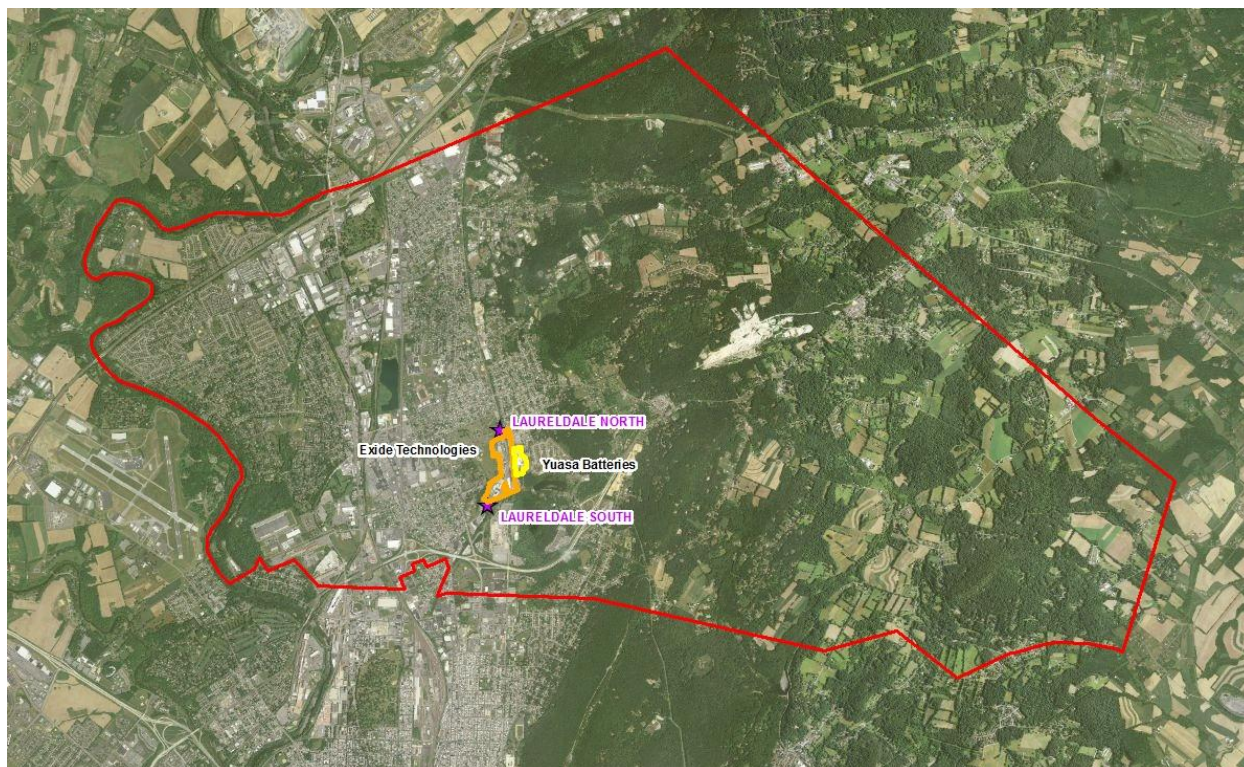
3. Reporting to the EPA

The Department and the local air pollution control agencies in Philadelphia and Allegheny counties collect and report to the EPA all ambient air quality data for sulfur dioxide, carbon monoxide, ozone, nitrogen dioxide, lead, and particulate matter. The reports comply with the federal requirements specified in 40 C.F.R. 58.16 (relating to data submittal and archiving requirements). As necessary, the submitted data is reviewed, edited, validated, and entered into the EPA air quality system (AQS) for updating pursuant to prescribed AQS procedures. The EPA AQS receives each report within 90 days after the end of the quarterly reporting period.

B. North Reading Nonattainment Area Monitors

The Department currently operates two ambient air monitors in the North Reading Nonattainment Area. The Laureldale South monitor has been in place since 1976 and the Laureldale North monitor since January 1, 2010. Figure 2 shows the past and current monitor locations, as well as the two lead facilities within the nonattainment area.

Figure 2: North Reading Nonattainment Area Monitor Locations



C. Lead Levels

A “design value” is a statistic that describes the air quality status of a given location relative to the level of a specific NAAQS. For the 2008 lead NAAQS, it is calculated by assessing the rolling 3-month averages over 36 consecutive valid periods, specifically for a three calendar year period and the two previous months.⁵

The North Reading Nonattainment Area’s 2008 lead design value, used for making recommendations for the designation of the area, was $0.36 \mu\text{g}/\text{m}^3$ at the Laureldale South monitor. The 2008 design value includes 2006-2008 air quality data. The EPA made its final designations based on each area’s 2009 design value (based on 2007-2009 air quality data). The 2009 design value for this area was also $0.36 \mu\text{g}/\text{m}^3$.

Table 1 shows the North Reading Nonattainment Area Design Values. The lead design value for a site is calculated by assessing the rolling 3-month averages over 36 consecutive valid periods, specifically for a three calendar year period and the two previous months, and determined in accordance with the procedures

⁵ Appendix R to 40 C.F.R. Part 50—Interpretation of the National Ambient Air Quality Standards for Lead, Section 4.

set forth in 40 C.F.R. Part 50, Appendix R (73 FR 67054, November 12, 2008). Design values displayed in Table 1 conform to the AQS report “DESIGN VALUE REPORT (Report Code: AMP480)” contained in Appendix A-1 of this document.

Table 2 shows the maximum 3-month averages for those years. The 3-month averages displayed in Table 2 represent the maximum rolling 3-month average for each site during the previous 12-month period, as set forth in 40 C.F.R. Part 50, Appendix R (73 FR 67054, November 12, 2008). Daily averages used to calculate the 3-month averages are given in the AQS report “COMBINED SITE SAMPLE VALUES REPORT FOR 2007-2013 (Report Code: AMP355)” and “COMBINED SITE SAMPLE VALUES REPORT FOR 2014 (Report Code: AMP355)” contained in Appendix A-2 and A-3, respectively, of this document.

The increase in design values in the North Reading Nonattainment Area between 2009 and subsequent years does not necessarily mean that air quality in the area deteriorated. It does indicate that the sampler at Laureldale North, operated since 2010, is more accurately sited to measure the maximum concentrations in the area than the historic Laureldale South sampler.

**Table 1: North Reading Nonattainment Area Design Values (DV)
for the 2008 Lead NAAQS**

Year*	2009	2010	2011	2012	2013
µg/m³	0.36	0.25	0.25	0.51	0.51

*The DV for each year takes into account values from the previous 36 consecutive periods. For example, 2009 DV includes values from November 2006 through December 2009.

Table 2: North Reading Nonattainment Area Maximum 3-Month Averages (in µg/m³)

	AQS Code	2007 Max 3 month Average	2008 Max 3 month Average	2009 Max 3 month Average	2010 Max 3 month Average	2011 Max 3 month Average	2012 Max 3 month Average	2013 Max 3 month Average
Laureldale North	42-011-0020	N/A	N/A	N/A	0.19	0.20	0.51	0.12
Laureldale South	42-011-1717	0.36	0.24	0.25	0.20	0.18	0.22	0.17

The maximum three-month average ambient air lead concentration in 2012 rose to 0.51 µg/m³ for the Laureldale North monitor due to a one-time accidental release event in early 2012 which caused the high value. Measures were subsequently put in place to minimize such incidents.⁶ The Exide facility began a phased deactivation of the lead smelting sources in February 2013. By the end of 2013, the raw materials storage sources were still operational; they also were

6 Letter from Exide Technologies to DEP Southcentral Regional Office, July 26, 2012.

deactivated in January 2014. Consequently, ambient air lead concentrations in 2014 decreased significantly. There have been no 3-month periods that exceeded the lead standard since the idling of the Exide facility in February of 2013.

D. Nature of Lead Problem in the North Reading Nonattainment Area

Examination of the highest 3-month averages by month demonstrates that there is no apparent seasonal trend for the higher lead concentrations.

In making recommendations for designating the North Reading Nonattainment Area as nonattainment for the 2008 lead NAAQS, the Department analyzed topography and meteorology to conclude, at the time, that the determining source of nonattainment was the Exide facility. Once the area was designated nonattainment by EPA in 2010, the Department had to consider all sources within the nonattainment area in developing the attainment plan.

The Commonwealth of Pennsylvania's designation recommendations and EPA's final designation documents can be found on the EPA website at:

<http://www.epa.gov/leaddesignations/2008standards/rec/region3R.html>. The documents detail the topography and meteorology that influence the area and aided in the designation of the North Reading Nonattainment Area for the 2008 Lead NAAQS.

III. EMISSIONS INVENTORIES

The emissions inventories provide an indication of the amount of pollution being emitted in the nonattainment area from various sources. In general, the EPA expects active stationary sources to be the primary contributor to violations of the NAAQS. During promulgation of the 2008 lead standards, the EPA revised the requirements in 40 C.F.R. 51.117(e) for lead nonattainment area SIP inventories from a 5 tpy threshold associated with the previous standards to a 0.5 tpy threshold. The Department collects information on lead emissions from stationary sources far below the 0.5 tpy threshold. The Department's "*Instructions For Completing The Annual Emission Statement Reporting Form*," found in Appendix B-1, instructs the owners and operators of sources to report emissions if annual lead emissions are more than 0.01 tpy per subfacility.

Exide has been the only facility in the North Reading Nonattainment Area for the 2008 lead NAAQS emitting over 0.5 tpy of lead. The other permitted source for which lead emissions are reported is Yuasa, a lead-acid battery assembly plant in Laureldale directly east across the street from the Exide facility. Yuasa's annual actual lead emissions have consistently been under 0.5 tpy. Lead emissions have been included for Yuasa in the modeling and emissions inventory.

An emissions inventory is an estimate of the emissions in a particular area. The plan includes a 2010 base year emissions inventory and a 2015 projected emissions inventory

including actual and potential emissions, respectively, from the following source categories of lead in the North Reading Nonattainment Area:

- Stationary sources (or point sources), which are those sources for which the Department collects individual emissions-related information. Generally, they are major stationary sources for which permits are issued but they may be smaller. A sub category of the stationary sources is the facility fugitive emissions; and
- Non-point sources, which for lead include:
 - Stationary area sources, which are the industrial, commercial, and residential sources too small or too numerous to be handled individually. Where there is overlap between stationary point sources and stationary area sources, the area source values are adjusted to remove any double counting. Lead emissions are produced by some types of fuel combustion and the storage and transport of aviation fuel.
 - Nonroad sources, which can encompass a diverse collection of engines. Lead emissions can be produced by locomotives and general aviation aircraft.

There are no lead emissions produced by or required to be reported for highway vehicles (cars, light trucks, heavy trucks and buses) due to the phase-out of leaded gasoline in highway fuel. Section 211(n) of the CAA prohibited the use of any gasoline containing lead or lead additives for use as fuel in motor vehicles after December 31, 1995 (42 U.S.C.A. § 7545).

Lead emissions for the nonpoint sources in the North Reading Nonattainment Area are insignificant but have been used in both the 2010 base year and 2015 attainment year inventory at the actual emission levels reported to EPA for the 2011 calendar year.

A. 2010 Base Year Emissions Inventory

1. Summary of Base Year Emissions

An actual emissions inventory for the base year, 2010, was developed for lead in accordance with EPA guidance. The 2010 base year emissions inventory, summarized in Table 3, is intended to satisfy the requirement of Section 172(c)(3) of the CAA (42 U.S.C.A. § 7502(c)(3)).

Table 3: Base-Year Lead Emissions

Emission Source	Tons per year
Stationary Point and Fugitive Sources –	
Exide	1.0417
Yuasa	0.1520
Nonpoint Sources	
Stationary Area Sources 2011	
National Emission Inventory	0.0017
TOTAL	1.1954

a. Stationary Source Emissions

In 2010, there were two stationary sources of lead emissions in the North Reading Nonattainment Area for the 2008 lead NAAQS. Table 4 below lists the individual sources of lead emissions at each facility, the control device and the emissions resulting from each stack.

Exide owns a lead recycling facility at Spring Valley Road and Nolan Street in Muhlenberg Township and Laureldale Borough north of Reading (Berks County), Pennsylvania. Exide was the only facility in the lead nonattainment area emitting over 0.5 tpy of lead in 2010. Exide's Reading facility recycles spent lead-acid batteries. The operations at this facility in 2010 consisted of battery crushing, smelting, refining, and casting. The facility in 2010 was subject to the following Federal regulations: 40 C.F.R. Part 63, Subpart X, National Emission Standards for Hazardous Air Pollutant from Secondary Lead Smelters; 40 C.F.R. Part 60, Standards of Performance for New Stationary Sources, Subpart L, Standards of Performance for Secondary Lead Smelters; 40 C.F.R. Section 52.2058 Prevention of Significant Deterioration; and 40 C.F.R. Part 64, Compliance Assurance Monitoring.

Spent batteries were received and then shredded to separate the lead plates, acid, and plastic casings. The plastic casings were recycled into pellets which were shipped off-site, primarily for use in manufacturing new battery casings. The sulfuric acid was collected and contained in aboveground storage tanks, then transferred via pipeline to the onsite wastewater treatment plant for neutralization. The lead plates were combined with other lead-bearing materials and refined into lead metal in the smelting operation. The lead metal was cast and then shipped off-site, primarily for use in the manufacturing of new batteries. Ancillary activities at the facility included an industrial wastewater treatment plant, management and treatment of solid waste in preparation for

shipment off-site for disposal, and operation of air pollution control equipment.

Yuasa operates a lead-acid battery assembly plant at 2901 Montrose Avenue in Muhlenberg Township and Laureldale Borough in Berks County. Yuasa manufactures and distributes batteries for motorcycles, snowmobiles, scooters, all-terrain vehicles and personal watercraft. The Yuasa facility is directly east of the Exide facility across Montrose Avenue. Yuasa is a natural minor for purposes of Prevention of Significant Deterioration (PSD) and nonattainment New Source Review (NSR) for all pollutants, including lead. The facility in 2010 was subject to 40 C.F.R. Part 60 Standards of Performance for New Stationary Sources, Subpart KK, Standards of Performance for Lead-Acid Battery Manufacturing Plant Processes and 40 C.F.R. Part 63, Subpart P - National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources.

Battery production operations at Yuasa's facility consist of grid casting, lead oxide paste manufacturing, curing, assembly, and formation. In 2010, Yuasa brought in lead oxide by truck. Lead oxide was pneumatically conveyed from trucks into one of two paste area silos. Gravity fed the lead oxide into mixers to make paste for filling battery cells.

The Department has identified actual emissions at each lead emission point at the Exide and Yuasa facilities in 2010 which were reported in the Air Information Management System (AIMS), as listed below in Table 4. The table also includes the fugitive emissions as subsequently calculated by the facilities and verified by the Department. The Yuasa fugitive emission numbers are equivalent to the future year modeled emissions since there were not fugitives reported for 2010 and there have not been substantial improvements to the capture of fugitive emissions.

Table 4: Stationary Source Lead Emissions (Including Fugitive Emissions) for 2010

Source ID	Source Description	Control Description & Comment	Stack	2010 Tons
EXIDE				
120	Blast Furnace 1 (old)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 1)	S55	0.0026
121	Blast Furnace 2 (new)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 2)		0.0025
122	Reverb Furnace 1 (old)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 1)		0.0121
123	Reverb Furnace 2 (new)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 2)		0.0096
124	Smelter Ventilation System 1	Baghouse (SV syst. 1)	S09	0.1040
125	Smelter Ventilation System 2	Baghouse (SV syst. 2)	S19A	0.1079
126	Battery Shredding Operation	Scrubber (Bat. Shred.)	S13	0.0069
128	Smelter Building Ventilation	Baghouse (Smelt Build vent.)	S28	0.0587
129	Slag Cooling & Storage	Baghouse (slag storage)	S29	0.0307
130	Raw Material Storage	Baghouse 1 (RMS)	S22	0.3282
130	Raw Material Storage	Baghouse 3 (RMS)	S23A	0.0292
130	Raw Material Storage	Baghouse 2 (RMS)	S58	0.0073
132	Plant Roadways	Road Sweeper	Z61	0.1143
146	Slag Crushing Operation	Baghouse (slag crush)	S46	0.0047
147	Refining Kettles	Baghouse (refining kettles)	S47	0.0404
150	Properzi Strip Casting	Wet Scrubber (strip casting)	S70	0.0020
	Malfunction Emissions			0.0106
	Potential Non-roadway Fugitive Emissions	(From DEP 12/24/2014 fugitive memo)		0.17
	Total Exide			1.0417
YUASA				
101	Pasting Operation	HEPA filter and scrubber	S01	0.0164
102	Oxide Bin	Bin vent	S02	0.0600
103	Battery Assembly (4 lines)	Three fabric collectors	S03, S06 and S07	0.0300
105	Grid/Small Parts Casting	Two fabric collectors and fugitive	S05, S15 and Z05	0.0400

Source ID	Source Description	Control Description & Comment	Stack	2010 Tons
	Potential Process Fugitive & Potential Roadway Fugitive	(From modeling input files)		0.0056 0.0000479
	Total Yuasa			0.1520
	Total Stationary Sources			1.1937

The base year emissions and emission comparisons are compiled with actual emissions (see below for methodology).

b. Nonpoint Source Emissions

Nonpoint source emissions are shown below in Table 5 by sector for all of Berks County. This information was obtained from the EPA's National Emission Inventory (version 2 with biogenics) for 2011. A 2010 inventory was not available since inventories for nonpoint source emissions under the Air Emissions Reporting Rule (AERR) are only prepared every three years (2008, 2011). The EPA has recommended using 2011 as the base year inventory for 2008 lead NAAQS SIP revisions.

Table 5: 2011 Nonpoint Source Emissions for Berks County

SCC	SHORT NAME	2011 Tons
2102004000	Stationary Fuel Comb/Industrial/Distillate Oil/Total: Boilers and IC Engines	0.00093345
2102005000	Stationary Fuel Comb/Industrial/Residual Oil/Total: All Boiler Types	0.0006868
2102007000	Stationary Fuel/Comb/Industrial/Liquified Petroleum Gas/Total: All Boiler Types	0.0001976
2102011000	Stationary Fuel Comb/Industrial/Kerosene/Total: All Boiler Types	0.00006195
2103004000	Stationary Fuel Comb/Commercial/Institutional/Distillate Oil/Total: Boilers and IC Engines	0.00119565
2103005000	Stationary Fuel Comb/Commercial/Institutional/Residual Oil/Total: All Boiler Types	0.0000942
2103006000	Stationary Fuel Comb/Commercial/Institutional/Natural Gas/Total: Boilers and IC Engines	0.0007665
2103007000	Stationary Fuel Comb/Commercial Institutional/Liquified Petroleum Gas/Total: All Combustor Types	0.000022
2103011000	Stationary Fuel Comb/Commercial/Institutional/Kerosene/Total: All Combustor Types	0.0000896
2104004000	Stationary Fuel comb/Residential/Distillate Oil/Total: All Combustor Types	0.01883355
2104011000	Stationary Fuel Comb/Residential/Kerosene/Total: All Heater Types	0.00091193

SCC	SHORT NAME	2011 Tons
2285002006	Railroad Equipment/Diesel/Line Haul Locomotives: Class I Operations	0.001664775
2285002007	Railroad Equipment/Diesel/Line Haul Locomotives: Class II/III Operations	0.000087872
2501080050	Petrol & Petrol Product Storage/Airports: Aviation Gasoline/Stage 1: Total	0.000255945
2501080100	Petrol & Petrol Product Storage/Airports: Aviation Gasoline/Stage 2: Total	0.00001325
2810060100	Misc. Area Sources/Other Combustion Cremation	0.00064175
	TOTAL for Berks County	0.026456821
	TOTAL for North Reading Nonattainment Area	0.0017

Lead emissions from highway vehicles and from nonroad sources not listed above are insignificant. The North Reading Nonattainment Area for the 2008 lead NAAQS does not contain a general aviation airport.

Proportional population was used to estimate the nonpoint source emissions in the nonattainment area. The North Reading Nonattainment Area contains 6.6 percent of the population of Berks County according to the 2010 census. Therefore, the approximate total of nonpoint source lead emissions in the nonattainment area is 0.0017 tpy.

2. *Summary of Base Year Inventory Methodologies*

a. Stationary Point Sources

DEP requires owners and operators of larger facilities to submit annual production figures and actual emission calculations each year. Throughput data are multiplied by emission factors from Factor Information Retrieval (FIRE) Data System and the EPA's publication series AP-42 and are based on Source Classification Code (SCC). Each process has at least one SCC assigned to it. If the owners and operators of facilities provide more accurate emission data based upon other factors, such as stack test data, these emission estimates supersede those calculated using SCC codes.

(1) Fugitive Emissions

On August 7, 2014 and September 23, 2014, upon the Department's request, Exide submitted calculations of the non-roadway fugitive lead emissions and an explanation of the methodology used to calculate those emissions for the future case (with plan approval conditions) as well as the

historic base year. The Department's regional staff reviewed these submissions and made a recommendation for the maximum allowable values to be used in the modeling. The DEP memo and copies of those letters are included in the Appendix as B-2.

Roadway emissions on the Exide facility were estimated by categorizing road segments by vehicle traffic pattern, state of the road surface and road width. Road segments were also identified by time of day to characterize road usage. Road dust sampling and analysis were carried out following the procedure specified in EPA AP-42, Appendix B-3. Emission rates were developed using emission factor equations in AP-42, Chapter 13.2.1 for paved roads.

On January 28, 2015, upon the Department's request, Yuasa submitted calculations for the roadway and non-roadway fugitive lead emissions and an explanation of the methodology for the future case modeling. This submission was updated on March 25, 2015, with the values for fugitive sources that were used in the modeling exercise. The letter, calculations and addendum are included in Appendix B-4. The Department regional staff reviewed and concurred with the submission. The maximum allowable values for fugitive emissions are used both for 2015 modeling and also in this SIP revision base year inventory as a worst case scenario.

b. Nonpoint Source Emissions

The Department used the EPA's National Emission Inventory to account for other emissions of lead in the North Reading Nonattainment area. Area source emissions are generally estimated by multiplying an emission factor by some known indicator or collective activity for each area source category at the county level. Several methodologies are available for estimating area source activity levels and emissions. These estimates were derived by (1) treating area sources as point sources, (2) obtaining county-level activity data, (3) apportioning national or statewide activity data to counties, (4) use of per capita emission factors, and (5) use of per employee emission factors.

B. 2015 Projected Lead Emissions Inventory

1. *Summary of Attainment Year Emissions*

Table 6 summarizes the emissions detailed in Tables 9 and 10, which are maximum allowable lead emissions expected once the control measures are installed at Exide and Yuasa.

The SIP revision is required to include the maximum allowable lead emissions for the attainment year inventory which includes only those sources within the modeling domain.⁷ The numbers in this SIP use *actual* emissions for the base year and *maximum allowable* emissions for the attainment year.

Emissions projected for an attainment year are required to take any activity and emissions growth and/or controls into account. The emission growth and controls are discussed in the “Summary of Inventory Methodologies” section of this document.

Table 6: Maximum Allowable Attainment Emissions (tpy)

Emission Source	Maximum Allowable Pb tons
Stationary Point and Fugitive Sources	
Exide	0.8991
Yuasa	0.0850
Nonpoint Sources (same as base year)	0.0017
TOTAL	0.9858

a. Stationary Point Sources

The projected emissions inventory for stationary point sources consists of emissions from Exide and Yuasa.

(1) Exide Facility

The projected emission inventory for Exide is based on the implementation of the control measures at the facility set forth in the National Emissions Standards for Hazardous Air Pollutants; Secondary Lead Smelting, 77 FR 556 (January 5, 2012) (NESHAP from Secondary Lead Smelting), as approved in Plan Approval (No. 06-05066I),

⁷ Answer to question 10d; August 10, 2012; Addendum to the 2008 Lead NAAQS Implementation; Questions and Answers Signed on July 11, 2011. EPA guidance publication.

and stack-specific emission limits identified in the Exide Consent Order and Agreement (COA) to be incorporated into the SIP. The sources affected by the Plan Approval (No. 06-05066I) to implement the NESHAP from Secondary Lead Smelting requirements are: Source 124, 125, 128, 129, 130, 146 and 147. The stacks in the COA with more stringent emission limits than the Plan Approval (No. 06-05066I) are: S62, S63 and S64.

Table 7 below lists all the Exide emissions that were quantified as part of the projected inventory as well as the controls implemented. These measures are further described in Section IV Control Strategies.

Table 7: Exide 2015 Projected Source and Fugitive Lead Emissions for Attainment Modeling

Source ID	Source Description	Control Description & Comment	Stack ID	Maximum Allowable Pb (tpy) from stack
120	Blast Furnace 1 (old)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 1)	S55	0.1749
121	Blast Furnace 2 (new)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 2)		
122	Reverb Furnace 1 (old)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 1)		
123	Reverb Furnace 2 (new)	Afterburner, cooling tubes, baghouse, venture scrubber, spray scrubber (Smelt syst. 2)		
124	Smelter Ventilation System 1	C62: Baghouse w/HEPA Smelter System Ventilation	S62	0.0788
125	Smelter Ventilation System 2			
126	Battery Shredding Operation	Scrubber (Bat. Shred.)	S13	0.0139
128	Smelter Building Ventilation	C63: Baghouse w/HEPA General Ventilation West	S63	0.2101
130	Raw Material Storage	C63: Baghouse w/HEPA General Ventilation West	S63	Accounted for above
		C123A: Baghouse 2 (RMS)	S23A	0.0378
		C64: Baghouse w/HEPA General Ventilation East	S64	0.2101
129	Slag Cooling & Storage	C19: Baghouse (slag area)	S19	0.0668
146	Slag Crushing Operation			

Source ID	Source Description	Control Description & Comment	Stack ID	Maximum Allowable Pb (tpy) from stack
147	Refining Kettles	C47: Baghouse (refin ket)	S47	0.0647
		and C63: Baghouse w/HEAP General Ventilation West	S63	Accounted for above
150	Properzi Strip Casting	Wet Scrubber (strip casting)	S70	0.0055
132	Fugitive Plant Roadways	Road Sweeper	Z61	0.0261
	Non-roadway fugitive	(From DEP 12/24/2014 fugitive memo)		0.0104
Total				0.8991

The Exide facility is currently in an idled state with none of its lead smelting processes in operation. Subsection C in Section IV Control Strategies explains the current idling scenario at Exide.

(2) Yuasa Facility

Yuasa is, and is projected to remain, a “natural minor” source for purposes of PSD and nonattainment NSR for all pollutants, including lead. Yuasa is subject to the Standards of Performance for Lead-Acid Battery Manufacturing Plants⁸ and to the National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources⁹.

The Department entered into a COA with Yuasa (Appendix C-2) to establish additional control measures needed for the North Reading Nonattainment Area to reach attainment of the 2008 Lead NAAQS. The maximum allowable emissions resulting from the control measures in the COA were used in the modeling demonstration. The COA is attached to this SIP revision for EPA approval. By approving the COA requirements into the SIP as attainment measures, they will become permanent and Federally enforceable, and creditable to demonstrate attainment of the 2008 Lead NAAQS.

The projected emission inventory for Yuasa is based on the implementation of the control measures set forth in the Yuasa COA. Specifically, individual stack emission limits

8 40 C.F.R. Part 60, Subpart KK
9 40 C.F.R. Part 63, Subpart P

that are more stringent than the current operating limits. These measures are further described in Section IV Control Strategies.

Table 8 shows detailed maximum allowable lead emissions in tons per year from Yuasa. These were calculated by converting the g/s emission rates used in the modeling.

Table 8: Yuasa 2015 Projected Source and Fugitive Lead Emissions for Attainment Modeling

Source ID	Stack ID	Source Description	Control Description & Comment	Maximum Allowable Pb (tpy)
101	S01	Pasting Operation	HEPA filter and scrubber	0.0239
103	S03_1 S03_2 S03_3	Battery Assembly (4 lines)	Three fabric collectors	0.0160 0.0123 0.0123
105	S15	Grid/Small Parts Casting	Two fabric collectors and fugitive	0.0061
105A		New Melt Pot and Casting	Fabric filter and HEPA filter	
120	S20	Ball Mill	Fabric filter and HEPA filter	0.0088
		Fugitive Plant Roadways	(From modeling input files and Yuasa submission)	0.0000479
		Non-Roadway Fugitive	Bielomatic, Buffalo Forge, and 7 Oven	0.0005 0.0047 0.0005
Total				0.0850

(3) Fugitive Emissions

As discussed in the Base Year Inventory Section above, Exide submitted calculations of the non-roadway fugitive lead emissions and an explanation of the methodology used to calculate those emissions for the future case (with NESHAP control measures), idled state and the historic base year. The Department's regional staff reviewed these submissions and made a recommendation for the maximum allowable values to be used in the modeling. The DEP memorandum and attachments of Exide calculations are included in the Appendix as B-2.

As discussed in the Base Year Inventory Section above, Yuasa submitted calculations for the roadway and non-roadway fugitive lead emissions and an explanation of the methodology for the future case modeling. The letter is

included in Appendix B-4. This submission was updated on March 25, 2015, with the values for fugitive sources that were used in the modeling exercise. The Department regional staff reviewed and concurred with the submission. The maximum allowable values for fugitive emissions are used both for 2015 modeling and in this SIP revision base year inventory as a worst case scenario.

b. Nonpoint Sources

As discussed previously in the Base Year Inventory Section, the Department used the EPA's National Emission Inventory to account for other emissions of lead in the North Reading Nonattainment area. Area source emissions are generally estimated by multiplying an emission factor by some known indicator or collective activity for each area source category at the county level. Several methodologies are available for estimating area source activity levels and emissions. These estimates were derived by (1) treating area sources as point sources, (2) obtaining county-level activity data, (3) apportioning national or statewide activity data to counties, (4) use of per capita emission factors, and (5) use of per employee emission factors.

2. *Summary of Attainment Inventory Methodology*

As explained earlier, the following sources in Exide are subject to NESHA and Plan Approval (No. 06-05066I): 124- Smelter Ventilation System 1; 125- Smelter Ventilation System 2; 128- Smelter Building Ventilation; 130- Raw Material Storage; 129- Slag Cooling & Storage; 146- Slag Crushing Operation; and 147- Refining Kettles. Plan Approval (No. 06-05066I) establishes lead emissions limits in grains per dry standard cubic feet from the control devices.

For Exide stacks S23A, S19 and S47 subject to Plan Approval (No. 06-05066I) requirements, the maximum allowable lead emission rates were calculated by using the grain loading allowed for each source exhausting the stack to calculate the maximum allowable lead emissions per each stack considering operating 8,760 hours per year. For three Exide stacks, S62, S63 and S64, more stringent limits than those authorized by Plan Approval (No. 06-05066I) were established as agreed to in the Exide COA. These more stringent limits were based on a better efficiency than was originally calculated. For those sources and stacks not affected by Plan Approval (No. 06-05066I), namely, properzi strip casting S70, battery shredding operation S13, and the four blast furnaces S55, the maximum allowable emission rates were calculated by using stack test data and a conservative multiplier to estimate the

maximum allowable. All of these calculations can be found in Appendix B-5.

For Yuasa point sources, the maximum allowable lead emission rates (all of which are included in the Yuasa COA) were derived from the actual emission rates in lbs/hr resulting from stack testing, or in one case the facility annual report. These emission rates were increased by adding a factor for a 40 percent increase above the actual rates and multiplied by a conversion factor for g/s. In two cases (Y_S03_1 and Y_S20) an additional or change in control was also factored in to calculate the maximum allowable rates used in the modeling. The spreadsheet with the details can be found in Appendix B-6.

$$\left(rate \frac{lbs}{hour} \right) + \left(.4 * rate \frac{lbs}{hr} \right) * 0.125997881 = rate \frac{g}{sec}$$

The fugitive emission estimates used for modeling were submitted by the owners of Exide and Yuasa and reviewed by the Department, as described above in the Summary of Attainment Emissions subsection A4: Fugitive Emissions. The calculations are contained in Appendix B of this document.

At Exide, the idling of the facility in 2013 decreased the actual emissions of lead from 1.04 tons in 2010 to 0.49 tons in 2013. (This is a conservative estimate due to the assumption that the same amount of fugitives was emitted both years.) At Yuasa, the actual lead emissions in 2013 increased slightly, from 0.1520 in 2010 to 0.1556 in 2013, due to the expansion approved in Plan Approval (No. 06-03029C). (The increase in emissions at Yuasa also includes the same level of lead fugitive emissions which are included in the 2015 modeling.)

The projected 2015 lead emissions inventory takes into account the anticipated growth as well as the control measures from both facilities. While formal growth projection methodologies were not used, the owners and operators of each facility considered their anticipated business growth in adjusting the emission limits that were agreed upon in the COAs and used for the attainment modeling. Therefore, assuming the re-activation of the Exide facility with the control measures in place and the continued operation of Yuasa with the control measures in place, the area has been modeled with maximum emissions that meet the 2008 lead NAAQS.

IV. CONTROL STRATEGIES

A. Permanent and Enforceable Control Measures

This section of the SIP revision describes the federal and state measures that will provide the emission reductions necessary for the attainment and maintenance of the 2008 lead NAAQS.

1. *Exide Control Measures*

a. **Secondary Lead Smelting NESHAP and Plan Approval (No. 06-050661)**

EPA promulgated new requirements on January 5, 2012, to reduce hazardous air pollutants (HAPs) from secondary lead smelting in its NESHAP from Secondary Lead Smelting, 40 C.F.R. Part 63, Subpart X. HAPs emitted from lead smelting facilities include not only lead, but organic compounds such as dioxin and furans. Because Section 112 of the CAA, 42 U.S.C.A. § 7412, requires EPA to issue NESHAPs requiring Maximum Achievable Control Technology (MACT), this rule is also often referred to as the Secondary Lead Smelter MACT Rule. As required under Section 112 of the CAA, the compliance date for the secondary lead smelter MACT is January 6, 2014, absent a one-year extension for the installation of control technology. See also 40 C.F.R. § 63.546.

Federal regulations establishing performance or emission standards under Section 112 of the CAA are incorporated by reference in Section 6.6 of Pennsylvania's Air Pollution Control Act, 35 P.S. § 4006.6. Additionally, implementing regulations in 25 *Pa. Code* § 127.35 incorporate by reference in DEP's plan approval program all federal regulations establishing performance or emission standards promulgated under section 112 of the CAA at 40 C.F.R. Part 63 (relating to National Emission Standards for Hazardous Air Pollutants for Source Categories). After the effective date of the performance or emission standard, the owners and operators of new, reconstructed, modified and existing sources must comply with the performance or emission standards pursuant to the compliance schedule established under section 112 of the CAA and the regulations thereunder. See 25 *Pa. Code* § 127.35. The NESHAP requirements are both federal and state requirements, because they are incorporated by reference into DEP's air quality permitting program under section 6.6 of the Pennsylvania Air Pollution Control Act and under Pennsylvania's air quality permitting regulations at 25 *Pa. Code* § 127.35(b) (1997). The

requirements are primarily enforceable by DEP but are also Federally enforceable.

Consequently, Exide is subject to the NESHAP from Secondary Lead Smelter requirements which are incorporated into Plan Approval (No. 06-05066I) issued by DEP on August 31, 2012. Exide Plan Approval (No. 06-05066I) authorizes modifications to the existing configuration of the facility in order to achieve compliance with the revised NESHAP from Secondary Lead Smelting, to be completed originally by January 6, 2014, the compliance date for the NESHAP. However, Exide's secondary lead smelting operations began idling long before the compliance date.

In February 2013, Exide began idling secondary lead smelting operations at the Berks County facility. Pennsylvania regulations in 25 *Pa. Code* § 127.11a contain requirements for the owner or operator of a source that has been deactivated for 1-5 years that must be met in order not to be considered a "new source" for purposes of permitting. The requirements include submitting, within one year of deactivation, a maintenance plan to ensure the source can be reactivated in accordance with the terms of its applicable permit; and a notice requesting preservation of emissions in the inventory and an intent to reactivate the facility. Any source that has been out of operation for 10 or more years must meet the requirements for new sources, as required under 25 *Pa. Code* § 127.11a(c).

On January 31, 2014, the Department extended the Plan Approval (No. 06-05066I) to remain effective until July 31, 2015. The Exide COA found in Appendix C-1 states: "Exide shall submit an application to extend Plan Approval I by no later than June 30, 2015." On June 29, 2015, Exide submitted an extension application which the Department approved, effective August 1, 2015. The extension of Plan Approval (No. 06-05066I) is effective until January 31, 2017.

Furthermore, the Exide COA requires Exide to be in compliance with the Plan Approval (No. 06-05066I) and NESHAP requirements in order to restart the facility for lead smelting. Stack testing, recordkeeping, monitoring and semi-annual notification with progress reports are also required to ensure enforceability and compliance with the control measures. Once implemented, the Plan Approval (No. 06-05066I) measures would totally enclose existing buildings, add new control equipment, redirect emissions from existing named sources to new or differently named control

devices, eliminate some existing control devices and modify the refining kettles. Pennsylvania's plan approvals are federally enforceable under 40 C.F.R. Section 52.2062 (a).

On January 31, 2014, Exide also submitted the Maintenance and Reactivation Plan to the Department. Exide's maintenance and reactivation plan includes restarting the facility in accordance with the control measures and emission limitations consistent with Plan Approval (No. 06-05066I) and the NESHAP from Secondary Lead Smelter regulation.¹⁰

Specifically, the Exide Plan Approval (No. 06-05066I) authorizes the owners of the Exide facility to implement the following measures consistent with the NESHAP, in order for the facility to resume secondary lead smelting operations:

- (1) Totally enclose and extend the Smelter Building to the east to enclose the air pollution control dust conveyance equipment that is currently outdoors.
- (2) Extend a portion of the Smelter Building to the west to totally enclose the Refining Kettles Baghouse (C47) and its related air pollution control dust management activities.
- (3) Totally enclose and extend the lead dock area, located in a currently outside area at the southeast corner of the Smelter Building.
- (4) Combine the existing ventilation collection equipment of Smelter Ventilation System 1 (Existing Source ID 124) with the existing ventilation collection equipment of Smelter Ventilation System 2 (Existing Source ID 125) to direct the process fugitive emissions to a new, single dust collector system designated as Control Device ID C62 Baghouse w/HEPA Smelter System Ventilation. The existing Smelter Ventilation System 1 Baghouse dust collector system (C11) will be dismantled.
- (5) Eliminate existing Control Device C28 (AAF Baghouse) and replace with Control Device ID C63 Baghouse w/HEPA: General Ventilation West. The C63 system will also collect and control fugitive emission from the southern

10 National Emissions Standards for Hazardous Air Pollutants; Secondary Lead Smelting, 77 FR 556 (January 5, 2012).

portion of the Raw Materials Storage Building and exhaust emissions from the Refining Kettle burners.

- (6) Totally enclose and extend the Slag Area Building.
- (7) Eliminate existing Control Device C29 (Rees Baghouse), currently providing ventilation exhaust air from the slag cooling and storage enclosure, and replace its ventilation air volume by repurposing existing Control Device C19.
- (8) Eliminate existing Control Device C46 (UOP Baghouse), currently providing ventilation exhaust air from the slag crushing equipment, and replace its ventilation air volume by repurposing existing Control Device C19.
- (9) Extend and enclose the Raw Material Storage Building to enclose, among other things, the existing C23A Baghouse 2: Raw Material Storage (Wheelabrator Baghouse) and its related air pollution control dust management activities, the battery shredding area, the battery shredding dock area, and M/A system buildings.
- (10) Install and operate a new ventilation and dust collector system, designated as Control Device ID C64 Baghouse w/HEPA: General Ventilation East, that will collect and control fugitive emissions from inside of the extended and enclosed Raw Material Storage Building.
- (11) Eliminate existing Control Devices C22 (Carborundum Baghouse) and C58 (Flex-Kleen Baghouse). Their ventilation air volume will be replaced and increased by a combination of existing Control Device C23A and new control devices C63 and C64.
- (12) Reconfigure the Refining Kettles process layout as follows:
 - (a) Relocation of existing refining kettle No. 4.
 - (b) Add two new 75-ton capacity refining kettles (No. 12 and 13) to the south side of Reveratory Furnace 2. Exide must also process fugitive emissions from the relocated and new refining kettles will be captured and controlled by Control Device ID C47. The indirect heating burner exhaust gases from the relocated and new refining

kettles will be captured and controlled by new Control Device ID C63.

As discussed in the attainment year inventory methodology section above, for Exide stacks S23A, S19 and S47 subject to Plan Approval (No. 06-05066I) requirements, the maximum allowable lead emission rates were calculated by using the grain loading allowed for each source exhausting the stack to calculate the maximum allowable lead emissions per each stack considering operating 8,760 hours per year. For three Exide stacks, S62, S63 and S64, more stringent limits than those authorized by Plan Approval (No. 06-05066I) were established as agreed to in the Exide COA. These more stringent limits were based on a better efficiency than was originally calculated. For those stacks not affected by Plan Approval (No. 06-05066I): S70, S13 and S55, the maximum allowable emission rates were calculated by using stack test data and a conservative multiplier to estimate the maximum allowable. All of these calculations can be found in Appendix B-5.

b. Consent Order and Agreement

To further ensure that the North Reading Nonattainment Area can demonstrate attainment of the 2008 lead NAAQS, Exide has entered into a COA with the Department. The COA specifies control measures that have been demonstrated with air dispersion modeling to reduce Exide's contribution to the lead nonattainment area. Therefore, the Department is using the emission limits in the Exide COA (as listed below) to be the SIP limiting factors for lead emissions control from the lead emitting stacks at the Exide facility. The COA is included in Appendix C-1. The Department is requesting that portions of the COA that are not lined out in Appendix C-1 be approved into the SIP and therefore will be Federally enforceable upon EPA's approval.

Control measures in the COA include the following requirements:

- (1) Exide shall not resume operation of any portion of the Exide Facility until Exide has completed all of the Exide Facility modification work proposed in Exide Plan Approval (No. 06-05066I), as described on Page 2 of Plan Approval (No. 06-05066I);

- (2) Upon execution of the COA, (Appendix C-1), Exide shall not permit exceedances of the following stack emission limits for lead:
- S55: 5.02732E-03 g/sec
 - S62: 2.26500E-03 g/sec
 - S13: 3.98590E-04 g/sec
 - S63: 6.04100E-03 g/sec
 - S19: 1.91900E-03 g/sec
 - S23A: 1.08700E-03 g/sec
 - S64: 6.04100E-03 g/sec
 - S47: 1.85900E-03 g/sec
 - S70: 1.58760E-04 g/sec;
- (3) By no later than August 24, 2015, Exide shall ensure that a fence limiting public access to the Exide Facility is installed and/or maintained as per the diagram in Attachment A of Appendix C-1, the Exide COA.

2. *Yuasa Control Measures*

In order to attain and maintain the 2008 lead NAAQS in the North Reading Nonattainment Area, Yuasa has entered into a COA with the Department. The COA specifies control measures that have been demonstrated with air dispersion modeling to reduce Yuasa's contribution to lead emissions in the nonattainment area. Stack testing, recordkeeping, monitoring and semi-annual notification with progress reports are also required by the COA to ensure enforceability and compliance with the control measures. The COA is included in the Appendix C-2. The Department is requesting that portions of the COA that are not lined out in Appendix C-2 be approved into the SIP and therefore will be Federally enforceable upon EPA's approval. The control measures include:

- a. By no later than December 31, 2015, Yuasa shall complete any facility modifications projected to be necessary in order to meet the following lead stack emission limits:
- S01: 6.87948E-04 g/sec
 - S03: 4.59000E-04 g/sec
 - S06: 3.52794E-04 g/sec
 - S07: 3.52794E-04 g/sec
 - S15: 1.74986E-04 g/sec
 - S20: 2.52000E-04 g/sec

Yuasa shall comply with those limits at all times after December 31, 2015, and shall demonstrate compliance with those

limits by reference method stack testing by no later than June 30, 2016. Past stack testing of selected stacks may be used to satisfy the initial compliance demonstration aspect of this condition, provided that the source/control configuration has not since changed, and that any stack test so used is approved by DEP and was conducted since January 1, 2013;

- b. By no later than August 24, 2015, Yuasa shall ensure that a fence limiting public access to the Yuasa Facility is installed and/or maintained with respect to the property owned by Yuasa as per the diagram in Attachment A of the Yuasa COA (Appendix C-2).

B. Reasonably Available Control Measures Analysis

Section 172(c) of the CAA, 42 U.S.C.A. § 7502, requires states to “provide for implementation of all reasonably available control measures (RACM) as expeditiously as practicable.”

The EPA requires states to submit a RACM analysis for all nonattainment areas for which the state is required to submit an attainment demonstration, which includes the North Reading Nonattainment Area. The RACM analysis must be completed for sources 0.5 tpy or more in a nonattainment area.¹¹ The EPA describes the steps as:

- Identifying potential control measures (start with Appendix 1 of the EPA’s “State Implementation Plans for Lead Nonattainment Areas; Addendum to the General Preamble for the Implementation of Title I of the CAA Amendments of 1990,” 58 FR 67752; December 22, 1993) and see what other states have required;
- If the measures are not reasonable, demonstrate that the measures are not reasonable because emission reductions would be insignificant and then analyze cost and feasibility; and
- Incorporate the measures in a legally enforceable vehicle.

Yuasa’s lead emissions are less than 0.5 tpy; therefore, a RACT/RACM analysis is not required for this source.

DEP required Exide to perform a RACM/RACT analysis as part of the technical review of Exide’s Plan Approval (No. 06-05066I) Application. The Department has reviewed the RACM/RACT analysis submitted by Exide, which is in Appendix C-3, and has reviewed measures analyzed for other nonattainment areas. The Department believes that the measures authorized by the Plan

11 National Ambient Air Quality Standards for Lead; Final Rule, 73 FR 66964, 67038 (November 12, 2008).

Approval (No. 06-05066I), listed below as “Exide NAAQS Control Measures Project,” for compliance with the NESHAP from Secondary Lead Smelting constitute RACM/RACT for Exide. Table 9 below lists the technically and economically feasible RACM/RACT measures and how Exide will implement the measures in accordance with the conditions of the Plan Approval (No. 06-05066I), which is Federally enforceable.

The measures which Exide must implement to comply with the NESHAP from Secondary Lead Smelting are consistent with the measures identified in the EPA document Implementation of the 2008 Lead NAAQS, Guide to Developing Reasonably Available Control Measures (RACM) for Controlling Lead Emissions.¹² Therefore, the SIP requirement for RACM is met.

Table 9: RACM/RACT Analysis

Selection of RACM/RACT	RACM/RACT Implementation at Exide
Fabric filters with downstream add-on control devices	Exide’s NAAQS Control Measures Project will add secondary HEPA filters to three new baghouse that will control ventilation exhaust from multiple lead sources. (C62, C63 and C64)
Operation of listed fugitive emission sources in a total enclosure (40 C.F.R. § 63.544(a)) that is maintained at negative pressure at all times, vented to a control device designed to capture lead particulate, and in compliance with the requirements of 40 C.F.R. § 63.544(c).	Exide’s NAAQS Control Measures Project will totally enclose the operations that are potential sources of fugitive dust. These enclosures will be free of significant cracks, gaps, corrosion or other deterioration that could cause lead bearing material to be released. The enclosures will feature provisions to prevent tracking out of lead bearing material and designated areas and equipment to decontaminate equipment and vehicles exiting the enclosures. Any rinsate from the decontamination areas will be captured and treated at the Facility’s onsite wastewater treatment plan. The enclosures will be ventilated to dust collectors for control of PM and lead emissions. This ventilation will ensure negative pressure values of at least 0.013 mm of mercury (0.007 inches of water), and inward air flow at any natural draft openings.
Operation and maintenance of enclosure vents, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. (40 C.F.R. § 63.543(k))	Exide will operate the sources, proposed enclosures and associated dust collectors in a manner consistent with safety and good air pollution control practices and in accordance with the Facility’s standard operating procedures (SOP) manual that describes in detail procedures for inspection, maintenance, and bag leak detection and corrective action plans for all enclosure dust collectors.

¹² EPA Implementation of the 2008 Lead National Ambient Air Quality Standards Guide to Developing RACM for Controlling Lead Emissions EPA-457/R-12-001, March 2012, pages 16-26.

Selection of RACM/RACT	RACM/RACT Implementation at Exide
Implementation of measures and work practice controls to control fugitive dust emission from certain sources ((40 C.F.R. § 63.545(a)). At a minimum these measures and controls must be in compliance with the requirements of 40 C.F.R. § 63.545(c).	Exide has taken measures to reduce fugitive emissions. A requirement of the 2010 Title V Permit renewal was that Exide was to update the Fugitive Dust Control Operating Procedures (FDCOP). On March 30, 2011, the Department approved the March 7, 2011 revision of the FDCOP. Work practices currently prescribed in the Title V Permit and employed by the Facility to reduce fugitive dust emissions from the Plant Roadways include the following: • The pavement must be maintained on all areas subject to vehicle traffic. • The speed of vehicle traffic on plant roadways is limited to 10 miles per hour. • Plant roadway pavement surfaces must be cleaned at a minimum frequency of twice per day using a wet road sweeper equipped with an air filter, except during times when natural precipitation is occurring or when sand or a similar material has been spread on plant roadways to provide traction on ice or snow. • A daily maintenance and operation log must be completed by the operator on each shift. • Vehicle washes are located at the exit of the facility and activities maintained in a log. Exide currently has procedures in place to clean any outdoor accidental releases of lead dust immediately and these will also continue. The NAAQS Control Measures Project will totally enclose areas where maintenance activities are currently conducted outdoors. The enclosures will include features that provide for collection and transport of all lead bearing dust within the total enclosures.
Require dust control plans for construction or land-clearing projects.	When construction activity during implementation of the NAAQS Control Measures Project involves existing structures, the roof and wall panels of these structures will be systematically replaced to achieve an enclosure with minimal air leakage. The interior of roof and wall panels and the respective support steel will be vacuum-cleaned prior to commencement of the work. The interior of the area to undergo roof and/or wall panel replacement will be masked from the interior using temporary suspended dust and debris trap barriers.

Selection of RACM/RACT	RACM/RACT Implementation at Exide
Require haul trucks to be covered.	Any lead-bearing material currently transported outside of enclosures will be contained and covered for transport in a manner that prevents spillage or dust formation.
Provide for traffic rerouting or rapid cleanup of temporary (and not readily preventable) sources of dust on paved roads (water erosion runoff, mud/dirt carryout areas, material spills, skid control sand). Delineate who is responsible for cleanup.	Exide currently has procedures in place to clean any outdoor accidental releases of lead dust immediately and these will continue.
Require curbing and pave or stabilize (chemically or with vegetation) shoulders of paved roads.	Facility roadways are currently paved and curbed for control of storm water run-on and runoff and collection and treatment of storm water capture from paved surfaces. These systems will continue to be maintained.
Provide for storm water drainage to prevent water erosion onto paved roads.	Facility roadways are currently paved and curbed for control of storm water run-on.
Require washing of undercarriages and wheels of vehicles immediately prior to leaving the plant area.	The enclosures will feature provisions to prevent tracking out of lead-bearing material and designated areas and equipment to decontaminate equipment and vehicles exiting the enclosures.
Require that water used for dust suppression and vehicle washing contain a limited amount of lead (e.g., less than or equal to 0.1 ppm).	Exide uses fresh water supplied by the local utility that will ensure this level is met.

C. Exide Idling State

Exide is continuing to operate Source 131 Lime Storage Bin and Source 132 Plant Roadways with the associated control devices identified in the Title V operating permit to support the non-secondary lead smelting activities at the facility as stated in the January 31, 2014 deactivation cover letter to the Maintenance and Reactivation Plan submitted to DEP.

The Exide facility is required to be modified and to implement the NESHAP from Secondary Lead Smelting control measures before operating again. All of the anticipated operating emission reductions for inventory purposes are not expected to occur until after that time. However, due to the facility idling, the 2015 potential lead emissions prior to the required modification are expected to be significantly less than those predicted after implementation of the NESHAP control measures in Table 7. Therefore, the idled state of the Exide facility is a

better scenario for lead emissions in the North Reading Area than the NESHAP control strategy scenario, which has been modeled to show attainment. Table 10 shows actual emissions for Exide in its idled state.

Table 10: Exide Idle State Actual Emissions

Year	Reported Pb tons	Fugitive Pb tons	Total Pb tons
2010	0.8717	0.17	1.0417
2013	0.32	0.17	0.49
2014		0.00004	0.00004
(2010-2014) Reduction			1.04166

In accordance with 25 *Pa. Code* § 127.11 (relating to reactivation of sources), Exide submitted a Maintenance and Reactivation Plan to the Department on January 31, 2014, indicating its intention to reactivate the sources covered by its Title V operating permit. In this Maintenance and Reactivation Plan, Exide requested that the emissions that incorporate implementation of the Plan Approval (No. 06-05066I) NESHAP control measures be preserved in any applicable emissions inventory. Since the compliance date of the NESHAP from Secondary Lead Smelting is January 6, 2014, Exide cannot operate the lead smelting sources in the current configuration without being in violation of the NESHAP. Therefore, Exide cannot reactivate the facility without constructing the sources and controls in compliance with the Plan Approval (No. 06-05066I) and NESHAP requirements

The submittal of the Maintenance and Reactivation Plan allows the facility to be reactivated and not considered as a new source within 10 years of deactivation, if, among other requirements, the owner or operator of the source complies with the terms of the reactivation plan and operating permit upon reactivation. Section 127.11 also provides that a source located in a nonattainment area that would emit an air contaminant related to the nonattainment designation may not be reactivated unless the proposed emissions are included in the SIP emission inventory or until the proposed emissions of these contaminants from the source are submitted to and approved by the EPA as an amendment of the SIP. Therefore, Exide cannot resume operation the lead sources until this SIP revision is approved.

V. REASONABLE FURTHER PROGRESS (RFP) REQUIREMENTS

RFP requirements have traditionally been met by showing annual incremental emission reductions generally sufficient to maintain linear progress towards attainment by the attainment date. However, in the North Reading Nonattainment Area, nonattainment of the 2008 lead NAAQS is primarily attributable to two stationary sources. In such a case, EPA believes that RFP for lead nonattainment areas should be met by adherence to an

ambitious compliance schedule for the sources expected to periodically yield significant emission reductions and, to the extent appropriate, linear progress.¹³

Specific measures in the control strategy are meant to serve as RFP milestones as described in Table 11.

Table 11: Reasonable Further Progress Milestones

Facility	Action	Date implemented	Emissions tons Pb
Exide	Updated Fugitive Dust Control Operating Procedures	DEP approved measures on: March 30, 2011	Not quantified
Exide	Installation/maintenance of fence line around Exide	No later than: August 24, 2015	n/a
Yuasa	Installation of fence line around Yuasa	No later than: August 24, 2015	n/a
Yuasa	Stack emission limitations	No later than: December 31, 2015	Reduced 2010 PTE: 1.96

The Department concludes that the measures listed above as part of the control strategy of this plan sufficiently demonstrate progress toward reducing lead emissions and attaining the 2008 Lead NAAQS.

VI. AIR DISPERSION MODELING ANALYSIS

This section of the SIP revision analyzes the potential for the North Reading Nonattainment Area to attain and maintain the 2008 lead NAAQS. The demonstration of achieving the 2008 lead NAAQS is based on results from the dispersion modeling.

Air quality dispersion modeling has predicted that the maximum 3-month rolling average for the North Reading Nonattainment Area will be below the 2008 lead NAAQS with the implementation of the permanent and enforceable control measures described in this SIP revision. In addition, ambient air quality monitoring data collected since Exide idled operations at the Berks County facility meets the lead NAAQS. (See Appendices A-2 and A-3.) However, because the area experienced violations of the 2008 lead NAAQS in 2013, before the implementation of the control measures, the design value for the three calendar years 2013-2015 will not meet the NAAQS. The 2008 lead NAAQS will be attained on the basis of 2014-2016 ambient data as a result of implementation of this SIP revision.

13 National Ambient Air Quality Standards for Lead: Final Rule 73 FR 66964, 67039 (November 12, 2008).

A. Introduction

In order to demonstrate that the implemented control measures will result in attainment of the 2008 lead NAAQS the DEP performed a dispersion modeling analysis for the North Reading Nonattainment Area. The dispersion modeling analysis was completed for future year lead emission inventories from the two facilities, Exide and Yuasa, with reported lead emissions within the North Reading Nonattainment Area. The modeling was conducted consistent with 40 C.F.R. Part 51, Appendix W (Guideline on Air Quality Models).

The future year simulated both facilities' maximum allowable lead emissions in 2015. This is not the current state of the facilities, as Exide has idled operations at the facility. However, as previously mentioned, Exide cannot resume operations at the facility without demonstrating compliance with the permanent and enforceable control measures specified in the Plan Approval (No. 06-05066I) and the Exide COA. The future year maximum allowable lead emissions were developed from the permanent and enforceable control measures discussed in Section IV Control Strategies and contained in Appendix C.

B. Model Selection

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD) was utilized for the dispersion modeling to demonstrate compliance with the 2008 lead NAAQS in the North Reading Nonattainment Area. Two input data preprocessors are necessary to use the AERMOD modeling system: AERMET, which preprocesses representative meteorological data and AERMAP, which preprocesses terrain data from the United States Geological Survey (USGS) Digital Elevation Data. In order to diagnose building downwash effects, the Building Profile Input Program for Plume Rise Model Enhancements (BPIPPRM) was executed. Because the current version of AERMOD is incapable of calculating rolling three-month average concentrations necessary for demonstration of lead NAAQS compliance, the EPA post-processor LEADPOST was used.¹⁴ In its three-month average calculation, LEADPOST uses monthly averages directly outputted by AERMOD.

The version of the dispersion model, its preprocessors, and supplemental programs are outlined below:

1. AERMOD (Version 14134) was used with regulatory defaults.
2. AERMET (Version 14134) was used to process meteorological data from 2006 to 2010.

¹⁴ As recommended in EPA's memorandum *2008 Lead (Pb) National Ambient Air Quality Standards Implementation, Questions and Answers*, July 8, 2011.

3. AERMAP (Version 11103) was used to process the terrain at receptor locations within the nonattainment area.
4. BPIPPRM (Version 04274) was used to generate the downwash parameters at the Exide and Yuasa.
5. LEADPOST (Version 13262) was used to calculate the three-month average lead concentrations from AERMOD's monthly average lead concentrations.

C. Source Pathway

Emission sources at the Exide and Yuasa facilities in Laureldale Borough and Muhlenberg Township, Berks County, were evaluated to determine the appropriate stack parameters necessary for the compliance demonstration. As is described in the AERMOD User's Guide, sources were characterized as "point sources", "area sources", or "fugitive sources." The modeling parameters for the point sources were developed from permit conditions at each of the facilities, source information in the DEP Air Information Management System (AIMS) database and source verification from the facilities. The modeling parameters for the area and fugitive sources were developed from correspondence from the consultants of Exide and Yuasa facilities regarding fugitive emission estimates for its facility. The locations of the fugitive emissions were estimated building-wide and alongside roadways onsite at Exide and as point sources and alongside roadways onsite at Yuasa. Due to the nature of fugitive emissions at the Exide facility, the DEP used guidance outlined in the EPA's August 10, 2012, Addendum to their June 8, 2011 memorandum entitled "2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers." Based on that guidance, the DEP characterized the fugitive emissions coming from the furnace building as area sources in the modeling.

Associated emissions parameters for each point source (location, maximum allowable emission rate, stack height, exit temperature, exit velocity, and exit inside diameter) and each area source (location, area emission rate, release height, length of the X side of the area, length of the Y side of the area, and the angle of orientation of the area source from due North) are outlined in Tables 12, 13 and 14 in this document.

Table 12: Future Case Modeling – Exide and Yuasa Point Sources and Associated Emission Parameters

Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate (grams/sec)	Height (meters)	Temperature (Kelvin)	Velocity (meters/sec)	Diameter (meters)
S62	Exide	422572.84	4470535.4	109.69	2.26500E-03	30.48	310	21.556	1.829
S64	Exide	422570.38	4470659.5	114.3	6.04100E-03	30.48	311	22.928	2.896
S63	Exide	422543.43	4470680.1	114.49	6.04100E-03	30.48	319	22.928	2.896
S19	Exide	422553	4470424.4	108.83	1.91900E-03	22.25	295	24.5	1.219
S47	Exide	422531.68	4470489.6	113.9	1.85900E-03	22.86	311	6.023	1.829
S70	Exide	422572.28	4470408.6	106.55	1.58760E-04	9.45	302.59	35.36	0.457

Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate (grams/sec)	Height (meters)	Temperature (Kelvin)	Velocity (meters/sec)	Diameter (meters)
S55	Exide	422587.92	4470558.8	109.6	5.02732E-03	34.63	302.5	7	2.286
S13	Exide	422524.24	4470640.6	115.84	3.98590E-04	7.62	331.48	5.031	0.914
S23A	Exide	422524.45	4470594.5	118.59	1.08700E-03	7.62	313.43	13.929	1.346
Y_S01	Yuasa	422803	4470625	112.52	6.87948E-04	14.32	311.65	20.2	0.83
Y_S03_1	Yuasa	422808	4470578	112.49	4.59000E-04	6.1	295.56	22.56	1.22
Y_S03_2	Yuasa	422808	4470578	112.49	3.52794E-04	9.140001	299.3	21.56	0.9099999
Y_S03_3	Yuasa	422808	4470578	112.49	3.52794E-04	7.62	291.11	35.65	0.8399998
Y_S15	Yuasa	422804	4470638.1	112.52	1.74986E-04	12.8	354.82	9.43	0.91
Y_S20	Yuasa	422804	4470604.2	112.49	2.52000E-04	11.678	343.15	10.52	0.5099999
BIEL	Yuasa	422757.7	4470595.7	111.96	1.40000E-05	7.9248	300	10.16	0.3048
BUFFORGE	Yuasa	422792.2	4470583.1	112.7	1.34000E-04	8.2296	300	12.7	0.9144
7OVEN	Yuasa	422785.1	4470552.1	112.5	1.40000E-05	7.9248	300	10.16	0.3048

Table 13: Future Case Modeling – Exide and Yuasa Area Sources and Associated Emission Parameters

Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate/Area (grams/(sec-m ²))	Release Height (meters)	Length of X (meters)	Length of Y (meters)	Angle of Orientation (Optional) (degrees)
RI_A1_05	Exide	422429.72	4470143.5	102.5	1.94750E-08	2.55	4	2.372	
FURNACE	Exide	422538.92	4470474.8	112	2.39800E-07	11.28	25.97	48.17	-5
AREA_1	Yuasa	422712.5	4470764.7	113.75	1.10000E-10	2.55	4	2.372	
AREA_2	Yuasa	422717.01	4470495.9	109.99	6.14000E-10	2.55	12	2.372	
AREA_3	Yuasa	422717.51	4470489.5	109.99	1.33000E-09	2.55	16	2.372	

Table 14: Future Case Modeling – Exide and Yuasa Volume Sources and Associated Emission Parameters

Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate (grams/sec)	Release Height (meters)	Length of Y (meters)	Length of Z (meters)
RI_A1_01	Exide	422438.2	4470220.9	103.59	5.04000E-06	2.55	6.977	2.372
RI_A1_02	Exide	422442.5	4470206.5	103.73	5.04000E-06	2.55	6.977	2.372
RI_A1_03	Exide	422443.9	4470191.5	103.55	5.04000E-06	2.55	6.977	2.372
RI_A1_04	Exide	422438.45	4470177.5	103.28	5.04000E-06	2.55	6.977	2.372
RI_A2_01	Exide	422474.1	4470320.1	104.24	7.08800E-06	2.55	6.977	2.372
RI_A2_02	Exide	422463.35	4470309.6	104.06	7.08800E-06	2.55	6.977	2.372
RI_A2_03	Exide	422451.9	4470299.9	104.05	7.08800E-06	2.55	6.977	2.372
RI_A2_04	Exide	422443	4470287.8	103.96	7.08800E-06	2.55	6.977	2.372
RI_A2_05	Exide	422434	4470275.8	103.72	7.08800E-06	2.55	6.977	2.372
RI_A2_06	Exide	422426	4470263	103.47	7.08800E-06	2.55	6.977	2.372
RI_A2_07	Exide	422425.2	4470248	103.34	7.08800E-06	2.55	6.977	2.372
RI_A2_08	Exide	422431.35	4470234.3	103.48	7.08800E-06	2.55	6.977	2.372
RI_A3_01	Exide	422516	4470363	105.61	1.92200E-05	2.55	6.977	2.372
RI_A3_02	Exide	422504.9	4470352.9	105.45	1.92200E-05	2.55	6.977	2.372
RI_A3_03	Exide	422494.85	4470341.8	104.98	1.92200E-05	2.55	6.977	2.372
RI_A3_04	Exide	422484	4470331.4	104.49	1.92200E-05	2.55	6.977	2.372
RI_A4_01	Exide	422526.1	4470373.7	106.1	1.63800E-05	2.55	6.512	2.372
RI_A4_02	Exide	422537.05	4470385.1	106.52	1.63800E-05	2.55	6.512	2.372
RI_A4_03	Exide	422548.5	4470396	106.61	1.63800E-05	2.55	6.512	2.372
RI_A4_04	Exide	422558.4	4470408.4	106.82	1.63800E-05	2.55	6.512	2.372
RI_A5_01	Exide	422597.5	4470469.2	106.99	1.96600E-05	2.55	6.279	2.372
RI_A5_02	Exide	422591.9	4470456.2	106.83	1.96600E-05	2.55	6.279	2.372
RI_A5_03	Exide	422586.2	4470443.5	106.75	1.96600E-05	2.55	6.279	2.372
RI_A5_04	Exide	422578.37	4470431.5	106.71	1.96600E-05	2.55	6.279	2.372
RI_A5_05	Exide	422569.08	4470420.1	106.95	1.96600E-05	2.55	6.279	2.372
RI_B_01	Exide	422608	4470579.8	110.19	1.35800E-05	2.55	6.465	2.372
RI_B_02	Exide	422609.3	4470565.7	109.74	1.35800E-05	2.55	6.465	2.372
RI_B_03	Exide	422610.7	4470551.7	109.51	1.35800E-05	2.55	6.465	2.372

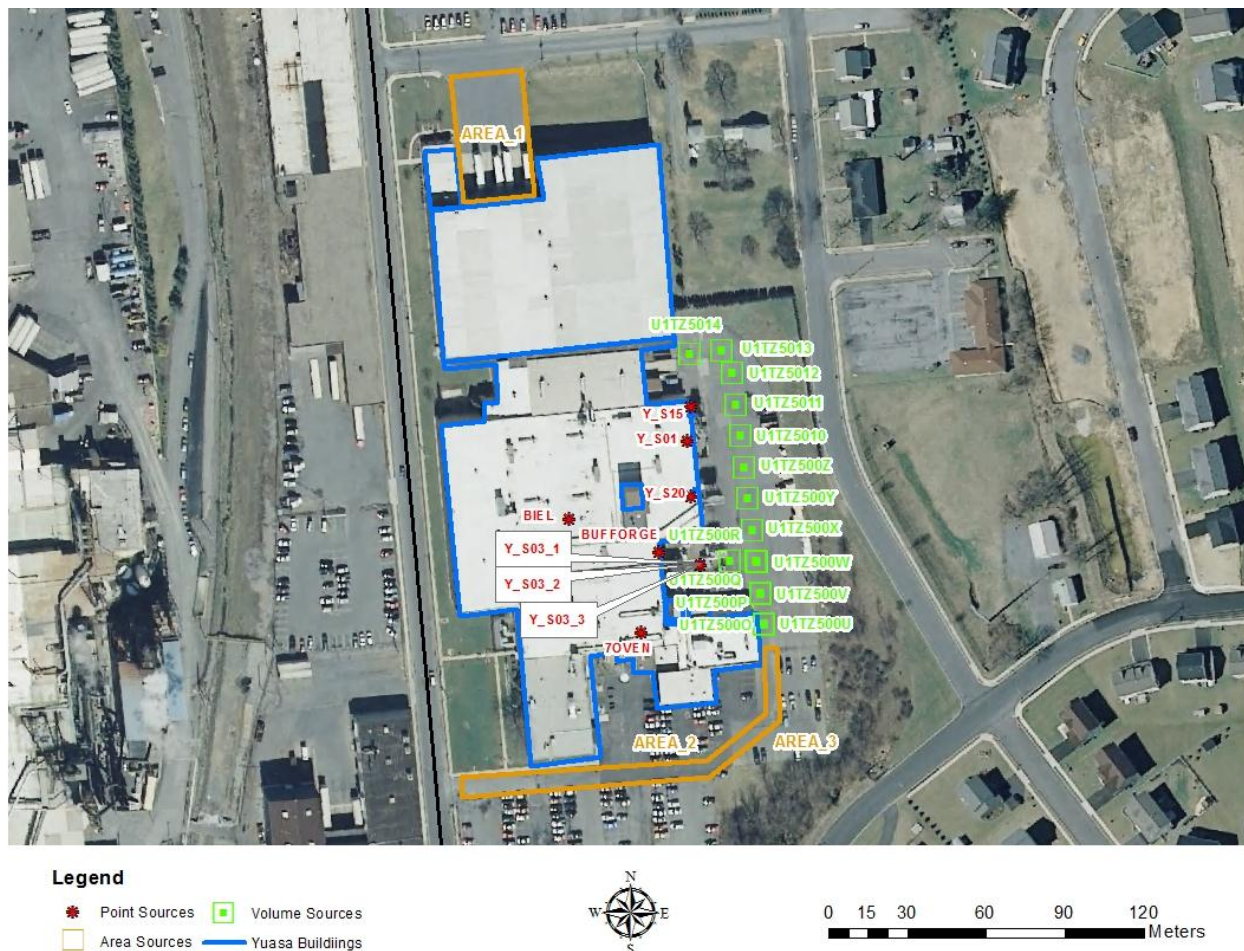
Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate (grams/sec)	Release Height (meters)	Length of Y (meters)	Length of Z (meters)
RI_B_04	Exide	422611.6	4470537.8	109.33	1.35800E-05	2.55	6.465	2.372
RI_B_05	Exide	422610.8	4470523.9	108.88	1.35800E-05	2.55	6.465	2.372
RI_B_06	Exide	422609	4470510	108.34	1.35800E-05	2.55	6.465	2.372
RI_B_07	Exide	422605.9	4470496.3	108.17	1.35800E-05	2.55	6.465	2.372
RI_B_08	Exide	422601.8	4470482.8	107.21	1.35800E-05	2.55	6.465	2.372
RI_B_09	Exide	422606.8	4470594.3	111.28	1.35800E-05	2.55	6.465	2.372
RI_C_01	Exide	422603.42	4470608.6	112.22	1.09000E-05	2.55	6	2.372
RI_C_02	Exide	422607.9	4470620.8	112.38	1.09000E-05	2.55	6	2.372
RI_C_03	Exide	422609	4470633.8	112.43	1.09000E-05	2.55	6	2.372
RI_C_04	Exide	422609.75	4470647	112.23	1.09000E-05	2.55	6	2.372
RI_C_05	Exide	422610.27	4470660.1	111.85	1.09000E-05	2.55	6	2.372
RI_C_06	Exide	422611.36	4470673	111.38	1.09000E-05	2.55	6	2.372
RI_C_07	Exide	422613.7	4470685.9	111.23	1.09000E-05	2.55	6	2.372
RI_C_08	Exide	422614.5	4470698.9	112	1.09000E-05	2.55	6	2.372
RI_C_09	Exide	422613.9	4470711.8	111.57	1.09000E-05	2.55	6	2.372
RI_C_10	Exide	422612	4470724.6	111.36	1.09000E-05	2.55	6	2.372
RI_C_11	Exide	422609.4	4470737.3	111.61	1.09000E-05	2.55	6	2.372
RI_C_12	Exide	422607.25	4470750.1	111.84	1.09000E-05	2.55	6	2.372
RI_C_13	Exide	422604.92	4470762.9	112.09	1.09000E-05	2.55	6	2.372
RI_C_14	Exide	422603.24	4470776	111.77	1.09000E-05	2.55	6	2.372
RI_C_15	Exide	422601.08	4470788.9	111.52	1.09000E-05	2.55	6	2.372
RI_C_16	Exide	422599.23	4470801.9	111.62	1.09000E-05	2.55	6	2.372
RI_C_17	Exide	422598	4470814.9	111.55	1.09000E-05	2.55	6	2.372
RI_C_18	Exide	422595	4470827.6	111.76	1.09000E-05	2.55	6	2.372
RI_C_19	Exide	422587	4470837.9	111.71	1.09000E-05	2.55	6	2.372
RI_C_20	Exide	422581.04	4470850.1	111.53	1.09000E-05	2.55	6	2.372
RI_D1_01	Exide	422571.32	4470689.5	114.76	1.11600E-05	2.55	5.628	2.372
RI_D1_02	Exide	422575.6	4470677.9	114.53	1.11600E-05	2.55	5.628	2.372
RI_D1_03	Exide	422580	4470666.6	114.35	1.11600E-05	2.55	5.628	2.372
RI_D1_04	Exide	422584.5	4470655.3	114.08	1.11600E-05	2.55	5.628	2.372
RI_D1_05	Exide	422589	4470643.8	113.82	1.11600E-05	2.55	5.628	2.372
RI_D1_06	Exide	422592.8	4470632	113.85	1.11600E-05	2.55	5.628	2.372
RI_D1_07	Exide	422596.9	4470620.1	113.48	1.11600E-05	2.55	5.628	2.372
RI_D2_01	Exide	422556.2	4470777	115.95	2.77200E-06	2.55	8	2.372
RI_D2_02	Exide	422559.4	4470760	115.87	2.77200E-06	2.55	8	2.372
RI_D2_03	Exide	422562.3	4470743	115.2	2.77200E-06	2.55	8	2.372
RI_D2_04	Exide	422565	4470726	115.07	2.77200E-06	2.55	8	2.372
RI_D2_05	Exide	422567	4470708.3	115.15	2.77200E-06	2.55	8	2.372
U1TZ500O	Yuasa	422832.1	4470555.4	112.96	4.68000E-08	3	5.581	2.791
U1TZ500P	Yuasa	422830.8	4470567.3	112.78	4.68000E-08	3	5.581	2.791
U1TZ500Q	Yuasa	422829.4	4470579.2	112.58	4.68000E-08	3	5.581	2.791
U1TZ500R	Yuasa	422819	4470579.8	112.52	4.68000E-08	3	5.581	2.791
U1TZ500U	Yuasa	422832	4470555.9	112.95	1.02000E-07	3	5.581	2.791
U1TZ500V	Yuasa	422830.5	4470567.8	112.77	1.02000E-07	3	5.581	2.791
U1TZ500W	Yuasa	422829	4470579.7	112.57	1.02000E-07	3	5.581	2.791
U1TZ500X	Yuasa	422827.5	4470591.6	112.39	1.02000E-07	3	5.581	2.791
U1TZ500Y	Yuasa	422826	4470603.5	112.32	1.02000E-07	3	5.581	2.791
U1TZ500Z	Yuasa	422824.5	4470615.4	112.38	1.02000E-07	3	5.581	2.791
U1TZ5010	Yuasa	422823	4470627.3	112.41	1.02000E-07	3	5.581	2.791
U1TZ5011	Yuasa	422821.4	4470639.2	112.42	1.02000E-07	3	5.581	2.791
U1TZ5012	Yuasa	422819.9	4470651.1	112.47	1.02000E-07	3	5.581	2.791
U1TZ5013	Yuasa	422815.7	4470659.6	112.5	1.02000E-07	3	5.581	2.791
U1TZ5014	Yuasa	422803.8	4470658.3	112.43	1.02000E-07	3	5.581	2.791

Figure 3 displays a graphical representation of the source location with respect to the building configuration at the Exide facility. Figure 4 displays a graphical representation of the source location with respect to the building configuration at the Yuasa facility.

Figure 3: Exide's Lead Emission Sources and Building Configuration



Figure 4: Yuasa's Lead Emission Sources and Building Configuration



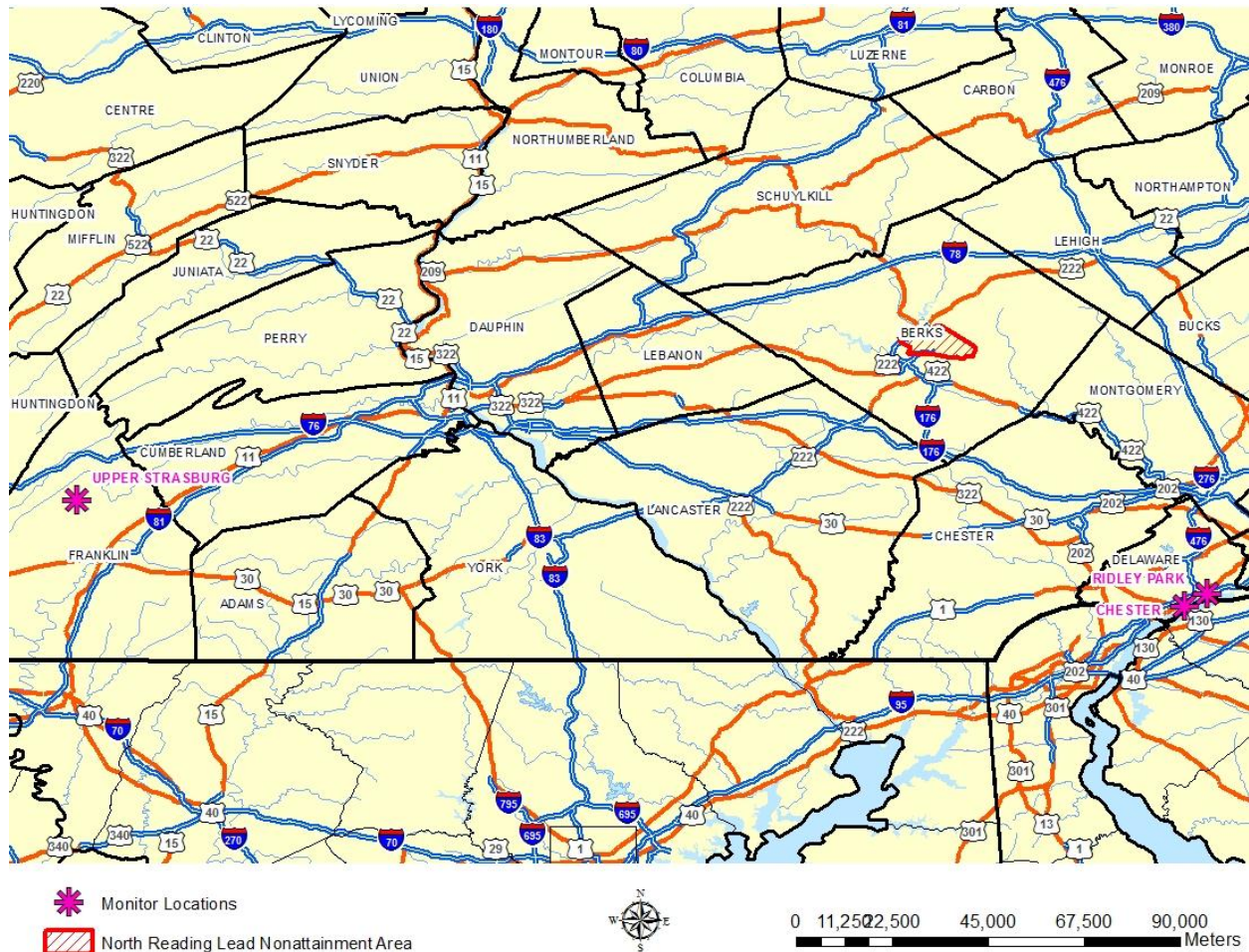
D. Background Ambient Air Lead Concentrations

The background lead concentration that was used for the modeling analysis was the maximum 3-month average during the 2012 to 2014 period at DEP's Ridley Park monitor. As discussed in the Section 8.2.1 of 40 C.F.R. Part 51, Appendix W (Guideline on Air Quality Models), "[b]ackground air quality includes pollutant concentrations due to: (1) Natural sources; (2) nearby sources other than the one(s) currently under consideration; and (3) unidentified sources." Section 6.5.3 (Background Concentration) of EPA's Lead Guidance Document, dated April 1993, states "[c]oncentrations recorded while the source in question is impacting the monitor should not be used in determining the background concentration." To that end, regional monitoring sites were used to determine the most representative background concentration.

In order to adhere to these guidelines and determine a representative background concentration for the North Reading Nonattainment Area, an analysis was conducted using three different lead monitors in eastern Pennsylvania. Figure 5

illustrates the location of these monitors with respect to the North Reading lead nonattainment area. The three monitors are DEP's Chester, Ridley Park, and Upper Strasburg monitors. The analysis used ambient lead data from 2012 to 2014.

Figure 5: Locations of Eastern PA Lead Monitors Used in Modeling Analysis



The Chester lead monitor has been in operation for at least 19 years. The lead sampler in Chester began operation in April 1994. The other two monitors (Ridley Park and Upper Strasburg) were deployed as a result of a requirement to site monitors near 1 ton lead sources in EPA's November 12, 2008 strengthening of the lead standard. The Chester monitor is a community-based monitor not downwind of a major lead source. Therefore, it represents concentrations more indicative of regional ambient air concentrations. The Ridley Park monitor was sited as a result of the 1-ton lead source, Exelon Generation – Eddystone facility, in Delaware County. Based on EPA's Source Management System, the Exelon Generation – Eddystone facility last operated on April 28, 2011. Since the one-ton source ceased operation, the Ridley Park monitor has been monitoring ambient air since May 2011. The Upper Strasburg monitor was also sited due to a

one-ton lead source, U.S. Army – Letterkenny. The Army detonates lead filled ammunition at the Letterkenny facility. This detonation process does not occur every day. On days when detonations do not occur at the facility, the Upper Strasburg site would be measuring ambient air not impacted from a one-ton lead source.

Table 15 outlines the 3-month lead averages for all three sites since January 2012. These 3-month averages were calculated based on the AMP355 data contained in Appendix D-1.

Table 15: 3-Month Averaged Lead Concentrations from Three Eastern Pennsylvania Lead Monitors January 2012 to December 2014

Site Name and AQS Code	Upper Strasburg 42-055-0002	Ridley Park 42-045-0004	Chester 42-045-0002
1/1/2012	0.01*		
2/1/2012	0.01*		
3/1/2012	0.011	0.01*	0.01*
4/1/2012	0.011	0.01*	0.01*
5/1/2012	0.01*	0.01*	0.011
6/1/2012	0.01*	0.011	0.010
7/1/2012	0.010	0.011	0.010
8/1/2012	0.010	0.010	0.010
9/1/2012	0.010	0.010	0.010
10/1/2012	0.010	0.010	0.01*
11/1/2012	0.01*	0.010	0.01*
12/1/2012	0.01*	0.01*	0.010
1/1/2013	0.010	0.01*	0.010
2/1/2013	0.010	0.01*	0.010
3/1/2013	0.010	0.01*	0.01*
4/1/2013	0.010	0.01*	0.01*
5/1/2013	0.010	0.01*	0.01*
6/1/2013	0.010	0.01*	0.01*
7/1/2013	0.010	0.010	0.01*
8/1/2013	0.009	0.010	0.01*
9/1/2013	0.009	0.010	0.01*
10/1/2013	0.010	0.010	0.01*
11/1/2013	0.010	0.010	0.01*
12/1/2013	0.010	0.010	0.010
1/1/2014	0.010	0.010	0.010
2/1/2014	0.010	0.010	0.010
3/1/2014	0.010	0.010	0.010
4/1/2014	0.010	0.010	0.010
5/1/2014	0.010	0.010	0.010
6/1/2014	0.010	0.011	0.010
7/1/2014	0.009	0.011	0.010
8/1/2014	0.009	0.012	0.010

Site Name and AQS Code	Upper Strasburg 42-055-0002	Ridley Park 42-045-0004	Chester 42-045-0002
9/1/2014	0.009	0.011	0.010
10/1/2014	0.010	0.012	0.010
11/1/2014	0.010	0.011	0.010
12/1/2014	0.01*	0.011	0.010
Max	0.011	0.012	0.011

* Indicates when the lead concentration data is incomplete during the 3-month period.

In conclusion, the final background lead concentration is determined to be $0.012 \mu\text{g}/\text{m}^3$. After a detailed examination of the 2012 to 2014 ambient lead monitoring data, the DEP used the highest monitored design value concentration at the Ridley Park monitor in Delaware County. In fact, all three areas (Chester, Ridley Park, and Upper Strasburg) had 3-month averages for lead concentrations close to $0.01 \mu\text{g}/\text{m}^3$, which is indicative of regional ambient air concentrations in areas uninfluenced by local lead sources. As a result, the $0.012 \mu\text{g}/\text{m}^3$ 3-month average concentration will be used as the background concentration, which will be added to the modeling results to determine the maximum 3-month rolling average value for 2015.

E. Receptor Pathway

Ground-level receptors are entered in the model in areas defined as “ambient air” according to 40 C.F.R. § 50.1(e). An ambient air boundary was placed around the Exide facility because this facility has a fence that surrounds the entire facility and impedes public access to its facility. In the case of Yuasa, there is currently no fence around any portion of its facility. According to the terms of the COA found in Appendix C-2, Yuasa must “ensure that a fence limiting public access to the Yuasa Facility is installed and/or maintained with respect to the property owned by Yuasa.” A map with the approximate fence line can be found in Appendix D-4.

The extent and density of the model’s receptor domain are adequate to determine the location and magnitude of the maximum concentration in the base and future case modeling analyses. The receptor domain is the centroid location of the Exide facility. The receptor grid consists of several Cartesian grids whose receptor spacing increases with distance. The receptor spacing is described below in Table 16. Receptors were placed in areas within the nonattainment area boundary.

Table 16: Receptor Grid Description

Receptor Type	Receptor Spacing (m)	Distance Range (km)
Ambient Air Boundary (AAB)	25	---
Extra Fine Grid 1	50	AAB – 2
Fine Grid	100	2 – 5
Coarse Grid	500	5 – NA Area Boundary

As discussed in the Section 7.2.2 of 40 C.F.R. Part 51, Appendix W (Guideline on Air Quality Models), “[r]eceptor sites for refined modeling should be utilized in sufficient detail to estimate the highest concentrations and possible violations of a NAAQS...” To that end, a more refined receptor grid (with approximate seven meter spacing east to west and three meter spacing north to south) was placed in the parking lot to the south of the Yuasa facility to ensure that the maximum concentration was captured in the attainment modeling demonstration.

Receptor elevations and hill height scales are calculated by the AERMOD terrain preprocessor (AERMAP), version 11103, utilizing the USGS National Elevation Dataset (NED) with a resolution of one-third arc-second (approximately 10 meters).

Receptors were also placed on-site of Exide and Yuasa ambient air boundary. Within Exide’s ambient air boundary, only Yuasa source impacts were analyzed. Within Yuasa’s ambient air boundary, only Exide source impacts were analyzed. Flagpole elevations were calculated for receptors that were over top of buildings within each facility’s ambient air boundaries.

F. Meteorology Pathway

The North Reading Nonattainment Area modeling analysis uses a 5-year (2006-2010) surface meteorological dataset measured by an Automated Surface Observing System (ASOS) at the Reading Regional Airport (KRDG). The analysis also uses morning upper air data from the Washington Dulles International Airport (KIAD). KRDG is located approximately 4 kilometers west, southwest of the Exide facility and KIAD is located approximately 207 kilometers southwest of the Exide facility.

The Department was also aware of meteorological data collected by Exide. In order to use site specific data (such as that from a meteorological tower run by Exide), Section 8.3.3.1 of 40 C.F.R. Part 51 Appendix W (Guideline of Air Quality Models) must be followed. Specifically, “[s]ite specific measured data are therefore preferred as model input, provided that appropriate instrumentation and quality assurance procedures are followed and that data collected are adequately representative.” By letter dated October 8, 2014, the Department received confirmation from Exide representatives that “there is no documentation

to support whether the data was obtained in adherence to 40 C.F.R. 51 Appendix W.” These correspondences are included in Appendix D-2. Therefore, the Department used the KRDG data set as opposed to the data collected at the Exide meteorological tower.

The KRDG and KIAD meteorological site information is summarized in Table 17. The KRDG and KIAD meteorological datasets satisfy the recommendations for use in AERMOD and adequately represent atmospheric boundary layer conditions within the North Reading Nonattainment Area modeling analysis domain, allowing AERMOD to properly characterize plume transport and dispersion.

Table 17: Meteorological Measurement Site Information

Description	Airport Surface Dataset	Upper Air Dataset
Site name	Reading Regional Airport/ Carl A. Spaatz Field	Washington Dulles International Airport
Call sign/WBAN	KRDG/14712	KIAD/93734
Data format	DSI-6405, DSI-3505 (ISD)	FSL
Location (longitude, latitude)	75.96 ° West, 40.37 ° North	77.47 ° West, 38.98 ° North
Location (UTM, Zone 18, NAD 1983)	418,569 m East, 4,469,629 m North	---
Elevation (above mean sea level)	108 m	85 m
Anemometer height	7.9 m	---
Variables	Wind speed, wind direction, temperature, sky cover, and sea level pressure	Morning pressure and temperature (various levels from surface to 5,000 m)

The KRDG and KIAD meteorological datasets satisfy DEP’s completeness test for use in dispersion modeling, wherein the joint recovery of the necessary meteorological variables is at least 90 percent complete for each calendar year (i.e., 2006, 2007, 2008, 2009 and 2010) and each calendar quarter over the 5-year data period (i.e., 1st quarter 2006-2010, 2nd quarter 2006-2010, 3rd quarter 2006-2010, and 4th quarter 2006-2010).

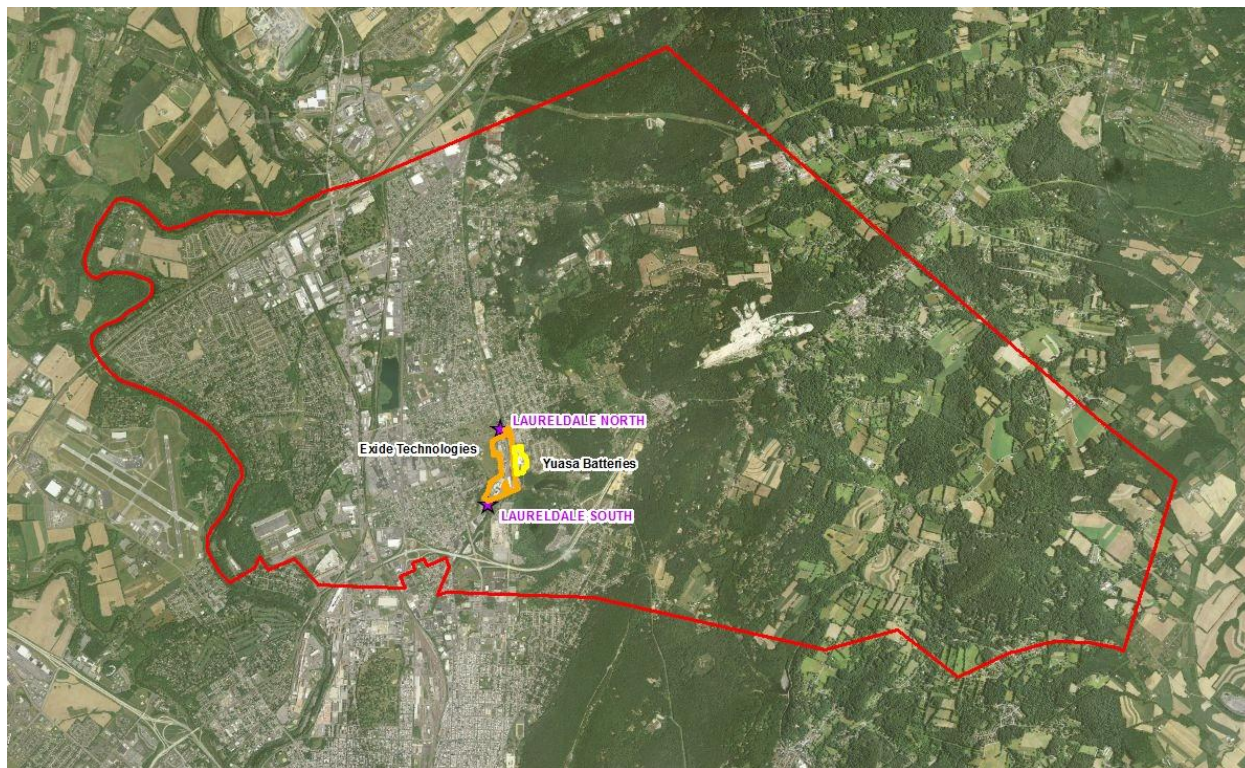
The KRDG and KIAD meteorological datasets are processed with the AERMOD meteorological preprocessor AERMET 14134. In AERMET Stage 2, the surface hourly meteorological data from KRDG is merged with the KRDG’s one minute wind data. The one-minute KRDG wind data is processed in the preprocessor AERMINUTE 14237. In AERMET Stage 3, seasonal values of the surface characteristics (noon-time albedo, Bowen ratio, and surface roughness length), representative of the meteorological measurement site, are entered. These surface characteristic values are calculated by AERSURFACE 13016 using the USGS NLCD 1992. The following selections are made in AERSURFACE: default 1-kilometer radius and default twelve 30-degree sectors for surface roughness length, airport site, non-arid region, and no continuous snow cover during the winter season. Estimates of surface moisture condition, used in the Bowen ratio calculation, are based on averaged precipitation data for Pennsylvania Climate Division 3. Specific to Pennsylvania Climate Division 3, DEP used seasonal

surface moisture conditions, derived from precipitation data from NOAA/NCDC. Based on a 30-year climatological average, a seasonal calculation was made to determine if a particular season was considered dry, average or wet. A copy of the table breaking down the 30-year climatological averages is provided in Appendix D-3. AERMET was then run for dry, average and wet conditions. Utilizing the outcome from AERMET and the results outlined Appendix D-3, the final surface meteorological data set developed by using the respective seasonal AERMET output which matched the results from the table in Appendix D-3.

G. Modeling Analysis Results

The maximum predicted three-month rolling lead concentration from AERMOD was added to a conservative background estimate to calculate the total maximum predicted three-month rolling lead concentration in the future case modeling analysis. At the time of EPA's original lead nonattainment designation, there was one sampler, Laureldale South, monitoring a violation of the 2008 lead standard. Since then, DEP placed a sampler at its Laureldale North location, which has demonstrated a similar pattern of noncompliance. A map illustrating the location of the two monitors listed above with respect to the Exide and Yuasa facilities is shown below in Figure 6. Based on the explanation above in section D, the maximum three-month design value for the Ridley Park monitor during the 2012 to 2014 period was $0.012 \mu\text{g}/\text{m}^3$, which is the background concentration used in the modeling results.

**Figure 6: Lead Monitors and Lead Facilities Map
in the North Reading Nonattainment Area**



In the future case, the maximum predicted three-month rolling lead concentration was $0.1411 \mu\text{g}/\text{m}^3$ ($0.1291 \mu\text{g}/\text{m}^3$ modeled maximum + $0.012 \mu\text{g}/\text{m}^3$ background concentration). The maximum predicted concentration occurred at a receptor in the parking lot to the south of the Yuasa facility. For all locations in areas of ambient air, both the impacts of Exide and Yuasa were examined by DEP. In areas within Exide's ambient air boundary (their fence), Yuasa's impacts were examined by the Department. In areas within Yuasa's ambient air boundary (their proposed fence), Exide's impacts were examined for the analysis. Figure 7 illustrates the future case maximum three-month rolling lead concentration at each receptor in the North Reading Nonattainment Area. Figure 8 is a representation of the same map, zoomed in to the area of maximum impact. Figure 9 is the same map, zoomed in further to better view the parking lot which contains the area of maximum impact.

**Figure 7: Future Case Modeling
Predicted Lead Concentrations in the North Reading Nonattainment Area**

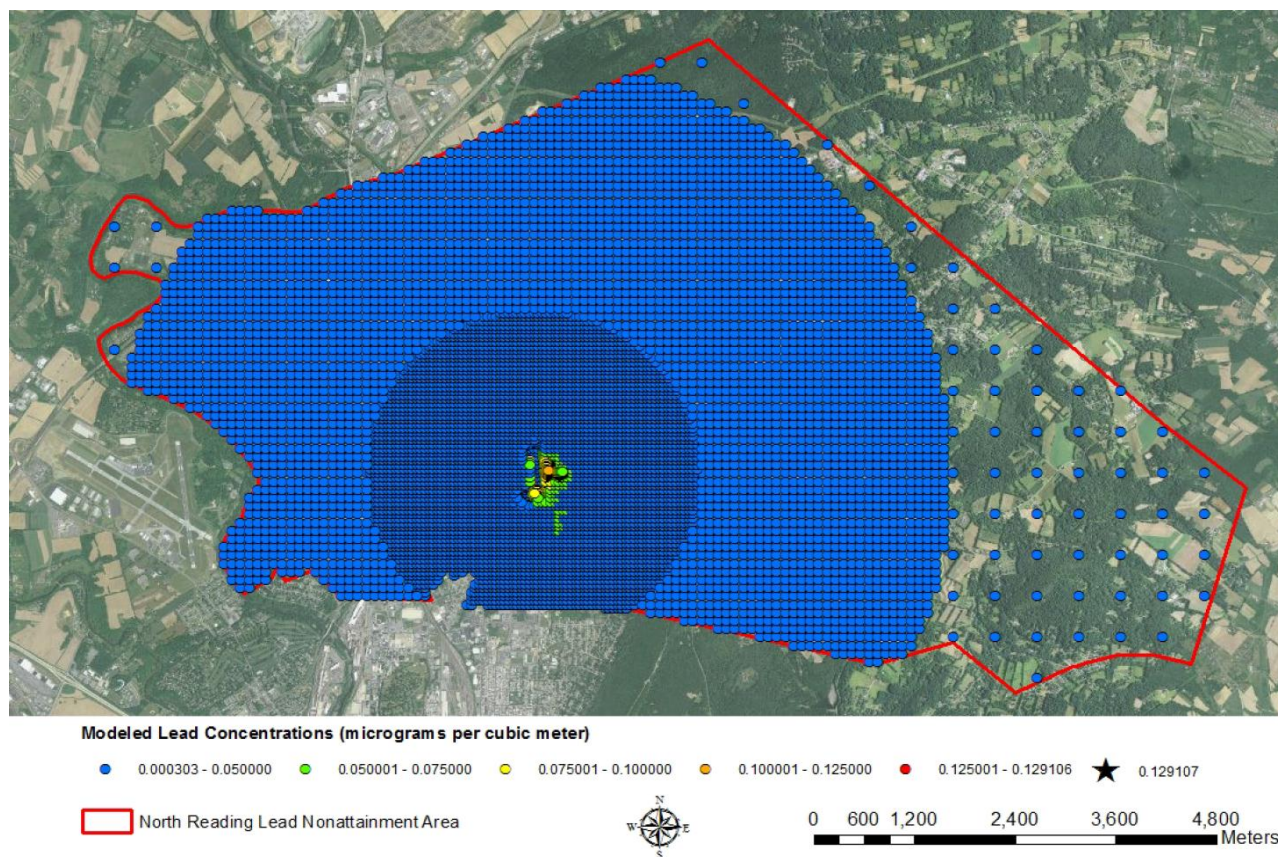


**Figure 8: Future Case Modeling
Predicted Lead Concentrations in the North Reading Nonattainment Area
Zoomed Into Area of Maximum Impact**

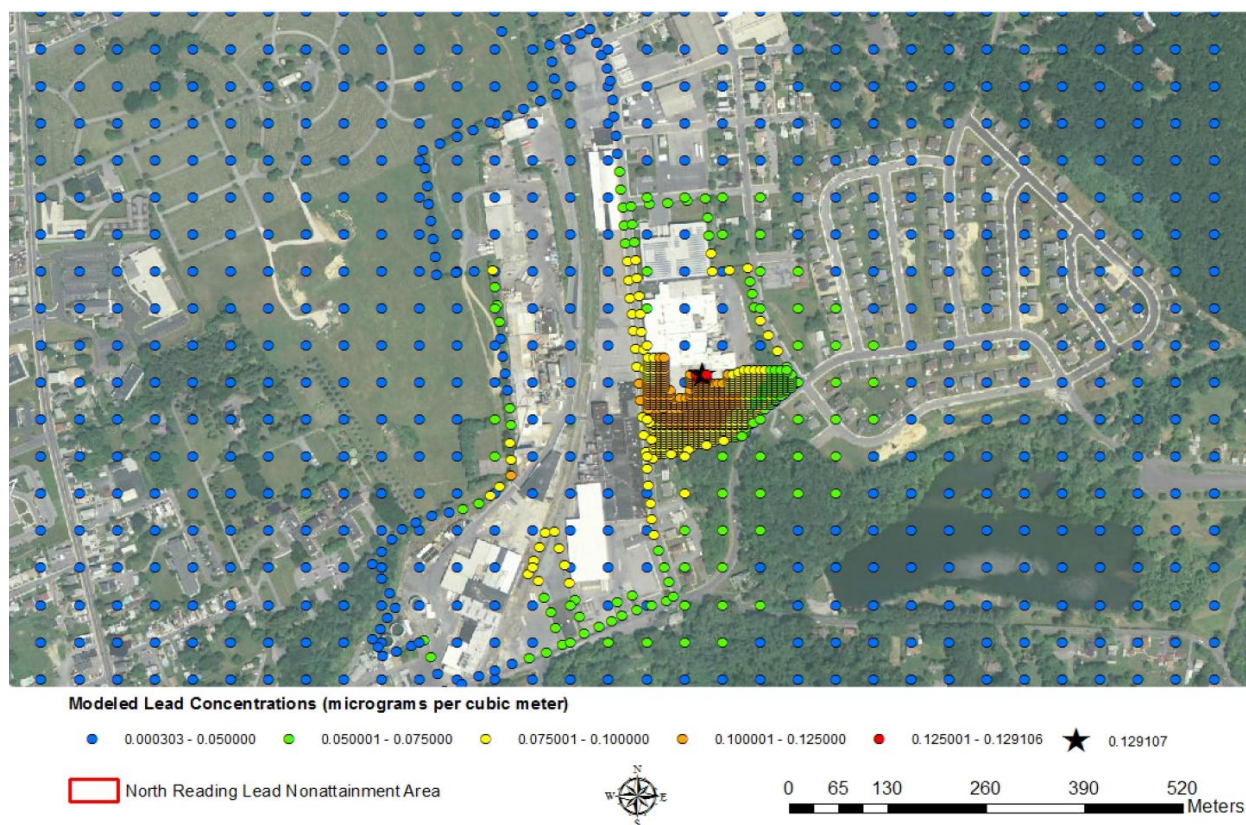


**Figure 9: Future Case Modeling
Predicted Lead Concentration in the North Reading Nonattainment Area
Further Zoomed Into Area of Maximum Impact - Yuasa Parking Lot**



Since the maximum predicted three-month rolling lead concentration is less than $0.15 \mu\text{g}/\text{m}^3$, attainment of the 2008 lead NAAQS is expected based upon implementation of the lead emission restrictions included in each COA executed between Exide and DEP and Yuasa and DEP. Exide's lead emissions profile in the modeling was indicative of the operating scenarios outlined in its Plan Approval (No. 06-05066I) as well as the restrictions specified in the COA between Exide and DEP. Yuasa's lead emissions profile in the modeling was indicative of the hourly emission restrictions specified in the COA between Yuasa and DEP. There have been no 3-month rolling average concentrations above the 2008 lead NAAQS since the Exide secondary lead smelting operations were fully in an idling state, as described in Section II and shown by the data in Appendices A-2 and A-3.

VII. CONTINGENCY MEASURES FOR THE ATTAINMENT DEMONSTRATION

The SIP revision for the North Reading Nonattainment Area must include contingency measures to provide for additional lead emission reductions to be implemented in the event that the nonattainment area does not attain 2008 lead standard by December 2015

or fails to meet RFP milestones. Early implementation of contingency measures is acceptable.

The key requirements associated with contingency measures consist of the following:

- Contingency measures must be fully adopted rules or control measures that are ready to be implemented as expeditiously as practicable upon a determination by the EPA that the area has failed to achieve the 2008 lead NAAQS by the applicable statutory attainment date or maintain reasonable further progress. The measures must be able to be implemented without further action (or only minimal action) by the state or by the Administrator;
- The SIP should contain trigger mechanisms for the contingency measures and specify a schedule for implementation; and
- The SIP must indicate that the contingency measures should also consist of control measures for the area that are not already included in the control strategy for the attainment demonstration of the SIP.
- The EPA expects all actions needed to affect full implementation of the measures to occur within 60 days after the EPA notifies the state of a failure to maintain reasonable further progress or timely attain the NAAQS.

A. Required Emission Reductions

The North Reading Nonattainment Area must identify contingency measures to be implemented in the event that the region does not attain 2008 lead NAAQS by December 2015.

The EPA believes that the measures should provide for lead emission reductions that are at least equivalent to one year's worth of emission reductions needed for the area to meet the requirements of RFP, based on linear progress towards achieving the overall level of reductions needed to demonstrate attainment.

The basic formula is: Annual average RFP = (Attainment level emissions – base year emissions (2010)) ÷ 5, where 5 is the number of years between the base year and attainment year (2015). Traditionally the amount of reductions required for contingency measures has been measured in terms of tpy reductions at a source.

Table 18 shows the calculation of the necessary reductions.

Table 18: Calculation of Lead Reduction Requirements for Attainment Contingency Plan

Description	Lead tons
2010 Base-Year Inventory	1.1954
2015 Attainment Inventory	0.9931
Total reduction (2015-2010)	-0.2023
Pb Reduction Required for RFP Contingency (Total Reduction/5)	-0.0405

B. Contingency Measure Triggers

DEP will use two types of triggers for the implementation of contingency measures: ambient air quality and emission events.

1. *Trigger of Further Action by Air Quality Concentration*

The DEP will closely monitor ambient lead sampling results from the North Reading Nonattainment Area monitors. Lead is sampled by a discrete monitor every six days. Samples are processed in batches by the DEP Bureau of Laboratories, and results periodically reported to the DEP Bureau of Air Quality's Division of Air Quality Monitoring (AQM).

Exceedance of the Lead NAAQS. If any single sample in a lab batch for the lead monitors in the North Reading Nonattainment Area is reported to exceed $0.15 \mu\text{g}/\text{m}^3$, the AQM Division will contact the DEP Southcentral Regional Office (SCRO) within five working days of receipt of the report. Within five working days of being notified of an exceedance of the lead NAAQS by AQM, the SCRO would conduct an investigation to determine what specific activities in the nonattainment area on or about the date of the exceedance could have caused the increased lead concentrations.

In addition, implementation of contingency measures described in the Exide COA and Yuasa COA may be triggered after the Department investigates the circumstances of an exceedance and determines that facility action is necessary and appropriate. This lead concentration criterion was chosen because the area was shown to be in attainment based on the modeling demonstration. Therefore, a single sample above $0.15 \mu\text{g}/\text{m}^3$ of lead would be unusual.

Additionally, if during any 3-month rolling period, two samples at the same lead monitor in the North Reading Nonattainment Area are reported to exceed $0.15 \mu\text{g}/\text{m}^3$, AQM will double the sampling frequency at that monitor to once every three days for a period of 30 days.

Additionally, if during any 3-month rolling period, three samples at the same lead monitor in the North Reading Nonattainment Area are reported to exceed $0.15 \mu\text{g}/\text{m}^3$, AQM will conduct daily sampling at that monitor for a period of 30 days.

Finally, if during any 3-month rolling period, four or more sample results at the same lead monitor in the North Reading Nonattainment Area are reported to exceed $0.15 \mu\text{g}/\text{m}^3$, AQM would initiate additional lead ambient air monitoring in the area. A sampling plan would be developed within 15 days and monitors would be deployed as soon as possible. AQM would keep the SCRO advised of all additional monitoring results to assist in identifying potential source(s), which could result in a reinvestigation or broadening the scope of an investigation.

Violation of Lead NAAQS. The contingency measures would also be implemented if a violation occurs. A violation of the 2008 lead NAAQS occurs when, based on data collected and quality-assured by DEP, the design value of any rolling 3-month averaging period exceeds $0.15 \mu\text{g}/\text{m}^3$. Data is quality-assured and submitted to the EPA's Air Quality System on a quarterly basis.

Implementation of contingency measures described in the Exide COA and Yuasa COA would be triggered no later than 90 days from the end of the quarter in which the NAAQS violation occurred. This approach ensures that 1) laboratory analyses are completed for the entire three-month period; and 2) data is quality-assured.

Other Trigger. Contingency measures are also required to be implemented, as appropriate, if an RFP milestone is missed. The RFP measures are listed in Table 11 above.

2. *Trigger of Further Action by Emission Event*

Pursuant to 25 Pa. Code § 123.1, a person responsible for any source specified in subsections (a)(1)-(7) or (9) shall take all reasonable actions to prevent particulate matter from becoming airborne; and, pursuant to 25 Pa. Code § 123.2, a person may not permit fugitive particulate matter to be emitted into the outdoor atmosphere from a source specified in § 123.1(a)(1)-(9) (construction and demolition of buildings; grading, paving and maintenance of roads and streets; use of roads and streets; cleaning of land; stockpiling of materials and open burning operations) if the emissions are visible at the point the emissions pass outside the person's property.

Fugitive emissions could be observed by a DEP inspector during a routine inspection. In addition, if any single episode of fugitive emissions is

registered as a complaint, the SCRO Air Program staff would investigate promptly to determine compliance with 25 Pa. Code §§ 123.1 and 123.2.

The Department would then proceed with Actions and/or Enforcement as appropriate, described in the following subsections.

C. Actions

The lead emission reductions from the contingency measures in this section are considered surplus for the attainment demonstration contained in this SIP revision. They will not be used to meet any milestone requirement. As a result, the DEP will not be required to backfill any contingency measures that it chooses to implement in advance of the contingency plan requirement.

A facility shall implement at least one contingency measure, as appropriate, if all of the following occur:

- Any monitored exceedance of the Lead NAAQS occurs, as measured at the DEP monitors.
- The Department determines in writing that the facility's ongoing emissions cause or significantly contribute to the Lead NAAQS exceedance.
- The Department determines in writing that specific contingency measures from among those listed below are necessary and appropriate to abate the emissions which the Department has determined are causing or significantly contributing to the Lead NAAQS exceedance.

The Department will notify Exide and Yuasa when a monitored violation of the Lead NAAQS occurs, as measured at the DEP monitors. In the notification, the Department will identify the necessary and appropriate contingency measure(s) to be implemented from among those listed below.

1. *Exide Contingency Measures*

The Department, in consultation with Exide, has developed the following contingency measures:

1. Upgrade of existing fugitive dust control devices
2. Increase existing lead emission stack heights
3. Increased frequency of plant roadway surface cleaning
4. Investigative Study
5. Other Equivalent Measures

1. Upgrade Existing Fugitive Dust Control Devices

Within 60 days after written Department notice, Exide shall submit to the Department either an RFD or a plan approval application for installation of HEPA filters on any or all of the following baghouses, as may be required by the Department notice: C19, C23A and C47. In the event that an RFD is submitted and subsequently denied, Exide shall within 60 days of such denial submit to the Department a plan approval application. Exide shall install and begin operating the HEPA filters within 180 days of approval of either an RFD or issuance of a plan approval, unless otherwise proposed by Exide in the Study required below. After implementing this measure Exide or the Department shall collect air quality data for lead and review it to see whether attainment of the NAAQS has been restored.

2. Increase Existing Lead Emission Stack Heights

If the ambient air data measured by DEP following implementation of Exide Contingency Measure #1 above has failed to restore attainment of the NAAQS for lead, Exide shall, within 60 days after the receipt of written notice from the Department, Exide shall submit to the Department either an RFD or a plan approval application for an increase in the stack height for any or all of the following stacks, as may be required by the Department notice: S13, S23A and S70. In the event that an RFD is submitted and subsequently denied, Exide shall within 60 days of such denial submit to the Department a plan approval application. Exide shall complete construction of the higher stacks within 180 days of approval of either an RFD or issuance of a plan approval, unless otherwise proposed by Exide in the Study required below.

3. Increased Plant Roadway Cleaning Frequency

Within 1 day after the receipt of written Department notice, Exide shall increase the in-plant road cleaning at the Exide Facility to 10 hours each working day, and shall continue in-plant road cleaning activities at this frequency unless and until otherwise approved in writing by the DEP. Exide may forego cleaning during days when natural precipitation makes cleaning unnecessary or when sand or a similar material has been spread on plant roadways to provide traction on ice or snow.

4. Investigative Study

By no later than 180 days after the receipt of written Department notice, Exide shall submit to the Department an investigative study (“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.

- a. 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.
- b. The Department will either approve or modify the projects and deadlines proposed in the Study (“Study Elements”). Upon the Department approval or modification of the Study Items (“Department Approval”), the items so approved or modified shall be deemed incorporated by reference as Order items in the COA and shall be completed by the approved 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 Department Approval, unless continuance of the measure is required in the Department Approval. In the event that Exide disputes any modifications made by the Department to the Study Elements in the Department Approval, Exide retains the right to appeal the Department Approval, but shall nonetheless carry out the Study Elements as proposed by Exide during the pendency of any appeal.

5. Other Equivalent Measures

If Exide identifies and demonstrates to the Department’s satisfaction alternative control measures(s) that would achieve equal or greater lead emission reductions than the contingency

measures identified above, Exide may substitute the new control measure(s) for the contingency measure(s) identified above upon the Department's prior written approval. Any substitute contingency measures shall be implemented by Exide under the same timeframe as the original measure, unless both parties agree to a modified contingency schedule.

2. *Yuasa Contingency Measures*

The Department, in consultation with Yuasa, has developed the following contingency measure.

1. Investigative Study

By no later than 180 days after the receipt of written notice from the Department, Yuasa shall submit to the Department an investigative study ("Study") identifying the potential or likely source(s) of emissions principally contributing to the exceedance so that a strategy may be developed to reduce the likelihood of another exceedance.

- a. The study will list all best practices and best available technologies identified from similar facilities and, for each technology or practice, will (i) identify those technologies and/or practices that Yuasa 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. Yuasa will provide justification for any projects deemed not to be technically feasible or cost effective or necessary for attainment.
- b. The Department will either approve or modify the projects and deadlines proposed in the Study ("Study Elements"). Upon the Department's approval or modification of the Study Elements ("Department Approval"), the elements so approved or modified shall be deemed incorporated by reference as Order items in the COA and shall be completed by the approved deadlines. In the event that Yuasa disputes any modifications made by the Department to the Study Items in the Department Approval, Yuasa retains the right to appeal the Department Approval, but shall nonetheless carry out the Study Items as proposed by Yuasa during the pendency of any appeal.

D. Enforcement

Section 4(27) of the Pennsylvania Air Pollution Control Act (APCA or Act) authorizes DEP to take any action it deems necessary or proper for the effective enforcement of the Act and the rules and regulations promulgated under the Act. 35 P.S. § 4004(27). Such actions include the issuance of orders (i.e., enforcement orders and orders to take corrective action to address air pollution or the danger of air pollution from a source) and the assessment of civil penalties. Sections 9.1 and 10.1 of the APCA also expressly authorize DEP to issue orders to aid in the enforcement of the Act and to assess civil penalties. 35 P.S. §§ 4009.1 and 4010.1.

Any person in violation of the Act, rules and regulations, any order of the DEP or plan approval and operating permit conditions would also be subject to criminal fines upon conviction under Section 9. 35 P.S. § 4009. Section 7.1 of the APCA prohibits the DEP from issuing plan approvals and operating permits for any applicant, permittee, or a general partner, parent or subsidiary corporation of the applicant or the permittee that is placed on the DEP's Compliance Docket until the violations are corrected to the satisfaction of DEP. 35 P.S. § 4007.1.

Should DEP determine that specific activities are likely to have caused an exceedance (a sample over $0.15 \mu\text{g}/\text{m}^3$ as described above), or if the DEP documents a violation of § 123.1 or 123.2, DEP will notify the party at the time of an inspection or other site visit that an action appears to be adversely affecting the NAAQS or violating Pennsylvania regulations. If this finding cannot be determined on the date of the visit because the receipt of sample results and/or further information is necessary, the notification will be done within five calendar days of receiving the necessary information. The notification may include specific recommendations for mitigating the impact on the 2008 lead NAAQS. DEP's determination will be made by using professional judgment of DEP staff taking account such factors as wind, precipitation, and the physical characteristics of the activities.

A Notice of Violation (NOV) will be sent by the Department to the violator or legal representative of the violator if:

- DEP determines that the action is a violation of an air toxic requirement that causes excess emissions or violates operating parameter restrictions; or
- Emissions violations are severe enough to cause community health or environmental impacts.

An NOV may also be sent in other situations consistent with applicable EPA or DEP laws, regulations, policies and procedures.

The NOV will identify each violation, the regulatory basis for the violation(s), requested actions to resolve the violation and the due dates for those actions. All violations will be followed up on in accordance with Department and EPA policy.

ACRONYMS AND ABBREVIATIONS

AERMOD	American Meteorological Society/EPA Regulatory Model
AQS	Air Quality System
CBSA	Core-Based Statistical Areas
COA	Consent Order and Agreement
C.F.R.	Code of Federal Regulations
DEP	Department of Environmental Protection (Pennsylvania)
DV	Design Value
EPA	U.S. Environmental Protection Agency
FIRE	Factor Information Retrieval (FIRE) Data System
HAP	Hazardous Air Pollutant
HEPA	High Efficiency Particulate Arresting
$\mu\text{g}/\text{m}^3$	micrograms per cubic meter
MACT	Maximum Achievable Control Technology
NAAQS	National Ambient Air Quality Standard
NAICS	North American Industry Classification System
NESHAP	National Emission Standards for Hazardous Air Pollutants
Pb	lead
PTE	Potential to Emit
PTFE	Polytetrafluoroethylene
RACM	Reasonably Available Control Measure
RACT	Reasonably Available Control Technology
RFP	Reasonable Further Progress
SCC	Source Classification Code
SIP	State Implementation Plan
SOP	Standard Operating Procedures
tpy	tons per year
TSP	Total Suspended Particles



APPENDIX A-1

AQS AMP480 Design Value Report for 2009 – 2013

**Bureau of Air Quality
Department of Environmental Protection**

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User ID: AES

DESIGN VALUE REPORT

Report Request ID: 1290356

Report Code: AMP480

Jan. 28, 2015

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	42	011	0020								
	42	011	1717								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration

DESIGN VALUE	14129

SELECTED OPTIONS

Option Type	Option Value
SINGLE EVENT PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
WORKFILE DELIMITER	,
USER SITE METADATA	STREET ADDRESS
MERGE PDF FILES	YES
QUARTERLY DATA IN WORKFILE	NO
AGENCY ROLE	PQA0

DATE CRITERIA

Start Date	End Date
2009	2013

APPLICABLE STANDARDS

Standard Description
Lead 3-Month 2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 28, 2015

- Notes:**
1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
 2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
 3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 28, 2015

Pollutant: Lead (TSP) LC(14129)
Standard Units: Micrograms/cubic meter (LC)(105)
NAAQS Standard: Lead 3-Month 2009
Statistic: 3-Month Rolling Average **Level:** .15

Design Value Year: 2009
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: Pennsylvania

Site ID	STREET ADDRESS	2009					2008					2007					3-Year		
		Max	Maximum	Cert&	Valid	Total	Max	Maximum	Cert&	Valid	Total	Max	Max	Cert&	Valid	Total	DV and Max		Valid
		Value	Month	Param	Eval		Value	Month	Param	Eval		Value	Month	Param	Eval		Valid	Mon/Yr	
42-011-1717	SPRING VALLEY ROAD	.25	MAY	14129		10	.24	MAY	12128		12	.36	JAN	12128		12	.36	Y JAN 2007	34

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 28, 2015

Pollutant: Lead (TSP) LC(14129)
Standard Units: Micrograms/cubic meter (LC)(105)
NAAQS Standard: Lead 3-Month 2009
Statistic: 3-Month Rolling Average **Level:** .15

Design Value Year: 2010
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: Pennsylvania

Site ID	STREET ADDRESS	2010					2009					2008					3-Year		
		Max	Maximum	Cert&	Valid	Total	Max	Maximum	Cert&	Valid	Total	Max	Max	Cert&	Valid	Total	DV and Max	Valid	Total
		Value	Month	Param	Eval	Months	Value	Month	Param	Eval	Months	Value	Month	Param	Eval	Months	Valid	Mon/Yr	Months
42-011-0020	3139 Kutztown Rd	.19	NOV	14129		10											.19	Y NOV 2010	10
42-011-1717	SPRING VALLEY ROAD	.20	SEP	14129		6	.25	MAY	14129		10	.24	MAY	12128		12	.25	Y MAY 2009	28

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 28, 2015

Pollutant: Lead (TSP) LC(14129)
Standard Units: Micrograms/cubic meter (LC)(105)
NAAQS Standard: Lead 3-Month 2009
Statistic: 3-Month Rolling Average **Level:** .15

Design Value Year: 2011
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: Pennsylvania

Site ID	STREET ADDRESS	2011					2010					2009					3-Year		
		Max Value	Maximum Month	Param	Cert& Eval	Total Valid Months	Max Value	Maximum Month	Param	Cert& Eval	Total Valid Months	Max Value	Maximum Month	Param	Cert& Eval	Total Valid Months	DV and Max Valid	Mon/Yr	Total Valid Months
42-011-0020	3139 Kutztown Rd	.20	MAY	14129		12	.19	NOV	14129		10						.20	Y MAY 2011	22
42-011-1717	SPRING VALLEY ROAD	.18	OCT	14129		12	.20	SEP	14129		6	.25	MAY	14129		10	.25	Y MAY 2009	28

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 28, 2015

Pollutant: Lead (TSP) LC(14129)
Standard Units: Micrograms/cubic meter (LC)(105)
NAAQS Standard: Lead 3-Month 2009
Statistic: 3-Month Rolling Average **Level:** .15

Design Value Year: 2012
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: Pennsylvania

Site ID	STREET ADDRESS	2012					2011					2010					3-Year		
		Max	Maximum	Cert&	Valid	Total	Max	Maximum	Cert&	Valid	Total	Max	Max	Cert&	Valid	Total	DV and Max		Valid
		Value	Month	Param	Eval		Value	Month	Param	Eval		Value	Month	Param	Eval		Valid	Mon/Yr	
42-011-0020	3139 Kutztown Rd	.51	FEB	14129		12	.20	MAY	14129		12	.19	NOV	14129		10	.51	Y FEB 2012	34
42-011-1717	SPRING VALLEY ROAD	.22	FEB	14129		12	.18	OCT	14129		12	.20	SEP	14129		6	.22	Y FEB 2012	30

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 28, 2015

Pollutant: Lead (TSP) LC(14129)
Standard Units: Micrograms/cubic meter (LC)(105)
NAAQS Standard: Lead 3-Month 2009
Statistic: 3-Month Rolling Average **Level:** .15

Design Value Year: 2013
REPORT EXCLUDES MEASUREMENTS WITH REGIONALLY CONCURRED EVENT FLAGS.
State Name: Pennsylvania

Site ID	STREET ADDRESS	2013					2012					2011					3-Year		
		Max	Maximum	Cert&	Valid	Total	Max	Maximum	Cert&	Valid	Total	Max	Max	Cert&	Valid	Total	DV and Max		Valid
		Value	Month	Param	Eval		Value	Month	Param	Eval		Value	Month	Param	Eval		Valid	Mon/Yr	
42-011-0020	3139 Kutztown Rd	.12	APR	14129		12	.51	FEB	14129		12	.20	MAY	14129		12	.51	Y FEB 2012	36
42-011-1717	SPRING VALLEY ROAD	.17	JAN	14129		12	.22	FEB	14129		12	.18	OCT	14129		12	.22	Y FEB 2012	36

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
PRELIMINARY DESIGN VALUE REPORT

Report Date: Jan. 28, 2015

CERTIFICATION EVALUATION AND CONCURRENCE FLAG MEANINGS

FLAG	MEANING
M	The monitoring organization has revised data from this monitor since the most recent certification letter received from the state.
N	The certifying agency has submitted the certification letter and required summary reports, but the certifying agency and/or EPA has determined that issues regarding the quality of the ambient concentration data cannot be resolved due to data completeness, the lack of performed quality assurance checks or the results of uncertainty statistics shown in the AMP255 report or the certification and quality assurance report.
S	The certifying agency has submitted the certification letter and required summary reports. A value of "S" conveys no Regional assessment regarding data quality per se. This flag will remain until the Region provides an "N" or "Y" concurrence flag.
U	Uncertified. The certifying agency did not submit a required certification letter and summary reports for this monitor even though the due date has passed, or the state's certification letter specifically did not apply the certification to this monitor.
X	Certification is not required by 40 CFR 58.15 and no conditions apply to be the basis for assigning another flag value
Y	The certifying agency has submitted a certification letter, and EPA has no unresolved reservations about data quality (after reviewing the letter, the attached summary reports, the amount of quality assurance data submitted to AQS, the quality statistics, and the highest reported concentrations).

Notes: 1. Computed design values are a snapshot of the data at the time the report was run (may not be all data for year).
2. Some PM2.5 24-hour DVs for incomplete data that are marked invalid here may be marked valid in the Official report due to additional analysis.
3. Annual Values not meeting completeness criteria are marked with an asterisk ('*').



APPENDIX A-2

AQS AMP355 Combined Site Sample Values Report for 2007 – 2013

**Bureau of Air Quality
Department of Environmental Protection**

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User ID: AES

COMBINED SITE SAMPLE VALUES

Report Request ID: 1290353

Report Code: AMP355

Jan. 28, 2015

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	42	011	0020								
	42	011	1717								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration
COMBINABLE	14129		

SELECTED OPTIONS

Option Type	Option Value
SHOW SOURCE	YES
EVENTS PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
MERGE PDF FILES	YES

SORT ORDER

Order	Column
1	STATE_CODE
2	COUNTY_CODE
3	SITE_ID
4	PARAMETER_CODE
5	YEAR

DATE CRITERIA

Start Date	End Date
2007 01 01	2013 12 31

APPLICABLE STANDARDS

Standard Description
Lead 3-Month 2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-0020
COUNTY: (011) Berks
CITY: ()
SITE ADDRESS: 3139 Kutztown Rd
SITE COMMENTS: New Lead site PA-ID R110 and X230

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
LATITUDE: 40.385981
LONGITUDE: -75.912856

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2010

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1		0.048				0.097*	0.045					
2	0.048			0.174	0.093							
3			0.046									
4											0.045	0.048
5									0.088	0.046		
6								0.168				
7		0.048				0.061*	0.077					
8	0.047			0.369	0.044							
9			0.061									
10											0.046	0.180
11									0.078	0.138		
12								0.044				
13						0.043	0.283					
14	0.100			0.144	0.104*							
15			0.045									
16											0.062	0.048
17									0.045	1.391		
18								0.085				
19		0.047				0.219	0.151					
20	0.087			0.082	0.064*							
21			0.280									
22											0.185	0.047
23									0.153	0.115		
24								0.045				
25		0.047				0.044	0.043					
26	0.047			0.043*	0.136*							
27			0.506									
28											0.311	0.048
29									0.074	0.046		
30								0.132				
31							0.470					
NO.:	5	4	5	5	5	5	6	5	5	5	5	5
MAX:	.1	.048	.506	.369	.136	.219	.47	.168	.153	1.391	.311	.18
MEAN:	.0658	.0475	.1876	.1624	.0882	.0928	.1782	.0948	.0876	.3472	.1298	.0742

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-0020
COUNTY: (011) Berks
CITY: ()
SITE ADDRESS: 3139 Kutztown Rd
SITE COMMENTS: New Lead site PA-ID R110 and X230

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
LATITUDE: 40.385981
LONGITUDE: -75.912856

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2011

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1								0.097				
2						0.012	0.153					
3	0.020			0.024	0.503							
4			0.298									
5											0.049	0.629
6									0.019	0.066		
7								0.052				
8		0.012				0.089	0.042					
9	0.012			0.060	0.054							
10			0.012									
11											0.061	0.112
12										0.012		
13								0.319				
14		0.134				0.016	0.084					
15	0.109			0.038	0.077							
16			0.013									
17											0.020	0.035
18									0.028	0.246		
19								0.156				
20		0.025				0.102	0.284					
21	0.012			0.034	0.016							
22			0.036									
23											0.106	0.020
24									0.074	0.286		
25								0.495				
26		0.037				0.019	0.079					
27	0.023			1.372	0.391							
28			0.011									
29											0.173	0.019
30									0.069	0.048		
31								0.174				
NO.:	5	4	5	5	5	5	5	6	4	5	5	5
MAX:	.109	.134	.298	1.372	.503	.102	.284	.495	.074	.286	.173	.629
MEAN:	.0352	.052	.074	.3056	.2082	.0476	.1284	.2155	.0475	.1316	.0818	.163

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "***".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-0020
COUNTY: (011) Berks
CITY: ()
SITE ADDRESS: 3139 Kutztown Rd
SITE COMMENTS: New Lead site PA-ID R110 and X230

STATE: (42) Pennsylvania
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LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
LATITUDE: 40.385981
LONGITUDE: -75.912856

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2012

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1								0.035				
2						0.074	0.090					
3		0.382		0.222	0.072							
4	0.156		0.010									
5											0.008*	
6									0.090	0.140		
7								0.153				
8						0.056	0.081					
9		0.032		0.010	0.115							
10	0.053*		0.149									
11											0.232	0.059
12									0.233	0.114		
13												
14						0.044	0.113					
15		0.045		0.164	0.049							
16	4.714		0.091									
17											0.183	0.011
18										0.379		
19												
20						0.071						
21		0.665		0.269	0.010							
22	0.163		0.149									
23											0.323	0.266
24									0.263	0.169		
25								0.178				
26							0.125					
27		0.378		0.042	0.220							
28	0.232		0.169									
29											0.174	0.017
30									0.125	0.138		
31								0.107				
NO.:	5	5	5	5	5	4	4	4	4	5	5	4
MAX:	4.714	.665	.169	.269	.22	.074	.125	.178	.263	.379	.323	.266
MEAN:	1.0636	.3004	.1136	.1414	.0932	.0613	.1023	.1183	.1778	.188	.184	.0883

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-0020
COUNTY: (011) Berks
CITY: ()
SITE ADDRESS: 3139 Kutztown Rd
SITE COMMENTS: New Lead site PA-ID R110 and X230

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: COMMERCIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
LATITUDE: 40.385981
LONGITUDE: -75.912856

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0:(0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2013

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1									0.010	0.014*		
2								0.010				
3		0.057*				0.017	0.042					
4	0.010			0.226	0.014							
5			0.016									
6											0.078	0.010
7									0.012			
8								0.032				
9		0.022*				0.010	0.010					
10	0.025			0.130	0.037							
11			0.238								0.010	0.024
12									0.010	0.010*		
13								0.014				
14		0.361				0.010						
15	0.018			0.490	0.038							
16			0.015									
17											0.010	0.021
18									0.030	0.016		
19								0.010				
20		0.010				0.042	0.010					
21				0.077	0.177							
22			0.010									
23											0.010	0.010*
24									0.023*	0.014		
25								0.024				
26		0.028				0.019	0.035					
27				0.086	0.044							
28			0.025									
29											0.015	0.010*
30												
31										0.025		
NO.:	3	5	5	5	5	5	4	5	5	5	5	5
MAX:	.025	.361	.238	.49	.177	.042	.042	.032	.03	.025	.078	.024
MEAN:	.0177	.0956	.0608	.2018	.062	.0196	.0243	.018	.017	.0158	.0246	.015

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-1717
COUNTY: (011) Berks
CITY: (41768) Laureldale
SITE ADDRESS: SPRING VALLEY ROAD
SITE COMMENTS: LAURELDALE SPRING VALLEY BOOSTER SUBSTATION R0680810 PA SITE SITE

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: INDUSTRIAL
LOCATION SETTING: SUBURBAN

CAS NUMBER: 7439-92-1
LATITUDE: 40.377222
LONGITUDE: -75.914444

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2009

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1	0.050			0.040	0.040							
2												
3											0.070	0.030
4									0.180	0.140		
5								0.070				
6		0.070				0.040	0.140					
7	0.040			0.040	0.060							
8			0.770									
9											0.160	0.060
10									0.630			
11								0.040				
12		0.040					0.040					
13	0.030			0.320	0.450							
14			0.090									
15											0.110	0.030
16									0.470	0.150		
17								0.050				
18		0.090				0.090	0.040					
19				0.060								
20			0.270									
21											0.070	0.090
22									0.050	0.100		
23								0.050				
24		0.130				0.140	0.050					
25	0.060			0.090	1.090							
26			0.050									
27											0.030	0.030
28									0.070	0.040		
29								0.050				
30						0.070	0.040					
31	0.110				0.100							
NO.:	5	4	4	5	5	4	5	5	5	4	5	5
MAX:	.11	.13	.77	.32	1.09	.14	.14	.07	.63	.15	.16	.09
MEAN:	.058	.0825	.295	.11	.348	.085	.062	.052	.28	.1075	.088	.048

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-1717
COUNTY: (011) Berks
CITY: (41768) Laureldale
SITE ADDRESS: SPRING VALLEY ROAD
SITE COMMENTS: LAURELDALE SPRING VALLEY BOOSTER SUBSTATION R0680810 PA SITE SITE

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: INDUSTRIAL
LOCATION SETTING: SUBURBAN

CAS NUMBER: 7439-92-1
LATITUDE: 40.377222
LONGITUDE: -75.914444

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2010

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1		0.107					0.104					
2				0.058	0.042							
3			0.256									
4											0.519	0.047
5									0.069	0.046		
6								0.062				
7							0.452					
8	0.047			0.079	0.044							
9			0.143									
10									0.079	0.169	0.178	0.142
11								0.124				
12												
13						0.052	0.172					
14	0.136											
15			0.186									
16											0.050	0.048
17									0.099	0.404		
18								0.142				
19						0.044	0.062					
20	0.129			0.150								
21			0.088									
22											0.115	0.108
23									0.156	0.056		
24								0.826				
25						0.107	0.112					
26	0.046			0.044								
27			0.080									
28											0.137	0.047
29									0.194	0.046		
30								0.270				
31							0.218					
NO.:	4	1	5	4	2	3	6	5	5	5	5	5
MAX:	.136	.107	.256	.15	.044	.107	.452	.826	.194	.404	.519	.142
MEAN:	.0895	.107	.1506	.0828	.043	.0677	.1867	.2848	.1194	.1442	.1998	.0784

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-1717
COUNTY: (011) Berks
CITY: (41768) Laureldale
SITE ADDRESS: SPRING VALLEY ROAD
SITE COMMENTS: LAURELDALE SPRING VALLEY BOOSTER SUBSTATION R0680810 PA SITE SITE

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: INDUSTRIAL
LOCATION SETTING: SUBURBAN

CAS NUMBER: 7439-92-1
LATITUDE: 40.377222
LONGITUDE: -75.914444

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2011

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1								0.194				
2						0.082	0.112					
3	0.078			0.018	0.036							
4			0.036									
5											0.398	0.270
6									0.483	0.163		
7								0.025				
8		0.016				0.089	0.061					
9	0.015			0.041	0.268							
10			0.011									
11											0.029	0.152
12										0.162		
13								0.097				
14		0.155				0.297						
15	0.031			0.142	0.028							
16			0.019									
17												0.158
18									0.162	0.169		
19								0.228				
20		0.056				0.024	0.062					
21	0.011			0.356	0.253							
22			0.187									
23												0.484
24									0.151	0.113		
25								0.037				
26		0.012				0.065	0.068					
27	0.020			0.020	0.062							
28			0.095									
29											0.011	0.051
30									0.239	0.052		
31								0.327				
NO.:	5	4	5	5	5	5	4	6	4	5	3	5
MAX:	.078	.155	.187	.356	.268	.297	.112	.327	.483	.169	.398	.484
MEAN:	.031	.0598	.0696	.1154	.1294	.1114	.0758	.1513	.2588	.1318	.146	.223

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-1717
COUNTY: (011) Berks
CITY: (41768) Laureldale
SITE ADDRESS: SPRING VALLEY ROAD
SITE COMMENTS: LAURELDALE SPRING VALLEY BOOSTER SUBSTATION R0680810 PA SITE SITE

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: INDUSTRIAL
LOCATION SETTING: SUBURBAN

CAS NUMBER: 7439-92-1
LATITUDE: 40.377222
LONGITUDE: -75.914444

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2012

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1								0.108				
2						0.035	0.228					
3		0.495		0.485	0.057							
4	0.064		0.022									
5											0.246	0.159
6									0.080	0.147		
7								0.162				
8						0.198	0.324					
9		0.106		0.074	0.058							
10	0.131		0.100								0.246	0.144
11												
12									0.184	0.335		
13								0.203				
14						0.316						
15		0.135		0.023	0.019							
16	0.073		0.169									
17											0.298	0.086
18									0.012	0.044		
19								0.169				
20						0.118						
21		0.136		0.284	0.121							
22	0.610		0.165									
23											0.258	0.272
24									0.154	0.257		
25								0.149				
26						0.259	0.090					
27		0.114		0.091	0.078							
28	0.271		0.128									
29											0.340	0.132
30									0.112	0.064		
31								0.124				
NO.:	5	5	5	5	5	5	3	6	5	5	5	5
MAX:	.61	.495	.169	.485	.121	.316	.324	.203	.184	.335	.34	.272
MEAN:	.2298	.1972	.1168	.1914	.0666	.1852	.214	.1525	.1084	.1694	.2776	.1586

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jan. 28, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-1717
COUNTY: (011) Berks
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SITE COMMENTS: LAURELDALE SPRING VALLEY BOOSTER SUBSTATION R0680810 PA SITE SITE

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: INDUSTRIAL
LOCATION SETTING: SUBURBAN

CAS NUMBER: 7439-92-1
LATITUDE: 40.377222
LONGITUDE: -75.914444

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2013

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1									0.009	0.015		
2								0.012				
3						0.041	0.009					
4	0.034			0.106	0.019							
5			0.233									
6											0.012	0.013
7									0.012	0.010		
8								0.009				
9						0.013	0.010					
10	0.165			0.074	0.055							
11			0.092								0.021	0.016
12									0.013	0.010		
13												
14								0.017				
15		0.098				0.011	0.015					
16	0.055			0.035	0.067							
17			0.070									
18									0.021	0.020	0.010	0.018
19												
20								0.014				
21		0.241				0.028	0.011					
22	0.035			0.135	0.018							
23			0.025									
24											0.010	0.010
25									0.034	0.017		
26								0.010				
27		0.079				0.024	0.013					
28	0.074			0.013	0.025							
29			0.122									
30											0.025	0.010
31										0.025		
NO.:	5	3	5	5	5	5	5	5	5	6	5	5
MAX:	.165	.241	.233	.135	.067	.041	.015	.017	.034	.025	.025	.018
MEAN:	.0726	.1393	.1084	.0726	.0368	.0234	.0116	.0124	.0178	.0162	.0156	.0134

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".



APPENDIX A-3

AQS AMP355 Combined Site Sample Values Report for 2014

**Bureau of Air Quality
Department of Environmental Protection**

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User ID: AES

COMBINED SITE SAMPLE VALUES

Report Request ID: 1339275

Report Code: AMP355

Jun. 2, 2015

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region
	42	011	0020								
	42	011	1717								

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration

14129

SELECTED OPTIONS

Option Type	Option Value
SHOW SOURCE	YES
EVENTS PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
MERGE PDF FILES	YES

SORT ORDER

Order	Column
1	STATE_CODE
2	COUNTY_CODE
3	SITE_ID
4	PARAMETER_CODE
5	YEAR

DATE CRITERIA

Start Date	End Date
2014 01 01	2014 12 31

APPLICABLE STANDARDS

Standard Description
Lead 3-Month 2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 2, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-0020

COUNTY: (011) Berks

CITY: ()

SITE ADDRESS: 3139 Kutztown Rd

SITE COMMENTS: New Lead site PA-ID R110 and X230

STATE: (42) Pennsylvania

AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY

URBANIZED AREA: (6680) READING, PA

LAND USE: COMMERCIAL

LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1

LATITUDE: 40.385981

LONGITUDE: -75.912856

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection

MONITOR TYPE: SLAMS

PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2014

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1											0.010	0.019
2									0.010	0.010		
3								0.010				
4		0.010				0.011	0.010*					
5	0.012			0.010	0.010							
6			0.012									
7												
8									0.010	0.010	0.010	0.010
9								0.010				
10		0.013				0.010	0.017					
11	0.016			0.029	0.010*							
12			0.025									
13											0.015	0.010
14									0.010	0.057		
15								0.010				
16		0.010				0.016	0.010					
17	0.025			0.011	0.010							
18			0.017									
19											0.010	0.010
20									0.010	0.020		
21								0.011				
22		0.029				0.010*	0.024					
23	0.012			0.010	0.010							
24			0.010									
25											0.010	0.010
26									0.010	0.010		
27								0.010				
28		0.010				0.010*	0.010					
29	0.010				0.010							
30			0.010									
31												0.010
NO.:	5	5	5	4	5	5	5	5	5	5	5	6
MAX:	.025	.029	.025	.029	.01	.016	.024	.011	.01	.057	.015	.019
MEAN:	.015	.0144	.0148	.015	.01	.0114	.0142	.0102	.01	.0214	.011	.0115

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 2, 2015

(14129) Lead (TSP) LC

SITE ID: 42-011-1717
COUNTY: (011) Berks
CITY: (41768) Laureldale
SITE ADDRESS: SPRING VALLEY ROAD
SITE COMMENTS: LAURELDALE SPRING VALLEY BOOSTER SUBSTATION R0680810 PA SITE SITE

STATE: (42) Pennsylvania
AQCR: (151) NORTHEAST PENNSYLVANIA-UPPER DELAWARE VALLEY
URBANIZED AREA: (6680) READING, PA
LAND USE: INDUSTRIAL
LOCATION SETTING: SUBURBAN

CAS NUMBER: 7439-92-1
LATITUDE: 40.377222
LONGITUDE: -75.914444

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2014

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1											0.010	0.311
2									0.009	0.017		
3								0.010				
4		0.010				0.018	0.010					
5	0.016			0.009	0.012							
6			0.025									
7											0.010	0.010
8									0.010	0.010		
9								0.010				
10		0.010				0.014	0.025					
11	0.010			0.019	0.010							
12			0.032									
13											0.015	0.010
14									0.010	0.010		
15								0.010				
16		0.015				0.011	0.010					
17	0.020			0.018	0.010							
18			0.032									
19											0.010	0.010
20									0.010	0.013		
21								0.010				
22		0.010				0.010	0.009					
23	0.011			0.010	0.023							
24			0.026									
25											0.010	0.010
26									0.015	0.010		
27								0.010				
28		0.017				0.010	0.010					
29	0.010			0.010	0.011							
30			0.009									
31												0.010
NO.:	5	5	5	5	5	5	5	5	5	5	5	6
MAX:	.02	.017	.032	.019	.023	.018	.025	.01	.015	.017	.015	.311
MEAN:	.0134	.0124	.0248	.0132	.0132	.0126	.0128	.01	.0108	.012	.011	.0602

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "***".

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APPENDIX B-1

Preparation of Pennsylvania Point Source Inventories and Instructions for Completing the Annual Emissions Reporting Forms

**Bureau of Air Quality
Department of Environmental Protection**

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INSTRUCTIONS FOR COMPLETING THE ANNUAL EMISSION STATEMENT REPORTING FORMS

Commonwealth of Pennsylvania
Department of Environmental Protection

Tom Corbett, Governor
Commonwealth of Pennsylvania

Michael Krancer, Acting Secretary
Department of Environmental Protection

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These instructions were prepared by:

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 Pennsylvania Department of Environmental Protection
 Bureau of Air Quality, Harrisburg
 717-783-9241
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Note: This booklet contains the instructions for filling out the Annual Emission Statement. These instructions have been prepared to assist the owner/operators to report their emissions data. These instructions are not regulations. The Department reserves the right to modify these instructions as needed. *Please save this booklet for future reference.* If you have questions about the Annual Emission Statement, please contact your Regional Air Quality staff.

This booklet is available electronically via the Internet. Access the DEP Web site at www.depweb.state.pa.us, keyword: Emission Inventory.

1. Background

1.1 Annual Emission Statement (AES) Background:

The Annual Emission Statement (AES) requests information to satisfy several regulatory requirements. These requirements include Title V permitting, the Annual Inventory and Emission Statements, as well as other regulations that are part of the State Implementation Plan (SIP). The Title V regulation is found in the Pennsylvania Code, Title 25, Chapter 127. The Annual Inventory regulation is found in the Pennsylvania Code, Title 25, Chapter 135.1-135.5. The Emission Statement regulation is found in Pennsylvania Code, Title 25, Chapter 135.21. The Emission Statement information is due March 1. The Annual Inventory information is due March 1 or within 60 days of the date the facility's owner/operator is notified by the Department of Environmental Protection (DEP) that the facility is subject to Annual Inventory, whichever is later. DEP has chosen March 1 as the collective deadline to avoid having to request Emission Statement and Annual Inventory information separately.

When a facility's owner/operator provides the AES to the appropriate DEP regional office, the information is entered, either automatically or manually depending on the reporting method, into DEP's computer database. This database is called the Air Information Management System / environment, Facility, Application, Compliance Tracking System (AIMS/eFACTS). The Regional Air Quality (RAQ) staff review the submission for incorrect or missing data before the data is accepted into AIMS/eFACTS. For a facility that has not been entered in AIMS/eFACTS in previous years, the RAQ staff first creates a map showing the connections between the sub facilities being tracked, the control devices and the stacks. Worksheets for owners/operators of facilities that have never previously reported, or for new sub facilities, are included in these Instructions and are also available from the DEP Web site or from RAQ staff. For a facility that has previously been entered, a skeleton consisting of the map and unchanging sub facility information, such as rated capacities, has been copied over from the previous year.

Once the operating schedules, throughputs and facility emission estimates have been entered, AIMS/eFACTS calculates the emissions using Sub Facility Classification Code (SCC) factors. If the AIMS/eFACTS and facility estimates do not match, RAQ staff may work with the facility's owner/operator to determine if corrections are needed. AIMS/eFACTS can contain multiple emission estimates for a specific pollutant from a specific piece of equipment. Acceptable calculation methods include stack tests, Continuous Emission Monitoring (CEM) data, material balance calculations and industry-specific emission factors, to list some examples. CEM data is usually the most reliable and should be used before any other method.

Some uses for AIMS/eFACTS data include Emissions Reductions Credits, Open Market Trading, regulation evaluation, the SIP and modeling. A variety of standard and custom reports can be run on AIMS/eFACTS by DEP staff. AIMS/eFACTS data is provided to the federal National Emission Inventory (NEI) database and to other state agencies and the public upon request (See Chapter VI. Confidentiality).

Lab samples are also logged into AIMS/eFACTS and linked to the appropriate plant and sub facility. AIMS/eFACTS also contains permit, emission fee, compliance, stack test and CEM information.

This booklet is available electronically via Internet. Access the DEP Web site at <http://www.depweb.state.pa.us>, keyword: Emission Inventory.

1.2 Electronic Reporting:

Detailed electronic reporting information such as upcoming training (when scheduled) and registration forms are available from the DEP Web site at <http://www.depweb.state.pa.us>, keyword: Emission Inventory. Contact Michael Rudawski at 717-783-9241 or through electronic mail at mrudawski@state.pa.us to request electronic reporting information, including registration forms to request access to the services.

1.2.1 Web-based Reporting Forms

The Bureau of Air Quality's (BAQ's) web-based reporting application is called **AES*Online**. **AES*Online** allows a facility's owner/operator to enter data on an Internet web site through an ordinary web browser. **AES*Online** users no longer need to fill out paper forms. Facility users log in to a series of secure screens and enter their facility's inventory data. **AES*Online** automatically fills in fields where applicable from the previous year's submission and also checks the data as it is entered to insure accuracy. Additionally, **AES*Online** includes the ability to add notes to the data and exchange correspondence with RAQ staff. **AES*Online** provides a unique navigation system to allow the user to move between screen forms with ease. After RAQ staff review the submission, entries that need clarification are highlighted by the system so that the facility user can immediately verify the data without having to scroll through unnecessary screens. Data is automatically saved as each screen form is completed to prevent loss of data if the Internet connection is broken.

AES*Online requires Internet access. If your data management system is maintained in spreadsheets or databases, you may want to explore the entirely automated eXtensible Markup Language (XML) option instead of **AES*Online**.

1.2.2 eXtensible Markup Language (XML)

XML provides a common language that allows dissimilar computer systems to share data. XML surrounds each piece of data with tags, similar to the way a web browser displays a page from the Internet. Software, called a parser, uses these tags to interpret the data. Many different software companies offer parsers for a variety of prices. An XML parser is bundled into Windows 2003. XML uses a Document Type Definition (DTD) to establish the data content and tags for a specific file or document. BAQ has developed a DTD that defines the AES data and tags. A company that wishes to submit XML data to BAQ must request a copy of the DTD and configure their parser to translate the BAQ DTD. Files in XML format may be transferred on disk or over the Internet. The XML standards and sample files are available for download at <http://www.depweb.state.pa.us>, keyword: Emission Inventory.

Useful links for more information on XML:

<http://www.w3.org>

<http://msdn.Microsoft.com/xml/>

2. Helpful Resources

2.1 Check-Lists For Common Errors

Some errors have a way of being repetitious. While BAQ accepts responsibility for unclear instructions and other systemic errors, please complete this checklist before submitting your AES.

Comments and questions about the contents of the AES can be directed to Mike Rudawski at 717-783-9241 or mrudawski@state.pa.us.

2.1.1 Facility Information

- Is your tax ID (IRS #) valid?
- Are all the contacts on your forms correct?
- Is BAQ's map of your sub facilities correct?
- Do you have any sub facilities not included in the map?

2.1.2 Sub Facility Information

- Are your units of measure correct? (AIMS/eFACTS automatically defaults to the units used last year.)
- Does your SCC match BAQ's?
- Have you submitted throughput data by month for each sub facility?
- Have you included date effective and date end?
- How about days per week, total days and total hours?
- If you have manually calculated your emissions, **have you explained how you did it?** (Please provide as many details as possible.)
- Does the Pollutant Summary page include all emissions?
- Does the summary page compare with the other emissions you have entered?

2.1.3 Hazardous Air Pollutants (HAPs)

- Have you speciated your HAPs emissions by sub facility?

2.2 AP-42 and FIRE

AP-42 is a compilation of air pollutant emission factors containing the same factors used for sub Facility Classification Codes (SCCs). AP-42 uses factors for general sub facility categories. AP-42 contains a variety of methods for calculating emissions for any given sub facility type. BAQ currently uses version 6.23 from October 2000. The AP-42 series is available in several media. AP-42 is available free online at www.epa.gov/ttn/chief/ap42/index.html

The Factor Information REtrieval (FIRE) database contains emission estimation factors for criteria and hazardous air pollutants. FIRE factors are very specific for sub facility type. FIRE offers sub facility specific factors and does not provide multiple calculation methods ranked by preference. More information about FIRE may be obtained at www.epa.gov/ttn/chief/software/fire/index.html.

Please note: If comparing factors in FIRE against AP-42, the FIRE factors should take precedence because the FIRE version is more recent.

Paper copies of AP-42 may be obtained from the Government Printing Office (GPO) in Washington, DC. Orders must be prepaid (except for other federal agencies or college bookstores). The stock number for the 5th edition of AP-42 ("Compilation of Air Pollutant Emission Factors; Volume I: Stationary Point And Area Sub Facilities") is S/N 055-000-00500-1. Supplement A is S/N 055-000-00551-6. Supplement B is S/N 055-000-00565-6. The Government Printing Office can be contacted for current pricing at:

US GPO Superintendent of Documents
P.O. Box 371954
Pittsburgh, PA 15250-7954
www.gpo.gov
phone 866-512-1800
fax 202-512-2250

Mail orders must include a check or money order made out to the "Superintendent of Documents."

The *Air CHIEF* compact disc (CD-ROM), with AP-42 and other hazardous air pollutant emission estimation reports and databases, can be purchased from the Government Printing Office. The item number is S/N 055-000-00643-1.

For further information on *Air CHIEF* and other aspects of emission estimation, call U.S. EPA's *Info CHIEF* help line at 919-541-1000 during regular office hours, Eastern Time. The CHIEF Web site is www.epa.gov/ttn/chief/. EPA does not have the staff or the structure to provide engineering support.

If you have factor needs, new data, questions or suggestions for U.S. EPA, please send them to this address:

AP-42 Team (MD 14)
Emission Factor and Inventory Group
Emissions, Monitoring, and Analysis Division
Office Of Air Quality Planning And Standards
U.S. Environmental Protection Agency
Research Triangle Park, NC 27711

2.3 Industry-Specific Emission Factors

Industry groups have also developed emission factors. You may want to contact your group to obtain any factors that exist.

2.4 Standard Industrial Classification and North American Industry Classification System

The U.S. Bureau of Census has replaced its Standard Industrial Classification (SIC) system with the North American Industry Classification System (NAICS). SICs have been converted to the 2002 version of the NAICS codes in AIMS/eFACTS where possible. In some cases, a conversion was not possible. The NAICS is also required by the IRS, and your financial department may have this information for you.

NAICS information is available from a federal web site. Copies are available for download or purchase. Go to <http://www.census.gov/epcd/www/naics.html> or the NAICS link on BAQ's Web site at http://www.dep.state.pa.us/dep/deputate/airwaste/aq/emission/Emission_Inventory.htm

2.5 Small Business Assistance

The Environmental Management Assistance Program (EMAP) is a program in Pennsylvania designed to help small businesses understand and comply with environmental regulations and identify pollution prevention and energy efficiency opportunities. There are four ways to request assistance from EMAP: call 877-ask-emap, visit the web site at www.askemap.org, send an e-mail to questions@askemap.org or contact your local Small Business Development Center (check www.pasbdc.org for the center nearest you). Services such as site visits and permit reviews are confidential and provided at no charge. Business names and addresses will not be released to any regulatory agency.

The DEP Small Business Ombudsman, Julien Gaudion, helps businesses locate sources of funding to install equipment and process changes which, result in pollution prevention or energy efficiency. He can also represent small business interests to DEP. Julien Gaudion can be reached by telephone at 717-783-0909 or by e-mail at or jgaudion@state.pa.us .

3. Instructions For Determining Which Facilities Belong In AIMS/eFACTS For Inventory Purposes

These guidelines are a synthesis of the inventory requirements of Title V, the Annual Inventory, Emission Statements and other regulations that are part of the SIP. The Title V regulation is found in the Pennsylvania Code, Title 25, Chapter 127. The Annual Inventory regulation is found in the Pennsylvania Code, Title 25, Chapter 135.1-135.5. The Emission Statement regulation is found in Pennsylvania Code, Title 25, Chapter 135.21. The definition of the term "Title V Facility" can be found in the Pennsylvania Code, Title 25, Chapter 121.1. Exemptions from state operating permits can be found at www.depweb.state.pa.us, keyword: Air Permits. Search for document number 275-2101-003 Plan Approval and Operating Permit Exemption List (pdf file in the eLibrary). For information on permitting, contact BAQ Division of Permits at 717-787-4325.

Owners/operators of facilities that wish to generate or trade Emission Reduction Credits (ERCs) will need to document emissions. The AES is one way to document emissions. All owners/operators of facilities have the option of submitting the AES for ERC purposes. If the facility's owner/operator does not submit the AES, the facility's owner/operator should at least maintain sufficient production records to be able to reconstruct emissions for ERC purposes and for audits.

The emissions from any facility that is not required to submit annual inventory forms are captured in the area source inventory, which is calculated using demographics and emission factors. For information on area source inventory, contact BAQ Division of Air Information at 717-787-9702.

Any emissions that are below the source reporting thresholds for facilities that are subject to the annual inventory will be calculated by BAQ using emission factors. Owners/operators of facilities have the option of submitting emission estimates for emissions below the sub facility thresholds if the facility's estimate is better than the factor-generated numbers.

3.1 Title V Facilities

All owners/operators of Title V facilities must complete the AES. Owners/operators of Title V facilities are subject to the Annual Emission Statement because by definition they exceed the reporting thresholds in the Emission Statement and SIP regulations. Inventory information from Title V facilities is used for emission fee purposes and, in combination with other information, to demonstrate compliance. RAQ staff determine which sub facilities will appear on the AIMS/eFACTS reporting forms. In some cases, the facility's owner/operator and RAQ staff may agree to treat multiple pieces of related equipment as one sub facility in the Title V permit. The facility's owner/operator must provide operating schedules and throughputs for all sub facilities on the forms. NO_x, SO_x, VOC, PM₁₀, PM_{2.5}, ammonia (NH₃) and CO emissions of 1.0 ton per year or more per sub facility must be reported on a sub facility by sub facility basis. Report to the nearest hundredth (0.00) of a ton.

All HAPs must be reported. HAPs must be reported individually (speciated). Any HAP emissions greater than 0.5 ton per speciated HAP per sub facility per year must be reported on a sub facility by sub facility basis. Report to the nearest hundredth (0.00) of a ton. Sub facility by sub facility speciated reporting of HAPs is required for Maximum Achievable Control Technology (MACT) purposes. In cases where HAPs are also VOCs or particulates, do not subtract the HAP emission estimates from the VOC or particulate emission estimates. The subtraction will be dealt with by BAQ's AIMS/eFACTS database.

Based upon the Federal Clean Air Act, Section 112 (c) (6), certain pollutants are of special concern. For these HAPs of special concern, owners/operators of facilities should report any emissions above the following thresholds:

Polychlorobiphenols (PCB)	0.01 tons/yr per sub facility
Lead (Pb)	0.01 tons/yr per sub facility
Polycyclic Organic Matter (POM)	0.01 tons/yr per sub facility
Dioxins**	0.02 pounds/yr per sub facility
Furans**	0.02 pounds/yr per sub facility
Mercury (Hg) non-coal fired electric generating units (EGU)	0.0005 tons/yr per sub facility
Mercury (Hg) coal fired EGUs	0.0001 tons/yr per sub facility
Mercury (Hg) all other types of sub facilities	0.01 tons/yr per sub facility

** Submit only in pounds per year

As all HAPs must be reported and as some sub facilities are considered insignificant and not included on the reporting forms, use the "Other Sub Facility" block on the reporting forms to reconcile the facility totals with individual sub facility estimates.

3.2 Non-Title V Facilities

Owners/operators of Non-Title V facilities may be required to complete the AES for several reasons: the Emission Statement regulation, permit cap compliance certification and SIP purposes. DEP may also request inventory information from any facility per the Pennsylvania Code, Title 25, Chapter 135. The Emission Statement, permit caps and SIP are discussed in paragraphs 1-3 below.

3.2.1 Facilities Inventoried for Emission Statement Purposes

The Emission Statement regulation is found in Pennsylvania Code, Title 25, Chapter 135.21. Owners or operators of facilities that are located in Bucks, Chester, Delaware or Montgomery Counties that emit or have a potential to emit 25 tons or more per year of VOC or 25 tons or more per year of NO_x are required owner/operator to report. Owners or operators of facilities located in the remainder of the Commonwealth that emit or have a potential to emit 50 tons or more per year of VOC or 100 tons or more per year of NO_x must complete the AES. **Facilities that emit less than 25 tons per year of either oxides of nitrogen or VOC and that are on the exemption list in Section 3.2.1.1 of this document do not have to complete the AES.**

Owners or operators of facilities located in Allegheny or Philadelphia Counties should contact the county agency listed in Sections 9.7 and 9.8 for reporting instructions.

Owners/operators of Non-Title V facilities subject to the Emission Statement regulation must report throughputs and operating schedules for all sub facilities in AIMS/eFACTS. In addition, these owners/operators of facilities must report VOC and NO_x actual emissions of 1.0 TPY or more per sub facility. Emissions less than 1.0 ton per year do not have to be reported. Report to the nearest hundredth (0.00) of a ton. All emissions must be reported sub facility by sub facility, not as facility totals. The emission estimates for other pollutants will be calculated by BAQ AIMS/eFACTS database using emission factors. The facility's owner/operator has the option of reporting emission estimates for other pollutants if the facility's owner/operator's estimates are better than the factor-based calculations. These facilities may also be required to report HAPs. Please refer to Section 3.1 of this document.

3.2.1.1. Emission Statement Exemptions

The following list of exemptions was published in the *Pennsylvania Bulletin* Volume 23, Number 17, pages 1994-95 on April 24, 1993:

- Non-Industrial Surface Coating:
 - Architectural
 - Automotive Refinishing
- Other Solvent Use
 - Electronics and Electrical Degreasing
 - Other Manufacturing Degreasing
 - Automotive Repair Cold Cleaning Degreasing
 - Manufacturing Cold Cleaning Degreasing
 - Dry cleaning
 - Graphic Arts
- Surface Coatings
 - Flatwood Products
 - Furniture & Fixtures
 - Electrical Insulation
 - Metal Cans
 - Miscellaneous Finished Products
 - Machinery & Equipment
 - Appliances
 - New Motor Vehicles
 - Marine
 - Miscellaneous Manufacturing
 - Maintenance
 - Other Special Coatings
- Waste Management Practices
 - Publicly-Owned Treatment Works
 - Landfills
 - Treatment Storage Disposal Facilities
- Small Stationary Fossil Fuels*
 - Fuel Oil Combustion
 - Coal Combustion
 - Gas Combustion
- Miscellaneous Sub Facilities
 - On-Site Incineration (does not include open burning)
 - Leaking Underground Storage Tanks

**The sizes of small stationary fossil fuel sources are defined by Chapter 127.14, Permit Exemptions.*

3.2.2 Facilities Inventoried for Permit Cap Compliance Certification

Some owners/operators of facilities have taken permit restrictions in order to avoid major status and a federally enforceable permit. Also, a facility may have a sub facility cap for other reasons. The method of demonstrating cap compliance is addressed in the permit. The AES may be used to demonstrate cap compliance.

3.2.3 Facilities Inventoried for State Implementation Planning Purposes

Owners/operators of synthetic minor facilities are subject to the inventory and must complete the AIMS/eFACTS reporting forms if actual VOC emissions are greater than or equal to 10 TPY for the facility. This VOC threshold was established to meet EPA's ozone planning requirements. The facility's owner/operator must report annually. Owners/operators of synthetic minor facilities subject to the inventory must report throughputs and operating schedules for all sub facilities on the AIMS/eFACTS reporting forms. In addition, these owners/operators of facilities must report VOC actual emissions as a facility total. Report to the nearest hundredth of a ton. The emission estimates for other pollutants will be calculated by BAQ AIMS/eFACTS database using emission factors. The facility's owner/operator has the option of reporting emission estimates for other pollutants if the facility's owner/operator's estimates are better than the factor-based calculations.

4. Commonly Asked Questions About Inventory Reporting

Nitrogen oxide (NO) is listed on the Title V pollutant list. Fees are paid for nitrogen dioxide (NO₂). Nitrogen oxides (NO_x) are reported for inventory but are actually NO₂. Should the Title V NO be reported as NO, as NO₂, or as NO_x?

Report NO_x as NO₂.

If a facility's owner/operator has completed some emission estimates incorrectly before receiving these instructions, does the facility's owner/operator need to go back and fix them? If so, when?

Yes. Incorrectly completed facility emission estimates should be corrected as soon as possible by notifying RAQ staff.

Which sub facilities must be tracked and reported for inventory?

Owners/operators of facilities are responsible for reporting on any sub facilities identified by RAQ staff. If a sub facility does not appear on the preprinted forms or web site, the sub facility is not automatically exempted from reporting.

For the purposes of Title V fees, owners/operators of facilities must provide emission estimates and pay fees on all sub facilities covered by the regulations, whether or not the sub facilities appear on the AES.

Any owners/operators of facilities that are applying for synthetic minor status must document all parameters that they agree to cap in their application. These caps are in place from the time the synthetic minor application was submitted. Therefore, any facility's owner/operator that has applied for a synthetic minor permit and has agreed to cap production must document compliance with the caps. The AES is one method of documenting compliance. Please contact your RAQ staff for more information on documenting compliance.

Blank reporting forms for sub facilities not currently in AIMS/eFACTS are included in this Instruction booklet and may also be downloaded from the DEP Web site or obtained from RAQ staff.

If a sub facility is missing from the AES, did the facility's owner/operator have to report any HAPs, including fugitives, emitted from the missing sub facilities?

If applicable requirements (such as BAT) exist for the sub facility, the sub facility must be added to AIMS/eFACTS so that sub facility-specific HAPS can be reported. If applicable requirements do not exist, the facility's owner/operator must report all HAPS but can report the HAPS as speciated facility totals.

Please clarify the current and future policies on aggregating small, similar sub facilities.

Any aggregation of small similar sub facilities will have to be done via the permit. Please contact your RAQ staff to discuss aggregating sub facilities.

If a facility was in the 2002 baseline inventory with significant emissions, but has now changed processes so that the facility is not subject to the AES under the current guidance, what should the facility's owner/operator do?

The facility's owner/operator will not have to report the AES. The facility will not be deleted from the AIMS/eFACTS database because DEP needs to maintain all emission information from previous years in case the facility generates Emission Reduction Credits (ERCs). Also, deletion would cause the facility to disappear from the baseline inventory. The facility will be left in the AIMS/eFACTS database and marked as not subject to the AES.

EPA has adopted new National Ambient Air Quality Standards for ozone and fine particulates. The EPA implementation rules for these pollutants establish 2002 as the new baseline inventory year. Facility owners/operators should review their 2002 inventory to determine whether they should report. Please contact RAQ staff if you need to be added to the 2002 inventory.

What version of the Source Classification Codes (SCCs) should be used?

Use version 6.25 from September 2004. Information can be found at www.epa.gov/ttnchie1/software/fire/index.html.

Will DEP request inventory information for previous operating years from companies that have been operating since 1990 but have not reported previously?

Yes, these companies will need to be added to the 1990 baseline inventory and other periodic inventories. RAQ staff will notify the companies of the information needed.

5. Elaboration On Worksheet Contents, For All Firm-Plants

5.1 Throughputs For Each Source

Throughputs must be tracked and reported in monthly increments for each sub facility. **If an operating schedule changes during a month, you must provide a throughput for each operating schedule in effect that month.** Monthly throughputs are required to accommodate various data reports generated from AIMS/eFACTS, such as quarterly reporting with a December start date or quarterly percentages.

Note: If there is not enough space provided on the preprinted forms to submit all operating schedules and throughputs and/or new SCCs, use the form WORKSHEET FOR ADDITIONAL OPERATING SCHEDULES FOR EXISTING SUB FACILITY/SCCs, OR ADDITIONAL SUB FACILITY/SCCs FOR EXISTING SUB FACILITIES.

5.2 Operating Schedules For Each Source

DEP recognizes that owners/operators of facilities may change operating schedules during the year. Owners/operators of primary facilities must provide at least one operating schedule for each sub facility. Owners/operators of primary facilities may provide multiple operating schedules per sub facility if an operating schedule changes significantly during the year. Examples of significant changes could be a piece of equipment shut down for more than two weeks or a change from 1 shift to 2 or 3 (and vice versa). Consult with RAQ staff for guidance. Keep in mind that worst-case production numbers will yield worst-case emissions numbers when emissions are calculated in AIMS/eFACTS using SCCs.

For each sub facility operating schedule, the facility's owner/operator must provide:

1. Start date of the operating schedule and
2. End date of the operating schedule.

Additionally, for each operating schedule 2 of the following 3 must be provided:

1. Total hours the sub facility operated during that particular operating schedule;
2. Total days the sub facility operated during that particular operating schedule; and
3. Average days per week the sub facility operated during that particular operating schedule.

If you are trying to report a shutdown period for a sub facility, you end the current operating schedule when the shutdown occurs, and start a new operating schedule when the shutdown is over. For example, if your plant were shut down from July 1 to July 15, you would have:

Operating schedule 1: Date effective = January 1
Date end = June 30
Operating schedule 2: Date effective = July 16
Date end = December 31

Note: If there is not enough space provided on the preprinted forms to submit all operating schedules and throughputs and/or new SCCs, contact your DEP regional office.

5.3 Emission Estimates

Owners/operators of facilities must provide an estimate of the tons of NO_x, VOC, PM₁₀, PM_{2.5}, SO_x, NH₃ and CO emitted per year for each sub facility within the plant. See Section 5.8 of this document for HAP reporting.

Owners/operators of facilities must also indicate the method used to calculate the emissions. Calculation Method Codes are listed in the back of the instructions. Continuous Emission Monitoring (CEM) data is the most reliable for emission estimates and should be used when available.

5.4 Fuel Analysis

Percent sulfur, percent ash and Btu content must be reported for all fuels. Report zeros where appropriate. Check with the DEP contact for your county or your RAQ staff to determine the analytical results that must be reported.

5.5 Surface Coating (Paint, Glue, Ink) Analysis

Percent water, coating density and total volatile content must be reported for all water- and solvent-based coatings used. If possible, include a list of all coatings and their associated analyses with your submission. Some DEP regions provide VOC worksheets to aid reporting. Contact your RAQ staff for the preferred reporting format.

5.6 Control Devices

The owners/operators of new facilities and previously unreported sub facilities must report control efficiencies for every pollutant controlled by a control device. These pollutants may include VOCs, NO_x, SO_x, CO, PM₁₀, PM_{2.5} and NH₃. If the primary control system does not capture 100 percent of the sub facility emissions, both a fugitive emission point and a regular stack should be reported. **Capture and control are not the same.** A device may control 90 percent of the captured VOCs, but capture only 80 percent of the VOCs generated by the sub facility.

If your facility's owner/operator is planning to add, modify or remove control devices, your RAQ staff should be notified prior to the change.

5.7 Stacks

The owners/operators of new facilities and previously unreported sub facilities must report stack inside diameter, height, exhaust flow in ACFM, exhaust velocity in meters or feet per second, exhaust temperature, exhaust percent moisture and the direction of stack discharge. Stack information is requested on all forms except the WORKSHEET FOR A NEW FIRM-PLANT and the WORKSHEET FOR NEW FUEL MATERIAL LOCATIONS.

Note: If your facility's owner/operator is planning to add, modify or remove stacks, your DEP inspector should be notified prior to the change and the form WORKSHEET FOR NEW STACKS or the WORKSHEET FOR CHANGES TO EXISTING CONTROL DEVICES OR STACKS FOR EXISTING SUB FACILITYs should be submitted.

5.8 Hazardous Air Pollutants

Hazardous Air Pollutant (HAP) estimates are required for certain plants. Please refer to Chapter III, Guidance For Determining Which Facilities Belong in AIMS/eFACTS For Inventory Purposes, for more information. All HAPs that must be reported are listed in Chapters XII to XVI. A calculation method is required with the HAP estimates. Refer to Chapter XI, Calculation Method Codes For Emissions. Additional information can be found in the Pennsylvania Code, Chapter 121.1, under "Title V regulated air pollutants." You must use the reporting form provided in the Appendix or with your preprinted input forms.

There are *de minimus* levels for HAP reporting. If the total HAP emissions from a facility are less than one (1) ton per year per HAP, the facility's owner/operator is not required to report Haps. However, if the facility has over one (1) ton per year of any HAP, that HAP needs to be reported for each sub facility that emits that specific HAP. For example, a facility has 1.5 tons per year of benzene emissions from three sub facilities and 0.75 tons per year of toluene emissions. The three sub facilities emit 1 ton, 950 pounds and 50 pounds of toluene respectively. The facility's owner/operator must report the three sources of benzene

All HAPs must be reported. HAPs must be reported individually (speciated). Any HAP emissions greater than 0.5 ton per speciated HAP per sub facility per year must be reported on a sub facility by sub facility basis. Report to the nearest hundredth of a ton. Sub facility by sub facility speciated reporting of HAPs is required for Maximum Achievable Control Technology (MACT) purposes.

In some cases HAPs are also VOCs or particulates, such as trichloroethylene. Do not subtract the HAP emission estimates from the VOC or particulate emission estimates. The subtraction will be dealt with by BAQ AIMS/eFACTS database.

Based upon the Federal Clean Air Act, Section 112 (c) (6), certain pollutants are of special concern.

For these HAPs of special concern, owners/operators of facilities should report any emissions above the following thresholds:

Polychlorobiphenols (PCB)	0.01 TPY per sub facility
Lead (Pb)	0.01 TPY per sub facility
Polycyclic Organic Matter (POM)	0.01 TPY per sub facility
Dioxins**	0.02 pounds/yr per sub facility
Furans**	0.02 pounds/yr per sub facility

** Submit only in pounds per year

For Mercury (HG), also a HAP of special concern, the reporting thresholds are:

0.0005 TPY per sub facility for non-coal fired electric generating units (EGU)

0.0001 TPY per sub facility for coal fired EGUs

0.01 TPY per sub facility for all other types of sub facilities

The federal Clean Air Mercury Rule (CAMR) is adopted by reference under Pennsylvania regulations at Section 122.3. Pennsylvania has adopted a mercury regulation at Section 123.201 – 123.215 that supercedes the CAMR. Both regulations apply to coal-fired electric generating units and will establish new emission limits beginning in 2010. Because of the interest in this pollutant for all categories of sources, reduced reporting thresholds are being established for reporting beginning with the 2006 calendar year. Note: Beginning with emissions from calendar year 2009, coal-fired electric generating units will have a reporting threshold of 0.00002 tons per year per sub facility.

As all HAPs must be reported and as some sub facilities are considered insignificant and not included on the reporting forms, use the “Other Sub Facility” block on the reporting forms to reconcile the facility totals with individual sub facility estimates.

5.9 Site Pollutant Summary

The form summarizes the annual emissions of NO_x, SO_x, VOC, PM₁₀, PM 2.5, NH₃ and CO for the facility. You must use the reporting form provided in the Appendix or with your preprinted input forms.

6. Confidentiality

Confidential status must be requested in a letter to the DEP regional office annually. The letter must specify the sub facilities and information that are affected and the reasons for needing confidentiality. Confidentiality is discussed in Section 13.2 of the Pennsylvania Air Pollution Control Act. Only throughputs and operating schedules can be treated as confidential in AIMS/eFACTS. Confidential throughputs and operating schedules are not provided in basic reports requested by the public and agencies other than EPA. Confidential throughputs and operating schedules are not provided to EPA.

7. Certification of Data Accuracy for Emission Statement

This form must be completed annually by the owners/operators of facilities that are subject to the Emission Statement regulation. You must use the form provided in the Appendix or with your preprinted input forms. If you are using the form in the Appendix, make sure to fill in your Primary Facility ID (assigned by DEP) in the space at the top of the form.

8. Extensions Beyond March 1

As per 25 Pa. Code, Section 135.3(c), a facility's owner/operator may request an extension of time from DEP for the filing of the annual emission inventory, and DEP may grant the extension for reasonable cause. Extension requests should be made in writing to the RAQ contact listed in these instructions. Include the reason for the request and the expected date by which the inventory report will be submitted.

9. DEP Contact Listings

Please return the completed forms to the appropriate RAQ representative from the following contact listing. If you have questions about the forms, please call your RAQ representative.

9.1 Contact Listing, Norristown - Region I (Southeast)

Contact	County
James Rebarchak Southeast Regional Office 2 East Main Street Norristown, PA 19401 (484) 250-7503	Montgomery County
Kevin McLemore Southeast Regional Office 2 East Main Street Norristown, PA 19401 (484) 250-7502	Chester County Delaware County
Shawn Mountain Southeast Regional Office 2 East Main Street Norristown, PA 19401 (484) 250-7504	Bucks County

9.2 Contact Listing, Wilkes-Barre - Region II (Northeast)

Contact	County
Roger Bellas Northeast Regional Office Two Public Square Wilkes-Barre, PA 18711-0790 (570) 826-2464	Lackawanna County Luzerne County Pike County Monroe County (except: Stroudsburg East Stroudsburg Stroud Ross Hamilton Township) Schuylkill County Susquehanna County Wayne County Wyoming County
Andrew Schweitzer Bethlehem District Office 4530 Bath Pike Bethlehem, PA 18017 (610) 861-2077	Lehigh County Northampton County Monroe County (partial): Stroudsburg East Stroudsburg Hamilton Township Ross Stroud

9.3 Contact Listing, Harrisburg - Region III (Southcentral)

Contact	County
Frederick Heagy Southcentral Regional Office 909 Elmerton Ave. Harrisburg, PA 17110 (717) 705-4886	Adams County Cumberland County Dauphin County Lebanon County Perry County York County
Craig Scheetz Lancaster District Office 1661 Old Philadelphia Pike Lancaster, PA 17602 (717) 390-2360	Berks County Lancaster County
Michael Ruddeck Altoona District 3001 Fairway Drive Altoona, PA 16602 (814) 946-7294	Bedford County Blair County Franklin County Fulton County Juniata County Huntington County Mifflin County

9.4 Contact Listing, Williamsport - Region IV (Northcentral)

Contact	County
Andrea Ryder	Bradford County
Northcentral Regional Office	Cameron County
208 West Third Street	Centre County
Suite 101	Clearfield County
Williamsport, PA 17701	Clinton County
(570) 321-6580	Columbia County
	Lycoming County
	Montour County
	Northumberland County
	Potter County
	Snyder County
	Sullivan County
	Tioga County
	Union County

9.5 Contact Listing, Pittsburgh - Region V (Southwest)

Contact	County
Keith Gratzmiller	Armstrong County
Pittsburgh Regional Office	Beaver County
400 Waterfront Drive	Greene County
Pittsburgh, PA 15222-4745	Washington County
(412) 442-4000	
Dan Haney	Cambria County
Greensburg District Office	Fayette County
RR2, Box 603-C, Route 819S	Indiana County
Greensburg, PA 15601-9802	Somerset County
(724) 925-5415	Westmoreland County

9.6 Contact Listing, Meadville - Region VI (Northwest)

Contact	County	Township/Borough
Dianne Maskrey Northwest Regional Office 230 Chestnut Street Meadville, PA 16335-3481 (814) 332-6940	Crawford County Erie County Venango County	
Lori McNabb 121 North Mill Street New Castle, PA 16101	Butler County Lawrence County Mercer County	
David Bubbenmoyer Warren District Office 321 North State Street Warren, PA 16365 (814) 723-3273	Clarion County Elk County Forest County Jefferson County McKean County Warren County	

9.7 Contact Listing, Philadelphia Air Management Services

Contact
Assistant Director of Engineering Department of Public Health Air Management Services 321 University Avenue Philadelphia, PA 19104 (215) 875-5678

9.8 Contact Listing, Allegheny County Health Department

Contact
Allegheny County Health Department Bureau of Air Pollution Control 301 39th Street Pittsburgh, PA 15201 (412) 578-8133

10. Calculation Method Codes For Emissions

These codes are assigned by the facility's owner/operator and describe the method used to calculate the emission estimates. Codes 4, 5, 6, 7 and 8 are assigned within AIMS/eFACTS and should not be assigned by the facility's owner/operator.

CODE	AIMS DESCRIPTION
1	DEP Stack Test
2	Company Stack Test Approved by DEP
3	Other Company Test Approved by DEP
9	See Comment
10	Company SCC Factor
11	Company Material Balance
12	Company Efficiency of Control Device
14	Continuous Emission Monitoring
15	AP-42 Latest Available
16	Company-Calculated Site Emission

11. Reliability Codes For Emissions

Reliability codes are assigned by the RAQ staff or AIMS/eFACTS. **The codes are provided in the instructions for informational purposes only.** The following list is arranged in order of most reliable method of calculation to least reliable. Codes A, B, C, D, E and U are assigned by AIMS/eFACTS and describe the reliability of the SCC used.

CODE	DESCRIPTION
CEM	Continuous Emission Monitoring
BST	Best Stack Test
ST	Stack Test
DVC	DEP VOC Calculation
CVC	Company VOC Calculation
MMB	Measured Material Balance
ME	Measured Efficiency
RE	Rated Efficiency
EMB	Estimated Material Balance
COM	See Comment
A	A Rated Factor
B	B Rated Factor
C	C Rated Factor
D	D Rated Factor
E	E Rated Factor
SITE	Site-Level Manual Emission
U	U Unrated Factor
NA	N/A For Plant Total

12. Abbreviations/Acronyms

Abbreviation/Acronym	Definition
ACFM	Actual cubic feet per minute
ACT	Actual
AIMS	Air Information Management System (BAQ's database module of eFACTS)
AIRS	Aerometric Information Retrieval System (EPA's database)
BAQ	Bureau of Air Quality
BTU	British thermal units
CAS	Chemical abstract service
CD	Control device
CO	Carbon monoxide
CU	Combustion unit
DEP	Pennsylvania Department of Environmental Protection
eFACTS	environment, Facility, Application, Compliance Tracking System
EGU	electric generation unit
EHS	Extremely Hazardous Substance
EPA	United States Environmental Protection Agency
FML	Fuel material location
FUEL MAT LOC	Fuel material location
Hg	Mercury
IN	Incinerator
INC	Incinerator
MACT	Maximum Achievable Control Technology
MBTU	Thousand Btu
MMBTU	Million Btu
NAICS	North American Industrial Classification System
NOx	Nitrogen oxides
Pb	Lead
PCB	Polychlorobiphenols
P000	General particulate
PM10	Particulate matter less than 10 microns in diameter
PM2.5	Particulate matter less than 2.5 microns in diameter
POM	Polycyclic Organic Matter
PR	Process
PTE	Potential to Emit
RAQ	Regional Air Quality
SCC	Sub Facility Classification Code
SCFM	Standard cubic feet per minute
SIC	Standard Industrial Classification
SOx	Sulfur oxides
TPY	Tons per Year
VOC	Volatile organic compounds

13. Table A: Hazardous Air Pollutants (112 [b]) Sorted Alphabetically by Pollutant Name

CAS	POLLUTANT <i>(Alphabetical By Pollutant Name)</i>
75-07-0	Acetaldehyde
60-35-5	Acetamide
75-05-8	Acetonitrile
98-86-2	Acetophenone
53-96-3	2-Acetylaminofluorene
107-02-8	Acrolein
79-06-1	Acrylamide
79-10-7	Acrylic acid
107-13-1	Acrylonitrile
107-05-1	Allyl chloride
92-67-1	4-Aminobiphenyl
62-53-3	Aniline
90-04-0	o-Anisidine
1332-21-4	Asbestos
71-43-2	Benzene (including Benzene from gasoline)
92-87-5	Benzidine
98-07-7	Benzotrichloride
100-44-7	Benzyl chloride
92-52-4	Biphenyl
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)
542-88-1	Bis(chloromethyl)ether
75-25-2	Bromoform
106-99-0	1,3-Butadiene
156-62-7	Calcium cyanamide
133-06-2	Captan
63-25-2	Carbaryl
75-15-0	Carbon disulfide
56-23-5	Carbon tetrachloride
463-58-1	Carbonyl sulfide
120-80-9	Catechol
133-90-4	Chloramben
5-774-9	Chlordane
7782-50-5	Chlorine

CAS	POLLUTANT (Alphabetical By Pollutant Name)
79-11-8	Chloroacetic acid
532-27-4	2-Chloroacetophenone
108-90-7	Chlorobenzene
510-15-6	Chlorobenzilate
67-66-3	Chloroform
107-30-2	Chloromethyl methyl ether
126-99-8	Chloroprene (2-chloro-1,3-butadiene)
1319-77-3	Cresols/Cresylic acid (isomers and mixture)
95-48-7	o-Cresol
108-39-4	m-Cresol
106-44-5	p-Cresol
98-82-8	Cumene (Isopropylbenzene)
94-75-7	2,4-D, salts, esters (Dichlorophenoxyacetic acid)
72-55-9	DDE (p,p-Dichlorodipenyldichloroethylene)
334-88-3	Diazomethane
132-64-9	Dibenzofurans
96-12-8	1,2-Dibromo-3-chloropropane
84-74-2	Dibutylphthalate
106-46-7	1,4-Dichlorobenzene
91-94-1	3,3-Dichlorobenzidine
111-44-4	Dichloroethyl ether (Bis(2 chloroethyl)ether)
542-75-6	1,3-Dichloropropene (mixture)
62-73-7	Dichlorvos
111-42-2	Diethanolamine
121-69-7	N,N-Dimethylaniline
64-67-5	Diethyl sulfate
119-90-4	3,3-Dimethoxybenzidine
60-11-7	Dimethyl aminoazobenzene
119-93-7	3,3-Dimethyl benzidine
79-44-7	Dimethyl carbamoyl chloride
68-12-2	Dimethyl formamide
57-14-7	1,1-Dimethyl hydrazine
131-11-3	Dimethyl phthalate
77-78-1	Dimethyl sulfate
534-52-1	4,6-Dinitro-o-cresol, and salts
51-28-5	2,4-Dinitrophenol
121-14-2	2,4-Dinitrotoluene

CAS	POLLUTANT (Alphabetical By Pollutant Name)
123-91-1	1,4-Dioxane (1,4-Diethyleneoxide)
122-66-7	1,2-Diphenylhydrazine
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)
106-88-7	1,2-Epoxybutane (1,2-Butylene oxide)
140-88-5	Ethyl acrylate
100-41-4	Ethyl benzene
51-79-6	Ethyl carbamate (Urethane)
75-00-3	Ethyl chloride (Chloroethane)
106-93-4	Ethylene dibromide (1,2-Dibromoethane)
107-06-2	Ethylene dichloride (1,2-Dichloroethane)
107-21-1	Ethylene glycol
151-56-4	Ethylene imine (Aziridine)
75-21-8	Ethylene oxide
96-45-7	Ethylene thiourea
75-34-3	Ethylidene dichloride (1,1-Dichloroethane)
50-00-0	Formaldehyde
76-44-8	Heptachlor
118-74-1	Hexachlorobenzene
87-68-3	Hexachlorobutadiene
77-47-4	Hexachlorocyclopentadiene
67-72-1	Hexachloroethane
822-06-0	Hexamethylene 1,6-diisocyanate
680-31-9	Hexamethylphosphoramide
110-54-3	Hexane
302-01-2	Hydrazine
7647-01-0	Hydrochloric acid
7664-39-3	Hydrogen fluoride (Hydrofluoric acid)
123-31-9	Hydroquinone
78-59-1	Isophorone
58-89-9	Lindane (gamma hexachlorocyclohexane) (all isomers)
108-31-6	Maleic anhydride
67-56-1	Methanol
72-43-5	Methoxychlor
74-83-9	Methyl bromide (Bromomethane)
74-87-3	Methyl chloride (Chloromethane)
71-55-6	Methyl chloroform (1,1,1-Trichloroethane)
60-34-4	Methyl hydrazine

CAS	POLLUTANT (Alphabetical By Pollutant Name)
74-88-4	Methyl iodide (Iodomethane)
108-10-1	Methyl isobutyl ketone (4-methyl-2-pentanone) (Hexone)
624-83-9	Methyl isocyanate
80-62-6	Methyl methacrylate
1634-04-4	Methyl tert butyl ether
101-14-4	4,4-Methylene-bis(2-chloroaniline)
75-09-2	Methylene chloride (Dichloromethane)
101-68-8	Methylene diphenyl diisocyanate (MDI)
101-77-9	4,4-Methylenedianiline
91-20-3	Naphthalene
98-95-3	Nitrobenzene
92-93-3	4-Nitrobiphenyl
100-02-7	4-Nitrophenol
79-46-9	2-Nitropropane
684-93-5	N-Nitroso-N-methylurea
62-75-9	N-Nitrosodimethylamine
59-89-2	N-Nitrosomorpholine
56-38-2	Parathion
82-68-8	Pentachloronitrobenzene (Quintobenzene)
87-86-5	Pentachlorophenol
108-95-2	Phenol
106-50-3	p-Phenylenediamine
75-44-5	Phosgene
7803-51-2	Phosphine
7723-14-0	Phosphorus
85-44-9	Phthalic anhydride
1336-36-3	Polychlorinated biphenyls (PCBs) (Aroclors)
1120-71-4	1,3-Propane sultone
57-57-8	beta Propiolactone
123-38-6	Propionaldehyde
114-26-1	Propoxur (Baygon)
78-87-5	Propylene dichloride (1,2-Dichloropropane)
75-56-9	Propylene oxide
75-55-8	1,2-Propylenimine (2-Methyl aziridine)
91-22-5	Quinoline
106-51-4	Quinone (1,4-benzoquinone)
100-42-5	Styrene

CAS	POLLUTANT (Alphabetical By Pollutant Name)
96-09-3	Styrene oxide
1746-01-6	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79-34-5	1,1,2,2-Tetrachloroethane
127-18-4	Tetrachloroethylene (Perchloroethylene)
7550-45-0	Titanium tetrachloride
108-88-3	Toluene
95-80-7	2,4-Toluene diamine
584-84-9	2,4-Toluene diisocyanate
95-53-4	o-Toluidine
8001-35-2	Toxaphene (chlorinated camphene)
120-82-1	1,2,4-Trichlorobenzene
79-00-5	1,1,2-Trichloroethane
79-01-6	Trichloroethylene
95-95-4	2,4,5-Trichlorophenol
88-06-2	2,4,6-Trichlorophenol
121-44-8	Triethylamine
1582-09-8	Trifluralin
540-84-1	2,2,4-Trimethylpentane
108-05-4	Vinyl acetate
593-60-2	Vinyl bromide (bromoethene)
75-01-4	Vinyl chloride
75-35-4	Vinylidene chloride (1,1-Dichloroethylene)
1330-20-7	Xylenes (isomers and mixture)
95-47-6	o-Xylenes
108-38-3	m-Xylenes
106-42-3	p-Xylenes

14. Table B: Hazardous Air Pollutants (112 [b]) Sorted by Chemical Abstract Service Number

CAS	POLLUTANT (by Chemical Abstract Service Number)
50-00-0	Formaldehyde
51-28-5	2,4-Dinitrophenol
51-79-6	Ethyl carbamate (Urethane)
53-96-3	2-Acetylaminofluorene
56-23-5	Carbon tetrachloride
56-38-2	Parathion
57-14-7	1,1-Dimethyl hydrazine
57-57-8	beta Propiolactone
57-74-9	Chlordane
58-89-9	Lindane (gamma hexachlorocyclohexane) (all isomers)
59-89-2	N-Nitrosomorpholine
60-11-7	Dimethyl aminoazobenzene
60-34-4	Methyl hydrazine
60-35-5	Acetamide
62-53-3	Aniline
62-73-7	Dichlorvos
62-75-9	N-Nitrosodimethylamine
63-25-2	Carbaryl
64-67-5	Diethyl sulfate
67-56-1	Methanol
67-66-3	Chloroform
67-72-1	Hexachloroethane
68-12-2	Dimethyl formamide
71-43-2	Benzene (including Benzene from gasoline)
71-55-6	Methyl chloroform (1,1,1-Trichloroethane)
72-43-5	Methoxychlor
72-55-9	DDE (p,p-Dichlorodiphenyldichloroethylene)
74-83-9	Methyl bromide (Bromomethane)
74-87-3	Methyl chloride (Chloromethane)
74-88-4	Methyl iodide (Iodomethane)
75-00-3	Ethyl chloride (Chloroethane)
75-01-4	Vinyl chloride
75-05-8	Acetonitrile
75-07-0	Acetaldehyde
75-09-2	Methylene chloride (Dichloromethane)
75-15-0	Carbon disulfide

CAS	POLLUTANT (by Chemical Abstract Service Number)
75-21-8	Ethylene oxide
75-25-2	Bromoform
75-34-3	Ethylidene dichloride (1,1-Dichloroethane)
75-35-4	Vinylidene chloride (1,1-Dichloroethylene)
75-44-5	Phosgene
75-55-8	1,2-Propylenimine (2-Methyl aziridine)
75-56-9	Propylene oxide
76-44-8	Heptachlor
77-47-4	Hexachlorocyclopentadiene
77-78-1	Dimethyl sulfate
78-59-1	Isophorone
78-87-5	Propylene dichloride (1,2-Dichloropropane)
79-00-5	1,1,2-Trichloroethane
79-01-6	Trichloroethylene
79-06-1	Acrylamide
79-10-7	Acrylic acid
79-11-8	Chloroacetic acid
79-34-5	1,1,2,2-Tetrachloroethane
79-44-7	Dimethyl carbamoyl chloride
79-46-9	2-Nitropropane
80-62-6	Methyl methacrylate
82-68-8	Pentachloronitrobenzene (Quintobenzene)
84-74-2	Dibutylphthalate
85-44-9	Phthalic anhydride
87-68-3	Hexachlorobutadiene
87-86-5	Pentachlorophenol
88-06-2	2,4,6-Trichlorophenol
90-04-0	o-Anisidine
91-20-3	Naphthalene
91-22-5	Quinoline
91-94-1	3,3-Dichlorobenzidine
92-52-4	Biphenyl
92-67-1	4-Aminobiphenyl
92-87-5	Benzidine
92-93-3	4-Nitrobiphenyl
94-75-7	2,4-D, salts, esters (Dichlorophenoxyacetic acid)
95-47-6	o-Xylenes
95-48-7	o-Cresol

CAS	POLLUTANT (by Chemical Abstract Service Number)
95-53-4	o-Toluidine
95-80-7	2,4-Toluene diamine
95-95-4	2,4,5-Trichlorophenol
96-09-3	Styrene oxide
96-12-8	1,2-Dibromo-3-chloropropane
96-45-7	Ethylene thiourea
98-07-7	Benzotrichloride
98-82-8	Cumene (Isopropylbenzene)
98-86-2	Acetophenone
98-95-3	Nitrobenzene
100-02-7	4-Nitrophenol
100-41-4	Ethyl benzene
100-42-5	Styrene
100-44-7	Benzyl chloride
101-14-4	4,4-Methylene-bis(2-chloroaniline)
101-68-8	Methylene diphenyl diisocyanate (MDI)
101-77-9	4,4-Methylenedianiline
106-42-3	p-Xylenes
106-44-5	p-Cresol
106-46-7	1,4-Dichlorobenzene
106-50-3	p-Phenylenediamine
106-51-4	Quinone (1,4-benzoquinone)
106-88-7	1,2-Epoxybutane (1,2-Butylene oxide)
106-89-8	Epichlorohydrin (1-chloro-2,3-epoxypropane)
106-93-4	Ethylene dibromide (1,2-Dibromoethane)
106-99-0	1,3-Butadiene
107-02-8	Acrolein
107-05-1	Allyl chloride
107-06-2	Ethylene dichloride (1,2-Dichloroethane)
107-13-1	Acrylonitrile
107-21-1	Ethylene glycol
107-30-2	Chloromethyl methyl ether
108-05-4	Vinyl acetate
108-10-1	Methyl isobutyl ketone (4-methyl-2-pentanone) (Hexone)
108-31-6	Maleic anhydride
108-38-3	m-Xylenes
108-39-4	m-Cresol
108-88-3	Toluene
108-90-7	Chlorobenzene

CAS	POLLUTANT (by Chemical Abstract Service Number)
108-95-2	Phenol
110-54-3	Hexane
111-42-2	Diethanolamine
111-44-4	Dichloroethyl ether (Bis(2 chloroethyl)ether)
114-26-1	Propoxur (Baygon)
117-81-7	Bis(2-ethylhexyl)phthalate (DEHP)
118-74-1	Hexachlorobenzene
119-90-4	3,3-Dimethoxybenzidine
119-93-7	3,3-Dimethyl benzidine
120-80-9	Catechol
120-82-1	1,2,4-Trichlorobenzene
121-14-2	2,4-Dinitrotoluene
121-44-8	Triethylamine
121-69-7	N,N-Dimethylaniline
122-66-7	1,2-Diphenylhydrazine
123-31-9	Hydroquinone
123-38-6	Propionaldehyde
123-91-1	1,4-Dioxane (1,4-Diethyleneoxide)
126-99-8	Chloroprene (2-chloro-1,3-butadiene)
127-18-4	Tetrachloroethylene (Perchloroethylene)
131-11-3	Dimethyl phthalate
132-64-9	Dibenzofurans
133-06-2	Captan
133-90-4	Chloramben
140-88-5	Ethyl acrylate
151-56-4	Ethylene imine (Aziridine)
156-62-7	Calcium cyanamide
302-01-2	Hydrazine
334-88-3	Diazomethane
463-58-1	Carbonyl sulfide
510-15-6	Chlorobenzilate
532-27-4	2-Chloroacetophenone
534-52-1	4,6-Dinitro-o-cresol, and salts
540-84-1	2,2,4-Trimethylpentane
542-75-6	1,3-Dichloropropene (mixture)
542-88-1	Bis(chloromethyl)ether
584-84-9	2,4-Toluene diisocyanate
593-60-2	Vinyl bromide (bromoethene)
624-83-9	Methyl isocyanate

CAS	POLLUTANT (by Chemical Abstract Service Number)
680-31-9	Hexamethylphosphoramide
68493-5	N-Nitroso-N-methylurea
822-06-0	Hexamethylene 1,6-diisocyanate
1120-71-4	1,3-Propane sultone
1319-77-3	Cresols/Cresylic acid (isomers and mixture)
1330-20-7	Xylenes (isomers and mixture)
1332-21-4	Asbestos
1336-36-3	Polychlorinated biphenyls (PCB's) (Aroclors)
1582-09-8	Trifluralin
1634-04-4	Methyl tert butyl ether
1746-01-6	2,3,7,8-Tetrachlorodibenzo p dioxin
7550-45-0	Titanium tetrachloride
7647-01-0	Hydrochloric acid
7664-39-3	Hydrogen fluoride (Hydrofluoric acid)
7723-14-0	Phosphorus
7782-50-5	Chlorine
7803-51-2	Phosphine
8001-35-2	Toxaphene (chlorinated camphene)

15. Table C: Compounds As Listed In 112(b)

Compound Name
Antimony Compounds
Arsenic Compounds (inorganic including arsine)
Beryllium Compounds
Cadmium Compounds
Chromium Compounds
Cobalt Compounds
Coke Oven Emissions
Cyanide Compounds ¹
Fine mineral fibers ³
Glycol ethers ²
Lead Compounds
Manganese Compounds
Mercury Compounds
Nickel Compounds
Polycyclic Organic Matter ^{4, 6}
Radionuclides (including radon) ⁵
Selenium Compounds

Note: Unless otherwise specified, “Glycol ethers” and all listings above that contain the word “compounds” are defined as including any unique chemical substance that contains the named chemical (i.e., antimony, arsenic, etc.) as part of that chemical’s infrastructure.

¹ X’CN where X = H’ or any other group where a formal dissociation may occur. For example, KCN or Ca(CN)₂.

² Includes mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R(OCH₂CH₂)_n-OR’ where

n = 1, 2, or 3

R = alkyl or aryl groups

R’ = R, H, or groups which, when removed, yield glycol ethers with the structure: R(OCH₂CH₂)_n-OH. Polymers are excluded from the glycol category.

³ Includes mineral fibers emissions from facilities manufacturing or processing glass, rock, or slag fibers (or other mineral derived fibers) of average diameter 1 micrometer or less.

⁴ Includes organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100° C.

⁵ A type of atom that spontaneously undergoes radioactive decay.

⁶ The term Polycyclic Organic Matter (POM) defines a broad class of compounds that generally includes all organic structures having two or more fused aromatic rings (i.e., rings that share a common border), and that have a boiling point greater than or equal to 212° F (100° C).

(www.epa.gov/ttn/atw/hlthef/polycycl.html)

16. Table D: Sample Polycyclic Organ Matter (POM) Sorted by Pollutant Name

Note that 112b defines POMs by rules and not by a list. Consequently, this list is NOT all-inclusive. POMs were defined in the original list of HAPs to include "...organic ompounds with more than one benzene ring, and which have a boiling point greater than or equal to 100° C." But in its Technology Transfer Network (TTN) page for POM (www.epa.gov/ttn/atw/hlthef/polycycl.html), "The term polycyclic organic matter (POM) defines a broad class of compounds that generally includes all organic structures having two or more fused aromatic rings (i.e. rings that share a common border), and that have a boiling point greater than or equal to 212° F (100° C)."

CAS	POLLUTANT (by Chemical Abstract Service Number)
83-32-9	Acenaphthene
208-96-8	Acenaphthylene
120-12-7	Anthracene
56-55-3	Benz(a)anthracene
50-32-8	Benzo(a)pyrene
205-99-2	Benzo(b)fluoranthene
191-24-2	Benzo(g,h,i)perylene
207-08-9	Benzo(k)fluoranthene
63-25-2	Carbaryl
91-58-7	2-Chloronaphthalene
218-01-9	Chrysene
53-70-3	Dibenzo(a,h)anthracene
57-97-6	7,12-Dimethylbenz(a)anthracene
206-44-0	Fluoranthene
86-73-7	Fluorene
193-39-5	Indeno(1,2,3-cd)pyrene
56-49-5	3-Methylcholanthrene
91-57-6	2-Methylnaphthalene
91-20-3	Naphthalene
90-15-3	1-Naphthol
134-32-7	1-Naphthylamine
15299-99-7	Napropamide
91-20-3	Napthalene
85-01-8	Phenanthrene
129-00-0	Pyrene

17. Table D: Sample Polycyclic Organ Matter (POM) Sorted by CAS

Note that 112b defines POMs by rules and not by a list. Consequently, this list is NOT all-inclusive. POMs were defined in the original list of HAPs to include "...organic compounds with more than one benzene ring, and which have a boiling point greater than or equal to 100° C." But in its Technology Transfer Network (TTN) page for POM (www.epa.gov/ttn/atw/hlthef/polycycl.html), "The term polycyclic organic matter (POM) defines a broad class of compounds that generally includes all organic structures having two or more fused aromatic rings (i.e., rings that share a common border), and that have a boiling point greater than or equal to 212° F (100° C)."

CAS	POLLUTANT (by Chemical Abstract Service Number)
50-32-8	Benzo(a)pyrene
53-70-3	Dibenzo(a,h)anthracene
56-49-5	3-Methylcholanthrene
56-55-3	Benz(a)anthracene
57-97-6	7,12-Dimethylbenz(a)anthracene
63-25-2	Carbaryl
83-32-9	Acenaphthene
85-01-8	Phenanthrene
86-73-7	Fluorene
90-15-3	1-Naphthol
91-20-3	Naphthalene
91-20-3	Napthalene
91-57-6	2-Methylnaphthalene
91-58-7	2-Chloronaphthalene
120-12-7	Anthracene
129-00-0	Pyrene
134-32-7	1-Naphthylamine
191-24-2	Benzo(g,h,i)perylene
193-39-5	Indeno(1,2,3-cd)pyrene
205-99-2	Benzo(b)fluoranthene
206-44-0	Fluoranthene
207-08-9	Benzo(k)fluoranthene
208-96-8	Acenaphthylene
218-01-9	Chrysene
15299-99-7	Napropamide

Appendix A WORKSHEET FOR A NEW FACILITY

Date*: _____	For Year*: _____	Tax ID/Plant Code*: _____
Facility Name*: _____	Primary Facility ID*: _____	

Region*: _____ County*: _____ Municipality*: _____

SIC*: _____ NAICS: _____

Contact Type	Name	Address	Telephone
Firm*	_____	_____	_____

Location	_____	_____	_____

Corporate	_____	_____	_____

Fee	_____	_____	_____

Inspection	_____	_____	_____

Permit	_____	_____	_____

Responsible Official	_____	_____	_____

Appendix A WORKSHEET FOR A NEW FACILITY (cont'd)**Location Information**

Latitude*: _____ UTM Elevation: _____ North: _____
Longitude*: _____ Coordinates Zone: _____ East: _____

Fuel Use Summary*

Type	Total Use

Type	Total Use

Pollutant Summary*

(Sum of Individual and Miscellaneous Sub Facilities)
Emission Estimates (0.00 Tons/Year)

Ammonia _____
CO _____
Lead _____
NO_x _____

PM10 _____
PM2.5 _____
SO_x _____
VOC _____

*Indicates a required field

Appendix C WORKSHEET FOR NEW COMBUSTION UNITS

Date*: _____	For Year*: _____	Tax ID/Plant Code*: _____
Facility Name*: _____	Primary Facility ID*: _____	
Unit Name: _____		
Description: _____		
Manufacturer: _____	Model: _____	Date Installed: _____
DEP Permit No.: _____	Connected to FML(s)?: _____	

Actual Emission Estimates (Tons/Yr) for Emission Fees and Emission Statements

Pollutant	CAS	Emission Amt (0.00 TPY)	Calculation Method
CO			
Lead			
NH ₃			
NOX			
PM10			
PM2.5			
SOX			
VOC			
Additional Pollutants (enter HAPs individually):			

NOTE: Most Criteria pollutants and HAPS need to be reported if greater than 0.5 TPY. The following pollutants need to be reported if greater than the amounts listed:

Polychlorobiphenols (PCB)	0.01	TPY
Lead (Pb)	0.01	TPY
Polycyclic Organic Matter (POM)		0.01 TPY
Dioxins **	0.02	Lbs/Yr
Furans **	0.02	Lbs/Yr
Mercury (Hg):		
Non-coal fired sub facility		0.0005 TPY
Coal fired sub facility		0.0001 TPY
All other sub facilities		0.01 TPY

*Indicates a required field

**Submit only in pounds per year

Appendix C WORKSHEET FOR NEW COMBUSTION UNITS (cont'd)

First Fuel Burned: _____		Maximum Throughput/Hr: _____	
SCC, if known: _____		_____	
FML? (y/n) _____	% Sulfur: _____	% Ash: _____	BTU/lb-gal-ft ³ : _____
SCHEDULE 1			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____

2 nd Fuel Burned: _____		Maximum Throughput/Hr: _____	
SCC, if known: _____		_____	
FML? (y/n) _____	% Sulfur: _____	% Ash: _____	BTU/lb-gal-ft ³ : _____
SCHEDULE 1			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____

Appendix C WORKSHEET FOR NEW COMBUSTION UNITS (cont'd)

First Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

Second Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

Appendix C WORKSHEET FOR NEW COMBUSTION UNITS (cont'd)

First Stack

Inside Diameter:	Height:	Distance to Nearest Property Line:
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Second Stack

Inside Diameter:	Height:	Distance to Nearest Property Line:
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Appendix D WORKSHEET FOR NEW PROCESSES

Date*: _____	For Year*: _____	Tax ID/Plant Code*: _____
Facility Name*: _____	Primary Facility ID*: _____	
Process Name:		
Description:		
Manufacturer:	Model:	Date Installed:
DEP Permit No.:	Connected to FML(s)?:	

Actual Emission Estimates (Tons/Yr) for Emission Fees and Emission Statements

Pollutant	CAS	Emission Amt (0.00 TPY)	Calculation Method
CO			
Lead			
NH ₃			
NOX			
PM10			
PM2.5			
SOX			
VOC			
Additional Pollutants (enter HAPs individually):			

NOTE: Most Criteria pollutants and HAPS need to be reported if greater than 0.5 TPY. The following pollutants need to be reported if greater than the amounts listed:

Polychlorobiphenols (PCB)	0.01 TPY
Lead (Pb)	0.01 TPY
Polycyclic Organic Matter (POM)	0.01 TPY
Dioxins** 0.02	Lbs/Yr
Furans** 0.02	Lbs/Yr
Mercury (Hg):	
Non-coal fired sub facility	0.0005 TPY
Coal fired sub facility	0.0001 TPY
All other sub facilities	0.01 TPY

*Indicates a required field

**Submit only in pounds per year

Appendix D WORKSHEET FOR NEW PROCESSES (cont'd)

First Material Processed or Produced: _____			
SCC, if known: _____		Maximum Throughput/Hr: _____	
SCHEDULE 1			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____

2nd Material Processed or Produced: _____			
SCC, if known: _____		Maximum Throughput/Hr: _____	
SCHEDULE 1			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____

Appendix D WORKSHEET FOR NEW PROCESSES (cont'd)

First Fuel Burned: _____		Maximum Throughput/Hr: _____	
SCC, if known: _____		_____	
FML? (y/n) _____	% Sulfur: _____	% Ash: _____	BTU/lb-gal-ft ³ : _____
SCHEDULE 1			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____

2 nd Fuel Burned: _____		Maximum Throughput/Hr: _____	
SCC, if known: _____		_____	
FML? (y/n) _____	% Sulfur: _____	% Ash: _____	BTU/lb-gal-ft ³ : _____
SCHEDULE 1			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____

Appendix D WORKSHEET FOR NEW PROCESSES (cont'd)

First Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

Second Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

Appendix D WORKSHEET FOR NEW PROCESSES (cont'd)

First Stack

Inside Diameter:	Height:	Distance to Nearest Property Line:
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Second Stack

Inside Diameter:	Height:	Distance to Nearest Property Line:
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Appendix E WORKSHEET FOR NEW INCINERATORS

Date*: _____		For Year*: _____	Tax ID/Plant Code*: _____
Facility Name*: _____		Primary Facility ID*: _____	
Incinerator Name: _____			
Description: _____			
Manufacturer: _____	Model: _____	Date Installed: _____	
Incinerator Capacity: _____	Primary Burner Capacity: _____	Secondary Burner Capacity: _____	
Incinerator Class: _____	Waste Type (see back): _____	DEP Permit No.: _____	
Exhaust Flow(ACFM): _____	Exhaust Temp: _____	Exhaust Moisture (%): _____	
Exhaust CO2 (%): _____	Connected to FML(s)? _____		

Actual Emission Estimates (Tons/Yr) for Emission Fees and Emission Statements:

Pollutant	CAS	Emission Amt (0.00 TPY)	Calculation Method
CO			
Lead			
NH ₃			
NOX			
PM10			
PM2.5			
SOX			
VOC			
Additional Pollutants (enter HAPs individually):			

NOTE: Most Criteria pollutants and HAPS need to be reported if greater than 0.5 TPY. The following pollutants need to be reported if greater than the amounts listed:

Polychlorobiphenols (PCB)	0.01	TPY
Lead (Pb)	0.01	TPY
Polycyclic Organic Matter (POM)		0.01 TPY
Dioxins **	0.02	Lbs/Yr
Furans **	0.02	Lbs/Yr
Mercury (Hg):		
Non-coal fired sub facility		0.0005 TPY
Coal fired sub facility		0.0001 TPY
All other sub facilities		0.01 TPY

*Indicates a required field

** Submit only in pounds per year

Appendix E WORKSHEET FOR NEW INCINERATORS (cont'd)

Primary Material Incinerated _____			
SCC, if known: _____		Maximum Throughput/Hr: _____	
SCHEDULE 1			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____

Secondary Material Incinerated _____			
SCC, if known: _____		Maximum Throughput/Hr: _____	
SCHEDULE 1			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective:	Monthly Throughput in (Units):		
Date End:	JAN: _____	FEB: _____	MAR: _____
Total Days:	APR: _____	MAY: _____	JUN: _____
Total Hours:	JUL: _____	AUG: _____	SEP: _____
Days per Week:	OCT: _____	NOV: _____	DEC: _____

Appendix E WORKSHEET FOR NEW INCINERATORS (cont'd)

First Fuel Burned: _____		Maximum Throughput/Hr: _____	
SCC, if known: _____		_____	
FML? (y/n) _____	% Sulfur: _____	% Ash: _____	BTU/lb-gal-ft ³ : _____
SCHEDULE 1			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____

2nd Fuel Burned: _____		Maximum Throughput/Hr: _____	
SCC, if known: _____		_____	
FML? (y/n) _____	% Sulfur: _____	% Ash: _____	BTU/lb-gal-ft ³ : _____
SCHEDULE 1			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____
SCHEDULE 2			
Date Effective: _____	Monthly Throughput in (Units):		
Date End: _____	JAN: _____	FEB: _____	MAR: _____
Total Days: _____	APR: _____	MAY: _____	JUN: _____
Total Hours: _____	JUL: _____	AUG: _____	SEP: _____
Days per Week: _____	OCT: _____	NOV: _____	DEC: _____

Appendix E WORKSHEET FOR NEW INCINERATORS (cont'd)

First Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

Second Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

Appendix E WORKSHEET FOR NEW INCINERATORS (cont'd)

First Stack

Inside Diameter:	Height:	Distance to Nearest Property Line:
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Second Stack

Inside Diameter:	Height:	Distance to Nearest Property Line:
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Appendix E WORKSHEET FOR NEW INCINERATORS (cont'd)

INCINERATOR CLASS CODES

Class I	Portable packaged incinerators having a burning rate up to but not including 100 pounds per hour of Type 0 or Type 1 waste or 75 pounds per hour of Type 2 or Type 3 waste.
Class II	Flue fed single chamber incinerators capable of burning Type 0 or Type 1 waste at the rate of 100 pounds or more per hour or Type 2 waste at the rate of 75 pounds or more per hour. New installations of these units are not acceptable to the Department.
Class IIA	Chute fed multi-chamber incinerators suitable for burning Type 0 and Type 1 waste at the rate of 100 pounds or more per hour.
Class III	Direct fed incinerators suitable for burning Type 0 and Type 1 waste at the rate of 100 pounds or more per hour or Type 2 waste at the rate of 75 pounds or more per hour.
Class IV	Incinerators suitable for burning Type 3 waste at the rate of 75 pounds or more per hour.
Class V	Municipal incinerators suitable for burning a combination of wastes.
Class VI	Crematory and pathological incinerators suitable for burning Type 4 waste at the rate of 25 pounds or more per hour.
Class VII	Special incinerators designed to burn Type 5, Type 6, Type 7 or special wastes at the rate of 25 pounds or more per hour.
Class CA	Controlled air incinerators designed to burn waste from institutional, commercial and industrial operation.

INCINERATOR WASTE TYPE CODES

Trash: a mixture of highly combustible waste such as paper, cardboard cartons, wood boxes, and combustible floor sweepings from commercial and industrial activities containing up to 10% by-weight of plastic bags, coated paper, laminated paper, treated corrugated cardboard, oily rags and plastic or rubber scraps.

Rubbish: a mixture of combustible waste such as paper, cardboard cartons, wood scip, foliage and combustible floor sweepings from domestic, commercial, and industrial activities containing up to 20% by-weight of restaurant or cafeteria waste, but little or no treated papers, plastic or rubber wastes.

Refuse: consisting of approximately an even mixture of rubbish and garbage by-weight.

Garbage: consisting of animal and vegetable uses from cafeterias, hotels, hospitals, markets, and like installations.

Remains: human and/or animal consisting of carcasses, organs and solid organic wastes from hospitals, laboratories, abattoirs, animal pounds and similar sub facilities.

By-prod: gaseous, liquid, or semi-liquid, such as tar, paints, solvents, sludge, fumes, etc., from industrial operations.

Solids: by-product waste such as rubber, plastics, wood waste, etc., from industrial operations.

Sludge: the accumulated settled solids deposited from sewage.

Appendix F WORKSHEET FOR NEW CONTROL DEVICES

Date*: _____	For Year*: _____	Tax ID/Plant Code*: _____
Facility Name*: _____	Primary Facility ID*: _____	

First Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

Second Control Device

Type (Baghouse, ESP, etc.):	Manufacturer:	Model:	Date Installed:
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	DEP ID number?	Is Material Collected/ Land filled on Site?
Pollutant Control Efficiencies			
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)	

*Indicates a required field

Appendix G WORKSHEET FOR NEW STACKS

Date*: _____	For Year*: _____	Tax ID/Plant Code*: _____
Facility Name*: _____	Primary Facility ID*: _____	

Stack 1

Company Designation:		Base Elevation (Ft):
Inside Diameter:	Height:	
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		
Latitude* (to 0.0 seconds):		Longitude* (to 0.0 seconds):
Latitude (to 0.0 seconds):		Longitude (to 0.0 seconds):
Method:	Horizontal Accuracy:	Geometric Type:
Horizontal Reference Datum:		Reference Point:

Stack 2

Company Designation:		Base Elevation (Ft):
Inside Diameter:	Height:	
Flow Volume ACFM:	Velocity (m/sec):	
Temperature °F:	Moisture %:	DEP ID Number?
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		
Latitude (to 0.0 seconds):		Longitude (to 0.0 seconds):
Method:	Horizontal Accuracy:	Geometric Type:
Horizontal Reference Datum:		Reference Point:

*Indicates a required field

Appendix H WORKSHEET FOR NEW FUEL MATERIAL LOCATIONS

Date*: _____ For Year*: _____ Tax ID/Plant Code*: _____
 Facility Name*: _____ Primary Facility ID*: _____

Please identify all locations that store fuel used by more than one air pollution sub facility or Control Device in the emissions year. The reason we are identifying fuel locations is to associate the characteristics of the fuel (%Sulfur, %Ash, Btu) once with the fuel location, instead of multiple times with each sub facility fed by the fuel location. Rules for creating fuel locations are:

1. Create a fuel location only if it supplies fuel to more than one sub facility in an emissions year. If a sub facility is fed by its own fuel location, enter the fuel characteristics with its fuel record in your operations data.
2. A fuel location can store only one type of fuel in an emissions year.
3. If it changed the fuel stored during the year, create a separate fuel location for each of the fuels used.
4. A sub facility can be fed a specific fuel from only one fuel location in a year.

Fuel Material Location 1

Company Name:		Fuel Type:		
Storage Capacity:		Date Installed:		
Sub Facilities Fed By This location				
Fuel Analyses for Reporting Year				
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:

*Indicates a required field

Appendix H WORKSHEET FOR NEW FUEL MATERIAL LOCATIONS (cont'd)

Fuel Material Location 2

Company Name:			Fuel Type:	
Storage Capacity:			Date Installed:	
Sub Facilities Fed By This location				
Fuel Analyses for Reporting Year				
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:

Fuel Material Location 3

Company Name:			Fuel Type:	
Storage Capacity:			Date Installed:	
Sub Facilities Fed By This location				
Fuel Analyses for Reporting Year				
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:
%ASH:	%Sulfur:	BTU:	Units(lb-gal-cuft):	Date Sampled:

Appendix I WORKSHEET FOR CHANGES TO EXISTING STACKS OR CONTROL DEVICES

Date*: _____	For Year*: _____	Tax ID/Plant Code*: _____
Facility Name*: _____	Primary Facility ID*: _____	

DEP ID of First Stack: _____

Enter only changed characteristics		
Inside Diameter: _____	Height: _____	Distance to Nearest Property Line: _____
Flow Volume ACFM: _____	Velocity (m/sec): _____	
Temperature °F: _____	Moisture %: _____	
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Notes:

DEP ID of Second Stack: _____

Enter only changed characteristics		
Inside Diameter: _____	Height: _____	Distance to Nearest Property Line: _____
Flow Volume ACFM: _____	Velocity (m/sec): _____	
Temperature °F: _____	Moisture %: _____	
Stack Discharge Type: _____ S = Vertical Unobstructed Opening W = Vertical Weather Cap or Similar Obstruction X = Horizontal or Nearly Horizontal Y = Downward or Nearly Downward Z = Fugitive Emissions		

Notes:

*Indicates a required field

Appendix I WORKSHEET FOR CHANGES TO EXISTING STACKS OR CONTROL DEVICES (cont'd)

DEP ID of First Control Device: _____

Enter only changed characteristics		
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	Is Material Collected/ Landfilled on Site?
Pollutant Control Efficiencies		
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)

Notes:

DEP ID of Second Control Device: _____

Enter only changed characteristics		
Pressure Drop (in/water):	Scrubber Flow Rate (gal/min):	Is Material Collected/ Landfilled on Site?
Pollutant Control Efficiencies		
Pollutant	Efficiency %	Sub Facility (mfr rating, calculated, other)

Notes:

Appendix J CERTIFICATION OF DATA ACCURACY

AIR POLLUTION CONTROL ACT CERTIFICATION OF DATA ACCURACY

FOR COMPANIES SUBJECT TO EMISSION STATEMENT REGULATION

Firm-Plant Code (federal tax ID + plant code assigned by DEP): _____

AFS Number (AIRS ID assigned by DEP): _____

Primary Facility ID (assigned by DEP): _____

Company Name: _____

Plant Address: _____

I, _____, certify under penalty of law as provided in 18 Pa. C.S. §4904 and Section 9(b)(2) of the Air Pollution Control Act, 35 P.S., §4009(b)(2) that I am a company officer or plant manager or authorized representative of the facility identified above, authorized to make this affidavit. I further certify that, based on information and belief formed after reasonable inquiry, the statements and information contained in this Emission Statement are true, accurate, and complete.

Signature: _____

Name: _____

(Print or Type)

Title: _____

(Print or Type)

Date: _____

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APPENDIX B-2

Department Memo (With Attachments) Evaluating Exide Fugitive Emissions

**Bureau of Air Quality
Department of Environmental Protection**

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pennsylvania

DEPARTMENT OF ENVIRONMENTAL
PROTECTION

MEMO

FROM Thomas J. Hanlon, P.E. *TJH 12/24/14*
Environmental Engineering Manager
Air Quality Program
Southcentral Region

TO Sean P. Nolan
Environmental Group Manager
Quality Assurance and Data Assessment Section
Division of Air Quality Monitoring

THRU William Weaver *WW 12/24/14*
Air Quality Program Manager
Southcentral Region

DATE 12/24/14

RE Exide Technologies
Fugitive Emission Analysis
Muhlenberg Township, Berks County

In response to a request from DEP, Exide on 4/24/13 submitted a letter with estimates of historic (2008-2012) non-roadway fugitive lead emissions from the Reading Smelter facility, as well as estimates of fugitive lead emissions expected after completion of the pending project to the install control measures proposed in Exide's Plan Approval Application for NAAQS Control Measures. In a letter to DEP dated 7/29/13, the law firm of Stock and Leader, on behalf of the County of Berks, provided comments disagreeing with the methodology used in the Exide 4/24/13 estimates. The emission estimates are a matter of importance, because they may affect calculations and conclusions related to Pennsylvania's ongoing development of the State Implementation Plan for the North Reading Lead Nonattainment Area.

DEP reviewed Exide's 4/23/13 submittal, and Stock & Leader's 7/29/13 comments, and ultimately requested that Exide submit revised emission estimates site-specific to Reading, utilizing methodology like that used by Exide to calculate fugitive lead emissions for the Exide Frisco (Texas) facility, in its response to EPA's 5/27/10 Secondary Lead Smelting Section 114 Information Collection Request related to review and revision of the 40 CFR Part 63, Subpart X, National Emission Standards For Hazardous Air Pollutants From Secondary Lead Smelting.

Exide responded with revised fugitive lead emissions estimates for the Reading Smelter in a letter dated 5/30/14. It should be noted that these estimates were only of fugitive lead emissions after completion of the pending project to the install control measures proposed in Exide's Plan Approval Application for NAAQS Control Measures. After further discussions with DEP regarding potential site-specific adjustments of the Frisco methodology for the Reading site, Exide on 8/7/14 submitted to DEP a letter with revised estimates incorporating further revisions to the methodology used in the 5/30/14 letter.

During the summer of 2014, DEP also requested that Exide revisit the “historic” fugitive lead emissions estimates for 2008-2012, using a similar approach as was used in the 8/7/14 letter described above. Exide submitted a letter dated 9/23/14 with the requested revised estimates. During the summer of 2014, DEP also requested that Exide provide an estimate of fugitive lead emissions from the facility in its current idled state. Exide submitted a letter dated 10/10/14 with the requested estimates.

DEP’s analysis of the three final Exide submissions, on 8/7/14, 9/23/14 and 10/10/14, is found below. All of the letters noted above are included as attachments to this memorandum. Also included as an attachment to this memorandum is a comment and response document, addressing the comments in the Stock & Leader’s 7/29/13 letter.

8/7/14 Exide Estimates of Post-Control Fugitive Lead Emissions

Exide prepared non-roadway fugitive emissions estimates representing operations following implementation of the control measures proposed in Plan Approval 06-05066I which was issued 8/31/12, as follows:

- Blast and Reverberatory Furnaces – Exide used the AP 42, Table 12.11-4 low range emission factor of 0.2 lb/ton multiplied by the average furnace rates from 2008 through 2012, then reduced the uncontrolled emission rate by 98% for local exhaust ventilation (LEV) collection efficiency and by 95% for total building enclosure collection efficiency.

Although the AP 42, Table 12.11-4 gives a range of 0.2 to 0.6 lb/ton, use of the low end 0.2 lb/ton seems appropriate since improvements such as automated programmable feed charge systems and programmable ventilation control systems have been implemented since the original factor was developed. Use of 98% LEV Collection Efficiency was developed from the Exide Frisco facility, and seems reasonable. The use of a 95% reduction for total building enclosure collection efficiency seems reasonable based on guidance found in US EPA’s online SIP Toolkit.

- Kettle Refining – Exide used the AP 42, Table 12.11-4 emission factor of 0.0006 lb/ton multiplied by the average refining rates from 2008 through 2012, then reduced the uncontrolled emission rate by 85% for local exhaust ventilation (LEV) collection efficiency and by 95% for total building enclosure collection efficiency.

Exide chose to use an 85% LEV collection efficiency for kettle refining to be consistent with the value used by the Frisco facility. While it appears that a 98% collection efficiency would be reasonable, use of the 85% value is more conservative.

- Casting - Exide used the AP 42, Table 12.11-4 emission factor of 0.0007 lb/ton multiplied by the average casting rates from 2008 through 2012, then reduced the uncontrolled emission rate by 85% for local exhaust ventilation (LEV) collection efficiency and by 95% for total building enclosure collection efficiency. Similar to kettle refining, this approach seems reasonable.
- Slag Handling – Exide used an emission factor of 0.0013 lb/ton developed by the Frisco facility and multiplied it by the average slag throughput rate for years 2008 through 2012, then reduced the uncontrolled emission rate by 95% for total building enclosure collection efficiency.

It was not known how the Frisco facility developed the emission factor. It is approximately equal to the emission factor for material handling calculated by using the equation in AP-42 Chapter 13, Section

13.2.4, with a 1 mph wind speed and 0.92% moisture content. Since these operations will be within the total building enclosure, the approach seems reasonable.

Slag handling includes Source 129 – Slag Cooling and Storage and Source 146 – Slag Crushing Operation. It should be noted that the combination of these operations would seem to encompass four loading drops, as noted below in Exide's 9/23/14 explanation of its estimate of historic fugitive lead emissions. Therefore, it might be suggested that the emission factor of 0.0013 lb/ton stated above should be multiplied by four loading drops. Using this approach, the final annual tonnage of lead for this combined source would be 1.41E-03 ton/yr (≈ 3 lbs/yr), which is an order of magnitude less than the total facility emissions, and which would therefore not appear to make a meaningful difference in the facility total.

- Material Handling – Exide used an equation from AP-42 Chapter 13, Section 13.2.4 to develop a site specific total PM emission factor. Exide assumed a 1.5% moisture content, 1 mph wind speed (since all handling is indoors within a total enclosure building) and 50% of total PM emissions as Pb emissions to develop an emission factor of 0.00022 lb/ton. This was multiplied by the average material throughput rate for the years 2008 through 2012, then reduced based on 95% total building enclosure collection efficiency.

This calculation is different than Frisco, which used a 5 mph wind speed and did not take reduction for building enclosure collection efficiency. Exide's approach seems reasonable, given that this calculation is for the post-enclosure scenario.

The material handling estimation includes Source 126 – Battery Shredding Operation because of the proposed total building enclosure design.

9/23/14 Exide Estimates of Historic Fugitive Lead Emissions:

Exide prepared revised site-specific non-roadway fugitive emissions estimates representing historic operations prior to idling of the secondary lead smelting operations and without considering implementation of the lead NAAQS controls as follows:

- Blast and Reverberatory Furnaces – Exide used the AP 42, Table 12.11-4 low range emission factor of 0.2 lb/ton multiplied by the average furnace rates from 2008 through 2012, then reduced the uncontrolled emission rate by 98% for local exhaust ventilation (LEV) collection efficiency and by 32% for partial building enclosure collection efficiency.

Although the AP 42, Table 12.11-4 gives a range of 0.2 to 0.6 lb/ton, use of the low end 0.2 lb/ton seems appropriate since improvements such as automated programmable feed charge systems and programmable ventilation control systems have been implemented since the original factor was developed. Use of 98% LEV Collection Efficiency was developed from the Exide Frisco facility, and seems reasonable. The use of a 32% partial building enclosure collection efficiency is consistent with U.S. EPA factors for partial building enclosures.

- Battery Shredding – Exide used an uncontrolled emission rate of 0.02 lb/hr of lead. The uncontrolled rate was based on a July 2011 stack test which showed an average controlled emission rate of 0.001 lb/hr, and a venturi collection efficiency of 95%. This efficiency was based on engineering judgment which included the results of the July 2011 stack test and knowledge of the scrubber operations. The

assumptions seem reasonable. Exide then reduced the uncontrolled emission rate by 85% for local exhaust ventilation (LEV) collection efficiency and by 32% for partial building enclosure collection efficiency. This approach seems reasonable, as discussed above.

- Casting - Exide used the AP 42, Table 12.11-4 mission factor of 0.0007 lb/ton multiplied by the average casting rates from 2008 through 2012, then reduced the uncontrolled emission rate by 85% for local exhaust ventilation (LEV) collection efficiency and by 32% for partial building enclosure collection efficiency, as discussed above.
- Slag Cooling and Storage - Exide used an equation from AP-42 Chapter 13, Section 13.2.4 to develop a site specific total PM emission factor. Exide assumed a 0.92% moisture content, 5 mph wind speed (since all handling is indoors within a partial enclosure building), two loading drops, and 50% of total PM emissions as Pb emissions to develop an emission factor of 0.007 lb/ton. This was multiplied by the average slag throughput rate for the years 2008 through 2012, then reduced the uncontrolled emission rate by 32% for partial building enclosure collection efficiency, as discussed above.
- Raw Material Storage - Exide used an equation from AP-42 Chapter 13, Section 13.2.4 to develop a site specific total PM emission factor. Exide assumed a 1.5% moisture content, 1 mph wind speed (since all handling is indoors within a total enclosure building), one loading drop, and 50% of total PM emissions as Pb emissions to develop an emission factor of 0.00022 lb/ton. This was multiplied by the average material throughput rate for the years 2008 through 2012, then reduced the uncontrolled emission rate by 95% for total building enclosure collection efficiency. Exide used 95% efficiency and 1 mph wind speed because this building meets the total enclosure requirements of the current NESHAP. The use of 1.5% moisture content and 50% total PM emissions being lead are consistent with the approach used at Frisco.
- Slag Crushing - Exide used an equation from AP-42 Chapter 13, Section 13.2.4 to develop a site specific total PM emission factor. Exide assumed a 0.92% moisture content, 5 mph wind speed for load in drop, a 8.9 mph average wind speed for load out drop (since all handling is indoors within a partial enclosure building) and 50% of total PM emissions as Pb emissions to develop an emission factor of 0.007 lb/ton. This was multiplied by the average slag crushing throughput rate for the years 2008 through 2012, then reduced the uncontrolled emission rate by 85% for local exhaust ventilation (LEV) collection efficiency. Wind speed for load out is based on the average annual wind speed near Reading, and no additional reduction was taken for building enclosure collection efficiency since some load in and load out operations are conducted outside the building. This approach seems reasonable.
- Kettle Refining - Exide used the AP 42, Table 12.11-4 mission factor of 0.0006 lb/ton multiplied by the average refining rates from 2008 through 2012, then reduced the uncontrolled emission rate by 85% for local exhaust ventilation (LEV) collection efficiency and by 32% for partial building enclosure collection efficiency.

Exide chose to use an 85% LEV collection efficiency for kettle refining to be consistent with the value used by the Frisco facility. This approach seems reasonable.

10/10/14 Exide Estimates of Idled Plant Fugitive Lead Emissions:

Exide prepared site specific estimates of fugitive lead emissions representing its current idled state. Ongoing activities currently include plastics recycling and support operations. Fugitive lead emission estimates consist

solely of roadway fugitive emissions. Types of truck deliveries include plastic chips in/plastic out, WWTP sludge removal, lime deliveries, H₂SO₄ deliveries, internal jockeying, and hazardous and non-hazardous waste pickup. Exide assumed that there will be a 95% reduction of the silt loading sample results that represented historic operations, since there is no potential for vehicle tracking from lead material handling and processing areas. This assumption seems reasonable. Total estimated lead fugitive emissions are 4.43E-05 tons/year.

Potential Contribution from the Exide SLI Plant

Exide also owns the Reading Formation and Distribution Center (also referred to as the SLI Plant) on the property which is permitted under Permit No. 06-05110. This facility is also in an idled state. The Department requested that Exide also evaluate fugitive emissions from the SLI Plant. Exide stated that there has not, nor will there be, appreciable fugitive emissions from operations at the SLI plant.

Since the SLI permitted operations contain no sources that have potential lead emissions, and the SLI plant is located right inside the entrance gate, it seems reasonable that the fugitive emissions, both roadway and non roadway would be negligible. I recommend that the SLI plant not be deemed a source of lead emissions for the fugitive emission modeling.

Conclusion

Exide's original non roadway fugitive estimates, which were used in the original lead NAAQS modeling, for the years 2008-2012 ranged from 0.26 tpy to 0.33 tpy. 0.33 tpy was used as the historic rate of lead emissions. The original post NAAQS control modeled rate was 0.01 tpy. The revised non roadway fugitive estimates for historic operations range from 0.13 tpy to 0.17 tpy. The revised post NAAQS control rate is 0.01 tpy.

For purposes of revised modeling, I recommend using a historic rate of 0.17 tpy and a future rate of 0.01 tpy, which are the numbers calculated using the revised method. This method generally followed the methodology of Exide's Frisco plant which was submitted to US EPA, with appropriate site specific adjustments for Reading,.

Using a value of 0.17 tpy at 8400 hours per year equals an emission rate of 0.00510 grams/sec. The post control non roadway fugitive estimate is 0.01 tons per year. This equates to 3.0 e-4 grams/sec.

In addition to modeling of historic and post control emissions, I recommend that BAQ also model the idled plant scenario at an emission rate of 1.328 e-6 grams/sec.

cc: Reading District
BAQ

Responses to 7/29/13 Stock Leader Comments on behalf of County of Berks
Re: Exide 4/24/13 Fugitive Emission Estimates
For Reading Smelter Facility located in Laureldale Borough and Muhlenberg Townships, Berks County

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1	C	The enclosed written comments relate to the Exide Technologies (Reading facility) fugitive lead emissions estimates. We understand the Department will approve or disapprove this Exide submission, which decision would include a determination as to whether or not these emissions are 'significant,' pursuant to applicable regulation.	DEP is reviewing the submission and will make a determination whether DEP concurs that the submitted estimates are reasonable, as part of the development of the State Implementation Plan for the North Reading Lead Nonattainment Area. DEP will ultimately also make a determination whether the fugitive lead emissions from the Exide Reading facility are "significant", once the time is ripe for that determination pursuant to the EHB adjudication dated 11/26/12. With regard to the timing of that determination, the EHB adjudication states: "[W]e would encourage the Department on remand to coordinate the scope and timing of its significance determination under Section 123.1 with the SIP development process" and "[T]he Department may decide that it makes sense for that determination to await completion of Exide's plan approval project."
2	C	As set forth in the attached comments, Berks County believes that there is additional work needed to refine the extremely rough estimate submitted by Exide to the Department.	See the responses to the various comments below.
3	C	Due to the prior Title V appeal, Berks County requests written timely notice of the Department's final action on the Exide fugitive estimates pursuant to the Environmental Hearing Board Order dated November 26, 2012.	See the response to Comment 1.
4	1	On April 24, 2013, Exide Technologies in Reading submitted a response to a request by the Pennsylvania Department of Environmental Protection (DEP) for site-specific estimates of non-roadway fugitive lead emissions. This submission purports to estimate fugitive emissions from Exide in its current (and historic) configuration/operation.	The Department concurs with the statement in this comment.
5	1	Exide has received Plan Approval for improvements to the facility, but has put that project on hold indefinitely.	This statement is true, to the Department's current knowledge.
6	1	The request for quantification of fugitive emissions from DEP was the result of a finding by the Pennsylvania Environmental Hearing Board (EHB) that DEP, in issuing a Title V permit, failed to determine what fugitive emissions existed at the facility and whether they were/are of minor significance. DEP had not made this determination prior to or at the time of the Title V permit renewal because Exide had never identified fugitive lead sources (excluding those from the interior roadway) nor had Exide quantified fugitive lead emissions in any prior Title V permit application process.	The Department concurs with the statement in this comment.
7	1	Ambient monitoring data around the Exide plant, in conjunction with stack test data, and dispersion models submitted to DEP by Exide, demonstrate that large quantities of fugitive emissions are in fact, being emitted without adequate control.	This statement goes beyond the finding made by the EHB in its 11/26/12 adjudication. The EHB found that "We would be surprised if this monitoring data could serve as the sole or even primary basis for any conclusions regarding the contribution of Exide's fugitives to nonattainment, but we would also be surprised if the data proved to be totally useless. . . . At a minimum, the gobs of monitoring data generated with respect to the facility raises enough of a red flag to signal that a careful significance determination was called for."
8	1	In their recent submission, Exide estimates the fugitive emissions from the plant, based on a memo submitted to EPA on December 16, 2011, from ERG, an EPA contractor. The subject of the memo was, "Development of the RTR Emissions Dataset for the Secondary Lead Smelting Source Category", and which included a section on the release characteristics and locations of stack and fugitive emissions sources [prepared in conjunction with the development of EPA's Risk and Technology Review MACT for secondary lead smelters]. In the ERG document, ERG estimated total fugitive emissions from 15 lead battery smelters, including Exide Reading.	The Department concurs with the statement in this comment.
9	1	EPA roughly estimated that the <i>fugitive emissions</i> from Exide Reading were 1,070 lb/year, and Exide based their analysis on that being the total amount of fugitive emissions, including both roadway and nonroadway. Exide then further developed a fugitive emission factor based on tons of lead produced and subtracted out roadway emissions, which they have properly calculated in their recent plan approval application.	The Department concurs with the statement in this comment.

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10	1	The Exide approach is based on rough EPA contractor estimates and validated calculations for roadway emissions and appears eminently reasonable, that is so long as you do not look behind the curtain.	See the responses to the various comments below.
11	2	In the same memo from which Exide obtained the estimate of 1,070 lb lead/yr, EPA explains the provenance of this value. In attempting to quantify fugitive emissions from secondary lead smelters, EPA sent an Information Collection Request (ICR) to each of fifteen affected secondary lead smelter facilities. EPA found that five facilities provided estimates that "seemed reasonable and relatively complete". These were Exide Frisco, Exide Muncie, Exide Vernon, Gopher Egan, and East Penn Manufacturing.	The Department concurs with the statement in this comment.
12	2	EPA determined that Exide Frisco, in no way similar nor analogous to Exide Reading, provided the best-supported and most complete fugitive lead emissions estimate.	EPA did conclude that Exide Frisco provided the best supported and most complete estimate of fugitive emissions. The EPA did not determine that Exide Frisco was "in no way similar nor analogous to Exide Reading."
13	2	Of the other 10 facilities, which include Exide Reading, EPA noted that five facilities provided no estimates for fugitive emissions and the other five provided "quite incomplete" estimates. EPA does not identify, in this document, into which of these two groups Exide Reading was included.	EPA did, in fact, identify in the referenced document into which of the two groups Exide Reading fell. For instance, Table 5-1 on page 12, states that Exide reported 1,540 lbs/yr of fugitive emissions in its response to the "ICR", which is an acronym for Information Collection Request, and refers to EPA's 5/27/10 Secondary Lead Smelting Section 114 Survey. DEP notes, however, that in ICR Section H-2-h ("Emission Estimates - Fugitive Emission Sources"), Exide Reading lists 0.35 tons/yr (700 lb/yr) of fugitive lead emissions. This appears to be the only estimate of fugitive lead emissions in the Exide Reading ICR.
14	2	After reviewing the data from all of the facilities that had provided fugitive emission estimates, EPA decided to use the Exide Frisco facility as a foundation for estimating fugitive emissions from all other facilities. The Frisco facility, according to US EPA, was one of the better performing secondary lead smelter facilities, with some control over fugitive lead emissions.	The words "better" and "performing" are nowhere found in the referenced EPA document. Furthermore, Table 5-2 of the referenced document assigns Exide Frisco an "enclosure factor" of 1.0, which is higher (=higher emitting) than all but 4 of the total group of 15 affected facilities. In comparison this table assigns Exide Reading an enclosure factor of 0.75
15	2	EPA acknowledged that the comparison method used in justifying the rulemaking resulted in a "significant amount of uncertainty" associated with all of the fugitive emission estimates presented in the memo and that substantial changes in the fugitive emissions estimates used as inputs in the risk assessment modeling would likely lead to substantial changes in the modeled impact from each facility.	The Department concurs with the statement in this comment.
16	2	EPA observed that there is some additional uncertainty associated with the fugitive emission estimates that results from the uncertainty involved in determining the housekeeping and enclosure factors at each facility and that this uncertainty could have important impacts on the accuracy of estimated fugitive emissions and the resulting modeled ambient concentrations. As an example, EPA shows that a variation of only 10% in assumed control efficiencies for enclosure and housekeeping could have an impact on actual fugitive emissions of a factor of from two to three times.	The exact quote from the EPA document regarding the 10% figure is as follows: " <i>changing the estimates of control efficiency achieved with full enclosure and robust housekeeping practices by 10% each could impact the resulting fugitive emission estimates for facilities employing that level of control by two to three times.</i> "
17	2	We note that housekeeping has been an ongoing significant issue at the Exide Reading facility since prior to 2010. In 2010, PA DEP (Waste Management Program) issued an Order to Exide to undertake a number of enhanced housekeeping practices, including more regular in-facility dust collection in order to better control airborne lead dust emanating from the facility's unenclosed operational areas. In some areas of the facility, including the western property boundary, PA DEP required enhanced sweeping multiple times/24 hours due to the excessive and continual lead dust accumulation.	The 6/15/10 COA, which was later amended on 12/6/10, was developed as a result of DEP Waste Program inspections at the facility on 9/16-17/09 and 11/20/09, which revealed violations related to housekeeping of lead dust. The 6/15/10 COA states that "all violations", with the exception of a violation unrelated to lead dust, were corrected as of a DEP reinspection which occurred on 12/3/09. The COA nevertheless prescribed more rigorous housekeeping requirements in order to prevent recurrence of the violations. The 6/15/10 COA explains that there was an earlier COA with Exide dated 9/18/07, which provided in Paragraph 3(i) that " <i>The Department will review Exide's performance in the use of the street sweeper, in accordance with the attachment. In the event that the frequency of the street sweeper use, areas used, or cleaning measures are inadequate, the Department will schedule a meeting with Exide to modify this paragraph to implement additional cleaning measures.</i> " The 6/15/10 COA indicated that on 3/2/10, the Department had invoked this provision of the 9/18/07 COA, apparently due to the housekeeping issues noted in September and November of 2009.
18	2	Other measures were required in the DEP Order, some of which have not been confirmed as completed.	DEP Waste Program staff have confirmed that all measures required in the 6/15/10 COA, and the 12/6/10 COA amendment have been completed.

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19	3	The secondary lead smelter association, to which Exide is a member, appealed the MACT enclosure rulemaking in the District Court for the District of Columbia when the rulemaking was published in 2010. Exide's association challenged the basis of the rulemaking by pointing out what it refers to as "significant flaws" in the US EPA lead fugitive estimate calculations. Although the District Court upheld the US EPA estimates for the purpose for which they were used, such flaws, if Exide's association's arguments are accepted, would demonstrate that the actual lead fugitive emissions are, in fact, higher than the estimates put forth by US EPA in the rulemaking.	The adjudication in the referenced case states that "As EPA points out, however, industry petitioners "suggested in comments that any error in EPA's methodology resulted in an underestimation of emissions from completely unenclosed facilities." Thus, even if industry petitioners were correct, given that emissions from such facilities drove EPA's finding of unacceptable risk, they would "have done no more than show that the record even more fully supports the enclosure standard." Accordingly, petitioners lack standing to press this claim because they have failed to show that, absent the alleged methodological error, "there is a substantial probability that they would not be injured and that, if the court affords the relief requested, the injury will be removed." (references omitted)
20	3	Because the Exide association was not harmed or negatively impacted by the flawed estimate, the District Court ruled in favor of US EPA on that issue. The salient point of this is that Exide and its association has admitted before a federal court that the US EPA estimate, which US EPA admits are remarkably rough comparison values only, actually errs, significantly, on the low side.	The quotation from the Court adjudication provided in the response to Comment 19 does not support the commenter's assertion that EPA's estimates err "significantly" on the low side. Furthermore, in the litigation surrounding the adjudication, EPA defended its estimates and disagreed that they were low. For instance, EPA's brief in the case, on pages 52-53, states "Even if Industry Petitioners were correct (<u>which, as we demonstrate below, they are not</u>) they would thus have done no more than show that the record even more fully supports the enclosure standard." [emphasis added.] Furthermore, the petitioner's reply brief in this case argues, on page 13, that "EPA's claim that Industry Petitioners' methodology "resulted in an underestimation of" fugitive emissions is simply false. ABR's Comments explained that EPA's fugitive estimation methodology was unreliable because it double-counted certain fugitive emissions and because EPA's factoring approach contained arithmetic errors. The point was that "EPA's methodology for estimating fugitive emissions from the secondary lead smelting industry is unreliable and incorrect," because it overstated some emissions and understated others relative to a mathematically-sound model." (references omitted)
21	3	In summary- 1) Exide Reading failed to respond to EPA's ICR for fugitive emissions or else provided a response that was so deficient that EPA did not use it in estimating emissions,	See the responses to Comments 13 and 14.
22	3	2) Because of Exide Reading's failure to adequately respond to EPA's ICR, EPA was forced to estimate emissions from the plant using data provided by Exide Frisco. In so doing, EPA concurrently acknowledged the significant uncertainty of the estimates of fugitive emissions generated.	See the responses to Comments 13 through 16.
23	3	3) Exide participated in a court challenge of the EPA estimates that asserted the estimates used are inaccurate, and low.	See the response to Comment 20.
24	3	The phrase "garbage in - garbage out" applies in this case.	See the response to Comment 20.
25	3	What is particularly vexing about this course of events is that Exide Technologies obviously has, within its capabilities, the ability to generate a fugitive emission estimate that EPA may find worthy of use for estimating fugitive emissions.	As noted in the response to Comment 20, EPA developed fugitive emissions estimates for secondary lead smelting facilities which it believed were appropriate.
26	3	Yet the Exide Reading plant, in the face of an explicit order of the EHB and the subsequent request from DEP, to provide site specific fugitive emission data, falls back on a procedure which, EPA suggests and the industry agrees, is flawed at best.	See the response to Comment 20.
27	4	To be clear, the level of lead fugitive emissions from the Exide Reading facility is not an academic issue, but has significant ramifications on the still active Title V permit and remand analysis. The April 29, 2013 Exide Reading submission only gives total fugitive emissions from the plant, without regard to location, source, or particular emission characteristics.	DEP concurs that the 4/29/13 Exide Reading submission gives total fugitive emissions from the plant, not broken down with regard to source, except for roadways.
28	4	For DEP to properly evaluate whether, in fact, the fugitive emissions, after appropriate controls, are of "minor" significance the agency must evaluate each individual source, whether the controls on each source are appropriate, and whether or not the emissions from each source are of minor significance. A plant wide estimate, particularly one as flawed as that submitted by Exide, is not sufficient for this purpose.	The 11/26/13 EHB adjudication states "The Department will need to decide on remand whether it is necessary to identify and quantify fugitive emissions from every conceivable source at the plant in light of this prohibition [of significant fugitive emissions]." Based on this, the need for quantification of fugitive emissions on a source-by-source basis is an open question posed to DEP by the EHB. In fact, DEP has since requested, and Exide has provided, fugitive emission estimates for various specific sources at the facility.

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29	4	Moreover, Exide <i>specifically</i> identified fugitive emission sources in its January 2012 Plan Approval application - over a dozen of them. That Plan Approval was approved by DEP in September 2012. Exide should be required to quantify each of the previously identified fugitive sources to accurately answer the fugitive emission remand question asked by DEP.	See the response to Comment 28.
30	4	Finally, since Exide has halted the Plan Approval enclosure project, the answers to the remand questions become more important and relevant to both the Commonwealth's SIP and in anticipation for an Exide request for a Plan Approval extension.	Exide has halted the plan approval project because the Facility has been idled, and therefore is not producing any fugitive process emissions, or the level of fugitive roadway emissions that would have characterized the active plant. Nevertheless, Exide has asserted the possibility of restarting the facility. Therefore it is important to complete the SIP submission, and to address the remand of the Title V permit in anticipation of potential future operations.
31	4	In order for Exide to follow regulatory procedures to preserve its emissions, it is required to submit a request for preservation of emissions. If the fugitive emission sources and quantity are not included in this request, the excluded fugitive emissions are not preserved.	Regardless of the correctness, or not, of the views expressed in this comment, it is not yet clear how this issue would be relevant to future facility operations. This is because, now that the deadline has passed to comply with the revised version of MACT Subpart X, the facility can no longer legally operate without having first installed extensive additional lead emission controls.
32	4	Based upon information to date, and Exide's Plan Approval, significant lead emissions are being generated from the core of the lead smelting operation that are not currently quantified.	Exide idled most of the sources at the facility between February and April 2013. Therefore the commenter's assertion, made in a submission dated 7/29/13, that " <u>significant lead emissions are being generated from the core of the lead smelting operation</u> " [emphasis added] appears not to recognize the current status of the facility. Furthermore, now that the deadline has passed to comply with the revised version of MACT Subpart X, the facility can no longer legally operate without having first installed extensive additional lead emission controls.
33	4	Thus, these lead, arsenic and cadmium emissions cannot be preserved by Exide absent proper source identification and quantification.	See the response to Comment 31.
34	4	At this time, these emissions are not permitted either.	See the response to Comment 31.
35	4	It is possible that Exide, in addition to including analysis and application of existing fugitive emission data in its possession, could utilize at least some of the methodology used by the Frisco facility in its submission to EPA, so long as it were to utilize and apply site specific information from the Reading plant.	The Department has requested, and Exide has provided, revised fugitive emission estimates that use the Frisco methodology, while making site specific adjustments for differences at the Reading facility.
36	4	There is an abundance of data and information in Exide's possession regarding lead emissions from this facility.	See the response to Comment 35.
37	4	DEP has the obligation both under the Board's October 2012 Opinion and Order and under its obligations to create an adequate SIP, to demand that Exide utilize and provide all site-specific information available and utilize defensible and the most reliable quantification methodology.	See the response to Comment 35.
38	4	To date, the Exide quantification of its fugitive lead emissions is about as precise as conducting surgery with a hatchet.	Any estimate of fugitive emissions from the Exide Reading facility will involve emission factors and/or engineering judgments rather than direct measurements. Such a method necessarily involves some amount of uncertainty. EPA, after extensively reviewing the entire population of secondary lead smelters in the US, arrived at estimates which it believed were reasonable and which have sufficient certainty for the purposes required by EPA. See also the response to Comment 35.
39	4-5	In a situation where the slightest alteration of the inputs can result in exponential inaccuracies, the Department has a responsibility under the Clean Air Act and the Air Pollution Control Act to demand sufficient and accurate information from Exide.	See the response to Comment 16.
40	5	To this end, Exide should be required to utilize proper methodology to calculate the emissions from each previously identified fugitive source at the facility; as was done in the Exide Frisco facility, making proper adjustments to variations between the two plants in terms of sources, throughput rates, housekeeping issues, and building enclosure configurations.	See the response to Comment 35.

April 24, 2013

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www.exide.com

Mr. Tom Hanlon
Environmental Engineering Manager
Pennsylvania Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

**RE: Exide Technologies Reading, Pennsylvania Facility
Response to Request for Fugitive Lead (Pb) Emission Estimates**

Dear Mr. Hanlon:

The Exide Technologies (Exide) Reading, Pennsylvania Facility (Facility) is pleased to provide this response to the request from the Pennsylvania Department of Environmental Protection (PADEP) for site-specific estimates of non-roadway fugitive lead (Pb) emissions. The Facility is currently in an idled state with none of the secondary Pb smelting processing systems in operation.

Non-roadway fugitive Pb emission estimates for the Facility are provided herein for two (2) different operating scenarios, as follows:

- Historic annual emissions for the five (5) calendar years prior to the idling of the Facility.
- Annual emissions rate representing secondary Pb smelting operations following implementation of the control measures proposed in Exide's Plan Approval Application for NAAQS Control Measures submitted to PADEP on January 18, 2012, as approved.

Fugitive Pb emissions from secondary Pb smelting operations can result when very small quantities of the Pb-bearing particulate emissions generated by facility activities escape the extensive capture and control systems that are employed throughout the industry and at this Facility. Because they cannot be readily captured or directly measured, available methodologies for developing estimates of fugitive emissions are far from precise. The true characteristics and interactions of all of the factors that influence the generation of fugitive emissions (e.g., non-capture by controls, building escape rates) are not precisely determinable, resulting in the potential for a wide range of variability when attempts at quantification are made. Exide is making this submittal to be responsive to PADEP's

request for site-specific estimates of fugitive Pb emissions. However, the values presented herein are only estimations and should not be construed as absolute measurements or other representation of actual quantities of Pb that were, or will be, emitted from the Facility.

The methodologies used to develop the fugitive Pb emission estimates presented herein are described below.

Historic Fugitive Pb Emission Estimates

In the course of conducting the residual risk and technology review for the secondary Pb smelting source category regulated under national emission standards for hazardous air pollutants (NESHAP), U.S. EPA performed an analysis of estimates of fugitive Pb emissions submitted by secondary Pb smelting facilities under a June 2010 information collection request (ICR) program. In this analysis U.S. EPA concluded that, for purposes of supporting its rulemaking risk assessment for the secondary Pb source category, the annual fugitive Pb emission estimate for the Exide Reading Facility was 1,070 pounds per year (lb/yr).¹ Estimates of fugitive emissions submitted by secondary Pb smelting facilities under the ICR program included Pb emissions generated from facility roadways. Therefore, U.S. EPA's estimate of 1,070 lb/yr for the Facility actually represents a 2010 rate of non-roadway fugitive Pb emissions and roadway Pb emissions combined.

To estimate historic non-roadway fugitive Pb emissions from the Facility, Exide first used U.S. EPA's estimate and the Facility's 2010 actual furnace lead production rate of 76,180.2 tons to derive a site-specific production-based non-roadway fugitive + roadway emission factor of 7.02×10^{-6} tons of Pb emissions per ton of Pb produced. This emission factor was applied to the actual historical annual furnace production rates to estimate non-roadway fugitive + roadway emissions for calendar years 2008 through 2012.

For purposes of annual reporting, the Facility estimates Pb emissions from its roadways using a methodology based on U.S. EPA AP 42 Compilation of Air Pollutant Emission Factors, Chapter 13, Section 13.2.1, and the collection and use of site-specific silt loading data. On October 18, 2011, site-specific paved roadway loose surface material samples were collected at locations representative of each major Facility road segment following procedures specified in AP 42, Appendix C.1, Procedures for Sampling Surface/Bulk Dust Loading. The samples collected were analyzed following the procedures specified in AP 42, Appendix C.2, Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples to determine silt fractions. Chemical analysis of the silt content of the samples was also performed to determine total Pb content. Using additional information about the number and average weights of vehicles traveling on the Facility roadways, the sample analysis results obtained and the predictive emission factor model given in AP 42,

¹ EPA-HQ-OAR-2011-0344-0163 Development of the RTR Emission Dataset for Secondary Lead Smelting Source Category, December 16, 2011, Table 5-2.

Section 13.2.1, a Pb emission rate of 0.049 pounds per hour (lb/hr) was calculated. Based on roadway activity occurring 8,760 hours per year and the Facility's 2011 actual furnace lead production rate of 66,294.6 tons, a site-specific production-based roadway emission factor of 3.24×10^{-6} tons of Pb emissions per ton of Pb produced was developed for use to inventory mass emissions from the Facility roadways. This emission factor was applied to the actual historical annual furnace production to estimate roadway only emissions for calendar years 2008 through 2012.

To determine historic non-roadway fugitive Pb emissions from the Facility, for each year the roadway only emissions are subtracted from the non-roadway fugitive + roadway emissions. These historic fugitive Pb emission estimates are presented in attached Table A.

Post-Plan Approval Control Fugitive Pb Emission Estimates

In its analysis referenced above U.S. EPA also developed a post-NESHAP control annual fugitive Pb emission estimate for the Exide Reading Facility of 0.04 tons per year (tons/yr).² Using the same methodology described above, to estimate post-Plan Approval (Exide's plan approval is designed to comply with the NESHAP standards, which are believed to be adequate for attainment of the NAAQS) non-roadway fugitive Pb emissions from the Facility, Exide first used U.S. EPA's estimate and the Facility's 2010 actual furnace lead production rate of 76,180.2 tons to derive a site-specific production-based fugitive + roadway emission factor of 5.25×10^{-7} tons of Pb emissions per ton of Pb produced. This emission factor was applied to the average annual furnace production rate for the years 2008 through 2012 to estimate a future post-Plan Approval non-roadway fugitive + roadway emissions rate.

An annual post-Plan Approval control roadway only Pb emission rate of 0.03 tons/yr was developed and used to conduct air dispersion modeling to demonstrate the Facility's attainment of the Pb NAAQS following implementation of the control measures proposed in Exide's Plan Approval Application for NAAQS Control Measures submitted to PADEP on January 18, 2012.³

To determine a post-Plan Approval control non-roadway fugitive Pb emissions rate for the Facility, the annual roadway only emission rate is subtracted from the non-roadway fugitive + roadway emission rate. This future post-Plan Approval control fugitive Pb emission rate estimate is presented in attached Table B.

² EPA-HQ-OAR-2011-0344-0163 Development of the RTR Emission Dataset for Secondary Lead Smelting Source Category, December 16, 2011, Table 9-1.

³ Air Quality Dispersion Modeling Report for Lead (Pb) SIP Attainment Demonstration, ENVIRON International Corporation, December 2011.

If you have any questions regarding the information provided herein, please feel free to contact me by telephone at (610) 921-4170, or by email at robin.daub@exide.com.

Sincerely,
Exide Technologies

A handwritten signature in black ink, appearing to read 'Rob S. Daub', with a long horizontal flourish extending to the right.

Robin S. Daub
EHS Manager

Attachments: Tables A and B

cc: Fred Ganster- Exide EHS Department
Robert Collings, Esq. - Schnader, Harrison, Segal, & Lewis, LLP
Jim Miller - Exide Rdg. Plant Manager
Nathan Harwell -- Exide Corporate Legal

Table A
Historic Fugitive Lead (Pb) Emission Estimates^(a)
Exide Technologies - Reading, Pennsylvania

	2008 (tons/year)	2009 (tons/year)	2010 (tons/year)	2011 (tons/year)	2012 (tons/year)
Non-Roadway Fugitive + Roadway Emissions ^(b)	0.61	0.55	0.54	0.47	0.61
Roadway Emissions Only ^(c)	0.28	0.26	0.25	0.21	0.28
Non-Roadway Fugitive Emissions Only^(d)	0.33	0.29	0.29	0.26	0.33

Historic Emission Factors	
Non-Roadway Fugitive + Roadway Emissions (tons Pb emitted/tons Pb produced)	7.02E-06
Roadway Emissions Only (tons Pb emitted/tons Pb produced)	3.24E-06

Notes:

(a) Estimations only. Should not be construed as absolute measurements or other representation of actual quantities of Pb that were emitted from the Facility.

(b) The Non-Roadway Fugitives + Roadway Emissions estimates are calculated using a site-specific production-based emission factor derived from U.S. EPA's estimate of fugitive Pb emissions (including roadway emissions) used to conduct risk assessment modeling for the Secondary Lead Smelting Source Category (EPA-HQ-OAR-2011-0344-0163, December 16, 2011, Table 5-2) and actual annual furnace Pb produced.

(c) The Roadway Emissions Only estimates are calculated using a site-specific production-based emission factor developed using U.S. EPA's AP 42 Compilation of Air Pollution Emission Factors, Volume 1, Section 13.2.1 and actual annual furnace Pb produced.

(d) The Non-Roadway Fugitive Emissions Only estimates are calculated as the difference between the Non-Roadway Fugitives + Roadway Emissions and the Roadway Emissions Only.

Table B
Post-Plan Approval Control Fugitive Lead (Pb) Emission Estimates^(a)
Exide Technologies - Reading, Pennsylvania

	Average Annual Emissions (tons/year)
Non-Roadway Fugitive + Roadway Emissions ^(b)	0.04
Roadway Emissions Only ^(c)	0.03
Non-Roadway Fugitive Emissions Only ^(d)	0.01

Post-Controls Emission Factor	
Non-Roadway Fugitive + Roadway Emissions Factor (tons Pb emitted/tons Pb produced)	5.25E-07

Notes:

(a) Estimations only. Should not be construed as absolute measurements or other representation of actual quantities of Pb that will be emitted from the Facility.

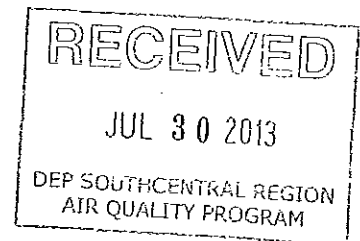
(b) The Non-Roadway Fugitives + Roadway Emissions estimate is calculated using a site-specific production-based emission factor derived from U.S. EPA's estimate of post-control fugitive Pb emissions (including roadway emissions) used to conduct risk assessment modeling for the Secondary Lead Smelting Source Category (EPA-HQ-OAR-2011-0344-0163, December 16, 2011, Table 9-1), and annual average furnace Pb produced for the period 2008 through 2012.

(c) Air Quality Dispersion Modeling Report for Lead (Pb) SIP Attainment Demonstration, ENVIRON International Corporation, December 2011.

(d) The Non-Roadway Fugitive Emissions Only estimate is calculated as the difference between the Fugitives + Roadway Emissions and the Roadway Emissions Only.



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July 29, 2013

Alexandra C. Chiaruttini, Esquire
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E-mail: achiaruttini@stockandleader.com

Mr. William Weaver
Department of Environmental
Southcentral Regional Office
909 Elmerston Avenue
Harrisburg, PA 17110-8200

RE: Exide Technologies (Reading Facility)
Fugitive Lead Emissions Estimate

Dear Mr. Weaver:

The enclosed written comments relate to the Exide Technologies (Reading facility) fugitive lead emissions estimates. These comments are submitted on behalf of Berks County. We understand the Department will approve or disapprove this Exide submission, which decision would include a determination as to whether or not these emissions are 'significant,' pursuant to applicable regulation. As set forth in the attached comments, Berks County believes that there is additional work needed to refine the extremely rough estimate submitted by Exide to the Department.

Due to the prior Title V appeal, Berks County requests written timely notice of the Department's final action on the Exide fugitive estimates pursuant to the Environmental Hearing Board Order dated November 26, 2012. If you have any questions related to the comments submitted herewith, please do not hesitate to contact me.

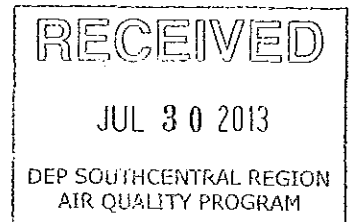
Sincerely,

STOCK AND LEADER

Alexandra C. Chiaruttini

ACC\glb

cc: Berks County Commissioners
Fred P. Osman



Exide Fugitive Emission Estimates Submitted to DEP

Background

On April 24, 2013, Exide Technologies in Reading (Exide Reading or Exide) submitted a response to a request by the Pennsylvania Department of Environmental Protection (DEP) for site-specific estimates of non-roadway fugitive lead emissions. This submission purports to estimate fugitive emissions from Exide in its current (and historic) configuration/operation. Exide has received Plan Approval for improvements to the facility, but has put that project on hold indefinitely. The request for quantification of fugitive emissions from DEP was the result of a finding by the Pennsylvania Environmental Hearing Board (EHB) that DEP, in issuing a Title V permit, failed to determine what fugitive emissions existed at the facility and whether they were/are of *minor significance*. DEP had not made this determination prior to or at the time of the Title V permit renewal because Exide had never identified fugitive lead sources (excluding those from the interior roadway) nor had Exide quantified fugitive lead emissions in any prior Title V permit application process. Ambient monitoring data around the Exide plant, in conjunction with stack test data, and dispersion models submitted to DEP by Exide, demonstrate that large quantities of fugitive emissions are in fact, being emitted without adequate control.

In their recent submission, Exide estimates the fugitive emissions from the plant, based on a memo submitted to EPA on December 16, 2011, from ERG, an EPA contractor. The subject of the memo was, "Development of the RTR Emissions Dataset for the Secondary Lead Smelting Source Category", and which included a section on the release characteristics and locations of stack and fugitive emissions sources [prepared in conjunction with the development of EPA's Risk and Technology Review MACT for secondary lead smelters].

In the ERG document, ERG estimated total fugitive emissions from 15 lead battery smelters, including Exide Reading. EPA roughly estimated that the *fugitive emissions* from Exide Reading were 1,070 lb/year, and Exide based their analysis on that being the total amount of fugitive emissions, including both roadway and non-roadway. Exide then further developed a fugitive emission factor based on tons of lead produced and subtracted out roadway emissions, which they have properly calculated in their recent plan approval application.

The Exide approach is based on rough EPA contractor estimates and validated calculations for roadway emissions and appears eminently reasonable, that is so long as you do not look behind the curtain.

I. US EPA Estimate Used in Rulemaking

In the same memo from which Exide obtained the estimate of 1,070 lb lead/yr, EPA explains the provenance of this value. In attempting to quantify fugitive emissions from secondary lead smelters, EPA sent an Information Collection Request (ICR) to each of fifteen affected secondary lead smelter facilities. EPA found that five facilities provided estimates that "seemed reasonable and relatively complete". These were Exide Frisco, Exide Muncie, Exide Vernon, Gopher Egan, and East Penn Manufacturing. EPA determined that Exide Frisco, in no way similar nor analogous to Exide Reading, provided the best-supported and most complete fugitive lead emissions estimate.¹

After reviewing the data from all of the facilities that had provided fugitive emission estimates, EPA decided to use the Exide Frisco facility as a foundation for estimating fugitive emissions from all other facilities. The Frisco facility, according to US EPA, was one of the better performing secondary lead smelter facilities, with some control over fugitive lead emissions. EPA acknowledged that the comparison method used in justifying the rulemaking resulted in a "significant amount of uncertainty" associated with all of the fugitive emission estimates presented in the memo and that substantial changes in the fugitive emissions estimates used as inputs in the risk assessment modeling would likely lead to substantial changes in the modeled impact from each facility.

EPA observed that there is some additional uncertainty associated with the fugitive emission estimates that results from the uncertainty involved in determining the housekeeping and enclosure factors at each facility and that this uncertainty could have important impacts on the accuracy of estimated fugitive emissions and the resulting modeled ambient concentrations. As an example, EPA shows that a variation of only 10% in assumed control efficiencies for enclosure and housekeeping could have an impact on actual fugitive emissions of a factor of from two to three times.

We note, that housekeeping has been an ongoing significant issue at the Exide Reading facility since prior to 2010. In 2010, PA DEP (Waste Management Program) issued an Order to Exide to undertake a number of enhanced housekeeping practices, including more regular in-facility dust collection in order to better control airborne lead dust emanating from the facility's unenclosed operational areas. In some areas of the facility, including the western property boundary, PA DEP required enhanced sweeping multiple times/24 hours due to the excessive and continual lead dust accumulation. Other measures were required in the DEP Order, some of which have not been confirmed as completed.

¹ Of the other 10 facilities, which include Exide Reading, EPA noted that five facilities provided no estimates for fugitive emissions and the other five provided "quite incomplete" estimates. EPA does not identify, in this document, into which of these two groups Exide Reading was included.

II. Federal District Court Analysis

The secondary lead smelter association, to which Exide is a member, appealed the MACT enclosure rulemaking in the District Court for the District of Columbia when the rulemaking was published in 2010. Exide's association challenged the basis of the rulemaking by pointing out what it refers to as "significant flaws" in the US EPA lead fugitive estimate calculations. Although the District Court upheld the US EPA estimates for the purpose for which they were used, such flaws, if Exide's association's arguments are accepted, would demonstrate that the actual lead fugitive emissions are, in fact, higher than the estimates put forth by US EPA in the rulemaking. Because the Exide association was not harmed or negatively impacted by the flawed estimate, the District Court ruled in favor of US EPA on that issue.

The salient point of this is that Exide and its association has admitted before a federal court that the US EPA estimate, which US EPA admits are remarkably rough comparison values only, actually errs, significantly, on the low side.

In summary -

- 1) Exide Reading failed to respond to EPA's ICR for fugitive emissions or else provided a response that was so deficient that EPA did not use it in estimating emissions.
- 2) Because of Exide Reading's failure to adequately respond to EPA's ICR, EPA was forced to estimate emissions from the plant using data provided by Exide Frisco. In so doing, EPA concurrently acknowledged the significant uncertainty of the estimates of fugitive emissions generated.
- 3) Exide participated in a court challenge of the EPA estimates that asserted the estimates used are inaccurate, and low.

The phrase "garbage in – garbage out" applies in this case. What is particularly vexing about this course of events is that Exide Technologies obviously has, within its capabilities, the ability to generate a fugitive emission estimate that EPA may find worthy of use for estimating fugitive emissions. Yet the Exide Reading plant, in the face of an explicit order of the EHB and the subsequent request from DEP, to provide site-specific fugitive emission data, falls back on a procedure which, EPA suggests and the industry agrees, is flawed at best.

III. Fugitive Emission Estimate is Substantively Insufficient

To be clear, the level of lead fugitive emissions from the Exide Reading facility is not an academic issue, but has significant ramifications on the still active Title V permit and remand analysis. The April 29, 2013 Exide Reading submission only gives total fugitive emissions from the plant, without regard to location, source, or particular emission characteristics. For DEP to properly evaluate whether, in fact, the fugitive emissions, after appropriate controls, are of "minor" significance the agency must evaluate each individual source, whether the controls on each source are appropriate, and whether or not the emissions from each source are of minor significance. A plant wide estimate, particularly one as flawed as that submitted by Exide, is not sufficient for this purpose.

Moreover, Exide *specifically* identified fugitive emission sources in its January 2012 Plan Approval application – over a dozen of them. That Plan Approval was approved by DEP in September 2012. Exide should be required to quantify each of the previously identified fugitive sources to accurately answer the fugitive emission remand question asked by DEP.

Finally, since Exide has halted the Plan Approval enclosure project, the answers to the remand questions become more important and relevant to both the Commonwealth's SIP and in anticipation for an Exide request for a Plan Approval extension. In order for Exide to follow regulatory procedures to preserve its emissions, it is required to submit a request for preservation of emissions. If the fugitive emission sources and quantity are not included in this request, the excluded fugitive emissions are not preserved. Based upon information to date, and Exide's Plan Approval, significant lead emissions are being generated from the core of the lead smelting operation that are not currently quantified. Thus, these lead, arsenic and cadmium emissions can not be preserved by Exide absent proper source identification and quantification. At this time, these emissions are not permitted either.

IV. Conclusion

It is possible that Exide, in addition to including analysis and application of existing fugitive emission data in its possession, could utilize at least some of the methodology used by the Frisco facility in its submission to EPA, so long as it were to utilize and apply site specific information from the Reading plant. There is an abundance of data and information in Exide's possession regarding lead emissions from this facility. DEP has the obligation both under the Board's October 2012 Opinion and Order and under its obligations to create an adequate SIP, to demand that Exide utilize and provide all site-specific information available and utilize defensible and the most reliable quantification methodology. To date, the Exide quantification of its fugitive lead emissions is about as precise as conducting surgery with a hatchet. In a situation where

the slightest alteration of the inputs can result in exponential inaccuracies, the Department has a responsibility under the Clean Air Act and the Air Pollution Control Act to demand sufficient and accurate information from Exide.

To this end, Exide should be required to

Utilize proper methodology to calculate the emissions from each previously identified fugitive source at the facility; as was done in the Exide Frisco facility, making proper adjustments to variations between the two plants in terms of sources, throughput rates, housekeeping issues, and building enclosure configurations.

Respectfully Submitted,

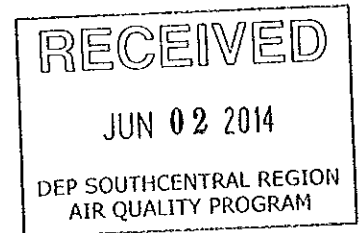
A.C.



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May 30, 2014

Mr. William Weaver
Air Quality Program Manager
Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200



**RE: Exide Technologies Reading, Pennsylvania Facility
Response to Request for Revised Fugitive Lead (Pb) Emission Estimates**

Dear Mr. Weaver:

In response to a previous request from the Pennsylvania Department of Environmental Protection (PADEP), on April 24, 2013 Exide Technologies (Exide) provided to PADEP site-specific estimates of non-roadway fugitive lead (Pb) emissions for the Exide Reading, Pennsylvania Facility (Reading). The estimates of non-roadway fugitive Pb emissions provided by Reading on April 24, 2013 were developed using a methodology based on U.S. EPA's analysis of fugitive Pb emission estimates performed in the course of conducting the residual risk and technology review for the secondary Pb smelting source category regulated under national emission standards for hazardous air pollutants (NESHAP). During discussions in a meeting attended by PADEP and Exide on May 2, 2014 PADEP requested that Reading submit revised non-roadway fugitive Pb emission estimates based on the methodology used by Exide's Frisco, Texas Facility (Frisco) to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to a June 2010 information collection request (ICR) program, adjusted to site-specific conditions at Reading. Reading submits herein its response to PADEP's request for revised non-roadway fugitive Pb emission estimates for Reading.

Fugitive Pb emissions from secondary Pb smelting operations can result when very small quantities of the Pb-bearing particulate emissions generated by facility activities escape the extensive capture and control systems that are employed throughout the industry and at Reading. Because all release points cannot be directly measured, and especially because of the small amounts involved, available methodologies for developing estimates of fugitive emissions are not precise. The true characteristics and interactions of all of the factors that influence the generation of fugitive emissions at such low levels (e.g., non-capture by controls, building escape rates) are not precisely determinable, resulting in the potential for a wide range of variability when attempts at quantification are made. Reading is making this submittal to be responsive to PADEP's request for revised site-specific estimates of non-roadway fugitive Pb emissions. However, the values presented

herein are only estimations and should not be construed as absolute measurements of actual quantities of Pb that were, or will be, emitted from Reading.

Frisco ICR Fugitive Pb Emission Estimates

Reading has learned that to estimate non-roadway fugitive Pb emissions estimates for submittal to U.S. EPA's June 2010 ICR, Frisco utilized a methodology based primarily on U.S. EPA AP-42 Compilation of Air Pollutant Emission Factors, Volume 1, production-based uncontrolled fugitive emission factors.

- **Blast and Reverberatory Furnaces**

AP-42 Chapter 12, Table 12.11-4 presents the uncontrolled fugitive Pb emission factor for smelting (furnace) operations as a range of 0.2 to 0.6 pounds per ton of Pb product (lb/ton) with a reference that the source of this emission factor range was a study conducted at a single facility in 1992. For its blast and reverberatory furnace operations Frisco multiplied the mid-range emission factor value of 0.4 lb/ton by the 2009 product throughput of each furnace (in tons per year (tons/yr)). Frisco then reduced the uncontrolled emission rate by the following control efficiency factors:

- 98% for local exhaust ventilation (LEV) collection efficiency.

The furnace operations at Frisco take place inside the smelting building which would capture a portion of fugitive emissions; however Frisco inexplicably applied no building enclosure control efficiency factors to the fugitive emissions calculation for the furnace operations.

In its June 2010 ICR response Frisco reported the sum of the calculated fugitive Pb emission rates for the blast and reverberatory furnaces under emission point "Blast & Reverb Furnace Fugitives."

- **Kettle Refining and Casting**

Table 12.11-4 presents the uncontrolled fugitive Pb emission factor for kettle refining operations as 0.0006 lb/ton with a reference that the source of this emission factor was a draft study conducted at a single facility in 1981. For its refining operations Frisco multiplied the emission factor value of 0.0006 lb/ton by the 2009 throughput of the refining operations (in tons/yr). The refining operations at Frisco are equipped with LEV hooding which would capture a significant portion of fugitive emissions; however Frisco inexplicably applied no LEV control efficiency factors to the fugitive emissions calculations for the refining operations. The refining operations at Frisco take place inside the smelting building which would also capture a portion of fugitive emissions;

however Frisco inexplicably applied no building enclosure control efficiency factors to the fugitive emissions calculation for the refining operations.

Table 12.11-4 presents the uncontrolled fugitive Pb emission factor for casting operations as 0.0007 lb/ton with a reference that the source of this emission factor was a draft study conducted at a single facility in 1981. For its casting operations Frisco multiplied the emission factor value of 0.0007 lb/ton by the 2009 product throughput of the casting operations (in tons/yr). Frisco then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for LEV collection efficiency.

The casting operations at Frisco take place inside the smelting building which would capture a portion of fugitive emissions; however Frisco inexplicably applied no building enclosure control efficiency factors to the fugitive emissions calculation for the casting operations.

In its June 2010 ICR response Frisco reported the sum of the calculated fugitive Pb emission rates for the kettle refining and casting operations under emission point “Refining/Casting Fugitives.”

- **Slag Handling**

For its slag handling operations Frisco multiplied an emission factor value of 0.0013 lb/ton by the 2009 slag handling throughput of the facility (in tons/yr). The origin and basis of this emission factor is unknown to Reading. Frisco applied no control efficiency factors to the fugitive emissions calculation for the slag handling operations. In its June 2010 ICR response Frisco reported the calculated fugitive Pb emission rates for the slag handling operations under emission point “Slag Handling.”

- **Material Handling**

AP-42 Chapter 13, Section 13.2.4 presents an equation for developing a particulate matter (PM) emission factor for dust emissions from outdoor aggregate storage piles. Parameter inputs to this equation include particle size multipliers, wind speed and material moisture content. While not a correction parameter in the equation, the silt content of the aggregate material being handled is an inherent factor. Using a wind speed of five (5) miles per hour (mph), an estimated moisture content of 1.5 percent (%), and assuming one (1) loading drop, Frisco developed a total PM material handling emission factor of 0.0035 lb/ton. Frisco then assumed that fugitive Pb material handling emissions were 50% of total PM emissions. For its material handling operations Frisco multiplied an emission factor value of 0.00175 lb/ton by the 2009 material handling throughput (in tons/yr). Frisco applied no control efficiency factors to the fugitive emissions

calculation for the material handling operations. In its June 2010 ICR response Frisco reported the calculated fugitive Pb emission rates for the material handling operations under emission point "Material Handling."

- **Raw Material Storage**

The area known as Raw Material Storage at Frisco was an additional outdoor, covered material storage area. Frisco used a fugitive Pb emission factor for this area of 0.0082 pounds per hour (lb/hr). Information available to Reading indicates that this emission factor was developed using employee personal exposure monitoring Pb concentrations, an assumed air velocity of 25 feet per minute (ft/min), and the area of each enclosure open to atmosphere. However, the Pb concentrations and open areas used to develop this emission factor are not available to Reading. For its outdoor, covered raw material handling operations Frisco multiplied an emission factor value of 0.0082 lb/hr by the 2009 hours of operation in the area. Frisco then reduced the uncontrolled emission rate by the following control efficiency factors:

- 70% for water sprays used to control particulate emissions.

In its June 2010 ICR response Frisco reported the calculated fugitive Pb emission rates for this area under emission point "Raw Material Storage."

Reading Revised Fugitive Pb Emission Estimates

To be responsive to PADEP's request that Reading submit revised fugitive Pb emission estimates for Reading based on the methodology used by Frisco, Reading has developed revised non-roadway fugitive Pb emission estimates for Reading using a methodology based on AP-42. As requested by PADEP, the non-roadway fugitive Pb emission estimates presented herein are annual emissions rates representing secondary Pb smelting operations at Reading following implementation of the control measures proposed in Reading's Plan Approval Application for NAAQS Control Measures submitted to PADEP on January 18, 2012, as approved (NAAQS Control Measures).

- **Blast and Reverberatory Furnaces**

For each blast and reverberatory furnace operation Reading multiplied the Table 12.11-4 low range emission factor value of 0.2 lb/ton by the average annual furnace production rates at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 98% for LEV collection efficiency; and
- 95% for total building enclosure collection efficiency.

Use of Low Range Emission Factor

Reading's use of the Table 12.11-4 low range emission factor value of 0.2 lb/ton from a study conducted over 20 years ago is appropriate because throughout the secondary Pb industry, and at Reading, improvements in furnace operating practices have been implemented since the time of the study to reduce fugitive emissions and exposure levels of employees.

Use of 98% LEV Collection Efficiency

Fugitive emission sources associated with furnace operations at Reading are controlled by LEV. Use of 98% LEV collection efficiency is consistent with the methodology used by Frisco, listed as the capture efficiency of furnace charging emissions on Tab C-6 of the ICR SURVEYPart1_Exide_Frisco spreadsheet submitted to U.S. EPA.

Use of 95% Total Building Enclosure Collection Efficiency

Following implementation of the NAAQS Control Measures, operations with the potential to generate fugitive Pb emissions at Reading will be conducted entirely within a building that meets the total enclosure and negative pressure requirements of the current secondary Pb smelting NESHAP. A building total enclosure capture efficiency of 95% is based on U.S. EPA guidance "2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers" found in U.S. EPA's online SIP Toolkit.

- **Kettle Refining**

For kettle refining operations Reading multiplied the Table 12.11-4 emission factor value of 0.0006 lb/ton by the average annual refining production rate at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for LEV collection efficiency; and
- 95% for total building enclosure collection efficiency.

Use of 85% LEV Collection Efficiency

Fugitive emission sources associated with kettle refining and casting operations at Reading are controlled by LEV. There is no information available to Reading to explain why Frisco used a much lower LEV collection efficiency for its casting operations than it used for its furnace operations. The effectiveness of LEV controls at Reading is believed to be consistent for all sources of emissions within

a range of 95 to 100%. Nevertheless, to be consistent with the Frisco methodology, Reading used 85% LEV collection efficiency for kettle refining and casting operations.

- Casting

For casting operations Reading multiplied the Table 12.11-4 emission factor value of 0.0007 lb/ton by the average annual casting production rate at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). For the same reasons noted above for furnace operations, Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for LEV collection efficiency; and
- 95% for total building enclosure collection efficiency.

- Slag Handling

For slag handling operations Reading multiplied the Frisco emission factor value of 0.0013 lb/ton by the average annual slag throughput rate at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factor:

- 95% for total building enclosure collection efficiency.

- Material Handling

For raw material handling operations Reading multiplied the Frisco emission factor value of 0.00175 lb/ton by the average annual raw material throughput rate at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factor:

- 95% for total building enclosure collection efficiency.

There is no additional raw material handling or storage area at Reading like the area at Frisco for which Frisco reported fugitive emission estimates in its ICR submittal under emission point "Raw Material Storage."

Reading's revised non-roadway fugitive Pb emission estimates for Reading based on the methodology used by Frisco to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to the June 2010 ICR program, adjusted to site-specific conditions at Reading, are presented in attached Table 1.

Our work in preparing this report clearly demonstrates that the evaluation of non-roadway fugitive Pb emissions in our April 24, 2013 letter is corroborated by this report, which produces a substantially similar estimate, and that the contribution of these fugitive emissions after implementation of the NAAQS Control Measures is a very small part of a small number. Reading continues to support the validity of our prior estimate, but the estimate resulting from either approach does not appear to be significant.

If you have any questions regarding the information provided herein, please feel free to contact me by telephone at (610) 921-4414, or by email at Robert.Jordan@na.exide.com.

Sincerely,
Exide Technologies

A handwritten signature in black ink that reads "Robert Jordan". The signature is fluid and cursive, with the first letters of the first and last names being capitalized and prominent.

Robert Jordan
Reading Facility Manager

Attachment: Table 1

Table 1
Post-NAAQS Controls Non-Roadway Fugitive Lead (Pb) Emission Estimates^(a)
Exide Technologies - Reading, Pennsylvania

	Emission Factor (lb/ton)	Note	Reading Average Annual Throughput 2008 - 2012 (tons/yr)	Local Exhaust Ventilation (LEV) Collection Efficiency ^(b)	Building Total Enclosure Control Efficiency ^(c)	Non-Roadway Fugitive Pb Emissions (tons/year)
Blast Furnace (Old)	0.2	(d)	13,858	98%	95%	1.39E-03
Blast Furnace (New)	0.2	(d)	11,739	98%	95%	1.17E-03
Reverberatory Furnace (Old)	0.2	(d)	29,887	98%	95%	2.99E-03
Reverberatory Furnace (New)	0.2	(d)	23,480	98%	95%	2.35E-03
Refining Kettles	0.0006	(e)	75,065	85%	95%	1.69E-04
Casting	0.0007	(f)	75,065	85%	95%	1.97E-04
Slag Handling	0.0013	(g)	10,860	0%	95%	3.53E-04
Material Handling	0.00175	(h)	78,964	0%	95%	3.45E-03
Total						0.01

Notes:

^(a) Based on the methodology used by the Exide Technologies Frisco, Texas Facility to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to a June 2010 information collection request (ICR), adjusted to site-specific conditions at the Exide Technologies Reading, Pennsylvania Facility. Estimations only. Should not be construed as absolute measurements of actual quantities of Pb that will be emitted from the facility.

^(b) 98% hood capture efficiency for furnace operations from Tab C-6 of ICR SURVEYPart1_Exide_Frisco spreadsheet.
85% hood capture efficiency for refining kettles and casting as used by Frisco.

^(c) Building total enclosure capture efficiency based on U.S. EPA guidance "2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers" found in U.S. EPA's online SIP Toolkit.

^(d) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, low range smelting Pb emission factor.

^(e) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, kettle refining Pb emission factor.

^(f) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, casting Pb emission factor.

^(g) Emission factor is slag handling Pb emission factor used by the Exide Technologies Frisco, Texas Facility to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to a June 2010 information collection request (ICR)

^(h) Emission factor developed using U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 13, Section 13.2.4 (Aggregate Handling and Storage Piles). Pb emissions assumed to be 50% of particulate emissions.



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August 7, 2014

Mr. William Weaver
Air Quality Program Manager
Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200

**RE: Exide Technologies Reading, Pennsylvania Facility
Response to Request for Revised Fugitive Lead (Pb) Emission Estimates**

Dear Mr. Weaver:

In response to a previous request from the Pennsylvania Department of Environmental Protection (PADEP), on April 24, 2013 Exide Technologies (Exide) provided to PADEP site-specific estimates of non-roadway fugitive lead (Pb) emissions for the Exide Reading, Pennsylvania Facility (Reading). The estimates of non-roadway fugitive Pb emissions provided by Reading on April 24, 2013 were developed using a methodology based on U.S. EPA's analysis of fugitive Pb emission estimates performed in the course of conducting the residual risk and technology review for the secondary Pb smelting source category regulated under national emission standards for hazardous air pollutants (NESHAP). During discussions in a meeting attended by PADEP and Exide on May 2, 2014 PADEP requested that Reading submit revised non-roadway fugitive Pb emission estimates based on the methodology used by Exide's Frisco, Texas Facility (Frisco) to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to a June 2010 information collection request (ICR) program, adjusted to site-specific conditions at Reading. Reading submits herein its response to PADEP's request for revised non-roadway fugitive Pb emission estimates for Reading.

Fugitive Pb emissions from secondary Pb smelting operations can result when small quantities of the Pb-bearing particulate emissions generated by facility activities escape the extensive capture and control systems that are employed throughout the industry and at Reading. Because all release points cannot be directly measured, and especially because of the small amounts involved, available methodologies for developing estimates of fugitive emissions are not precise. The true characteristics and interactions of all of the factors that influence the generation of fugitive emissions at such low levels (e.g., non-capture by controls, building escape rates) are not precisely determinable, resulting in the potential for a wide range of variability when attempts at quantification are made. Reading is making this submittal to be responsive to PADEP's request for revised site-specific estimates of non-roadway fugitive Pb emissions. However, the values presented

herein are only estimations and should not be construed as absolute measurements of actual quantities of Pb that were, or will be, emitted from Reading.

Frisco ICR Fugitive Pb Emission Estimates

To estimate non-roadway fugitive Pb emissions estimates for submittal to U.S. EPA's June 2010 ICR, Frisco utilized a methodology based primarily on U.S. EPA AP-42 Compilation of Air Pollutant Emission Factors, Volume 1, production-based uncontrolled fugitive emission factors.

- **Blast and Reverberatory Furnaces**

AP-42 Chapter 12, Table 12.11-4 presents the uncontrolled fugitive Pb emission factor for smelting (furnace) operations as a range of 0.2 to 0.6 pounds per ton of Pb product (lb/ton) with a reference that the source of this emission factor range was a study conducted at a single facility in 1992. For its blast and reverberatory furnace operations Frisco multiplied the mid-range emission factor value of 0.4 lb/ton by the 2009 product throughput of each furnace (in tons per year (tons/yr)). Frisco then reduced the uncontrolled emission rate by the following control efficiency factors:

- 98% for local exhaust ventilation (LEV) collection efficiency.

The furnace operations at Frisco take place inside the smelting building which would capture a portion of fugitive emissions; however Frisco applied no building enclosure control efficiency factors to the fugitive emissions calculation for the furnace operations.

In its June 2010 ICR response Frisco reported the sum of the calculated fugitive Pb emission rates for the blast and reverberatory furnaces under emission point "Blast & Reverb Furnace Fugitives."

- **Kettle Refining and Casting**

Table 12.11-4 presents the uncontrolled fugitive Pb emission factor for kettle refining operations as 0.0006 lb/ton with a reference that the source of this emission factor was a draft study conducted at a single facility in 1981. For its refining operations Frisco multiplied the emission factor value of 0.0006 lb/ton by the 2009 throughput of the refining operations (in tons/yr). The refining operations at Frisco are equipped with LEV hooding which would capture a significant portion of fugitive emissions; however Frisco applied no LEV control efficiency factors to the fugitive emissions calculations for the refining operations. The refining operations at Frisco take place inside the smelting building which would also capture a portion of fugitive emissions; however

Frisco applied no building enclosure control efficiency factors to the fugitive emissions calculation for the refining operations.

Table 12.11-4 presents the uncontrolled fugitive Pb emission factor for casting operations as 0.0007 lb/ton with a reference that the source of this emission factor was a draft study conducted at a single facility in 1981. For its casting operations Frisco multiplied the emission factor value of 0.0007 lb/ton by the 2009 product throughput of the casting operations (in tons/yr). Frisco then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for LEV collection efficiency.

The casting operations at Frisco take place inside the smelting building which would capture a portion of fugitive emissions; however Frisco applied no building enclosure control efficiency factors to the fugitive emissions calculation for the casting operations.

In its June 2010 ICR response Frisco reported the sum of the calculated fugitive Pb emission rates for the kettle refining and casting operations under emission point "Refining/Casting Fugitives."

- Slag Handling

For its slag handling operations Frisco multiplied an emission factor value of 0.0013 lb/ton by the 2009 slag handling throughput of the facility (in tons/yr). The origin and basis of this emission factor is unknown to Reading. Frisco applied no control efficiency factors to the fugitive emissions calculation for the slag handling operations. In its June 2010 ICR response Frisco reported the calculated fugitive Pb emission rates for the slag handling operations under emission point "Slag Handling."

- Material Handling

AP-42 Chapter 13, Section 13.2.4 presents the following equation for developing a particulate matter (PM) emission factor for dust emissions from outdoor aggregate storage piles:

$$E = k * 0.0032 * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

where: E = emission factor (lb/ton)
k = particle size multiplier (dimensionless)
U = mean wind speed (miles per hour (mph))
M = material moisture content (%)

Frisco used the following parameter inputs to this equation to develop a total PM material handling emission factor of 0.0035 lb/ton:

$$\begin{aligned}k &= 0.74 \text{ (for particles } < 30 \text{ micrometers } (\mu\text{m})) \\U &= 5 \text{ mph} \\M &= 1.5\%\end{aligned}$$

Frisco then assumed that fugitive Pb material handling emissions were 50% of total PM emissions. For its material handling operations Frisco multiplied an emission factor value of 0.00175 lb/ton by the 2009 material handling throughput (in tons/yr). Frisco applied no control efficiency factors to the fugitive emissions calculation for the material handling operations. In its June 2010 ICR response Frisco reported the calculated fugitive Pb emission rates for the material handling operations under emission point "Material Handling."

- **Raw Material Storage**

The area known as Raw Material Storage at Frisco was an additional outdoor, covered material storage area. Frisco used a fugitive Pb emission factor for this area of 0.0082 pounds per hour (lb/hr). Information available to Reading indicates that this emission factor was developed using employee personal exposure monitoring Pb concentrations, an assumed air velocity of 25 feet per minute (ft/min), and the area of each enclosure open to atmosphere. However, the Pb concentrations and open areas used to develop this emission factor are not available to Reading. For its outdoor, covered raw material handling operations Frisco multiplied an emission factor value of 0.0082 lb/hr by the 2009 hours of operation in the area. Frisco then reduced the uncontrolled emission rate by the following control efficiency factors:

- 70% for water sprays used to control particulate emissions.

In its June 2010 ICR response Frisco reported the calculated fugitive Pb emission rates for this area under emission point "Raw Material Storage."

Reading Revised Fugitive Pb Emission Estimates

To be responsive to PADEP's request that Reading submit revised fugitive Pb emission estimates for Reading based on the methodology used by Frisco, Reading has developed revised non-roadway fugitive Pb emission estimates for Reading using a methodology based on AP-42. As requested by PADEP, the non-roadway fugitive Pb emission estimates presented herein are annual emissions rates representing secondary Pb smelting operations at Reading following implementation of the control measures proposed in Reading's Plan Approval Application for NAAQS Control Measures submitted to PADEP on January 18, 2012, as approved (NAAQS Control Measures).

- **Blast and Reverberatory Furnaces**

For each blast and reverberatory furnace operation Reading multiplied the Table 12.11-4 low range emission factor value of 0.2 lb/ton by the average annual furnace production rates at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 98% for LEV collection efficiency; and
- 95% for total building enclosure collection efficiency.

Use of Low Range Emission Factor

Reading's use of the Table 12.11-4 low range emission factor value of 0.2 lb/ton from a study conducted over 20 years ago is appropriate because throughout the secondary Pb industry, and at Reading, improvements in furnace operating practices have been implemented since the time of the study to reduce fugitive emissions and exposure levels of employees. Such improvements include, but are not limited to, certain engineering and work practice controls *other than LEV* recommended in the United States Department of Labor Occupational Safety and Health Administration training eTool, for Lead – Secondary Lead Smelter,¹ as follows:

eTool Recommendations	Improvements Made
Blast Furnaces	
Prevent puffing by providing and maintaining process controls to ensure that the proper amount of charge material is in the thimble on top of the furnace.	Installation of automated, programmable feed material charge systems that weigh each charge.
Do not overfill bucket elevators, conveyors and skip hoists.	
Reverberatory Furnaces	
Provide process controls to maintain sufficient negative air pressure on the furnace to prevent puffing.	Installation of programmable burner and ventilation control systems.
Do not overfill conveyors and ram feeders.	Installation of programmable systems that control the rate of feed material placed on conveyors and into ram feeders.

¹ <https://www.osha.gov/SLTC/etools/leadsmelter/index.html>

Use of 98% LEV Collection Efficiency

Fugitive emission sources associated with furnace operations at Reading are controlled by LEV. Use of 98% LEV collection efficiency is consistent with the methodology used by Frisco, listed as the capture efficiency of furnace charging emissions on Tab C-6 of the ICR SURVEYPart1_Exide_Frisco spreadsheet submitted to U.S. EPA.

Use of 95% Total Building Enclosure Collection Efficiency

Following implementation of the NAAQS Control Measures, operations with the potential to generate fugitive Pb emissions at Reading will be conducted entirely within a building that meets the total enclosure and negative pressure requirements of the current secondary Pb smelting NESHAP. A building total enclosure capture efficiency of 95% is based on U.S. EPA guidance "2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers" found in U.S. EPA's online SIP Toolkit.

- **Kettle Refining**

For kettle refining operations, Reading multiplied the Table 12.11-4 emission factor value of 0.0006 lb/ton by the average annual refining production rate at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for LEV collection efficiency; and
- 95% for total building enclosure collection efficiency.

Use of 85% LEV Collection Efficiency

Fugitive emission sources associated with kettle refining and casting operations at Reading are controlled by LEV. There is no information available to Reading to explain why Frisco used a much lower LEV collection efficiency for its casting operations than it used for its furnace operations. The effectiveness of LEV controls at Reading is believed to be consistent for all sources of emissions within a range of 95 to 100%. Nevertheless, to be consistent with the Frisco methodology, Reading used 85% LEV collection efficiency for kettle refining and casting operations.

- **Casting**

For casting operations Reading multiplied the Table 12.11-4 emission factor value of 0.0007 lb/ton by the average annual casting production rate at Reading (in

tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). For the same reasons noted above for furnace operations, Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for LEV collection efficiency; and
 - 95% for total building enclosure collection efficiency.
- Slag Handling

For slag handling operations Reading multiplied the Frisco emission factor value of 0.0013 lb/ton by the average annual slag throughput rate at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factor:

- 95% for total building enclosure collection efficiency.

- Material Handling

For raw material handling operations Reading used the following AP-42 Chapter 13, Section 13.2.4 equation to develop a site-specific total PM emission factor for fugitive emissions from material handling:

$$E = k * 0.0032 * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

where: E = emission factor (lb/ton)
k = particle size multiplier (dimensionless)
U = mean wind speed (mph)
M = material moisture content (%)

AP-42 Section 13.2.4 provides particle size multiplier values which vary with aerodynamic particle size range. To represent total PM emissions Reading used the particle size multiplier (k) of 0.74 for the largest particle size range of < 30 µm.

Following implementation of the NAAQS Control Measures, material handling operations will be conducted entirely within a building that meets the total enclosure and negative pressure requirements of the current secondary Pb smelting NESHAP. In effect, there will be no wind inside the building. However, for the equation to work a non-zero value must be used. Reading conservatively used a mean wind speed (U) of one (1) mph.

The characteristics of the raw material handled at both Frisco and Reading are virtually the same. As Frisco did, Reading used a material moisture content (U) of 1.5%.

Assuming one (1) loading drop, input of the parameters described above yields a total PM material handling emission factor of 0.00044 lb/ton for Reading. Since the material handled at both Frisco and Reading are virtually the same, Reading also then assumed that fugitive Pb material handling emissions were 50% of total PM emissions. For its material handling operations Reading multiplied the site-specific Pb emission factor value of 0.00022 lb/ton by the average annual raw material throughput rate at Reading (in tons/yr) for the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factor:

- 95% for total building enclosure collection efficiency.

There is no additional raw material handling or storage area at Reading like the area at Frisco for which Frisco reported fugitive emission estimates in its ICR submittal under emission point "Raw Material Storage."

Reading's revised non-roadway fugitive Pb emission estimates for Reading based on the methodology used by Frisco to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to the June 2010 ICR program, adjusted to site-specific conditions at Reading, are presented in attached Table 1. Table 1 includes a cross reference for each fugitive Pb emission estimate to the respective Source ID identifications in the Facility's Title V Operating Permit (TVOP) and NAAQS Control Measures Plan Approval. Source IDs identified in the TVOP that are not referenced in Table 1 are as follows:

- 131 Lime Storage Bin WWTP

This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.

- 132 Plant Roadways

Table 1 presents only non-roadway fugitive Pb emission estimates. Plant roadway Pb emission estimates have previously been provided to PADEP.

- 137 Lime Slaker

This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.

- 138 Stabilization Reagent Silo

This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.

- 150 Properzi Rolled Lead Strip

This source involves the mechanical rolling and shaping of semi-soft solid Pb material with an applied liquid lubricant that keeps it wet, and therefore does not have the potential to generate fugitive Pb emissions.

Our work in preparing this report clearly demonstrates that the evaluation of non-roadway fugitive Pb emissions in our April 24, 2013 letter is corroborated by this report, which produces a substantially similar estimate, and that the contribution of these fugitive emissions after implementation of the NAAQS Control Measures is a very small part of a small number. Reading continues to support the validity of our prior estimate, but the estimate resulting from either approach does not appear to be significant.

If you have any questions regarding the information provided herein, please feel free to contact me by telephone at (610) 921-4414, or by email at Robert.Jordan@na.exide.com.

Sincerely,
Exide Technologies



Robert Jordan
Reading Facility Manager

Attachment: Table 1

Table 1
Post-NAAQS Controls Non-Roadway Fugitive Lead (Pb) Emission Estimates^(a)
Exide Technologies - Reading, Pennsylvania

	Source ID ^(a)	Emission Factor (lb/ton)	Note	Reading Average Annual Throughput 2008 - 2012 (tons/yr)	Local Exhaust Ventilation (LEV) Collection Efficiency ^(b)	Building Total Enclosure Control Efficiency ^(c)	Non-Roadway Fugitive Pb Emissions (tons/year)
Blast Furnace (Old)	120, 124, 128	0.2	(d)	13,858	98%	95%	1.39E-03
Blast Furnace (New)	121, 125, 128	0.2	(d)	11,739	98%	95%	1.17E-03
Reverberatory Furnace (Old)	122, 124, 128	0.2	(d)	29,837	98%	95%	2.99E-03
Reverberatory Furnace (New)	123, 125, 128	0.2	(d)	23,480	98%	95%	2.35E-03
Refining Kettles	147, 128	0.0006	(e)	75,065	85%	95%	1.69E-04
Casting	128	0.0007	(f)	75,065	85%	95%	1.97E-04
Slag Handling	129, 146	0.0013	(g)	10,860	0%	95%	3.53E-04
Material Handling	126, 130	0.00022	(h)	78,964	0%	95%	4.31E-04
Total							0.01

Notes:

^(a) Based on the methodology used by the Exide Technologies Frisco, Texas Facility to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to a June 2010 information collection request (ICR), adjusted to site-specific conditions at the Exide Technologies Reading, Pennsylvania Facility. Estimations only. Should not be construed as absolute measurements of actual quantities of Pb that will be emitted from the facility.

^(b) 98% hood capture efficiency for furnace operations from Tab C-6 of ICR SURVEYPart1_Exide_Frisco spreadsheet.
85% hood capture efficiency for refining kettles and casting as used by Frisco.

^(c) Building total enclosure capture efficiency based on U.S. EPA guidance "2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers" found in U.S. EPA's online SIP Toolkit.

^(d) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, low range smelting Pb emission factor.

^(e) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, kettle refining Pb emission factor.

^(f) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, casting Pb emission factor.

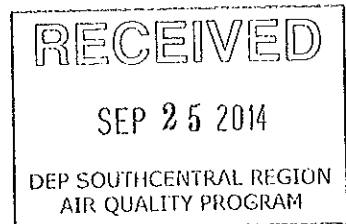
^(g) Emission factor is slag handling Pb emission factor used by the Exide Technologies Frisco, Texas Facility to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to a June 2010 information collection request (ICR).

^(h) Emission factor developed using U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 13, Section 13.2.4 (Aggregate Handling and Storage Piles). Pb emissions assumed to be 50% of particulate emissions.

⁽ⁱ⁾ As referenced in Title V Operating Permit 06-05066 and Plan Approval 06-05066L.

September 23, 2014

Mr. William Weaver
Air Quality Program Manager
Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200



**RE: Exide Technologies Reading, Pennsylvania Facility
Response to Request for Historic Fugitive Lead (Pb) Emission Estimates**

Dear Mr. Weaver:

In response to a request from the Pennsylvania Department of Environmental Protection (PADEP), on August 7, 2014 Exide Technologies (Exide) provided to PADEP revised site-specific estimates of non-roadway fugitive lead (Pb) emissions for the Exide Reading, Pennsylvania Facility (Reading). As requested by PADEP the estimates of non-roadway fugitive Pb emissions provided by Reading on August 7, 2014 were annual emissions rates representing secondary Pb smelting operations at Reading following implementation of the control measures proposed in Reading's Plan Approval Application for NAAQS Control Measures submitted to PADEP on January 18, 2012, as approved (NAAQS Control Measures). The estimated non-roadway fugitive Pb emissions provided by Reading on August 7, 2014 were developed based on the methodology used by Exide's Frisco, Texas Facility (Frisco) to develop fugitive Pb emission estimates that were submitted to U.S. EPA in response to a June 2010 information collection request (ICR) program, adjusted to site-specific conditions at Reading. PADEP has now also requested that Reading provide site-specific estimates of non-roadway fugitive Pb emissions representing historic operations prior to idling of the secondary Pb smelting operations and without considering implementation of the Pb NAAQS Controls (historical non-roadway fugitive Pb emissions).

Fugitive Pb emissions from secondary Pb smelting operations can result when small quantities of the Pb-bearing particulate emissions generated by facility activities escape the extensive capture and control systems that are employed throughout the industry and at Reading. Because all release points cannot be directly measured, and especially because of the small amounts involved, available methodologies for developing estimates of fugitive emissions are not precise. The true characteristics and interactions of all of the factors that influence the generation of fugitive emissions at such low levels (e.g., non-capture by controls, building escape rates) are not precisely determinable, resulting in the potential for a wide range of variability when attempts at quantification are made. Reading is making this submittal to be responsive to PADEP's request for site-specific estimates of historic non-roadway fugitive Pb emissions. However, the values presented herein are only estimations and should not be construed as absolute measurements of actual quantities of Pb that were, or will be, emitted from Reading.

Reading Historic Non-Roadway Fugitive Pb Emission Estimates

To be responsive to PADEP's request, Reading has developed historic non-roadway fugitive Pb emission estimates for Reading. Similar to the fugitive Pb emission estimates submitted on August 7,

2014 the historic non-roadway fugitive Pb emission estimates presented herein are primarily based on the methodology used by Frisco (i.e., U.S. EPA AP-42 Compilation of Air Pollutant Emission Factors, Volume 1, production-based uncontrolled fugitive emission factors), adjusted to site-specific conditions at Reading. As requested by PADEP, the historic non-roadway fugitive Pb emission estimates presented herein are annual emissions rates representing historic operations prior to idling of the secondary Pb smelting operations and without considering implementation of the Pb NAAQS Control Measures.

- Blast and Reverberatory Furnaces

For each blast and reverberatory furnace operation Reading multiplied the AP-42 Table 12.11-4 low range emission factor value of 0.2 lb/ton by the annual furnace production rates at Reading (in tons/yr) for each of the years 2008 through 2012 (the most recent five (5) full years of operation). Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 98% for local exhaust ventilation (LEV) collection efficiency; and
- 32% for partial building enclosure collection efficiency.

Use of Low Range Emission Factor

Reading's use of the Table 12.11-4 low range emission factor value of 0.2 lb/ton from a study conducted over 20 years ago is appropriate because throughout the secondary Pb industry, and at Reading, improvements in furnace operating practices have been implemented since the time of the study to reduce fugitive emissions and exposure levels of employees. Such improvements include, but are not limited to, certain engineering and work practice controls *other than LEV* recommended in the United States Department of Labor Occupational Safety and Health Administration training eTool for Lead – Secondary Lead Smelter,¹ as follows:

eTool Recommendations	Improvements Made
Blast Furnaces	
Prevent puffing by providing and maintaining process controls to ensure that the proper amount of charge material is in the thimble on top of the furnace.	Installation of automated, programmable feed material charge systems that weigh each charge.
Do not overfill bucket elevators, conveyors and skip hoists.	
Reverberatory Furnaces	
Provide process controls to maintain sufficient negative air pressure on the furnace to prevent puffing.	Installation of programmable burner and ventilation control systems.
Do not overfill conveyors and ram feeders.	Installation of programmable systems that control the rate of feed material placed on conveyors and into ram feeders.

¹ <https://www.osha.gov/SLTC/etools/leadsmelter/index.html>

Use of 98% LEV Collection Efficiency

Fugitive emission sources associated with furnace operations at Reading are controlled by LEV. Use of 98% LEV collection efficiency is consistent with the methodology used by Frisco, listed as the capture efficiency of furnace charging emissions on Tab C-6 of the ICR SURVEYPart1_Exide_Frisco spreadsheet submitted to U.S. EPA.

Use of 32% Partial Building Enclosure Collection Efficiency

Historic furnace operations at Reading took place inside the smelting building which would capture a portion of fugitive emissions. The smelting building was partially enclosed with a roof and walls on three (3) sides. In U.S. EPA's development of site specific emissions that were used to conduct risk assessment modeling for the Secondary Lead Smelting source category (EPA-HQ-OAR-2011-0344-0163, December 16, 2011), U.S. EPA assigned a partial building enclosure factor equivalent to 32% collection efficiency.

- **Battery Shredding**

According to AP-42 Chapter 12 emissions from battery breaking (i.e., battery shredding) are mainly of sulfuric acid mist and dusts (i.e., particulate matter) containing dirt, battery case material, and lead compounds. However, AP-42 Chapter 12 does not include a fugitive Pb emission factor for battery shredding operations. Historic battery shredding operations at Reading consisted solely of placement of batteries into one (1) shredder located within a partially enclosed building with a roof and walls on three (3) sides, with the shredded material deposited and further process through equipment located within the enclosed raw material storage building. The battery shredder at Reading is equipped with LEV which exhausts air through a venturi scrubber. Exide conducted Pb emission testing on the battery shredder scrubber exhaust in July 2011, which yielded an average controlled Pb emission result of 0.001 pounds per hour (lb/hr). According to U.S. EPA Air Pollution Control Technology Fact Sheet EPA-452/F-03-017, venturi scrubbers have a particulate matter collection efficiency range of 70% to 99%. The average collection efficiency of the battery shredder venturi scrubber at Reading is believed to be in the upper portion of this range. Using a collection efficiency of 95%, Reading calculated an uncontrolled Pb emission rate of 0.0200 lb/hr. Reading multiplied the uncontrolled Pb emission rate of 0.0200 lb/hr by the total annual battery shredder hours of operation reported on annual emission statements submitted to PADEP for each of the years 2008 through 2012. Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for local exhaust ventilation (LEV) collection efficiency; and
- 32% for partial building enclosure collection efficiency.

Use of 85% LEV Collection Efficiency

In the Frisco methodology 85% LEV collection efficiency was used for casting operations. Frisco did not develop fugitive Pb emission estimates for battery shredding operations. The LEV configuration on the refining kettles and battery shredder at Reading is similar to the

typical LEV configuration on casting. There is no information available to Reading to explain why Frisco used a much lower LEV collection efficiency for its casting operations than it used for its furnace operations. The effectiveness of LEV controls at Reading is believed to be consistent for all sources of emissions within a range of 95 to 100%. Nevertheless, to be consistent with the Frisco methodology, Reading used 85% LEV collection efficiency for battery shredding, kettle refining, slag crushing and casting operations.

- Casting

Historic casting operations took place within the partially enclosed smelter building described above. The casting operations at Reading are equipped with LEV. For casting operations Reading multiplied the Table 12.11-4 emission factor value of 0.0007 lb/ton by the annual casting production rate at Reading (in tons/yr) for each of the years 2008 through 2012. Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for local exhaust ventilation (LEV) collection efficiency; and
- 32% for partial building enclosure collection efficiency.

- Slag Cooling and Storage

Historic slag cooling and storage took place at Reading in a partially enclosed building with a roof and four (4) sides, with an access doorway for mobile equipment in the east side of the building. The building is equipped with general ventilation to maintain inward air flow and the access doorway was equipped with a roll-up door. Historic slag cooling and storage operations at Reading consisted of placement of hot solidified slag in the building using mobile equipment to cool and await further processing or disposal offsite, and removal of the slag using mobile equipment for transport to further processing or disposal offsite.

For slag cooling and storage operations Reading used the following AP-42 Chapter 13, Section 13.2.4 equation to develop a site-specific total PM emission factor for fugitive emissions:

$$E = k * 0.0032 * \frac{\left(\frac{U}{5}\right)^{1.3}}{\left(\frac{M}{2}\right)^{1.4}}$$

where: E = emission factor (lb/ton)
k = particle size multiplier (dimensionless)
U = mean wind speed (mph)
M = material moisture content (%)

AP-42 Section 13.2.4 provides particle size multiplier values which vary with aerodynamic particle size range. To represent total PM emissions Reading used the particle size multiplier (k) of 0.74 for the largest particle size range of < 30 µm.

Based on available information for a location closest to Reading, the average annual wind speed is 8.9 mph.² The features of the slag cooling and storage building limited the amount of wind the operations within it were exposed to when placing and removing slag. However, since the building could not be considered to meet the total enclosure requirements of the secondary Pb smelting national emission standards for hazardous air pollutants (NESHAP), Reading conservatively used a mean wind speed (U) of five (5) mph.

Reading used a material moisture content (M) of 0.92% which is the mean moisture content value listed for iron and steel production slag in AP-42 Table 13.2.4-1.

Assuming two (2) loading drops, input of the parameters described above yields a total PM slag cooling and storage emission factor of 0.014 lb/ton for Reading. Reading also then assumed that fugitive Pb emissions were 50% of total PM emissions. For its slag cooling and storage operations Reading multiplied the site-specific Pb emission factor value of 0.0070 lb/ton by the annual slag throughput rate at Reading (in tons/yr) for each of the years 2008 through 2012. Reading then reduced the uncontrolled emission rate by the following control efficiency factor:

- 32% for total building enclosure collection efficiency.

- Raw Material Storage

For raw material storage operations Reading again used the AP-42 Chapter 13, Section 13.2.4 equation described above to develop a site-specific total PM emission factor for fugitive emissions.

AP-42 Section 13.2.4 provides particle size multiplier values which vary with aerodynamic particle size range. To represent total PM emissions Reading used the particle size multiplier (k) of 0.74 for the largest particle size range of < 30 μ m.

Since approximately 1985 raw material storage operations were conducted within a building that met the total enclosure requirements of the current secondary Pb smelting NESHAP. In effect, there was no wind inside the building. However, for the equation to work a non-zero value must be used. Reading conservatively used a mean wind speed (U) of one (1) mph.

The characteristics of the raw material handled at both Frisco and Reading are virtually the same. As Frisco did, Reading used material moisture content (M) of 1.5%.

Assuming one (1) loading drop, input of the parameters described above yields a total PM material handling emission factor of 0.00044 lb/ton for Reading. Since the material handled at both Frisco and Reading are virtually the same, as Frisco did Reading also then assumed that fugitive Pb material handling emissions were 50% of total PM emissions. For its raw material storage operations Reading multiplied the site-specific Pb emission factor value of 0.00022 lb/ton by the annual raw material throughput rate at Reading (in tons/yr) for each of the years

² Northeast Regional Climate Center, Comparative Climate Data, Average Wind Speed – Allentown, PA, <http://www.nrcc.cornell.edu/ccd/wyndspd.html>.

2008 through 2012. Reading then reduced the uncontrolled emission rate by the following control efficiency factor:

- 95% for total building enclosure collection efficiency.

- Slag Crushing

Historic slag crushing took place at Reading in a partially enclosed building with a roof and four (4) sides, with an access opening for loading in slag and an enclosed conveyor for loading out crushed slag to a truck for transport to further processing or disposal offsite. The load-in hopper and crushing equipment are equipped with LEV. The load-in access opening is equipped with strip curtains.

For slag crushing operations Reading again used the AP-42 Chapter 13, Section 13.2.4 equation described above to develop a site-specific total PM emission factor for fugitive emissions.

AP-42 Section 13.2.4 provides particle size multiplier values which vary with aerodynamic particle size range. To represent total PM emissions Reading used the particle size multiplier (k) of 0.74 for the largest particle size range of $< 30 \mu\text{m}$.

The slag crushing load-in started outside the building in an area under roof and partially protected from wind by adjacent structures. For the load-in drop Reading conservatively used a mean wind speed (U) of five (5) mph. The load-out of crushed slag was to a truck positioned just outside the east wall of the building. For the load-out drop Reading used the area annual average wind speed (U) of 8.9 mph.

Reading used a material moisture content (M) of 0.92% which is the mean moisture content value listed for iron and steel production slag in AP-42 Table 13.2.4-1.

Assuming two (2) loading drops, input of the parameters described above yields a total PM slag cooling and storage emission factor of 0.022 lb/ton for Reading. Reading also then assumed that fugitive Pb emissions were 50% of total PM emissions. For its slag crushing operations Reading multiplied the site-specific Pb emission factor value of 0.0109 lb/ton by the annual slag crushing throughput rate at Reading (in tons/yr) for each of the years 2008 through 2012. Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for local exhaust ventilation (LEV) collection efficiency.

While the slag crushing equipment is operated inside an enclosed system, some of the load-in and load-out activity was conducted outside the building. For this reason Reading has conservatively chosen not to reduce the slag crushing uncontrolled emission rate further for building enclosure collection efficiency.

- Kettle Refining

Historic refining kettle operations took place within the partially enclosed smelter building described above. The refining kettles at Reading are equipped with LEV. For kettle refining operations, Reading multiplied the Table 12.11-4 emission factor value of 0.0006 lb/ton by the annual refining production rate at Reading (in tons/yr) for each of the years 2008 through 2012. Reading then reduced the uncontrolled emission rate by the following control efficiency factors:

- 85% for LEV collection efficiency; and
- 32% for partial building enclosure collection efficiency.

Reading's historic non-roadway fugitive Pb emission estimates for Reading are presented in attached Table 1H. Table 1H includes a cross reference for each fugitive Pb emission estimate to the respective Source ID identifications in the Facility's Title V Operating Permit (TVOP). Source IDs identified in the TVOP that are not referenced in Table 1H are as follows:

- 131 Lime Storage Bin WWTP

This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.

- 132 Plant Roadways

Table 1H presents only non-roadway fugitive Pb emission estimates. Plant roadway Pb emission estimates have previously been provided to PADEP.

- 137 Lime Slaker

This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.

- 138 Stabilization Reagent Silo

This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.

- 150 Properzi Rolled Lead Strip

This source involves the mechanical rolling and shaping of semi-soft solid Pb material with an applied liquid lubricant that keeps it wet, and therefore does not have the potential to generate fugitive Pb emissions.

Our work in preparing this report demonstrates that the contribution of these fugitive emissions does not appear to be significant.

If you have any questions regarding the information provided herein, please feel free to contact me by telephone at (610) 921-4414, or by email at Robert.Jordan@na.exide.com.

Sincerely,
Exide Technologies

A handwritten signature in black ink, appearing to read "Robert Jordan", with a stylized flourish extending from the end.

Robert Jordan
Reading Facility Manager

Attachment: Table 1H

Table 1H
Historic Non-Roadway Fugitive Lead (Pb) Emission Estimates^(a)
Exide Technologies - Reading, Pennsylvania

	Source ID ⁽ⁱ⁾	Emission Factor (EF)	EF Units	Note	Local Exhaust Ventilation (LEV) Collection Efficiency ^(b)	Building Enclosure Collection Efficiency ^(c)	2008 Non-Roadway Fugitive Pb Emissions (tons/year)	2009 Non-Roadway Fugitive Pb Emissions (tons/year)	2010 Non-Roadway Fugitive Pb Emissions (tons/year)	2011 Non-Roadway Fugitive Pb Emissions (tons/year)	2012 Non-Roadway Fugitive Pb Emissions (tons/year)
Blast Furnace (Old)	120,124, 128	0.2	lb/ton	(d)	98%	32%	2.35E-02	1.98E-02	1.83E-02	1.61E-02	1.66E-02
Blast Furnace (New)	121,125, 128	0.2	lb/ton	(d)	98%	32%	1.94E-02	1.79E-02	1.61E-02	1.30E-02	1.34E-02
Reverberatory Furnace (Old)	122,124, 128	0.2	lb/ton	(d)	98%	32%	4.40E-02	2.96E-02	4.44E-02	3.57E-02	4.95E-02
Reverberatory Furnace (New)	123,125, 128	0.2	lb/ton	(d)	98%	32%	3.06E-02	4.00E-02	2.48E-02	2.54E-02	3.90E-02
Battery Shredding Operation	126	0.0200	lb/hr	(g)	85%	32%	7.30E-03	7.05E-03	6.68E-03	6.22E-03	7.49E-03
Casting	128	0.0007	lb/ton	(f)	85%	32%	2.91E-03	2.66E-03	2.60E-03	2.27E-03	2.96E-03
Slag Cooling & Storage	129	0.0070	lb/ton	(h)	0%	32%	2.43E-02	2.78E-02	2.66E-02	2.18E-02	2.91E-02
Raw Material Storage	130	0.00022	lb/ton	(h)	0%	95%	4.72E-04	4.31E-04	4.16E-04	3.62E-04	4.76E-04
Slag Crushing	146	0.0109	lb/ton	(h)	85%	0%	8.36E-03	8.49E-03	7.51E-03	4.69E-03	7.80E-03
Refining Kettles	147, 128	0.0006	lb/ton	(e)	85%	32%	2.50E-03	2.28E-03	2.23E-03	1.95E-03	2.54E-03
Total							0.16	0.16	0.15	0.13	0.17

Notes:

^(a) Non-roadway fugitive Pb emission estimates representing historical operations prior to idling of the secondary Pb smelting operations and without considering implementation of the Pb NAAQS Control Measures. Estimations only. Should not be construed as absolute measurements of actual quantities of Pb that will be emitted from the Facility.

^(b) 98% hood capture efficiency for furnace operations from Tab C-6 of ICR SURVEYPart1_Exide_Frisco spreadsheet submitted to U.S. EPA by the Exide Technologies Frisco, Texas Facility in response to a June 2010 information collection request (ICR). 85% hood capture efficiency for casting as used by Frisco. 85% hood capture efficiency for refining kettles, battery shredding and slag crushing as similar to casting.

^(c) 95% building total enclosure collection efficiency based on U.S. EPA guidance "2008 Lead (Pb) National Ambient Air Quality Standards (NAAQS) Implementation Questions and Answers" found in U.S. EPA's online SIP Toolkit. 32% building partial enclosure collection efficiency based on enclosure factor assigned in U.S. EPA development of site specific emissions that were used to conduct risk assessment modeling for the Secondary Lead Smelting source category (EPA-HQ-OAR-2011-0344-0163, December 16, 2011).

^(d) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, SCC 3-04-004-13 low range smelting Pb emission factor.

^(e) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, SCC 3-04-004-14 kettle refining Pb emission factor.

^(f) Emission factor from U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 12, Table 12.11-4, SCC 3-04-004-25 casting Pb emission factor.

^(g) Emission factor developed based on controlled Pb emissions results from July 2011 site-specific testing and average of venturi scrubber control technology particulate matter collection efficiency range found in U.S. EPA Air Pollution Control Technology Fact Sheet EPA-452/F-03-017.

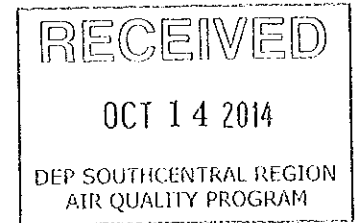
^(h) Emission factor developed using U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 13, Section 13.2.4 (Aggregate Handling and Storage Piles). Pb emissions assumed to be 50% of particulate emissions.

⁽ⁱ⁾ As referenced in Title V Operating Permit 06-05066 (TVOP). Source IDs identified in the TVOP that are not included are as follows:

- 131 Lime Storage Bin WWTP: This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.
- 132 Plant Roadways: This table presents only non-roadway fugitive Pb emission estimates. Plant roadway Pb emission estimates have previously been provided to PADEP.
- 137 Lime Slaker: This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.
- 138 Stabilization Reagent Silo: This source does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions.
- 150 Properzi Rolled Lead Strip: This source involves the mechanical rolling and shaping of semi-soft solid Pb material with an applied liquid lubricant that keeps it wet, and therefore does not have the potential to generate fugitive Pb emissions.

October 10, 2014

Mr. William Weaver
Air Quality Program Manager
Department of Environmental Protection
Southcentral Regional Office
909 Elmerton Avenue
Harrisburg, PA 17110-8200



**RE: Exide Technologies Reading, Pennsylvania Facility
Response to Request for Current Fugitive Lead (Pb) Emission Estimates**

Dear Mr. Weaver:

Exide Technologies (Exide) previously provided to the Pennsylvania Department of Environmental Protection (PADEP) site-specific estimates of fugitive lead (Pb) emissions for the Exide Reading, Pennsylvania Facility (Reading) for two (2) different scenarios, as follows:

1. Estimates of non-roadway fugitive Pb annual emission rates representing secondary Pb smelting operations at Reading following implementation of the control measures proposed in Reading's Plan Approval Application for National Ambient Air Quality Standards (NAAQS) Control Measures submitted to PADEP on January 18, 2012, as approved (NAAQS Control Measures). Submitted August 7, 2014.
2. Estimates of non-roadway fugitive Pb annual emission rates representing historic operations prior to idling of the secondary Pb smelting operations and without considering implementation of the NAAQS Control Measures (historical non-roadway fugitive Pb emissions). Submitted September 23, 2014.

PADEP has now also requested that Reading provide site-specific estimates of fugitive Pb emissions representing current facility operations of the plastics recycling and support operations with secondary Pb smelting operations idled and without considering implementation of the Pb NAAQS Control Measures (current operations). In the current idled state, the equipment, buildings and surrounding areas do not receive, store, process or otherwise use Pb-containing materials and therefore do not have the potential to generate fugitive Pb emissions. Under this current scenario, fugitive Pb emissions estimates consist solely of roadway fugitive emissions.

Because all release points of fugitive emissions cannot be directly measured, and especially because of the small amounts involved, available methodologies for developing estimates of fugitive emissions are not precise. The true characteristics and interactions of all of the factors that influence the generation of fugitive emissions at such low levels are not precisely determinable, resulting in the potential for a wide range of variability when attempts at quantification are made. Reading is making this submittal to be responsive to PADEP's request for site-specific estimates of current fugitive Pb emissions. However,

the values presented herein are only estimations and should not be construed as absolute measurements of actual quantities of Pb that were, or will be, emitted from Reading.

Reading Current Operations

Reading is currently in an “idled” state with none of its secondary Pb smelting processing systems in operation. In order to provide for a controlled shut-down of the multiple sources at Reading associated with the secondary Pb smelting systems, deactivation of individual sources occurred in a phased approach beginning in February 2013 and ending in January 2014. Details of the phased deactivation of the individual sources as identified in Reading’s Title V Operating Permit No. 06-05066 (TVOP) were provided in Reading’s Maintenance and Reactivation Plan and Request for Preservation of Emissions which was submitted to PADEP in January 2014.

As part of the deactivation of the secondary Pb smelting operations, Reading removed Pb-bearing materials from related storage and processing areas. At a minimum, the idled equipment, floors and other accessible surfaces in the buildings that house these secondary Pb smelting operations were cleaned to remove Pb-bearing residuals.

The following non-secondary Pb smelting operations continue to be in operation at Reading:

- Plastics recycling.
- Wastewater treatment plant (WWTP).

Sources identified in Reading’s TVOP that continue to be in operation are limited to the following:

- Source ID 131 Lime Storage Bin WWTP.
- Source ID 132 Plant Roadways.

Reading Current Fugitive Pb Emission Estimates

To be responsive to PADEP’s request, Reading has developed current fugitive Pb emission estimates. As requested by PADEP, the current fugitive Pb emission estimates presented herein are annual emissions rates representing current facility operations of the plastics recycling and support operations with secondary Pb smelting operations idled and without considering implementation of the Pb NAAQS Control Measures. Reading’s current fugitive Pb emission estimates are presented in attached Table 1C. For the reasons detailed below, these current fugitive Pb emission estimates consist solely of emissions from plant roadways.

With the exception of Source ID 131 Lime Storage Bin WWTP and Source ID 132 Plant Roadways, the emission sources identified in Reading’s TVOP have been deactivated and cleaned as described above.

In their current idled state the equipment, buildings and surrounding areas of these operations do not receive, store, process or otherwise involve the use of materials containing Pb, and therefore do not have the potential to generate fugitive Pb emissions under current operations.

- **Plastics Recycling**

The plastics recycling operation at Reading receives shredded polypropylene battery casing material from other off-site battery recyclers. Prior to receipt at Reading the shredded polypropylene battery casing material has been separated from battery Pb material and washed at off-site locations. The plastics recycling process at Reading sizes, classifies, melts and extrudes the shredded polypropylene battery casing material to form polypropylene pellets that are shipped off-site and used to manufacture new battery cases. The plastics recycling operation is not identified as an emission source in the TVOP and does not have the potential to generate fugitive Pb emissions under current operations.

- **WWTP and Source ID 131 Lime Storage Bin**

The WWTP and associated lime storage bin at Reading does not receive, store, process or otherwise involve the use of materials containing Pb, and therefore does not have the potential to generate fugitive Pb emissions under current operations.

- **Source ID 132 Plant Roadways**

Reading previously developed and used site-specific factors for quantifying emissions of Pb from its paved roadways representing historic operations prior to idling of the secondary Pb smelting operations and without considering implementation of the Pb NAAQS Control Measures (historic operations). There are no un-paved roadways in use at Reading. The methodology used to develop those roadway emission factors is based on U.S. EPA AP-42 *Compilation of Air Pollutant Emission Factors, Chapter 13, Section 13.2.1 and the collection and use of site-specific silt loading data. Vehicle traffic patterns and major road segments were identified and are shown on Figure 1. On October 18, 2011, site-specific paved roadway loose surface material samples were collected at locations representative of the major road segments (also shown on Figure 1) following procedures specified in AP-42, Appendix C.1, "Procedures For Sampling Surface/Bulk Dust Loading." The samples collected were analyzed by M.J. Reider Associates, Inc. following the procedures specified in AP-42, Appendix C.2, "Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples" to determine silt fractions. Chemical analysis of the silt content of the samples was also performed to determine total Pb content. A summary of the silt loading sampling results representing historic operations is presented in the attached Table 2. Contribution of the silt loading and Pb content on Reading's roadways during historic operations was the tracking of material by vehicles entering and exiting Pb material handling and processing areas and re-depositing this material when traveling on facility roadways.*

Silt loading and Pb content data on Reading's roadways representing current operations is not available. Because Reading regularly operated a road sweeper to clean its roadways, even during historic operations the surface dust loading present on the roadways was relatively light to the extent that collecting a sample of adequate volume for analysis was difficult. Traffic on Reading's roadways during current operations is drastically reduced, with none of that traffic

from vehicles entering and exiting active Pb material handling and processing areas. Reading continues to regularly operate a road sweeper to clean its roadways during current operations and thus, combined with the drastically reduced traffic volume described above, surface dust loading present on the roadways under current operations is nearly non-existent. Nevertheless, Reading acknowledges that the limited traffic and potential residual Pb on the roadways may be generating fugitive Pb emissions at some minute level.

The most significant physical change to Reading that will occur when the NAAQS Control Measures are implemented is total enclosure of Pb material handling and process areas and equipping the exits of these enclosed areas with vehicle wash stations. As a result, the silt loading and Pb content on Reading's roadways will be reduced significantly. In Exide's Air Quality Dispersion Modeling Report for Pb SIP Attainment Demonstration dated December 2011 (prepared by ENVIRON International Corporation), to represent the reduction resulting from implementation of the NAAQS Control Measures the roadway Pb emission factors previously developed for historic operations at Reading were reduced by 90 percent (%). This 90% reduction is based on the effectiveness of the NAAQS Control Measures to reduce, but not entirely eliminate, contribution of silt loading and Pb content on Reading's roadways by vehicle tracking. Since under current operations there is no potential for vehicle tracking from Pb material handling and processing areas, Reading has estimated roadway Pb emissions for current operations based on a 95% reduction of the silt loading sampling results that represented historic operations.

Reading developed current operations roadway Pb emission factors using the following:

- 95% reduction of silt loading sampling analysis results presented in Table 2.
- Information presented in Table 3 about the number and average weights of vehicles traveling on the roadways that represent the traffic patterns during current operations.
- The predictive emission factor model given in AP-42, Section 13.2.1.

The current roadway Pb emission factor calculations are summarized in the attached Table 4.

If you have any questions regarding the information provided herein, please feel free to contact me by telephone at (610) 921-4414, or by email at Robert.Jordan@na.exide.com.

Sincerely,
Exide Technologies


Robert Jordan
Reading Facility Manager

Attachments: Table 1C
Figure 1
Table 2
Table 3
Table 4

Table 1C
Current Fugitive Lead (Pb) Emission Estimates^(a)
Exide Technologies - Reading, Pennsylvania
October 2014

	Source ID ^(b)	Fugitive Pb Emissions (tons/year) ^(c)
Plant Roadways	132	4.43E-05
Total		4.43E-05

Notes:

^(a) Fugitive Pb emission estimates representing current operations with secondary Pb smelting operations idled and without considering implementation of the Pb NAAQS Control Measures. Estimations only. Should not be construed as absolute measurements of actual quantities of Pb that will be emitted from the Facility.

^(b) As referenced in Title V Operating Permit 06-05066 (TVOP).

^(c) Estimated using U.S. EPA AP-42 Compilation of Air Pollution Emission Factors, Volume 1, Chapter 13, Section 13.2.1 predictive emission factor model, the number and average weights of vehicles traveling on roadways during current operations and 95% reduction of silt loading and Pb content sampling results from historic operations prior to idling of the secondary Pb smelting operations.



--- Segment A1	--- Segment B
--- Segment A2	--- Segment C
--- Segment A3	--- Segment D1
--- Segment A4	--- Segment D2
--- Segment A5	--- Segment E
Sample Location	



Figure 1
Roadway Segment Sampling Locations
Exide Technologies - Reading, PA

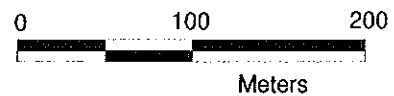


Table 2
Summary of Silt Loading Sampling Results
Exide Technologies - Reading, PA Facility
October 18, 2011

Segment	Weight (grams)	Sample Area (m²)	sL (g/m²)	Lead Composition (mg/kg)
Segment A1	0.79	11.6	0.068	222,000
Segment A2	0.67	9.1	0.074	284,000
Segment A3	1.53	9.5	0.161	308,000
Segment A4	1.44	9.7	0.149	332,000
Segment A5	1.52	10.7	0.142	409,000
Segment B	2.84	10.7	0.266	341,000
Segment C	6.54	9.3	0.703	278,000
Segment D1	3.33	14.6	0.227	426,000
Segment D2	3.07	12.1	0.254	371,000
Segment E ^(a)	3.07	12.1	0.254	371,000

^(a)Not sampled. Assigned values from closest connected segment.

Table 3
Summary of Roadway Segment Characteristics
Current Operations - Secondary Pb Smelting Operations Idled
Exide Technologies - Reading, PA Facility
October 2014

Route	Truck Description	Segments Included (in order of travel)	Empty Vehicle Weight (lbs)	Full Vehicle Weight (lbs)	Average Vehicle Weight (lbs)	Length (mi)	Round-Trip Distance (mi)	Estimated Round-Trips per Year
1	Plastic Out	A1,A2,A3,A4,A5,B,D1,D2,E	30,000	78,000	54,000	0.537	1.073	520
2	WWTP Sludge	A1,A2	33,000	53,000	43,000	0.132	0.263	8
3	Plastic Chips In	A1,A2,A3,A4,A5,B,D1,D2	34,000	69,000	51,500	0.446	0.892	780
4	Lime (WWTP)	A1,A2	30,000	78,000	54,000	0.132	0.263	5
5	Jockey Truck	A1,A2,A3,A4,A5,B,D1	30,000	80,000	55,000	0.386	0.772	100
6	H ₂ SO ₄ Delivery	A1, A2	35,000	75,000	55,000	0.132	0.263	50
7	Haz & Non Haz-Waste Pickup	A1,A2,A3,A4,A5,B,D1	30,000	50,000	40,000	0.386	0.772	10

Table 4
Roadway Emission Calculations
Current Operations - Secondary Pb Smelting Operations Idled
Exide Technologies - Reading, PA Facility
October 2014

Route	Length (mi)	Trips/year	GVWT (lb)		Average
			Empty	Full	
1	1.023	520	30,000	78,000	54,000
2	0.263	8	33,000	53,000	43,000
3	0.892	780	34,000	69,000	51,500
4	0.263	5	30,000	78,000	54,000
5	0.772	100	30,000	80,000	55,000
6	0.263	50	35,000	75,000	55,000
7	0.772	10	30,000	50,000	40,000

W =

Segment	A1	A2	A3	A4	A5	B	D1	D2	E
Seg Length (ft)	289.8	405.8	244.5	210.8	270.1	297.2	319.2	317.3	478
Trips*Wgt	2	2	2	2	2	2	2	2	2
	2	2							
	2	2	2	2	2	2	2	2	
	2	2							
	2	2	2	2	2	2	2		
	2	2							
	2	2	2	2	2	2	2		
Average GVWT (lb)	52,623	62,623	52,589	52,589	52,589	52,589	52,589	52,500	54,000
Total VMT/year	161.71	226.44	130.6	112.6	144.27	158.75	170.5	156.36	94.17
Grand Total VMT	1,355								

Paved

$$E = [k(sL)^{0.91} (W)^{1.02}] (1 - P / (4(N)))$$

$k_{PM10} = 0.0022 \text{ lb/VMT}$
 $k_{PM2.5} = 0.00054 \text{ lb/VMT}$
 $k_{PM} = 0.011 \text{ lb/VMT}$
 $P = 120$
 $N = \text{Annual} = 365$

sL = road surface silt loading (g/m²)

W = average weight (tons) of vehicles traveling road

Idled State Silt Reduction	95%
Idled State Lead Reduction	95%

	Totals									
E (lb/hr) Lead PM	3.29E-07	6.38E-07	8.07E-07	6.99E-07	1.06E-06	1.72E-06	2.00E-06	1.76E-06	1.09E-06	1.01E-05 lb/hr Lead PM
E (ton/yr) Lead PM	1.44E-06	2.79E-06	3.53E-06	3.06E-06	4.64E-06	7.53E-06	8.75E-06	7.72E-06	4.79E-06	4.43E-05 ton/yr Lead PM
sL (g/m ²)	3.398E-03	3.700E-03	8.029E-03	7.440E-03	7.116E-03	1.330E-02	1.136E-02	1.272E-02	1.272E-02	
Lead Composition (mg/kg)	1.110E+04	1.420E+04	1.540E+04	1.660E+04	2.045E+04	1.705E+04	2.130E+04	1.855E+04	1.855E+04	

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APPENDIX B-3

Exide Road Dust Analysis

**Bureau of Air Quality
Department of Environmental Protection**

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MEMORANDUM

To:	Robin Daub Exide Technologies	Date:	November 7, 2011
From:	Neal Lebo		
Subject:	Development of Paved Roadway Emission Factors Exide Technologies Reading Smelter Facility		
cc:	Exide Technologies – Fred Ganster, Harry Pehote Schnader, Harrison, Segal & Lewis LLP – Robert Collings, Esq. ENVIRON – Russell Kemp		

All4 Inc. (ALL4) has completed the development of site-specific factors for quantifying emissions of particulate matter (PM), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), and lead (Pb) from paved roadways at the Exide Technologies Reading Smelter Facility (Facility). The methodology used to develop these roadway emission factors is based on U.S. EPA AP-42 *Compilation of Air Pollutant Emission Factors* Chapter 13 Section 13.2.1 and the collection and use of site-specific silt loading data.

Using information on vehicle traffic patterns provided by the Facility, ALL4 identified nine (9) major road segments for vehicles traveling on paved Facility roadways, which are shown on Figure 1. On October 18, 2011, ALL4 collected site-specific paved roadway loose surface material samples at locations representative of each major road segment (also shown on Figure 1) following procedures specified in AP-42, Appendix C.1, “Procedures For Sampling Surface/Bulk Dust Loading.” The samples collected were analyzed by M.J. Reider Associates, Inc. following the procedures specified in AP-42, Appendix C.2, “Procedures For Laboratory Analysis Of Surface/Bulk Dust Loading Samples” to determine silt fractions. Chemical analysis of the silt content of the samples

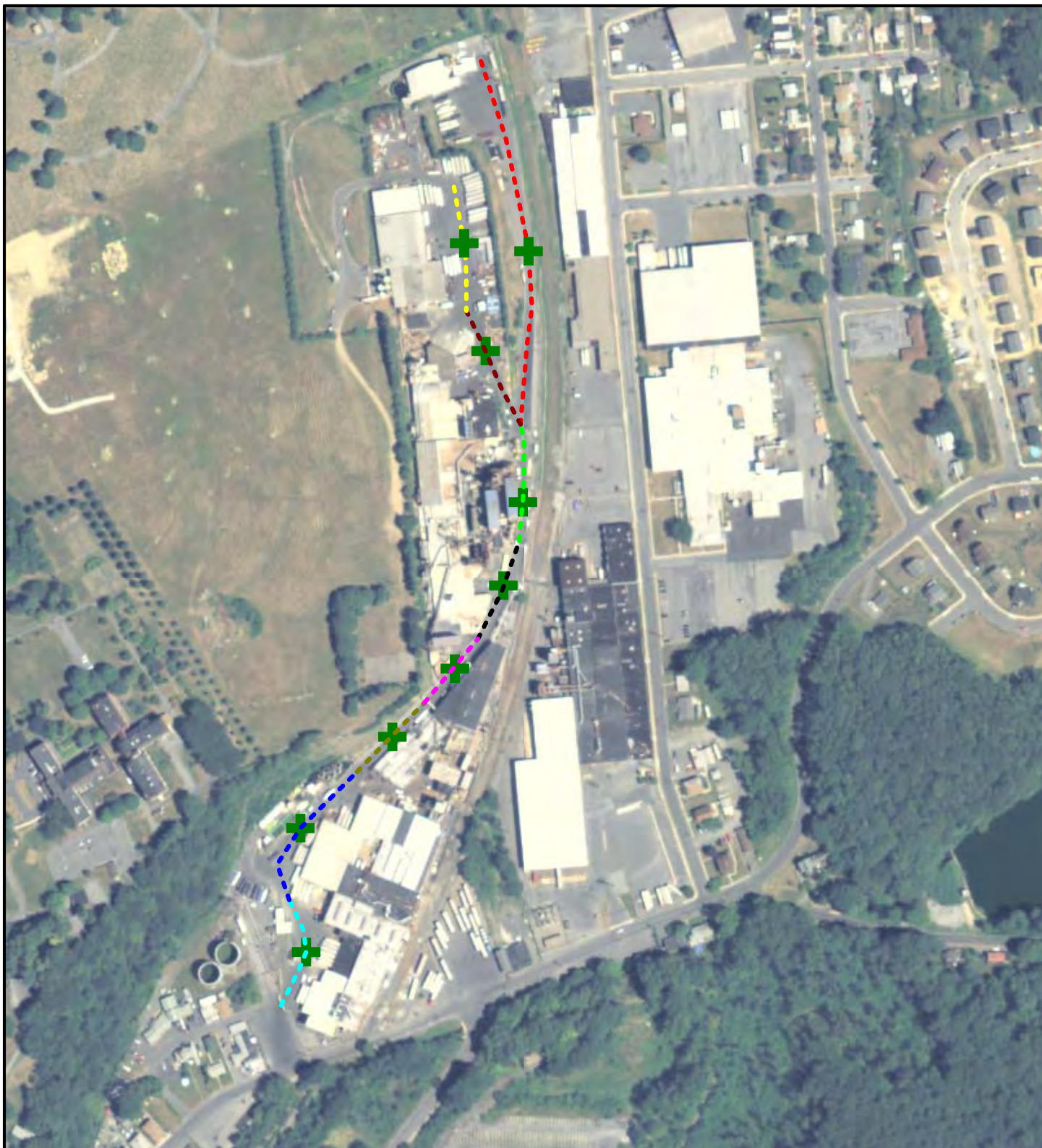
was also performed to determine total Pb content. A summary of the silt loading sampling results is presented in the attached Table 1. The roadway segment silt loadings ranged from 0.068 to 0.703 grams per square meter. The Pb content of the silt collected ranged from 22.2 percent to 42.6 percent (222,000 to 426,000 milligrams per kilogram). Copies of the laboratory analysis results are provided in Attachment A.

ALL4 developed emission factors for PM, PM₁₀, PM_{2.5}, and Pb using the following:

- Additional information provided by the Facility about the number and average weights of vehicles traveling on the roadways that represent the traffic patterns that will exist following implementation of proposed additional control measures that will contribute to attainment of the 2008 Pb National Ambient Air Quality Standard (NAAQS).
- Sample analysis results obtained.
- The predictive emission factor model given in AP-42, Section 13.2.1.

Attached Table 2 presents a summary of the roadway segment travel characteristics used to develop the emission factors, including traffic patterns, weights, number of trips, the distance traveled and four (4) time-of-day grouped periods during which traffic on the respective routes occur. The emission factor calculations for the time-of-day groups are summarized in the attached Tables 3-I, 3-II, 3-III and 3-IV.

Attachments: Figure 1
Tables 1 through 3-IV
Attachment 1



----- Segment A1	----- Segment B
----- Segment A2	----- Segment C
----- Segment A3	----- Segment D1
----- Segment A4	----- Segment D2
----- Segment A5	+ Sample Location



Figure 1
Roadway Segment Sampling Locations
Exide Technologies - Reading, PA

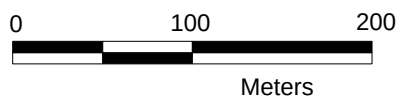


Table 1
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Exide Technologies - Reading, PA Facility

Segment	Weight (grams)	Sample Area (m ²)	sL (g/m ²)	Lead Composition (mg/kg)
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Segment D2	3.07	12.1	0.254	371,000

Table 2
Summary of Roadway Segment Characteristics
Exide Technologies - Reading, PA Facility

Route	Truck Description	Segments Included (in order of travel)	Empty Vehicle Weight (lbs)	Full Vehicle Weight (lbs)	Average Vehicle Weight (lbs)	Length (mi)	Round-Trip Distance (mi)	Estimated Round-Trips per Day ^(a)	Estimated Round-Trips per Year	Emission Factor Groups		
										Timeframe Provided by Exide	Group Number	Time Applied in Model
1	Lead (Strip, Hogs, Pigs)	A1,A2,A3,A4,A5	32,000	75,000	53,500	0.269	0.538	15	5,475	0600 to 2300	IV	0600 to 2300
2	Batteries	A1,A2,A3,A4,A5,B,D1	30,000	74,000	52,000	0.386	0.772	30	10,950	All Day	I	midnight to midnight
3	Plastic Chips Out	A1,A2,A3,A4,A5,B,D1,D2	30,000	78,000	54,000	0.446	0.892	2	730	0700 to 1900	III	0600 to 1900
4	Emission Control Sludge	A1,A2,A3,A4,A5,B,C	33,000	80,000	56,500	0.506	1.012	5	1,825	0600 to 1500	II	0600 to 1500
5	Blast Slag	A1,A2,A3,A4,A5,B,C	33,000	80,000	56,500	0.506	1.012	2	730	0600 to 1500	II	0600 to 1500
6	WWTP Sludge	A1	33,000	80,000	56,500	0.055	0.110	2	730	All Day	I	midnight to midnight
7	Coke	A1,A2,A3,A4,A5,B,D1	34,000	80,000	57,000	0.386	0.772	0.6	209	All Day	I	midnight to midnight
8	Coke Fines	A1,A2,A3,A4,A5,B,D1	34,000	80,000	57,000	0.386	0.772	0.1	52	All Day	I	midnight to midnight
9	Scrap Iron In	A1,A2,A3,A4,A5,B,D1	35,000	80,000	57,500	0.386	0.772	0.6	209	All Day	I	midnight to midnight
10	Iron Pyrite	A1,A2,A3,A4,A5	30,000	74,000	52,000	0.269	0.538	0.07	26	0600 to 1800	III	0600 to 1900
11	Sodium Nitrate	A1,A2,A3,A4,A5	32,000	75,000	53,500	0.269	0.538	0.05	17	0600 to 1800	III	0600 to 1900
12	Plastic Chips In	A1,A2,A3,A4,A5,B,D1,D2	34,000	78,000	56,000	0.446	0.892	3	1,095	All Day	I	midnight to midnight
13	Industrial Plates	A1,A2,A3,A4,A5,B,D1	36,000	80,000	58,000	0.386	0.772	0.4	156	0600 to 1500	II	0600 to 1500
14	Agua Mag	A1,A2,A3,A4,A5	32,000	78,000	55,000	0.269	0.538	0.1	52	0600 to 1500	II	0600 to 1500
15	Lime (scrubbers)	A1,A2,A3,A4,A5,B	30,000	78,000	54,000	0.326	0.651	1	365	All Day	I	midnight to midnight
16	Lime (WWTP)	A1,A2	30,000	78,000	54,000	0.132	0.263	0.4	156	All Day	I	midnight to midnight
17	Jockey Truck - Baghouse	A2,A3,A4,A5,B	36,000	80,000	58,000	0.271	0.541	10	3,650	All Day	I	midnight to midnight
18	Jockey Truck - Smelter	A1,A2,A3,A4,A5,B, D1	30,000	80,000	55,000	0.000	0.000	15	5,475	NA ^(b)		

(a) Round-trips per day less than one (1) account for round trips that occur less frequent than once per day (e.g., once a week).

(b) This route will be eliminated by implementation of proposed additional control measures that will contribute to attainment of the 2008 lead NAAQS.

Table 3-I
Roadway Emission Calculations for Time-of-Day Group I (Midnight to Midnight)
Exide Technologies - Reading, PA Facility
October 18, 2011

Route	Length (mi)	Trips/year	Empty	GVWT (lb)		Trips*Wgt	Segment Seg Length (ft)	A1	A2	A3	A4	A5	B	C	D1	D2
				Full	Average			289.8	405.8	244.5	210.8	270.1	297.2	952.7	319.2	317.3
1	0.000	5,475	32,000	75,000	53,500	292,912,500										
2	0.772	10,950	30,000	74,000	52,000	569,400,000		2	2	2	2	2	2		2	
3	0.000	730	30,000	78,000	54,000	39,420,000										
4	0.000	1,825	33,000	80,000	56,500	103,112,500										
5	0.000	730	33,000	80,000	56,500	41,245,000										
6	0.110	730	33,000	80,000	56,500	41,245,000		2								
7	0.772	209	34,000	80,000	57,000	11,888,571		2	2	2	2	2	2		2	
8	0.772	52	34,000	80,000	57,000	2,972,143		2	2	2	2	2	2		2	
9	0.772	209	35,000	80,000	57,500	11,992,857		2	2	2	2	2	2		2	
10	0.000	26	30,000	74,000	52,000	1,355,714										
11	0.000	17	32,000	75,000	53,500	929,881										
12	0.892	1,095	34,000	78,000	56,000	61,320,000		2	2	2	2	2	2		2	2
13	0.000	156	36,000	80,000	58,000	9,072,857										
14	0.000	52	32,000	78,000	55,000	2,867,857										
15	0.651	365	30,000	78,000	54,000	19,710,000		2	2	2	2	2	2			
16	0.263	156	30,000	78,000	54,000	8,447,143		2	2							
17	0.541	3,650	36,000	80,000	58,000	211,700,000			2	2	2	2	2			
18	0.000	5,475	30,000	80,000	55,000	301,125,000		N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total RT VMT		17469.9				W =	Average GVWT (lb)	52,811	53,784	53,782	53,782	53,782	53,782		52,546	56,000
							Total VMT/year	1511.1	2564.8	1530.84	1319.84	1691.12	1860.8		1513.09	131.61
							Grand Total VMT	12,123								
							E (lb/hr) _{PM10}	0.0009	0.0016	0.0019	0.0015	0.0019	0.0037	-	0.0025	0.0003
							E (ton/yr) _{PM10}	0.0037	0.0070	0.0084	0.0068	0.0083	0.0162	-	0.0111	0.0011
							E (lb/hr) _{PM2.5}	0.0002	0.0004	0.0005	0.0004	0.0005	0.0009	-	0.0006	0.0001
							E (ton/yr) _{PM2.5}	0.0009	0.0017	0.0021	0.0017	0.0020	0.0040	-	0.0027	0.0003
							E (lb/hr) _{PM}	0.0043	0.0079	0.0096	0.0077	0.0095	0.0185	-	0.0127	0.0013
							E (ton/yr) _{PM}	0.0186	0.0348	0.0420	0.0338	0.0416	0.0809	-	0.0556	0.0057
							E (lb/hr) _{Lead PM}	0.0009	0.0023	0.0030	0.0026	0.0039	0.0063	-	0.0054	0.0005
							E (ton/yr) _{Lead PM}	0.0041	0.0099	0.0129	0.0112	0.0170	0.0276	-	0.0237	0.0021
							sL (g/m ²)	6.796E-02	7.400E-02	1.606E-01	1.488E-01	1.423E-01	2.660E-01	7.034E-01	2.273E-01	2.544E-01
							Lead Composition (mg/kg)	2.220E+05	2.840E+05	3.080E+05	3.320E+05	4.090E+05	3.410E+05	2.780E+05	4.260E+05	3.710E+05

Total
0.014 lb/hr PM₁₀
0.063 ton/yr PM₁₀
0.004 lb/hr PM_{2.5}
0.015 ton/yr PM_{2.5}
0.071 lb/hr PM
0.313 ton/yr PM
0.025 lb/hr Lead PM
0.109 ton/yr Lead PM

Paved
 $E = [k(sL)^{0.91} (W)^{1.02}] (1 - (P/(4(N))))$
 $k_{PM10} = 0.0022 \text{ lb/VMT}$
 $k_{PM2.5} = 0.00054 \text{ lb/VMT}$
 $k_{PM} = 0.011 \text{ lb/VMT}$
 $P = 120$
 $N = \text{Annual} = 365$
 $sL = \text{road surface silt loading (g/m}^2\text{)}$
 $W = \text{average weight (tons) of vehicles traveling road}$

Table 3-II
Roadway Emission Calculations for Time-of-Day Group II (0600-1500)
Exide Technologies - Reading, PA Facility
October 18, 2011

Route	Length (mi)	Trips/year	Empty	GVWT (lb)		Trips*Wgt	Segment Seg Length (ft)	A1	A2	A3	A4	A5	B	C	D1	D2
				Full	Average			289.8	405.8	244.5	210.8	270.1	297.2	952.7	319.2	317.3
1	0.000	5,475	32,000	75,000	53,500	292,912,500										
2	0.000	10,950	30,000	74,000	52,000	569,400,000										
3	0.000	730	30,000	78,000	54,000	39,420,000										
4	1.012	1,825	33,000	80,000	56,500	103,112,500		2	2	2	2	2	2	2		
5	1.012	730	33,000	80,000	56,500	41,245,000		2	2	2	2	2	2	2		
6	0.000	730	33,000	80,000	56,500	41,245,000										
7	0.000	209	34,000	80,000	57,000	11,888,571										
8	0.000	52	34,000	80,000	57,000	2,972,143										
9	0.000	209	35,000	80,000	57,500	11,992,857										
10	0.000	26	30,000	74,000	52,000	1,355,714										
11	0.000	17	32,000	75,000	53,500	929,881										
12	0.000	1,095	34,000	78,000	56,000	61,320,000										
13	0.772	156	36,000	80,000	58,000	9,072,857		2	2	2	2	2	2		2	
14	0.538	52	32,000	78,000	55,000	2,867,857		2	2	2	2	2				
15	0.000	365	30,000	78,000	54,000	19,710,000										
16	0.000	156	30,000	78,000	54,000	8,447,143										
17	0.000	3,650	36,000	80,000	58,000	211,700,000										
18	0.000	5,475	30,000	80,000	55,000	301,125,000										
Total RT VMT		5171.3				W =	Average GVWT (lb)	56,557	56,557	56,557	56,557	56,557	56,587	56,500	58,000	
							Total VMT/year	303.36	424.79	255.94	220.67	282.74	305.24	922.03	18.91	
							Grand Total VMT	2,734								
							E (lb/hr) PM ₁₀	0.0005	0.0007	0.0009	0.0007	0.0009	0.0017	0.0124	0.0001	-
							E (ton/yr) PM ₁₀	0.0008	0.0012	0.0015	0.0012	0.0015	0.0028	0.0204	0.0002	-
							E (lb/hr) PM _{2.5}	0.0001	0.0002	0.0002	0.0002	0.0002	0.0004	0.0031	0.0000	-
							E (ton/yr) PM _{2.5}	0.0002	0.0003	0.0004	0.0003	0.0004	0.0007	0.0050	0.0000	-
							E (lb/hr) PM	0.0024	0.0037	0.0045	0.0036	0.0045	0.0085	0.0621	0.0005	-
							E (ton/yr) PM	0.0040	0.0061	0.0074	0.0059	0.0073	0.0140	0.1021	0.0008	-
							E (lb/hr) Lead PM	0.0005	0.0010	0.0014	0.0012	0.0018	0.0029	0.0173	0.0002	-
							E (ton/yr) Lead PM	0.0009	0.0017	0.0023	0.0020	0.0030	0.0048	0.0284	0.0003	-
							sL (g/m ²)	6.796E-02	7.400E-02	1.606E-01	1.488E-01	1.423E-01	2.660E-01	7.034E-01	2.273E-01	2.544E-01
							Lead Composition (mg/kg)	2.220E+05	2.840E+05	3.080E+05	3.320E+05	4.090E+05	3.410E+05	2.780E+05	4.260E+05	3.710E+05

Total
0.018 lb/hr PM₁₀
0.030 ton/yr PM₁₀
0.004 lb/hr PM_{2.5}
0.007 ton/yr PM_{2.5}
0.090 lb/hr PM
0.148 ton/yr PM
0.026 lb/hr Lead PM
0.043 ton/yr Lead PM

Paved
 $E = [k(sL)^{0.91} (W)^{1.02}] (1 - (P/(4(N))))$
 $k_{PM10} = 0.0022 \text{ lb/VMT}$
 $k_{PM2.5} = 0.00054 \text{ lb/VMT}$
 $k_{PM} = 0.011 \text{ lb/VMT}$
 $P = 120$
 $N = \text{Annual} = 365$
 $sL = \text{road surface silt loading (g/m}^2\text{)}$
 $W = \text{average weight (tons) of vehicles traveling road}$

Table 3-III
Roadway Emission Calculations for Time-of-Day Group III (0600-1900)
Exide Technologies - Reading, PA Facility
October 18, 2011

Route	Length (mi)	Trips/year	Empty	GVWT (lb)		Trips*Wgt	Segment Seg Length (ft)	A1	A2	A3	A4	A5	B	C	D1	D2
				Full	Average			289.8	405.8	244.5	210.8	270.1	297.2	952.7	319.2	317.3
1	0.000	5,475	32,000	75,000	53,500	292,912,500										
2	0.000	10,950	30,000	74,000	52,000	569,400,000										
3	0.892	730	30,000	78,000	54,000	39,420,000		2	2	2	2	2	2		2	2
4	0.000	1,825	33,000	80,000	56,500	103,112,500										
5	0.000	730	33,000	80,000	56,500	41,245,000										
6	0.000	730	33,000	80,000	56,500	41,245,000										
7	0.000	209	34,000	80,000	57,000	11,888,571										
8	0.000	52	34,000	80,000	57,000	2,972,143										
9	0.000	209	35,000	80,000	57,500	11,992,857										
10	0.538	26	30,000	74,000	52,000	1,355,714		2	2	2	2	2				
11	0.538	17	32,000	75,000	53,500	929,881		2	2	2	2	2				
12	0.000	1,095	34,000	78,000	56,000	61,320,000										
13	0.000	156	36,000	80,000	58,000	9,072,857										
14	0.000	52	32,000	78,000	55,000	2,867,857										
15	0.000	365	30,000	78,000	54,000	19,710,000										
16	0.000	156	30,000	78,000	54,000	8,447,143										
17	0.000	3,650	36,000	80,000	58,000	211,700,000										
18	0.000	5,475	30,000	80,000	55,000	301,125,000										
Total RT VMT		1302.3				W =	Average GVWT (lb)	53,921	53,921	53,921	53,921	53,921	54,000		54,000	54,000
							Total VMT/year	84.9	118.89	71.63	61.76	79.13	82.18		88.26	87.74
							Grand Total VMT	674								
							E (lb/hr) _{PM10}	0.0001	0.0001	0.0002	0.0001	0.0002	0.0003	-	0.0003	0.0003
							E (ton/yr) _{PM10}	0.0002	0.0003	0.0004	0.0003	0.0004	0.0007	-	0.0007	0.0007
							E (lb/hr) _{PM2.5}	0.0000	0.0000	0.0000	0.0000	0.0000	0.0001	-	0.0001	0.0001
							E (ton/yr) _{PM2.5}	0.0001	0.0001	0.0001	0.0001	0.0001	0.0002	-	0.0002	0.0002
							E (lb/hr) _{PM}	0.0005	0.0007	0.0008	0.0007	0.0008	0.0015	-	0.0014	0.0015
							E (ton/yr) _{PM}	0.0011	0.0016	0.0020	0.0016	0.0020	0.0036	-	0.0033	0.0037
							E (lb/hr) _{Lead PM}	0.0001	0.0002	0.0003	0.0002	0.0003	0.0005	-	0.0006	0.0006
							E (ton/yr) _{Lead PM}	0.0002	0.0005	0.0006	0.0005	0.0008	0.0012	-	0.0014	0.0014
							sL (g/m ²)	6.796E-02	7.400E-02	1.606E-01	1.488E-01	1.423E-01	2.660E-01	7.034E-01	2.273E-01	2.544E-01
							Lead Composition (mg/kg)	2.220E+05	2.840E+05	3.080E+05	3.320E+05	4.090E+05	3.410E+05	2.780E+05	4.260E+05	3.710E+05

Total
0.002 lb/hr PM₁₀
0.004 ton/yr PM₁₀
0.000 lb/hr PM_{2.5}
0.001 ton/yr PM_{2.5}
0.008 lb/hr PM
0.019 ton/yr PM
0.003 lb/hr Lead PM
0.007 ton/yr Lead PM

Paved
 $E = [k(sL)^{0.91} (W)^{1.02}] (1 - (P/(4(N))))$
 $k_{PM10} = 0.0022 \text{ lb/VMT}$
 $k_{PM2.5} = 0.00054 \text{ lb/VMT}$
 $k_{PM} = 0.011 \text{ lb/VMT}$
 $P = 120$
 $N = \text{Annual} = 365$
 $sL = \text{road surface silt loading (g/m}^2\text{)}$
 $W = \text{average weight (tons) of vehicles traveling road}$

Table 3-IV
Roadway Emission Calculations for Time-of-Day Group IV (0600-2300)
Exide Technologies - Reading, PA Facility
October 18, 2011

Route	Length (mi)	Trips/year	Empty	GVWT (lb)		Trips*Wgt	Segment	A1	A2	A3	A4	A5	B	C	D1	D2
				Full	Average		Seg Length (ft)	289.8	405.8	244.5	210.8	270.1	297.2	952.7	319.2	317.3
1	0.538	5,475	32,000	75,000	53,500	292,912,500		2	2	2	2	2				
2	0.000	10,950	30,000	74,000	52,000	569,400,000										
3	0.000	730	30,000	78,000	54,000	39,420,000										
4	0.000	1,825	33,000	80,000	56,500	103,112,500										
5	0.000	730	33,000	80,000	56,500	41,245,000										
6	0.000	730	33,000	80,000	56,500	41,245,000										
7	0.000	209	34,000	80,000	57,000	11,888,571										
8	0.000	52	34,000	80,000	57,000	2,972,143										
9	0.000	209	35,000	80,000	57,500	11,992,857										
10	0.000	26	30,000	74,000	52,000	1,355,714										
11	0.000	17	32,000	75,000	53,500	929,881										
12	0.000	1,095	34,000	78,000	56,000	61,320,000										
13	0.000	156	36,000	80,000	58,000	9,072,857										
14	0.000	52	32,000	78,000	55,000	2,867,857										
15	0.000	365	30,000	78,000	54,000	19,710,000										
16	0.000	156	30,000	78,000	54,000	8,447,143										
17	0.000	3,650	36,000	80,000	58,000	211,700,000										
18	0.000	5,475	30,000	80,000	55,000	301,125,000										
Total RT VMT		5891.1				W =	Average GVWT (lb)	53,500	53,500	53,500	53,500	53,500				
							Total VMT/year	601.01	841.57	507.06	437.17	560.15				
							Grand Total VMT	2,947								
							E (lb/hr) _{PM10}	0.0005	0.0007	0.0009	0.0007	0.0009	-	-	-	-
							E (ton/yr) _{PM10}	0.0015	0.0023	0.0028	0.0022	0.0027	-	-	-	-
							E (lb/hr) _{PM2.5}	0.0001	0.0002	0.0002	0.0002	0.0002	-	-	-	-
							E (ton/yr) _{PM2.5}	0.0004	0.0006	0.0007	0.0005	0.0007	-	-	-	-
							E (lb/hr) _{PM}	0.0024	0.0037	0.0045	0.0036	0.0044	-	-	-	-
							E (ton/yr) _{PM}	0.0075	0.0114	0.0138	0.0111	0.0137	-	-	-	-
							E (lb/hr) _{Lead PM}	0.0005	0.0010	0.0014	0.0012	0.0018	-	-	-	-
							E (ton/yr) _{Lead PM}	0.0017	0.0032	0.0043	0.0037	0.0056	-	-	-	-
							sL (g/m ²)	6.796E-02	7.400E-02	1.606E-01	1.488E-01	1.423E-01	2.660E-01	7.034E-01	2.273E-01	2.544E-01
							Lead Composition (mg/kg)	2.220E+05	2.840E+05	3.080E+05	3.320E+05	4.090E+05	3.410E+05	2.780E+05	4.260E+05	3.710E+05

Total
0.004 lb/hr PM₁₀
0.012 ton/yr PM₁₀
0.001 lb/hr PM_{2.5}
0.003 ton/yr PM_{2.5}
0.019 lb/hr PM
0.058 ton/yr PM
0.006 lb/hr Lead PM
0.018 ton/yr Lead PM

Paved
 $E = [k(sL)^{0.91} (W)^{1.02}] (1 - (P/(4(N))))$
 $k_{PM10} = 0.0022 \text{ lb/VMT}$
 $k_{PM2.5} = 0.00054 \text{ lb/VMT}$
 $k_{PM} = 0.011 \text{ lb/VMT}$
 $P = 120$
 $N = \text{Annual} = 365$
 $sL = \text{road surface silt loading (g/m}^2\text{)}$
 $W = \text{average weight (tons) of vehicles traveling road}$

ATTACHMENT A
SILT LOADING SAMPLE ANALYSIS RESULTS



CERTIFICATE OF ANALYSIS

M.J. Reider Associates, Inc.



Attention: Neal Lebo
Reported to: ALL4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041770
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 07:45
Collected By: Client

Sample Description: 006 - Segment A-1 (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection Limit	Procedure	Test Date	Test Time	Analyst
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.5	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	222000	* mg/kg	50.2	SW846 6010	10/28	12:23	lna

Distribution of Report:
Neal Lebo - ALL4 Inc.

M. J. Reider Associates, Inc.
Reviewed and Approved By:

Twila Dixon
Technical Director

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ACIL Seal of Excellence

Analyst: ald

Sample Description: Vac Bag # 006

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	113.5241	113.5057
Weight of Beaker:	109.5629	109.5629
Final Weight of Sample:	3.9612	99.5

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.33	433.96	0.63	16.4
0.0117	No. 50	379.36	380.36	1.00	26.0
0.0058	No. 100	425.29	426.01	0.72	18.7
0.0041	No. 140	344.91	345.3	0.39	10.1
0.0029	No. 200	338.62	338.94	0.32	8.3
0.0017	No. 325	335.41	335.9	0.49	12.7
Bottom		380.04	380.34	0.30	7.8
Total				3.85	100.0

All Samples were dried and the moisture was calculated.
After dried and calculated, samples were placed through five different sieve sizes.
The samples were manually manipulated to pass the samples through the sieves.
Each sieve was weighted prior to analysis.
After analysis, each sieve screen was weighed with the samples and recorded.



CERTIFICATE OF ANALYSIS

M.J. Reider Associates, Inc.



Attention: Neal Lebo
Reported to: ALL4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041771
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 08:00
Collected By: Client

Sample Description: 007 - Segment A-2 (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection Limit	Procedure	Test Date	Test Time	Analyst
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.6	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	284000	* mg/kg	50.2	SW846 6010	10/28	12:23	lna

Distribution of Report:
Neal Lebo - ALL4 Inc.

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Technical Director

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Date: 10/19/2011

Analyst: ald

Sample Number: 41771A

Sample Description: Vac Bag # 007

Sample Weight As Received grams
 Bag and Sample: 30.25
 Bag Tare Weight: 26.68
 Weight of Sample: 3.57

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	102.9655	102.9545
Weight of Beaker:	99.9694	99.9694
Final Weight of Sample:	2.9961	99.6

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.33	433.64	0.31	10.5
0.0117	No. 50	379.38	380.12	0.74	25.2
0.0058	No. 100	425.27	425.92	0.65	22.1
0.0041	No. 140	344.91	345.24	0.33	11.2
0.0029	No. 200	338.65	338.89	0.24	8.2
0.0017	No. 325	335.40	335.84	0.44	15.0
Bottom		379.99	380.22	0.23	7.8
Total				2.94	100.0

All Samples were dried and the moisture was calculated.

After dried and calculated, samples were placed through five different sieve sizes.

The samples were manually manipulated to pass the samples through the sieves.

Each sieve was weighted prior to analysis.

After analysis, each sieve screen was weighed with the samples and recorded.



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Attention: Neal Lebo
Reported to: All4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041772
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 08:22
Collected By: Client

Sample Description: 008 - Segment A-3 (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection		Test		Analyst
			Limit	Procedure	Date	Time	
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.5	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	308000	* mg/kg	201	SW846 6010	10/28	12:23	lha

Distribution of Report:
Neal Lebo - All4 Inc.

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Analyst: ald

Sample Description: Vac Bag # 008

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	112.8043	112.7800
Weight of Beaker:	107.7244	107.7244
Final Weight of Sample:	5.0799	99.5

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.33	433.62	0.29	5.8
0.0117	No. 50	379.37	380.25	0.88	17.5
0.0058	No. 100	425.27	426.36	1.09	21.7
0.0041	No. 140	344.90	345.57	0.67	13.3
0.0029	No. 200	338.64	339.21	0.57	11.3
0.0017	No. 325	335.39	336.29	0.90	17.9
Bottom		379.97	380.60	0.63	12.5
Total				5.03	100.0

All Samples were dried and the moisture was calculated.
After dried and calculated, samples were placed through five different sieve sizes.
The samples were manually manipulated to pass the samples through the sieves.
Each sieve was weighted prior to analysis.
After analysis, each sieve screen was weighed with the samples and recorded.



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Attention: Neal Lebo
Reported to: ALL4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041773
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 08:50
Collected By: Client

Sample Description: 009 - Segment A-4 (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection Limit	Procedure	Test Date	Test Time	Analyst
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.6	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	332000	* mg/kg	201	SW846 6010	10/28	12:23	lra

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Date: 10/19/2011

Analyst: ald

Sample Number: 41773A

Sample Description: Vac Bag # 009

Sample Weight As Received grams

Bag and Sample: 31.08

Bag Tare Weight: 18.85

Weight of Sample: 12.23

Determination of Dry Weight of Sample

Weight of Sample + Beaker 116.5303

Weight of Beaker: 112.7699

Final Weight of Sample: 3.7604

After Drying

116.5164

112.7699

99.6

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.33	433.48	0.15	4.0
0.0117	No. 50	379.36	380.04	0.68	18.1
0.0058	No. 100	425.29	425.95	0.66	17.6
0.0041	No. 140	344.91	345.34	0.43	11.5
0.0029	No. 200	338.65	339.04	0.39	10.4
0.0017	No. 325	335.38	336.11	0.73	19.5
Bottom		379.97	380.68	0.71	18.9
Total				3.75	100.0

All Samples were dried and the moisture was calculated.

After dried and calculated, samples were placed through five different sieve sizes.

The samples were manually manipulated to pass the samples through the sieves.

Each sieve was weighted prior to analysis.

After analysis, each sieve screen was weighed with the samples and recorded.



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Attention: Neal Lebo
Reported to: ALL4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041774
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 09:00
Collected By: Client

Sample Description: 010 - Segment D-1 (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection Limit	Procedure	Test Date	Test Time	Analyst
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.6	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	426000	* mg/kg	502	SW846 6010	10/28	12:23	lna

Distribution of Report:
Neal Lebo - ALL4 Inc.

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Twila Dixon

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Technical Director
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Analyst: ald

Sample Number: 41774A

Sample Description: Vac Bag # 010

Sample Weight As Received	grams
Bag and Sample:	37.58
Bag Tare Weight:	18.01
Weight of Sample:	19.57

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	117.4042	117.3751
Weight of Beaker:	109.6039	109.6039
Final Weight of Sample:	7.8003	99.6

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.33	433.93	0.60	7.8
0.0117	No. 50	379.38	380.58	1.20	15.6
0.0058	No. 100	425.28	426.39	1.11	14.5
0.0041	No. 140	344.91	345.65	0.74	9.6
0.0029	No. 200	338.64	339.34	0.70	9.1
0.0017	No. 325	335.45	336.72	1.27	16.5
Bottom		379.99	382.05	2.06	26.8
Total				7.68	100.0

All Samples were dried and the moisture was calculated.
After dried and calculated, samples were placed through five different sieve sizes.
The samples were manually manipulated to pass the samples through the sieves.
Each sieve was weighted prior to analysis.
After analysis, each sieve screen was weighed with the samples and recorded.



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Attention: Neal Lebo
Reported to: ALL4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041775
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 09:30
Collected By: Client

Sample Description: 011 - Segment D-2 (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection Limit	Procedure	Test Date	Test Time	Analyst
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.6	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	371000	* mg/kg	201	SW846 6010	10/28	12:23	lna

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Twila Dixon
Technical Director

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ACIL Seal of Excellence

Date: 10/19/2011

Analyst: ald

Sample Number: 41775A

Sample Description: Vac Bag # 011

Sample Weight As Received grams
 Bag and Sample: 37.8
 Bag Tare Weight: 22.58
 Weight of Sample: 15.22

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	111.5094	111.4786
Weight of Beaker:	102.7874	102.7874
Final Weight of Sample:	8.722	99.6

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.33	433.62	0.29	3.4
0.0117	No. 50	379.38	380.66	1.28	15.0
0.0058	No. 100	425.39	427.02	1.63	19.2
0.0041	No. 140	344.92	346.01	1.09	12.8
0.0029	No. 200	338.66	339.81	1.15	13.5
0.0017	No. 325	335.42	336.88	1.46	17.2
Bottom		379.99	381.60	1.61	18.9
Total				8.51	100.0

All Samples were dried and the moisture was calculated.

After dried and calculated, samples were placed through five different sieve sizes.

The samples were manually manipulated to pass the samples through the sieves.

Each sieve was weighted prior to analysis.

After analysis, each sieve screen was weighed with the samples and recorded.



CERTIFICATE OF ANALYSIS

M.J. Reider Associates, Inc.



Attention: Neal Lebo
Reported to: ALL4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041776
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 10:00
Collected By: Client

Sample Description: 012 - Segment C (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection Limit	Procedure	Test Date	Test Time	Analyst
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.8	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	278000	* mg/kg	200	SW846 6010	10/28	12:23	lna

Distribution of Report:
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Reviewed and Approved By:

Twila Dixon

Technical Director

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Analyst: ald

Sample Number: 41776A

Sample Description: Vac Bag # 012

Sample Weight As Received	grams
Bag and Sample:	54.30
Bag Tare Weight:	21.42
Weight of Sample:	32.88

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	134.1992	134.1431
Weight of Beaker:	108.8656	108.8656
Final Weight of Sample:	25.3336	99.8

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.31	433.90	0.59	2.3
0.0117	No. 50	379.37	382.92	3.55	14.0
0.0058	No. 100	425.29	431.46	6.17	24.4
0.0041	No. 140	344.92	349.59	4.67	18.4
0.0029	No. 200	338.62	342.44	3.82	15.1
0.0017	No. 325	335.42	339.53	4.11	16.2
Bottom		379.99	382.41	2.42	9.6
Total				25.33	100.0

All Samples were dried and the moisture was calculated.
After dried and calculated, samples were placed through five different sieve sizes.
The samples were manually manipulated to pass the samples through the sieves.
Each sieve was weighted prior to analysis.
After analysis, each sieve screen was weighed with the samples and recorded.



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M.J. Reider Associates, Inc.



Attention: Neal Lebo
Reported to: All4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041777
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 10:30
Collected By: Client

Sample Description: 013 - Segment B (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection		Test		Analyst
			Limit	Procedure	Date	Time	
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.7	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	341000	* mg/kg	201	SW846 6010	10/28	12:23	lna

Distribution of Report:
Neal Lebo - All4 Inc.

M. J. Reider Associates, Inc.
Reviewed and Approved By:

Twila Dixon
Technical Director

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Date: 10/19/2011

Analyst: ald

Sample Number: 41777A

Sample Description: Vac Bag # 013

Sample Weight As Received grams
 Bag and Sample: 50.14
 Bag Tare Weight: 38.01
 Weight of Sample: 12.13

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	123.0184	122.9919
Weight of Beaker:	113.2946	113.2946
Final Weight of Sample:	9.7238	99.7

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.34	433.64	0.30	3.1
0.0117	No. 50	379.38	381.81	2.43	25.4
0.0058	No. 100	425.36	427.33	1.97	20.6
0.0041	No. 140	344.99	346.03	1.04	10.9
0.0029	No. 200	338.66	339.65	0.99	10.3
0.0017	No. 325	335.41	337.14	1.73	18.1
Bottom		379.99	381.10	1.11	11.6
Total				9.57	100.0

All Samples were dried and the moisture was calculated.

After dried and calculated, samples were placed through five different sieve sizes.

The samples were manually manipulated to pass the samples through the sieves.

Each sieve was weighted prior to analysis.

After analysis, each sieve screen was weighed with the samples and recorded.



CERTIFICATE OF ANALYSIS

M.J. Reider Associates, Inc.



Attention: Neal Lebo
Reported to: ALL4 Inc.
2393 Kimberton Road
Kimberton PA 19442-0000

Date of Report: 10/31/11
Project Number: 1164833
Lab ID: 2849-11-0041778
Account Rep: Twila Dixon
Date Received: 10/18/11
Date Collected: 10/18/11
Time Collected: 10:45
Collected By: Client

Sample Description: 014 - Segment A-5 (Dust Loading/Vacuum Bags)

* Results expressed as Dry Weight

	Results	Unit	Detection Limit	Procedure	Test Date	Test Time	Analyst
CHEMISTRY							
PHYSICAL							
Particle Size by Microscope	see attached	%	1	ASTM D2390	10/19	08:00	ald
RESIDUES							
Total Solids	99.6	%	1	SM 2540G	10/21	11:30	ald
INORGANIC							
TOTAL							
Lead, Total	409000	* mg/kg	502	SW846 6010	10/28	12:23	lra

Distribution of Report:
Neal Lebo - ALL4 Inc.

M. J. Reider Associates, Inc.

Reviewed and Approved By:

Twila Dixon

Technical Director

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Date: 10/19/2011

Analyst: ald

Sample Number: 41778A

Sample Description: Vac Bag # 014

Sample Weight As Received grams
 Bag and Sample: 45.00
 Bag Tare Weight: 37.89
 Weight of Sample: 7.11

Determination of Dry Weight of Sample		After Drying
Weight of Sample + Beaker	118.3940	118.3766
Weight of Beaker:	113.6575	113.6575
Final Weight of Sample:	4.7365	99.6

Inches	Screen	Screen Weight	Final Weight (Screen & Sample)	Net Weight (Sample)	%
0.0469	No. 16	433.34	433.75	0.41	9.0
0.0117	No. 50	379.40	380.13	0.73	15.9
0.0058	No. 100	425.31	426.18	0.87	19.0
0.0041	No. 140	344.93	345.45	0.52	11.4
0.0029	No. 200	338.69	339.22	0.53	11.6
0.0017	No. 325	335.45	336.35	0.90	19.7
Bottom		379.99	380.61	0.62	13.5
Total				4.58	100.0

All Samples were dried and the moisture was calculated.

After dried and calculated, samples were placed through five different sieve sizes.

The samples were manually manipulated to pass the samples through the sieves.

Each sieve was weighted prior to analysis.

After analysis, each sieve screen was weighed with the samples and recorded.



M. J. Reider Associates, Inc.

107 Angelica Street
Reading, PA 19611

Phone: 610-374-5129 FAX: 610-374-7234

CHAIN OF CUSTODY RECORD

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(INSTRUCTIONS ON BACK OF THIS FORM)

DISTRIBUTION: White: Report; Yellow: Lab; Pink: Submitter

R 31531

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6. Report Type:

☒ Routine

☐ Standard QC

☐ Data Package

7. Turnaround Time

☐ Standard

☒ RUSH: 10/24/11

1. Client (Company or Individual):

ALL4 INC.

Address:

2393 Kimberton Road

City:

Kimberton

State:

PA

ZIP: 19442

Phone:

610

933.5246

FAX:

610

933.5127

2. Invoice To: (If different from above)

Neal Lebo

Address:

City:

State:

ZIP:

Phone:

X 13

FAX:

3. Client Project Name / #:

4. P.O. No.:

5. Sampled By:

Matrix Code (for item 12)

Container Codes (for item 13)

Preservative Code (for item 14)

DW = Drinking Water

GW = Ground Water

WW = Waste Water

S = Soil

O = Other dust loading

2L = 2 Liter

L = Liter

500 = 500ml

250 = 250ml

125 = 125ml

40 = 40ml

V = VOA vial

G = Glass

P = Plastic

M = Micro

O = Other

A = Ascorbic Acid

C = HCl

N = HNO3

S = H2SO4

P = H3PO4

H = NaOH

T = NaS2O3

E = EDTA

L = NH4Cl

Z = Zinc Acetate

V = Ascorbic/HCl

O = Other

M = Monochloroacetic Acid

Sample Receipt Information

Temperature @ 4C?

Y

N

Samples received on ice?

Y

N

Sample Containers Intact?

Y

N

VOC's Free of Headspace?

Y

N

COC Seal Intact or attached?

Y

N

Samples Shipped or Hand Delivered

Method of Shipment:

Tracking #:

Cooler Return Fee:

ICE CHEST NUMBER:

Checked by: in

8. COMPLIANCE PURPOSE:

☐ Public Drinking Water: PA SDWA Forms Required

☐ FHA/Realty

PWSID # _____

☐ NPDES

16.

17. SPECIAL INSTRUCTIONS/COMMENTS:

13. Container: Size / Type

←

14. Preservative

←

15. Analyses Requested

1. Silt loading per AP-42

appendix C.2.

2. Total Pb of silt content

particle size

TS-m

MJRA
ID #

9. Sample

Description

10.

Date

Time

11.

Composite

Grab

12.

Matrix

Total # of Containers

10/18/11

1:45

0

10/18/11

8:00

0

10/18/11

8:22

0

10/18/11

8:50

0

10/18/11

9:00

0

10/18/11

9:30

0

10/18/11

10:00

0

10/18/11

10:30

0

10/18/11

10:45

0

18. RELINQUISHED BY

19. RECEIVED BY

DATE

TIME

Entered by:

Approved by:

TSR: _____/hrs

Comments:

The Client, by signing, or having client's agent sign, this Chain of Custody Form, agrees to pay for the above requested services per the MJRA Price List or Quotation provided including any and all attorney fees if collection becomes necessary.

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APPENDIX B-4

Yuasa Fugitive Emission Calculation Submission and Addendum

**Bureau of Air Quality
Department of Environmental Protection**

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1720 Walton Road, Blue Bell, PA 19422 610-828-3078 Fax 610-828-7842

January 28, 2015

E-MAIL

Mr. Sean Nolan
Environmental Group Manager
Pennsylvania Department of Environmental Protection
Bureau of Air Quality
Rachel Carson State Office Building
P.O. Box 8468
Harrisburg, PA 17105-8468

Subject: Fugitive Lead Emission Estimates
Yuasa Battery, Inc.
IES Project No. EV140952.02

Dear Mr. Nolan:

On behalf of Yuasa Battery, Inc. (Yuasa), IES Engineers is pleased to submit the preliminary lead emission estimates for fugitive emission sources at its facility in Reading, Pennsylvania.

Fugitive lead emissions were estimated for two types of sources – process fugitive vents and in-plant roads.

PROCESS FUGITIVE VENTS

Process fugitive emissions potentially exhaust through several stacks in the building. The stacks are primarily to vent heat for employee comfort; lead may be present in the exhaust simply because lead is present in the indoor building air. No emissions data are available for any of the building vents. However, Yuasa routinely monitors worker exposure to lead inside the building. Based on historical industrial hygiene sampling data, a typical employee exposure concentration is 10 $\mu\text{g}/\text{m}^3$. This concentration was converted to a mass basis using estimated exit velocities. Calculations are provided in Attachment 1.

Attachment 1 shows emission estimates for three representative process fugitive emission sources. There are several exhaust vents over ovens (primarily for heat removal) that were represented as a single point source in the model. Second, there is a casting area, which also uses a fan (stack) to remove heat; a single point source was used to represent this source. The third stack represents four stacks in the Bielomatic (battery assembly) area that provides general ventilation over several



Mr. Sean Nolan
January 28, 2015
Page 2

machines. Other stacks already account for the emissions directly vented to air pollution control devices.

There are no manufacturing operations conducted outdoors. No lead-containing materials that could become airborne are stored outdoors. Lead in the final product is encased in a battery and cannot become airborne. Therefore, Yuasa believes that there are no other process fugitive emission sources.

IN-PLANT ROADS

Emission estimates for truck traffic on in-plant roads was estimated using the U.S. Environmental Protection Agency's (EPA's) Compilation of Air Pollutant Emission Factors from Stationary Sources (AP-42) in combination with actual road dust sampling and analysis of the Yuasa in-plant roads for lead. All of the in-plant areas where trucks travel are paved. Attachment 2 provides the emission calculations for the in-plant roads, and Attachment 3 provides the results of the analyses on the road dust samples.

The sampling and analysis of the road dust was conducted in accordance with the EPA methods described in AP-42 Appendix C.1 (Procedures for Sampling Surface/Bulk Dust Loading) and Appendix C.2 (Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples). Samples were collected from two areas to represent the in-plant roads. One sample was collected in the loading dock area on the north side of the building where the final product is loaded onto trucks. The second sample was collected in back of the building (i.e., the east side of the plant), where the internal traffic travels to unload raw materials and to pick up lead for recycling.

If you have any questions, please feel free to me or Mr. Tony Campitelli of Yuasa at (610) 929-5781, extension 123.

Sincerely,

Marjorie J. Fitzpatrick /e/
Marjorie J. Fitzpatrick, QEP
Principal Project Manager

Attachments
cc: A. Campitelli, Yuasa

ATTACHMENT 1

PROCESS FUGITIVE EMISSION ESTIMATES

Yuasa Battery**Estimate of Lead Emissions from Process Fugitive Emission Sources**

Process Emissions							
Fugitive Source	Diameter (ft)	Radius (ft)	Area (ft ²)	Velocity (fpm)	Flow (ft ³ /min)	Emission Concentrations (µg/m ³)	Emission Rate (g/s)
Buffalo Forge	3	1.5	7.071	2000	14143	10	6.7E-05
Bielomatic	1	0.5	0.786	2000	1571	10	7.4E-06
7 Oven	1	0.5	0.786	2000	1571	10	7.4E-06

Notes:

- Three point sources were used to represent process fugitive emission sources:
 - Buffalo Forge Fan exhausts heat and building air from the casting area.
 - Bielomatic exhausts heat and building air from the battery assembly area.
 - Oven fans vents heat and building area from over the negative and positive plate drying ovens.
- No emissions or air flow rate data is available. The following assumptions were made:
 - The exit velocity of the stacks is 2,000 fpm, a value at the low end of the range for typical exhaust stacks. The low end was selected as the primary purpose is to vent heat.
 - The concentration of lead in the building air is 10 µg/m³ based on industrial hygiene sampling conducted to determine employee exposures to lead inside the building.
- Exhaust volume was calculated based on the exit velocity and the stack area. The lead emission rate was calculated using the concentration and the velocity and the units were converted to grams per second.

ATTACHMENT 2

ROAD DUST EMISSION ESTIMATES

YUASA Battery, Inc.

Yuasa Paved Road Emissions

Number of Batteries Produced per Year 1,800,000.00
 Average Weight of Each Battery 14 lbs
 Total Weight of batteries 25,200,000.00 lbs
 Empty Truck Weight 20.00 tons
 Material Hold Capacity of Truck 20.00 tons

Composition of Valve Regulated Lead Battery

Compound	Fraction/Battery ¹	Amount/Battery	Total per Year	Total per Week
		(lb)	(lb)	(lb)
Sulfuric acid	0.2	2.8	5,040,000.00	96,923.08
Lead	0.745	10.43	18,774,000.00	361,038.46
Case Material	0.055	0.77	1,386,000.00	26,653.85

¹Fraction is taken from MSDS of Valve Regulated Lead Battery

Usage of Caustic per Year 5,040,000.00 lbs
 Lead Scrap generated per Year 4,693,500.00 lbs

All raw material and product is transported by truck.
 10% added on top of total trips to account for variations in actual loaded capacity

Section	Vehicles on Road	Vehicle Weight tons	Capacity tons	Material Thruput ton/yr	No. of 1-way Trips	Trip Distance ft	Average Weight tons	Total per Section mi/yr
A-B	Batteries Loading to Exit Route	Truck -product	20.00	20	12,600	693	145	40.0
		Truck -empty	20.00	0	693	145	20.0	
		Total/Average:					* 30.0	38.1
South Entrance-A	Sulfuric Acid Delivery	Truck -supply	20.00	20.0	2,520	139	315	40.0
		Truck -empty	20.00	0	139	315	20	
		Total/Average:					* 30.0	16.5
South Entrance-A	Caustic Delivery	Truck -supply	20.00	20	2,520	139	315	40.0
		Truck -empty	20.00	0	139	315	20.0	
		Total/Average:					* 30.0	16.5
A-F	Lead Delivery	Truck -supply	20.00	20	9,387	516	583	40.0
		Truck -empty	20.00	0	387	583	20.0	
		Total/Average:					* 31.4	99.8
A-F	Lead Scrap Exit	Truck -exit	20.00	20	2,347	129	583	40.0
		Total/Average:					* 40.0	14.3
A-F	Case Material Delivery	Truck -supply	20.00	20	693	38	583	40.0
		Truck -empty	20.00	0	38	583	20.0	
		Total/Average:					* 30.0	8.4

* These values are weighted averages based on total vehicle weight and number of trips for each segment.

YUASA Battery, Inc.

Emission Estimate

$$E = [k \times (sL)^{0.91} \times (W)^{1.02}] \times (1-p/4N) \quad (\text{Eq. 2})$$

Where

E = particulate emission factor [lb/vehicle mile traveled, lb/VMT]
k = base emission factor for size range
sL = road surface silt loading [g/m²]
W = mean vehicle weight [tons]
p = Number of days with at least 0.01 in of precipitation per year.
N = Number of days in averaging period

Emissions are based on the following data:

k = 0.011 lb/VMT for PM-30 (AP-42 Table 13.2.1-1)
sL = 1.62 g/m² (Site-specific Data; Plant road area)
sL = 3.89 (Site-specific Data; loading dock area)
p = 120
N = 365
Lead Composition = 1640 mg/kg (Site-specific Sampling Data; plant road area)
Lead Composition = 211 mg/kg (Site-specific Sampling Data; loading dock area)

Section		Silt Loading g/m ²	Average Weight ton	Annual Distance mi/yr	PM-30 Emissions EF lb/VMT	Emissions ton/yr	Lead Composition mg/kg	Lead Emissions ton/yr	Lead Emissions per Segment lb/hr	Lead Emissions per Segment g/s
Sec1	Batteries Loading to Exit Route	3.89	30.0	38.1	1.116	0.0212	211	0.0000	1.023E-06	1.290E-07
South Entrance-A	Sulfuric Acid Delivery	1.62	30.0	16.5	0.503	0.0042	1640	0.0000	1.557E-06	1.963E-07
South Entrance-A	Caustic Delivery	1.62	30.0	16.5	0.503	0.0042	1640	0.0000	1.557E-06	1.963E-07
Vol1										3.927E-07
A-F	Lead Delivery	1.62	31.4	99.8	0.527	0.0263	1640	0.0000	9.849E-06	1.242E-06
A-F	Lead Scrap Exit	1.62	40.0	14.3	0.674	0.0048	1640	0.0000	1.799E-06	2.269E-07
A-F	Case Material Delivery	1.62	30.0	8.4	0.503	0.0021	1640	0.0000	7.924E-07	9.993E-08
Vol2										1.569E-06
TOTAL:						0.0628		0.0001	1.658E-05	2.091E-06

Emission estimate is based on AP-42, "Compilation of Air Pollutant Emission Factors," Vol. I Section 13.2.1, 1/11 update.

YUASA Battery, Inc.

Yuasa Paved Road Emissions

Number of Batteries Produced per Year 1,800,000.00
 Average Weight of Each Battery 14 lbs
 Total Weight of batteries 25,200,000.00 lbs
 Empty Truck Weight 20.00 tons
 Material Hold Capacity of Truck 20.00 tons

Composition of Valve Regulated Lead Battery

Compound	Fraction/Battery ¹	Amount/Battery	Total per Year	Total per Week
		(lb)	(lb)	(lb)
Sulfuric acid	0.2	2.8	5,040,000.00	96,923.08
Lead	0.745	10.43	18,774,000.00	361,038.46
Case Material	0.055	0.77	1,386,000.00	26,653.85

¹Fraction is taken from MSDS of Valve Regulated Lead Battery

Usage of Caustic per Year 5,040,000.00 lbs
 Lead Scrap generated per Year 4,693,500.00 lbs

All raw material and product is transported by truck.
 10% added on top of total trips to account for variations in actual loaded capacity

Section	Vehicles on Road	Vehicle Weight tons	Capacity tons	Material Thruput ton/yr	No. of 1-way Trips	Trip Distance ft	Average Weight tons	Total per Section mi/yr
A-B	Batteries Loading to Exit Route	Truck -product	20.00	20	12,600	693	149	40.0
		Truck -empty	20.00	0	693	149	20.0	
		Total/Average:					* 30.0	39.1
South Entrance-A	Sulfuric Acid Delivery	Truck -supply	20.00	20.0	2,520	139	322	40.0
		Truck -empty	20.00	0	139	322	20	
		Total/Average:					* 30.0	16.9
South Entrance-A	Caustic Delivery	Truck -supply	20.00	20	2,520	139	322	40.0
		Truck -empty	20.00	0	139	322	20.0	
		Total/Average:					* 30.0	16.9
A-F	Lead Delivery	Truck -supply	20.00	20	9,387	516	322	40.0
		Truck -empty	20.00	0	387	322	20.0	
		Total/Average:					* 31.4	55.1
A-F	Lead Scrap Exit	Truck -exit	20.00	20	2,347	129	322	40.0
		Total/Average:					* 40.0	7.9
A-F	Case Material Delivery	Truck -supply	20.00	20	693	38	322	40.0
		Truck -empty	20.00	0	38	322	20.0	
		Total/Average:					* 30.0	4.6

* These values are weighted averages based on total vehicle weight and number of trips for each segment.

YUASA Battery, Inc.

Emission Estimate

$$E = [k \times (sL)^{0.91} \times (W)^{1.02}] \times (1-p/4N) \quad (\text{Eq. 2})$$

Where

E = particulate emission factor [lb/vehicle mile traveled, lb/VMT]
k = base emission factor for size range
sL = road surface silt loading [g/m²]
W = mean vehicle weight [tons]
p = Number of days with at least 0.01 in of precipitation per year.
N = Number of days in averaging period

Emissions are based on the following data:

k = 0.011 lb/VMT for PM-30 (AP-42 Table 13.2.1-1)
sL = 1.62 g/m² (Site-specific Data; Plant road area)
sL = 3.89 (Site-specific Data; loading dock area)
p = 120
N = 365
Lead Composition = 1640 mg/kg (Site-specific Sampling Data; plant road area)
Lead Composition = 211 mg/kg (Site-specific Sampling Data; loading dock area)

Section		Silt Loading	Average Weight	Annual Distance	PM-30 Emissions EF	Emissions	Lead Composition	Lead Emissions	Lead Emissions per Segment	Lead Emissions per Segment	AREA	Emission Rate
		g/m ²	ton	mi/yr	lb/VMT	ton/yr	mg/kg	ton/yr	lb/hr	g/s	m2	g/s-m2
Area1	Batteries Loading to Exit Route	3.89	30.0	39.1	1.116	0.0218	211	0.0000	1.051E-06	1.326E-07	1208.156	1.10E-10
South Entrance-A	Sulfuric Acid Delivery	1.62	30.0	16.9	0.503	0.0043	1640	0.0000	1.592E-06	2.007E-07		
South Entrance-A	Caustic Delivery	1.62	30.0	16.9	0.503	0.0043	1640	0.0000	1.592E-06	2.007E-07		
Area2										4.014E-07	711.7031	5.64E-10
A-F	Lead Delivery	1.62	31.4	55.1	0.527	0.0145	1640	0.0000	5.440E-06	6.860E-07		
A-F	Lead Scrap Exit	1.62	40.0	7.9	0.674	0.0027	1640	0.0000	9.938E-07	1.253E-07		
A-F	Case Material Delivery	1.62	30.0	4.6	0.503	0.0012	1640	0.0000	4.377E-07	5.520E-08		
Area3										8.665E-07	711.0234	1.22E-09
TOTAL:						0.0487		0.0000	1.111E-05	1.401E-06		

Emission estimate is based on AP-42, "Compilation of Air Pollutant Emission Factors," Vol. I Section 13.2.1, 1/11 update.

ATTACHMENT 3

LABORATORY RESULTS FROM ROAD DUST SAMPLES

MARJORIE FITZPATRICK
IES ENGINEERS
1720 WALTON ROAD
BLUE BELL, PA 19422

Regarding:
MARJORIE FITZPATRICK
IES ENGINEERS
1720 WALTON ROAD
BLUE BELL, PA 19422

Account No: B00194, IES ENGINEERS
Project No: B00194 FITZPATRICK, IES ENGINEERS

P.O. No:

Inv. No: PI
PWSID No:

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L5392588-1	YUASA BATTERY INC, SAMPLE #1 YUASA 1	12/18/14 00:00am NA C	Customer
	Received Date/Time/Temp 12/23/14 10:30am 4.2 C	Iced (Y/N): Y	

Parameter	Result	RL	Units	Method	DF	Qual	Test Date, Time, Analyst

GENERAL CHEMISTRY

Particle Size Distribution	ATTACHED			ASTM C244			
Total Solids Percent	99.80	0.01000	%	SM 2540G	1		01/07/15 09:05PM FXT

METALS

Lead	1640	200	mg/kg DRY	EPA 6010C	10		01/07/15 11:19AM PG

Sample ID	Sample Description	Samp. Date/Time/Temp	Sampled by
L5392588-2	SAMPLE #2 YUASA 2	12/18/14 00:00am NA C	Customer
	Received Date/Time/Temp 12/23/14 10:30am 4.2 C	Iced (Y/N): Y	

Parameter	Result	RL	Units	Method	DF	Qual	Test Date, Time, Analyst

GENERAL CHEMISTRY

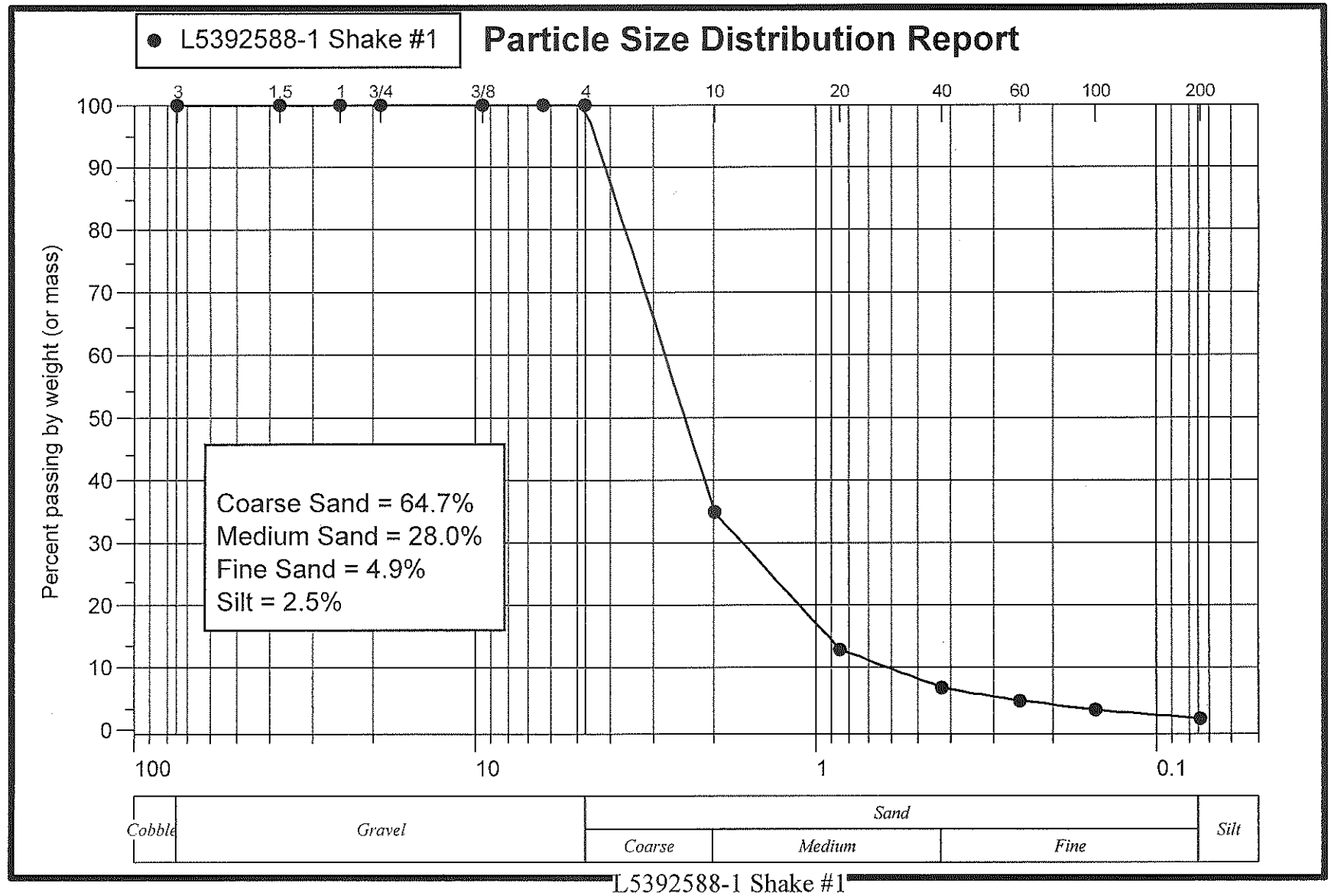
Particle Size Distribution	ATTACHED			ASTM C244			
Total Solids Percent	99.40	0.01000	%	SM 2540G	1		01/07/15 09:05PM FXT

METALS

Lead	211	201	mg/kg DRY	EPA 6010C	10		01/07/15 11:21AM PG

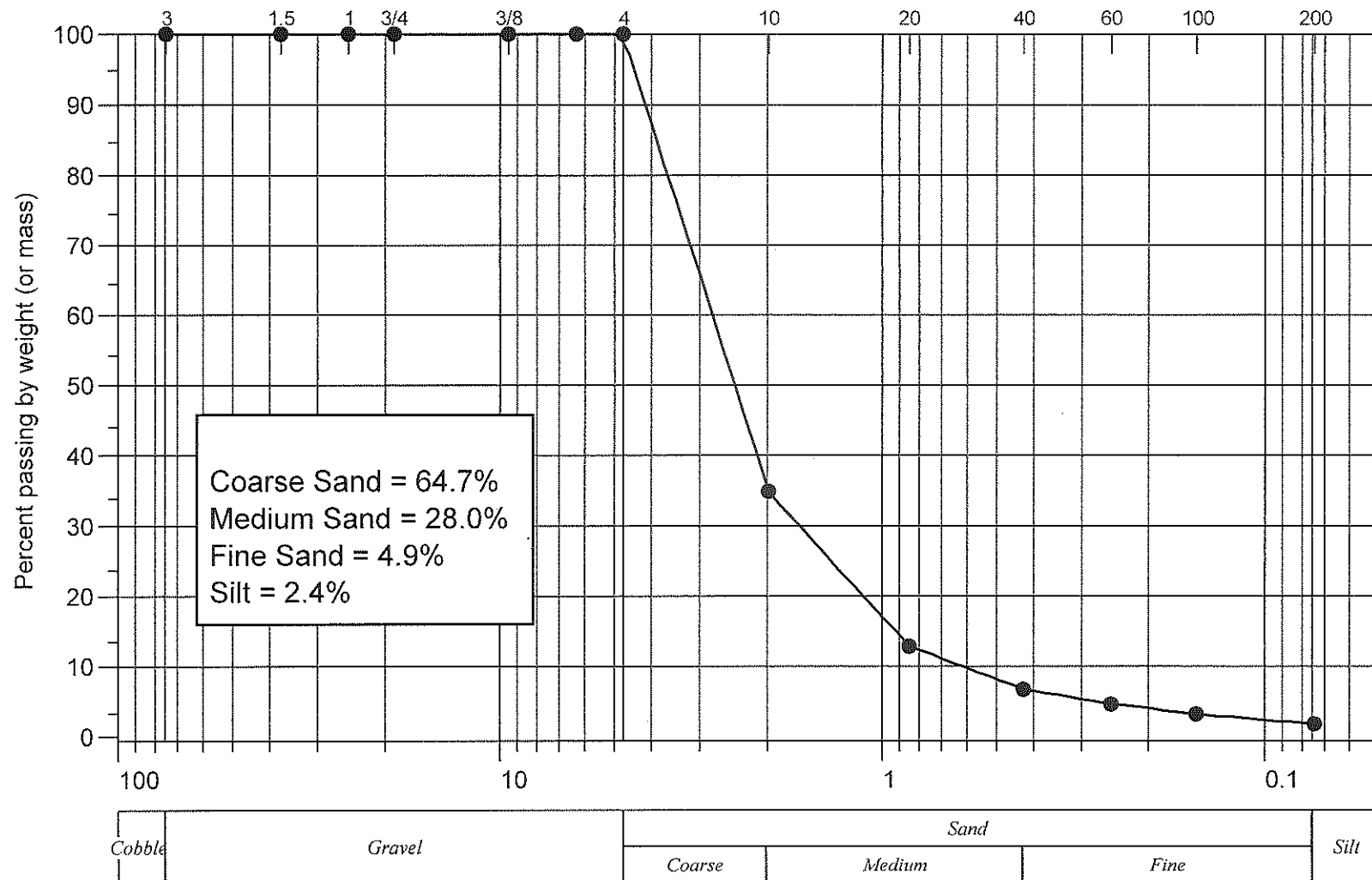


[illegible]



[illegible]

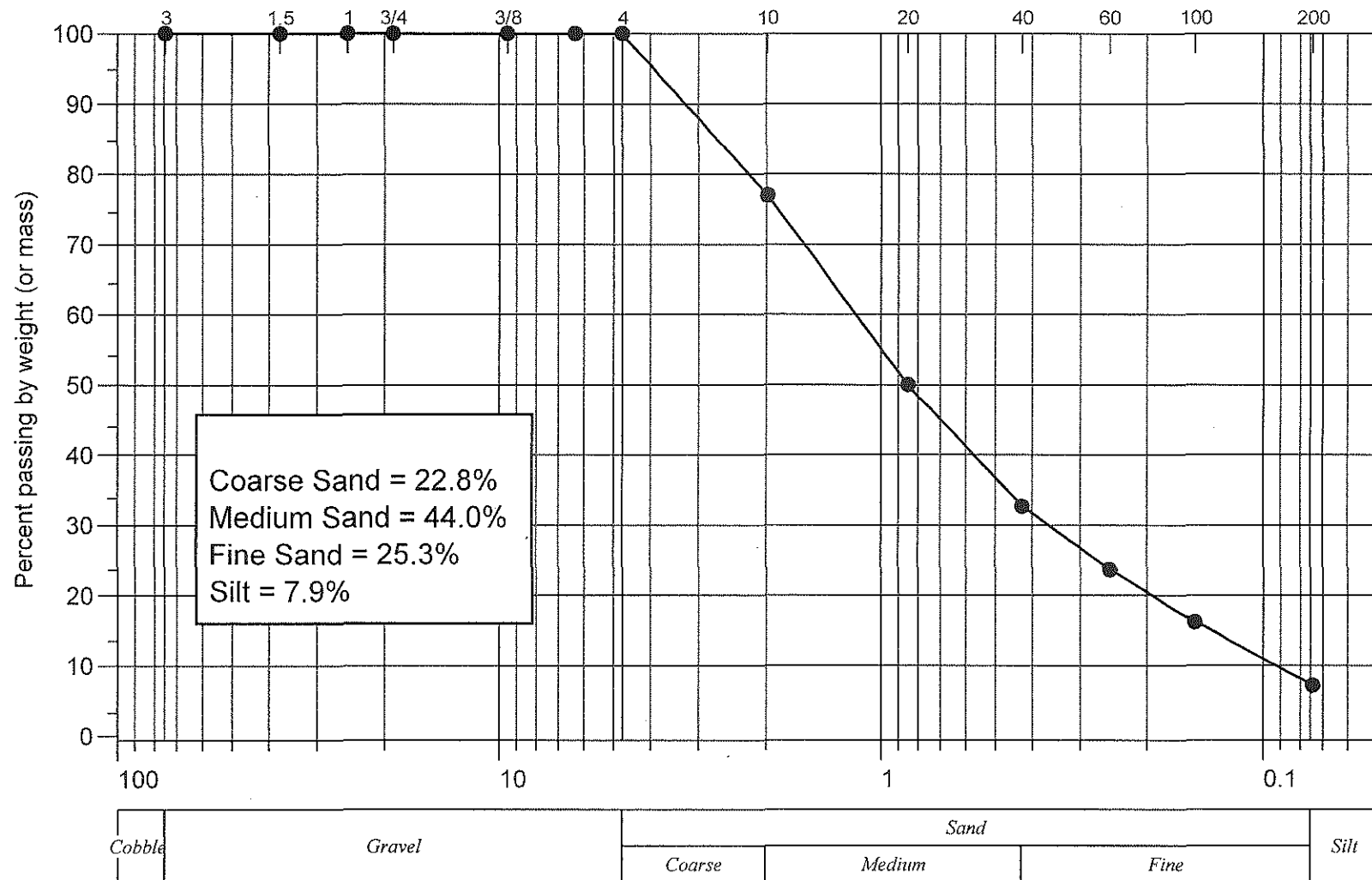
● L5392588-1 Shake #2

Particle Size Distribution Report

L5392588-1 Shake #2

[illegible]

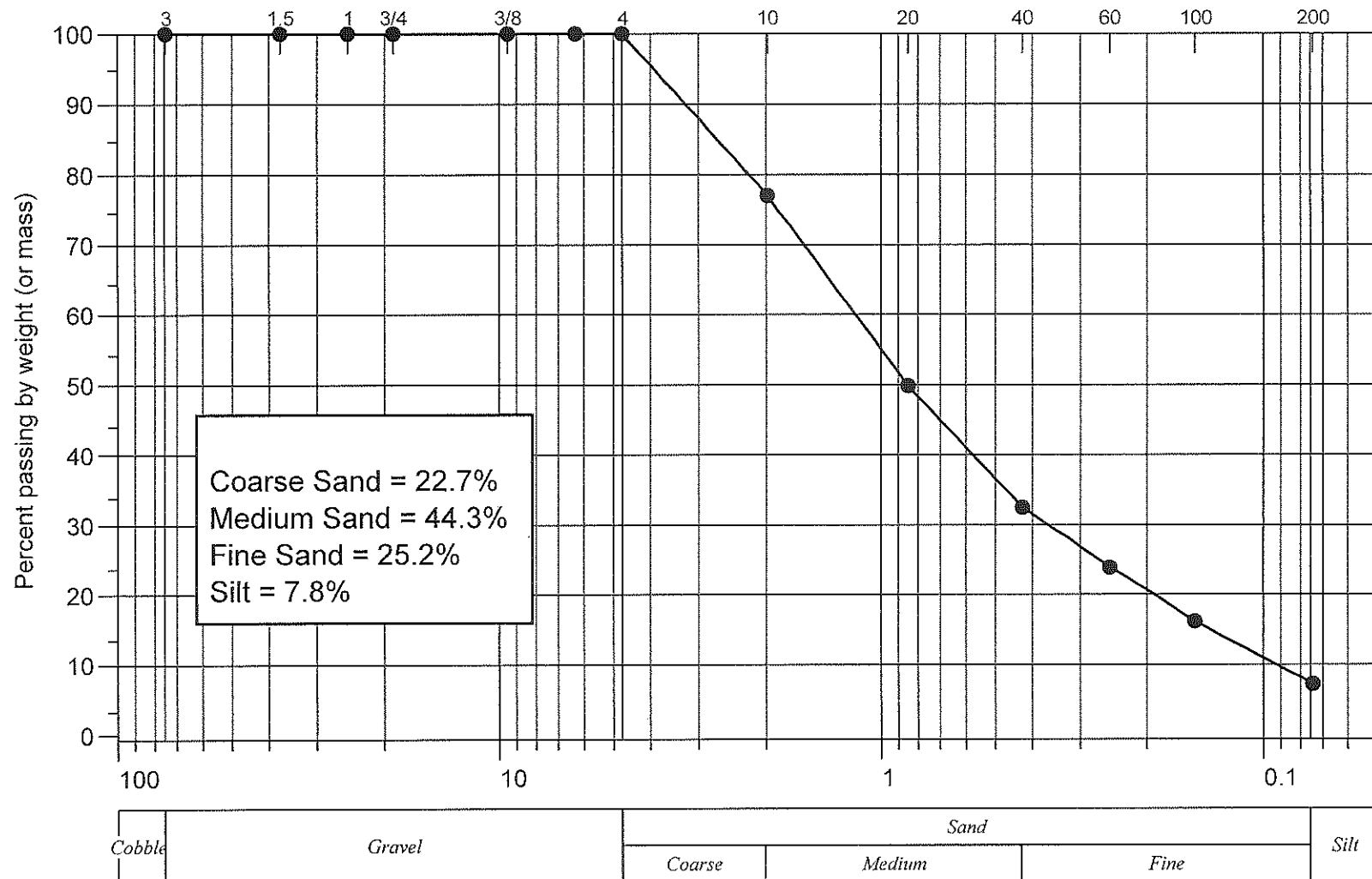
● L5392588-2 Shake #1

Particle Size Distribution Report

L5392588-2 Shake #1

[illegible]

● L5392588-2 Shake #2

Particle Size Distribution Report

L5392588-2 Shake #2



1720 Walton Road, Blue Bell, PA 19422 610-828-3078 Fax 610-828-7842

March 25, 2015

E-MAIL

Mr. Sean Nolan
Environmental Group Manager
Pennsylvania Department of Environmental Protection
Bureau of Air Quality
Rachel Carson State Office Building
P.O. Box 8468
Harrisburg, PA 17105-8468

Subject: Revised Fugitive Lead Emission Estimates
Yuasa Battery, Inc.
IES Project No. EV140952.02

Dear Mr. Nolan:

On behalf of Yuasa Battery, Inc. (Yuasa), IES Engineers is pleased to submit the revised lead emission estimates for fugitive emission sources at its facility in Reading, Pennsylvania.

Fugitive lead emissions were estimated for two types of sources – process fugitive vents and in-plant roads.

PROCESS FUGITIVE VENTS

Process fugitive emissions potentially exhaust through several stacks in the building. The stacks are primarily to vent heat for employee comfort; lead may be present in the exhaust simply because lead is present in the indoor building air. No emissions data are available for any of the building vents. However, Yuasa routinely monitors worker exposure to lead inside the building. Based on historical industrial hygiene sampling data, a typical employee exposure concentration is 10 $\mu\text{g}/\text{m}^3$. This concentration was converted to a mass basis using estimated exit velocities. Additionally, a safety factor was included with these estimates. Calculations are provided in Attachment 1.

Attachment 1 shows emission estimates for three representative process fugitive emission sources. There are several exhaust vents over ovens (primarily for heat removal) that were represented as a single point source in the model. Second, there is a casting area, which also uses a fan (stack) to remove heat; a single point source was used to represent this source. The third stack represents four stacks in the Bielomatic (battery assembly) area that provides general ventilation over several machines. Other stacks already account for the emissions directly vented to air pollution control devices.



Mr. Sean Nolan
March 25, 2015
Page 2

There are no manufacturing operations conducted outdoors. No lead-containing materials that could become airborne are stored outdoors. Lead in the final product is encased in a battery and cannot become airborne. Therefore, Yuasa believes that there are no other process fugitive emission sources.

IN-PLANT ROADS

Emission estimates for truck traffic on in-plant roads was estimated using the U.S. Environmental Protection Agency's (EPA's) Compilation of Air Pollutant Emission Factors from Stationary Sources (AP-42) in combination with actual road dust sampling and analysis of the Yuasa in-plant roads for lead. All of the in-plant areas where trucks travel are paved. Attachment 2 provides the emission calculations for the in-plant roads, and Attachment 3 provides the results of the analyses on the road dust samples.

The sampling and analysis of the road dust was conducted in accordance with the EPA methods described in AP-42 Appendix C.1 (Procedures for Sampling Surface/Bulk Dust Loading) and Appendix C.2 (Procedures for Laboratory Analysis of Surface/Bulk Dust Loading Samples). Samples were collected from two areas to represent the in-plant roads. One sample was collected in the loading dock area on the north side of the building where the final product is loaded onto trucks. The second sample was collected in back of the building (i.e., the east side of the plant), where the internal traffic travels to unload raw materials and to pick up lead for recycling.

If you have any questions, please feel free to me or Mr. Tony Campitelli of Yuasa at (610) 929-5781, extension 123.

Sincerely,

Marjorie J. Fitzpatrick /e/
Marjorie J. Fitzpatrick, QEP
Principal Project Manager

Attachments

cc: A. Campitelli, Yuasa

ATTACHMENT 1

PROCESS FUGITIVE EMISSION ESTIMATES

Yuasa Battery**Estimate of Lead Emissions from Process Fugitive Emission Sources**

Process Emissions								
Fugitive Source	Diameter (ft)	Radius (ft)	Area (ft ²)	Velocity (fpm)	Flow (ft ³ /min)	Emission Concentrations (µg/m ³)	Emission Rate (g/s)	With 100% Safety factor
Buffalo Forge	3	1.5	7.071	2000	14143	10	6.67E-05	1.33E-04
Bielomatic	1	0.5	0.786	2000	1571	10	7.41E-06	1.48E-05
7 Oven	1	0.5	0.786	2000	1571	10	7.41E-06	1.48E-05

Notes:

- Three point sources were used to represent process fugitive emission sources:
 - Buffalo Forge Fan exhausts heat and building air from the casting area.
 - Bielomatic exhausts heat and building air from the battery assembly area.
 - Oven fans vents heat and building area from over the negative and positive plate drying ovens.
- No emissions or air flow rate data is available. The following assumptions were made:
 - The exit velocity of the stacks is 2,000 fpm, a value at the low end of the range for typical exhaust stacks. The low end was selected as the primary purpose is to vent heat.
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ATTACHMENT 2
ROAD DUST EMISSION ESTIMATES

YUASA Battery, Inc.

Yuasa Paved Road Emissions

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		Truck -empty	20.00	0		693	-	20.0	
		Total/Average:						* 30.0	-
South Entrance-A	Sulfuric Acid Delivery	Truck -supply	20.00	20.0	2,520	139	150	40.0	
		Truck -empty	20.00	0		139	150	20	
		Total/Average:					0	* 30.0	7.9
South Entrance-A	Caustic Delivery	Truck -supply	20.00	20	2,520	139	150	40.0	
		Truck -empty	20.00	0		139	150	20.0	
		Total/Average:					0	* 30.0	7.9
A-F	Lead Delivery	Truck -supply	20.00	20	9,387	516	418	40.0	
		Truck -empty	20.00	0		387	418	20.0	
		Total/Average:					0	* 31.4	71.5
A-F	Lead Scrap Exit	Truck -exit	20.00	20	2,347	129	418	40.0	
		Total/Average:					0	* 40.0	10.2
A-F	Case Material Delivery	Truck -supply	20.00	20	693	38	418	40.0	
		Truck -empty	20.00	0		38	418	20.0	
		Total/Average:						* 30.0	6.0

* These values are weighted averages based on total vehicle weight and number of trips for each segment.

YUASA Battery, Inc.

Emission Estimate

$$E = [k \times (sL)^{0.91} \times (W)^{1.02}] \times (1-p/4N) \quad (\text{Eq. 2})$$

Where

E = particulate emission factor [lb/vehicle mile traveled, lb/VMT]
k = base emission factor for size range
sL = road surface silt loading [g/m²]
W = mean vehicle weight [tons]
p = Number of days with at least 0.01 in of precipitation per year.
N = Number of days in averaging period

Emissions are based on the following data:

k = 0.011 lb/VMT for PM-30 (AP-42 Table 13.2.1-1)
sL = 1.62 g/m² (Site-specific Data; Plant road area)
sL = 3.89 (Site-specific Data; loading dock area)
p = 120
N = 365
Lead Composition = 1640 mg/kg (Site-specific Sampling Data; plant road area)
Lead Composition = 211 mg/kg (Site-specific Sampling Data; loading dock area)

Section		Silt Loading g/m ²	Average Weight ton	Annual Distance mi/yr	PM-30 Emissions EF lb/VMT	Emissions ton/yr	Lead Composition mg/kg	Lead Emissions ton/yr	Lead Emissions per Segment lb/hr	Lead Emissions per Segment g/s
Sec1	Batteries Loading to Exit Route	3.89	30.0	0.0	1.116	0.0000	211	0.0000	0.000E+00	0.000E+00
South Entrance-A	Sulfuric Acid Delivery	1.62	30.0	7.9	0.503	0.0020	1640	0.0000	7.426E-07	9.365E-08
South Entrance-A	Caustic Delivery	1.62	30.0	7.9	0.503	0.0020	1640	0.0000	7.414E-07	9.350E-08
Vol1										1.871E-07
A-F	Lead Delivery	1.62	31.4	71.5	0.527	0.0189	1640	0.0000	7.061E-06	8.905E-07
A-F	Lead Scrap Exit	1.62	40.0	10.2	0.674	0.0034	1640	0.0000	1.290E-06	1.627E-07
A-F	Case Material Delivery	1.62	30.0	6.0	0.503	0.0015	1640	0.0000	5.682E-07	7.165E-08
Vol2										1.125E-06
TOTAL:						0.0278		0.0000	1.040E-05	1.312E-06

Emission estimate is based on AP-42, "Compilation of Air Pollutant Emission Factors," Vol. I Section 13.2.1, 1/11 update.

YUASA Battery, Inc.

Yuasa Paved Road Emissions

Number of Batteries Produced per Year 1,800,000.00
 Average Weight of Each Battery 14 lbs
 Total Weight of batteries 25,200,000.00 lbs
 Empty Truck Weight 20.00 tons
 Material Hold Capacity of Truck 20.00 tons

Composition of Valve Regulated Lead Battery

Compound	Fraction/Battery ¹	Amount/Battery	Total per Year	Total per Week
		(lb)	(lb)	(lb)
Sulfuric acid	0.2	2.8	5,040,000.00	96,923.08
Lead	0.745	10.43	18,774,000.00	361,038.46
Case Material	0.055	0.77	1,386,000.00	26,653.85

¹Fraction is taken from MSDS of Valve Regulated Lead Battery

Usage of Caustic per Year 5,040,000.00 lbs
 Lead Scrap generated per Year 4,693,500.00 lbs

All raw material and product is transported by truck.
 10% added on top of total trips to account for variations in actual loaded capacity

Section	Vehicles on Road	Vehicle Weight tons	Capacity tons	Material Thruput ton/yr	No. of 1-way Trips	Trip Distance ft	Average Weight tons	Total per Section mi/yr
A-B	Batteries Loading to Exit Route	Truck -product	20.00	20	12,600	693	149	40.0
		Truck -empty	20.00	0	693	149	20.0	
		Total/Average:					* 30.0	39.1
South Entrance-A	Sulfuric Acid Delivery	Truck -supply	20.00	20.0	2,520	139	487	40.0
		Truck -empty	20.00	0	139	487	20	
		Total/Average:					* 30.0	25.6
South Entrance-A	Caustic Delivery	Truck -supply	20.00	20	2,520	139	487	40.0
		Truck -empty	20.00	0	139	487	20.0	
		Total/Average:					* 30.0	25.6
A-F	Lead Delivery	Truck -supply	20.00	20	9,387	516	487	40.0
		Truck -empty	20.00	0	387	487	20.0	
		Total/Average:					* 31.4	83.3
A-F	Lead Scrap Exit	Truck -exit	20.00	20	2,347	129	487	40.0
		Total/Average:					* 40.0	11.9
A-F	Case Material Delivery	Truck -supply	20.00	20	693	38	487	40.0
		Truck -empty	20.00	0	38	487	20.0	
		Total/Average:					* 30.0	7.0

* These values are weighted averages based on total vehicle weight and number of trips for each segment.

YUASA Battery, Inc.

Emission Estimate

$$E = [k \times (sL)^{0.91} \times (W)^{1.02}] \times (1-p/4N) \quad (\text{Eq. 2})$$

Where

E = particulate emission factor [lb/vehicle mile traveled, lb/VMT]
 k = base emission factor for size range
 sL = road surface silt loading [g/m²]
 W = mean vehicle weight [tons]
 p = Number of days with at least 0.01 in of precipitation per year.
 N = Number of days in averaging period

Emissions are based on the following data:

k = 0.011 lb/VMT for PM-30 (AP-42 Table 13.2.1-1)
 sL = 1.62 g/m² (Site-specific Data; Plant road area)
 sL = 3.89 (Site-specific Data; loading dock area)
 p = 120
 N = 365
 Lead Composition = 1640 mg/kg (Site-specific Sampling Data; plant road area)
 Lead Composition = 211 mg/kg (Site-specific Sampling Data; loading dock area)

Section		Silt Loading	Average Weight	Annual Distance	PM-30 Emissions EF	Emissions	Lead Composition	Lead Emissions	Lead Emissions per Segment	Lead Emissions per Segment	AREA	Emission Rate
		g/m ²	ton	mi/yr	lb/VMT	ton/yr	mg/kg	ton/yr	lb/hr	g/s	m2	g/s-m2
Area1	Batteries Loading to Exit Route	3.89	30.0	39.1	1.116	0.0218	211	0.0000	1.051E-06	1.326E-07	1208.156	1.10E-10
South Entrance-A	Sulfuric Acid Delivery	1.62	30.0	25.6	0.503	0.0064	1640	0.0000	2.406E-06	3.034E-07		
South Entrance-A	Caustic Delivery	1.62	30.0	25.6	0.503	0.0064	1640	0.0000	2.407E-06	3.036E-07		
Area2										6.070E-07	988.1953	6.14E-10
A-F	Lead Delivery	1.62	31.4	83.3	0.527	0.0220	1640	0.0000	8.227E-06	1.037E-06		
A-F	Lead Scrap Exit	1.62	40.0	11.9	0.674	0.0040	1640	0.0000	1.503E-06	1.895E-07		
A-F	Case Material Delivery	1.62	30.0	7.0	0.503	0.0018	1640	0.0000	6.620E-07	8.348E-08		
Area3										1.311E-06	988.4219	1.33E-09
TOTAL:						0.0624		0.0001	1.626E-05	2.050E-06		

Emission estimate is based on AP-42, "Compilation of Air Pollutant Emission Factors," Vol. I Section 13.2.1, 1/11 update.

ATTACHMENT 3

LABORATORY RESULTS FROM ROAD DUST SAMPLES

MARJORIE FITZPATRICK
IES ENGINEERS
1720 WALTON ROAD
BLUE BELL, PA 19422

Regarding:
MARJORIE FITZPATRICK
IES ENGINEERS
1720 WALTON ROAD
BLUE BELL, PA 19422

Account No: B00194, IES ENGINEERS
Project No: B00194 FITZPATRICK, IES ENGINEERS

P.O. No: Inv. No: PI
PWSID No:

Sample ID Sample Description Samp. Date/Time/Temp Sampled by
L5392588-1 YUASA BATTERY INC, SAMPLE #1 YUASA 1 12/18/14 00:00am NA C Customer
Received Date/Time/Temp 12/23/14 10:30am 4.2 C Iced (Y/N): Y

Parameter	Result	RL	Units	Method	DF	Qual	Test Date, Time, Analyst

GENERAL CHEMISTRY

Particle Size Distribution	ATTACHED			ASTM C244			
Total Solids Percent	99.80	0.01000	%	SM 2540G	1		01/07/15 09:05PM FXT

METALS

Lead	1640	200	mg/kg DRY	EPA 6010C	10		01/07/15 11:19AM PG

Sample ID Sample Description Samp. Date/Time/Temp Sampled by
L5392588-2 SAMPLE #2 YUASA 2 12/18/14 00:00am NA C Customer
Received Date/Time/Temp 12/23/14 10:30am 4.2 C Iced (Y/N): Y

Parameter	Result	RL	Units	Method	DF	Qual	Test Date, Time, Analyst

GENERAL CHEMISTRY

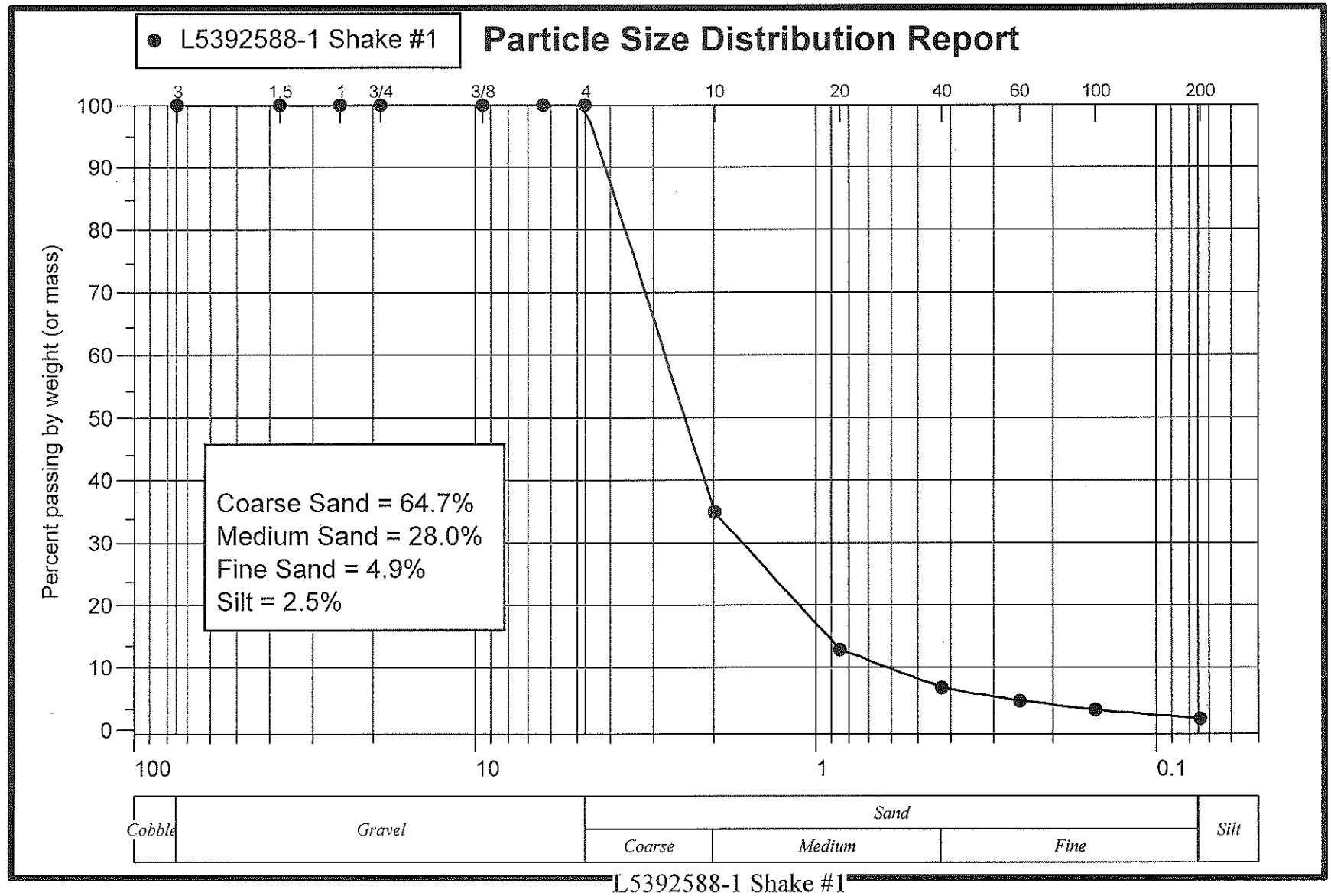
Particle Size Distribution	ATTACHED			ASTM C244			
Total Solids Percent	99.40	0.01000	%	SM 2540G	1		01/07/15 09:05PM FXT

METALS

Lead	211	201	mg/kg DRY	EPA 6010C	10		01/07/15 11:21AM PG

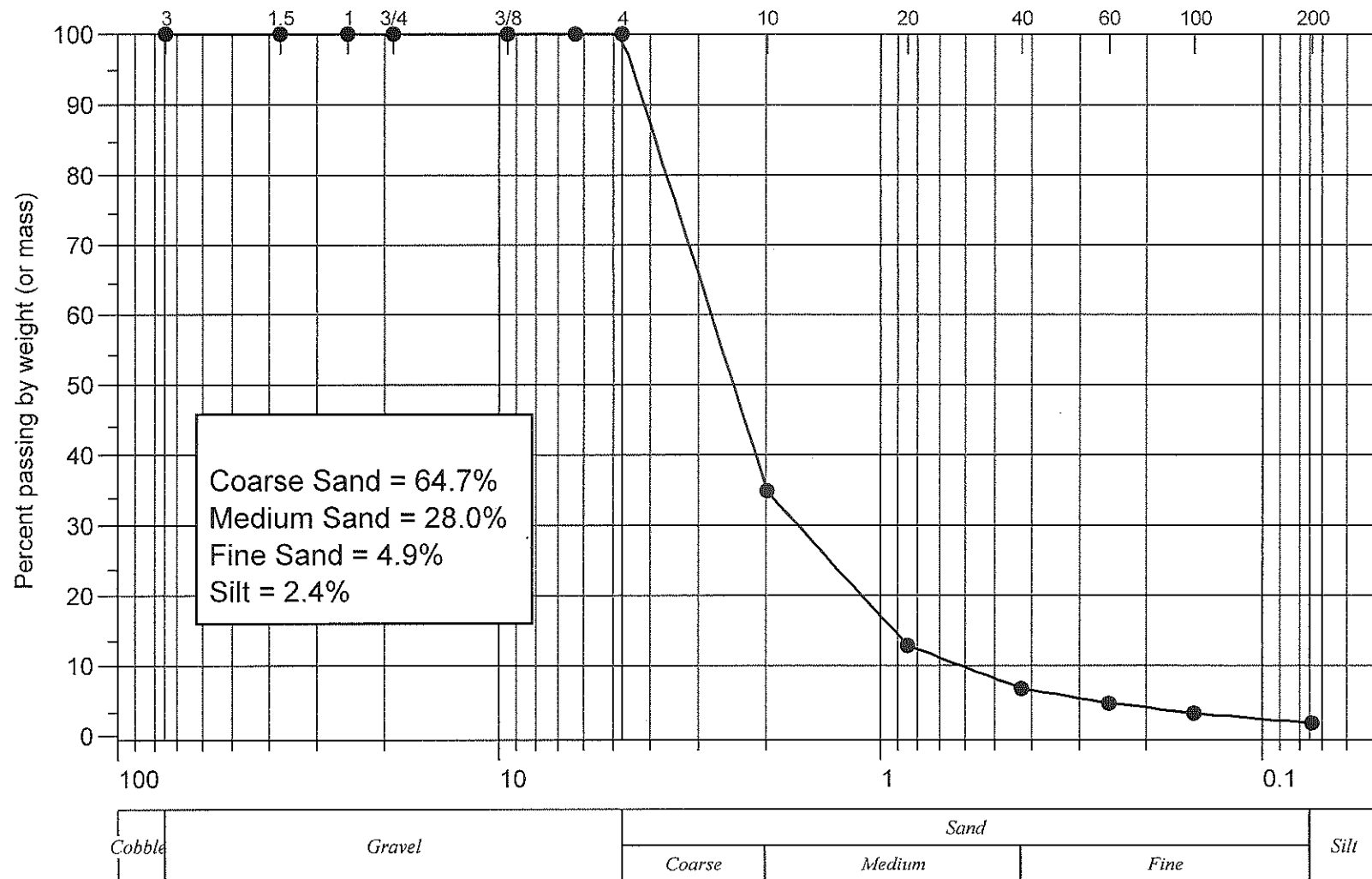


[illegible]



[illegible]

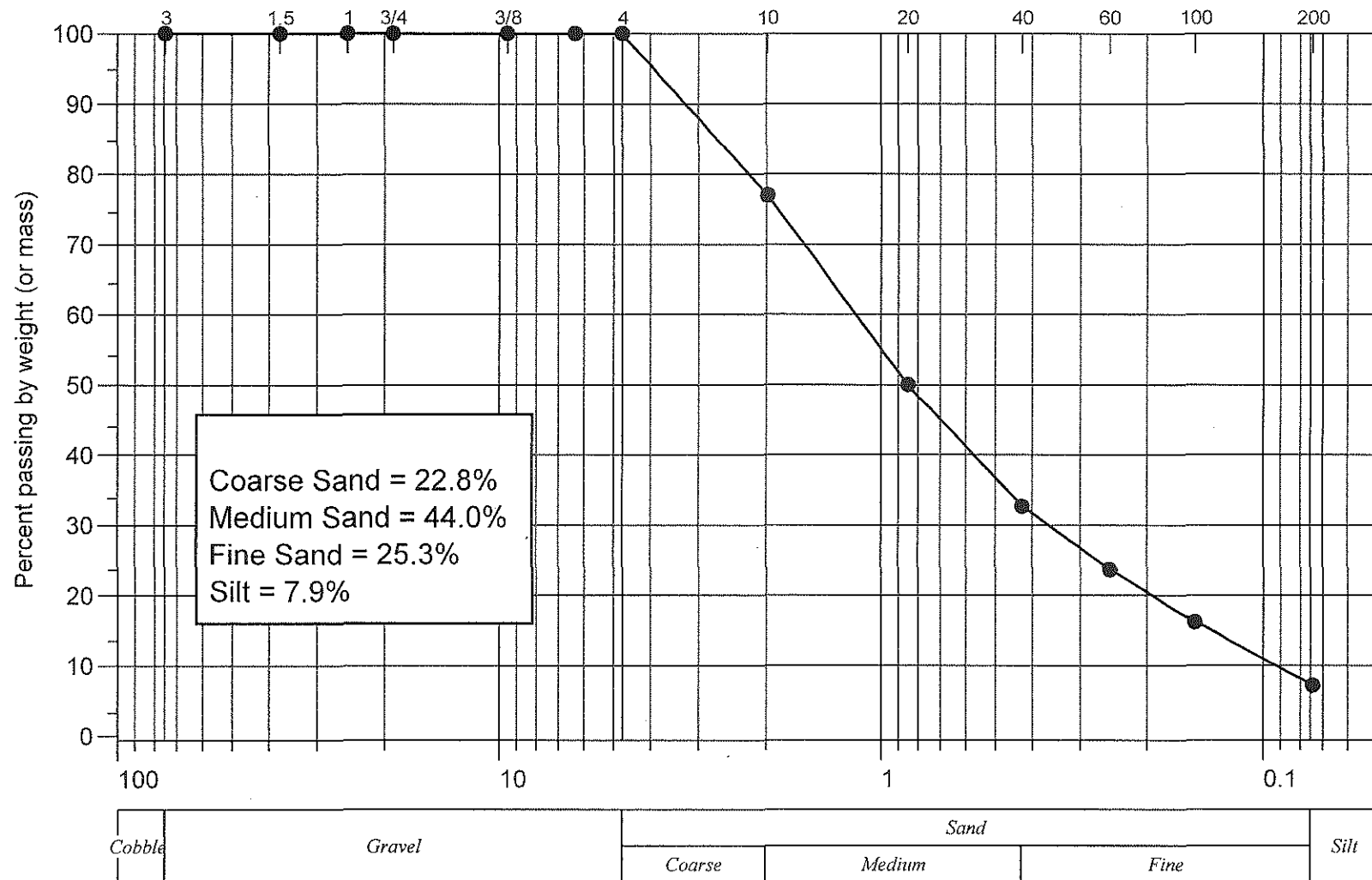
● L5392588-1 Shake #2

Particle Size Distribution Report

L5392588-1 Shake #2

[illegible]

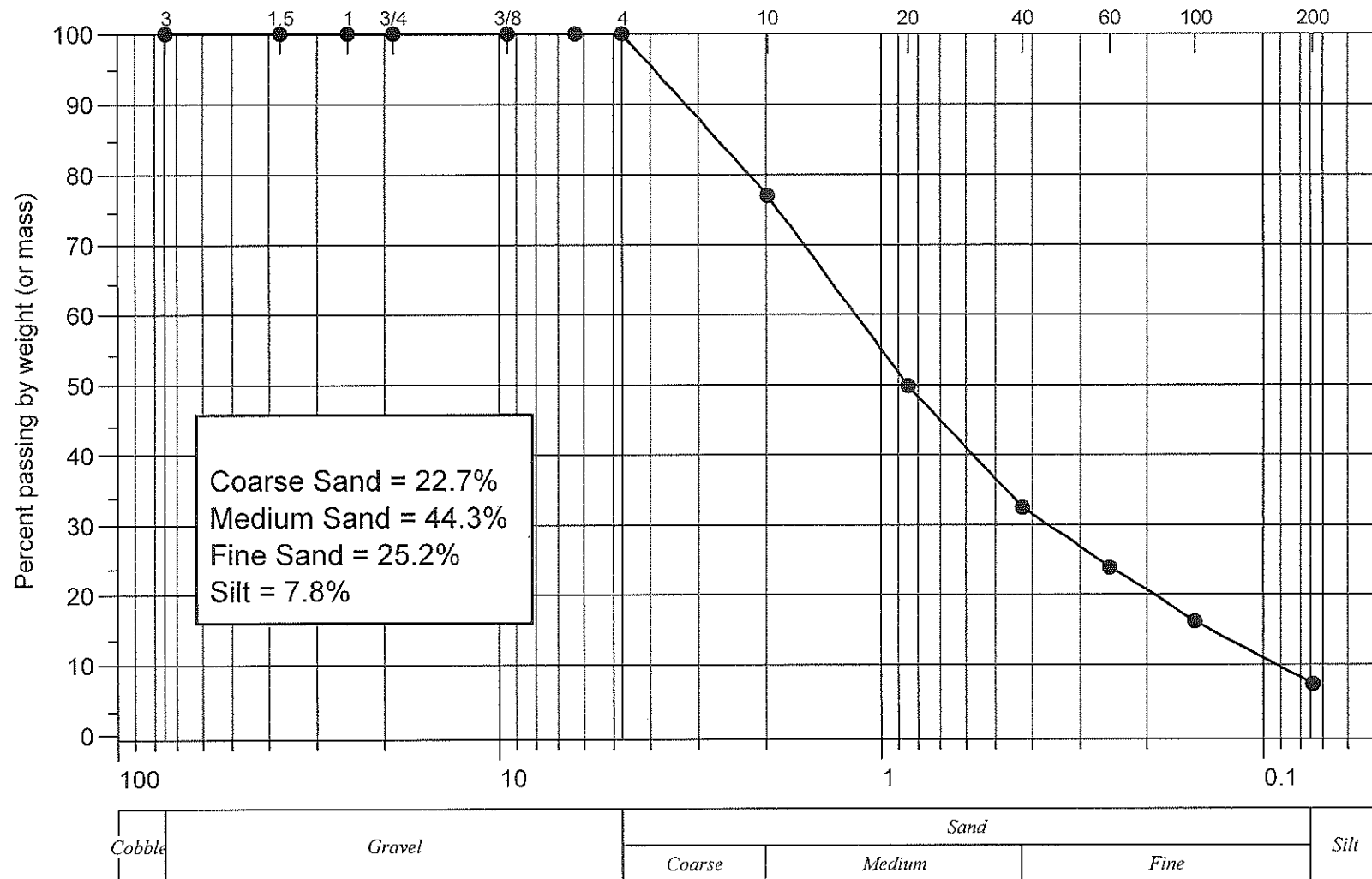
● L5392588-2 Shake #1

Particle Size Distribution Report

L5392588-2 Shake #1

[illegible]

● L5392588-2 Shake #2

Particle Size Distribution Report

L5392588-2 Shake #2



APPENDIX B-5

Department Calculations for Exide Point Sources

**Bureau of Air Quality
Department of Environmental Protection**

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Exide Emission Rates Used in Modeling

Stacks Affected by Plan Approval 06-05066I – Information taken from plan approval application

<u>Stack</u>	<u>ACFM</u>	<u>Temperature(°F)</u>	<u>Moisture Content (%)</u>	<u>Convert to DSCFM</u>
S62	120,000	98.3	1.3	112436.33
S64	320,000	100.1	1.7	297655.42
S63	320,000	114.5	2.0	289308.97
S19	60,700	71.3	2.0	59340.45
S47	33,000	100.1	1.7	30695.72
S23A	42,000	103	2.25	38648.58

Permitted Emission Rates from plan Approval 06-05066I

<u>Stack</u>	<u>Emission Rate (grains/dscf)</u>
S62	0.00006
S64	0.00006
S63	0.00006
S19	0.00003
S47	0.000056
S23A	0.000026

Convert grains/dscf to grams/second

grains/dscf * dscf/minute * 1 lb/7,000 grains * 1 minute/60 sec * 453.6 grams/ lb = grams/second

S62 - 0.007286 Grams/sec

S64 - 0.019288 grams/sec

S63 - 0.018747 grams/sec

S19 - 0.001922 grams/sec

S47 - 0.001856 grams/sec

S23A - 0.001085 grams/sec

Sources not affected by Plan Approval 06-050661

S70 - The rate is based on a stack test completed in July 1998 for S70 where the average lead emission rate was measured to be 0.0003 lb/hr. The modeled emission rate was calculated by converting to g/s and using a 4.2 times multiplier for a maximum emission rate of:

S70 Modeled emission Rate= $(0.0003 \text{ lb})/\text{hr} ((453.6 \text{ grams})/\text{lb})(\text{hr}/(3600 \text{ sec}))(4.2)=0.00015876 \text{ g/s}$

S55 - The rate is based on a stack test completed in August 2009 for S55 where the average lead emission rate was measured to be 0.0266 lb/hr. The modeled emission rate was calculated by converting to g/s and using a 1.5 times multiplier for a maximum emission rate of:

S55 Modeled emission Rate= $(0.0266 \text{ lb})/\text{hr} ((453.6 \text{ grams})/\text{lb})(\text{hr}/(3600 \text{ sec}))(1.5)=0.005027 \text{ g/s}$

S13 - The rate is based on a stack test completed in August 2009 for S13 where the average lead emission rate was measured to be 0.00211 lb/hr. The modeled emission rate was calculated by converting to g/s and using a 1.5 times multiplier for a maximum emission rate of:

S13 Modeled emission Rate= $(0.00211 \text{ lb})/\text{hr} ((453.6 \text{ grams})/\text{lb})(\text{hr}/(3600 \text{ sec}))(1.5)=0.0003987 \text{ g/s}$

Exide Proposed Emission Rates for S62, S63 and S64

Based on an emission rate of 0.04 mg/dscm

$$(0.04 \text{ mg/dscm})(1\text{gm}/1000\text{mg})(1 \text{ lb}/453.6 \text{ gm})(1 \text{ dscm}/35.31 \text{ dscf})(7000 \text{ gr/lb}) = 0.00001748 \text{ gr/dscf}$$

Convert grains/dscf to grams/second

$$\text{grains/dscf} * \text{dscf/minute} * 1 \text{ lb}/7,000 \text{ grains} * 1 \text{ minute}/60 \text{ sec} * 453.6 \text{ grams/lb} = \text{grams/second}$$

NOTE: It appears that Exide used the actual cubic feet per minute for calculating emission rates, so use 120,000 dscf/min for S62 and 320,000 dscf/min for S63 and S64

S62 - 0.002265 grams/sec

S63 - 0.006041 grams/sec

S64 - 0.006041 grams/sec

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APPENDIX B-6

Yuasa Emission Rate Spreadsheet

**Bureau of Air Quality
Department of Environmental Protection**

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Summary of Proposed Changes for Yuasa

Model ID	Permit Source ID/Stack ID	Description	Operating Hours (hr/yr)	Actual Lead Emission Rate (lb/hr)	Actual Lead Emission Rate (g/s)	Basis for Actual Emission Rate	Proposed Lead Emission Limit (g/s)	Proposed Lead Emission Limit (lb/hr)	Proposed Changes to Stack Configuration	Proposed Changes to Stack Height	Proposed Additional Controls, if needed	Other/Notes
Facility-wide												Fence eastern portion of property
Y_S01	101/S01	Pasting	8760	0.0039	0.000491	Aug 2009 test	0.000688	0.005460	Exhaust up, no obstructions	Raise 12 ft	None	
Y_S03_1	103/S03	Assembly 1&2	8760	0.0104	0.001310	Mar 2004 test	0.000459	0.003643	No obstructions	None	HEPA	
Y_S03_2	103/S06	Assemble 3	8760	0.002	0.000252	2013 AIMS report	0.000353	0.002800	None	None	None	
Y_S03_3	103/S07	Assemble 4	8760	0.002	0.000252	Mar 2002 test	0.000353	0.002800	None	None	None	
Y_S15/S5	105	Lead Pots/Grid Caster	8760	0.0010	0.000125	June 2014 test	0.000175	0.001389	Exhaust up, no obstructions	Raise 10 ft	None	
Y_S20		Ball Mill	8760	0.0001	0.0000126	March 2015 test	0.000252	0.002000	Exhaust up, no obstructions	Raise 10 ft	Laminated bags	
AREA1	NA	Loading Dock Area Road	NA			Dust measurement/AP-42	None	None	NA	NA	None	
AREA2	NA	Acid/Caustic unloading area road segment (outside of fence)	NA			Dust measurement/AP-42	None	None	NA	NA	None	
AREA3	NA	Lead unloading road segment (outside of fence)	NA			Dust measurement/AP-42	None	None	NA	NA	None	
VOL1	NA	Acid/Caustic unloading area road segment (inside of fence)	NA			Dust measurement/AP-42	None	None	NA	NA	None	
VOL2	NA	Lead unloading road segment (inside of fence)	NA			Dust measurement/AP-42	None	None	NA	NA	None	
BIEL	NA	Bielomatic area fugitives	NA			Estimate (see notes below)	None	None	None	None	None	
BUFFORGE	NA	Casting area fugitives	NA			Estimate (see notes below)	None	None	None	None	None	
7OVEN	NA	Ovens area fugitives	NA			Estimate (see notes below)	None	None	None	None	None	

Notes:

- Estimates for BIEL, BUFFORGE, and 7OVEN based on IH data (10 ug/m3) and estimated exit velocity of 2,000 ft/min.
- Presumed control efficiency for HEPA or laminated bags is 75%.

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APPENDIX C-1

Portions of the Consent Order and Agreement Between DEP and Exide

**Bureau of Air Quality
Department of Environmental Protection**

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF:

Exide Technologies	:	Lead Nonattainment Issues;
P.O. Box 14294	:	Laureldale Borough, Berks County
Reading, PA 19612-4292	:	

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement ("COA") is entered into this 15th day of June, 2015 by and between the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department" or "DEP") and Exide Technologies ("Exide").

The Department has found and determined the following:

A. ~~The Department is the agency with the duty and authority to administer and enforce the Air Pollution Control Act, Act of January 8, 1960, P.L. 2119 (1959), as amended, 35 P.S. § 4001 et seq. ("APCA"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P. L. 177, as amended, 71 P.S. § 510-17 and the rules and regulations promulgated thereunder.~~

Exide Facility Details:

B. ~~Exide is a Delaware corporation authorized to do business in Pennsylvania, with a mailing address of P.O. Box 14294, Reading, Pennsylvania, 19612-4292.~~

C. ~~Exide owns, and desires to retain the option to in the future operate, a currently idled secondary lead smelter facility ("Exide Facility"), located at Spring Valley Road and Nolan Street in Laureldale Borough and Muhlenberg Township, Berks County, Pennsylvania.~~

D. ~~The Exide Facility is presently covered by Title V Operating Permit No. 06-05066 ("Exide Permit"), and by Plan Approval No. 06-05066I ("Exide Plan Approval I"). Nevertheless, neither of these permits authorizes the Exide Facility as a whole to operate in its present equipment configuration, due, among other considerations, to the fact that the Exide Facility as a whole in its present equipment configuration would not be capable of operating in a manner that would comply with the current version of 40 CFR Part 63, Subpart X, National Emission Standards For Hazardous Air Pollutants From Secondary Lead Smelting ("Subpart X").~~

E. ~~Exide Plan Approval I was issued by the Department on August 31, 2012, then was extended for an additional period on January 31, 2014, and presently expires on July 31, 2015.~~

F. ~~Exide Plan Approval I authorizes Exide to undertake a project to implement air pollution control measures that will contribute to attainment of the 2008 Lead NAAQS in the North Reading Area, that will contribute to achieving compliance with Subpart X, and that will modify existing Source ID 147--Refining Kettles.~~

G. The Exide Facility presently includes the following lead-emitting sources ("Exide Sources"):

- 1) A lead smelting system which includes two blast furnaces and two reverberatory furnaces ("Smelting System"). Emissions from the Smelting System are controlled by two afterburners, followed by two fabric collectors, two venturi scrubbers, two spray chambers and a single secondary cyclone separator. The Smelting System is designated as Sources 120, 121, 122 and 123 in the Exide Permit. The Smelting System ultimately vents to atmosphere, through a stack designated as S55 in the Exide Permit.
- 2) A smelter ventilation system #1 ("Smelter Vent 1"), which is controlled by a baghouse ("Smelter Vent 1 Baghouse"). In the Exide Permit, Smelter Vent 1 is designated as Source 124, and the Smelter Vent 1 Baghouse is designated as Control C11. The Smelter Vent 1 ultimately vents to atmosphere through a stack designated as S09 in the Exide Permit. Under Exide Plan Approval I, the venting arrangement of this source will be changed; it will be vented to a new baghouse with HEPA filter designated as C62, which will vent to atmosphere through a new stack designated S62 in Exide Plan Approval I.
- 3) A smelter ventilation system #2 ("Smelter Vent 2"), which is controlled by a baghouse (Smelter Vent 2 Baghouse"). In the Exide Permit, Smelter Vent 2 is designated as Source 125, and the Smelter Vent 2 Baghouse is designated as Control C19. The Smelter Vent 2 ultimately vents to atmosphere through a stack designated as S19 in the Exide Permit. Under Exide Plan Approval I, the venting arrangement of this source will be changed; it will be vented to a new baghouse with HEPA filter designated as C62, which will vent to atmosphere through a new stack designated S62 in Exide Plan Approval I.
- 4) A battery shredder and hammer mill ("Shredder"), which are controlled by an associated scrubber ("Shredder Scrubber"). In the Exide Permit, the Shredder is designated as Source 126 and the Shredder Scrubber is designated as Control C13. The Shredder ultimately vents to atmosphere through a stack designated as S13 in the Exide Permit.
- 5) A smelter building ventilation system ("Smelter Building Vent") which is controlled by a baghouse ("AAF Baghouse"). In the Exide Permit, the Smelter Building Vent is designated as Source 128 and the AAF Baghouse is designated as Control C28. The Building Vent ultimately vents to atmosphere through a stack designated as S28 in the Exide Permit. Under Exide Plan Approval I, the venting arrangement of this source will be changed; it will be vented to a new baghouse with HEPA filter designated as C63, which will vent to atmosphere through a new stack designated S63 in Exide Plan Approval I.
- 6) A slag cooling and storage area ("Slag Cooling"), which is controlled by a baghouse ("Slag Cooling Baghouse"). In the Exide Permit, Slag Cooling is designated as Source 129 and the Slag Cooling Baghouse is designated as Control C29. The Slag Cooling ultimately vents to atmosphere through a stack designated as S29 in the Exide Permit. Under Exide Plan Approval I, the venting arrangement of this source will be changed; it will be vented to a repurposed existing baghouse designated as C19, which will vent to atmosphere through a stack designated S19 in Exide Plan Approval I.
- 7) A raw material storage building ("Raw Material Storage"), which is controlled by 3 baghouses ("RMS Baghouses"). In the Exide Permit, Raw Material Storage is designated as Source 130.

The RMS Baghouses are designated as Controls C22, C23A and C58, and ultimately vent to atmosphere through stacks designated as S22, S23A and S58 in the Exide Permit. Under Exide Plan Approval I, the venting arrangement of this source will be changed; it will be vented to a combination of the following:

- i. Existing C23A baghouse, which will vent to atmosphere through a stack designated as S23A in Exide Plan Approval I.
- ii. New C63 baghouse with HEPA filter, which will vent to atmosphere through a new stack designated as S63 in Exide Plan Approval I.
- iii. New C64 baghouse with HEPA filter, which will vent to atmosphere through a new stack designated as S64 in Exide Plan Approval I.

8) A slag crushing operation ("Slag Crushing") which is controlled by a baghouse ("Slag Crushing Baghouse"). In the Exide Permit, Slag Crushing is designated as Source 146, and the Slag Crushing Baghouse is designated as Control C46. The Slag Crushing ultimately vents to atmosphere through a stack designated as S46 in the Exide Permit. Under Exide Plan Approval I, the venting arrangement of this source will be changed; it will be vented to a repurposed existing baghouse designated as C19, which will vent to atmosphere through a stack designated S19 in Exide Plan Approval I.

9) Several refining kettles ("Refining Kettles"), which are controlled by a baghouse ("Refinery Baghouse"). In the Exide Permit, the Refining Kettles are designated as Source 147, and the Refinery Baghouse is designated as Control C47. The Refining Kettles ultimately vent to atmosphere through a stack designated as S47 in the Exide Permit. Under Exide Plan Approval I, one of the existing kettles will be moved, and two new kettles will be added. Also, the venting arrangement of the kettles will be changed; the process fugitive emissions will continue to be vented to existing Baghouse C47, which will vent to atmosphere through an existing stack designated as S47 in Exide Plan Approval I, while the indirect heating burner exhaust gases will vent to a new baghouse with HEPA filter designated as C63, which will vent to atmosphere through a new stack designated S63 in Exide Plan Approval I.

10) A Properzi Strip Casting Operation ("Properzi Operation"), which is controlled by a wet scrubber ("Properzi Scrubber"). In the Exide Permit, the Properzi Operation is designated as Source 150, and the Properzi Scrubber is designated as Control C50. The Properzi Operation ultimately vents to atmosphere through a stack designated as S70 in the Exide Permit.

11) In addition to the lead emissions from the stacks of the abovementioned sources, fugitive lead emissions are also estimated to occur from those sources.

12) Fugitive lead emissions are also estimated to occur from Plant Roadways at the Facility, which are designated as Source 132 in the Exide Permit.

H. Each of the Exide Sources described above is an air contamination source as defined by Section 3 of the APCA, 35 P.S. § 4003.

Background of Requirements for Commonwealth to Submit State Implementation Plan (SIP):

- I. On November 22, 2010, at 75 FR 71033, the U.S. Environmental Protection Agency (EPA) designated the North Reading area in Berks County as nonattainment for the 2008 lead National Ambient Air Quality Standard (NAAQS) of $0.15 \mu\text{g}/\text{m}^3$.
- J. The North Reading Lead Nonattainment Area consists of Laureldale Borough, Muhlenberg Township & Alsace Township.
- K. Pursuant to the requirements of the Clean Air Act (CAA), the Commonwealth of Pennsylvania was required to develop and submit a SIP revision for each lead nonattainment area to EPA by June 30, 2012.
- L. The SIP revision must include:
- Inventories of lead emissions within the nonattainment area for a base year and the attainment year.
 - Permanent and enforceable control measures sufficient to attain the standard, and an analysis of "reasonably available control measures" and "reasonably available control technology" (RACM/RACT) for any facility in a nonattainment area emitting 0.5 tons per year or greater. Measures implemented to meet the RACM/RACT requirement must be incorporated into a federally enforceable vehicle, such as a plan approval or operating permit.
 - A demonstration that emissions have been reduced over time ("reasonable further progress").
 - A demonstration of attainment using AERMOD, the approved dispersion model. The modeling must include allowable emissions expected at the projected attainment date, including any new control measures and taking economic growth into account. Modeling must take into consideration all sources of lead emissions within the nonattainment area "that may be required to be controlled."
 - Contingency measures that require only minimal further action by the state agency to activate if the area fails to meet RFP or to attain the NAAQS by December 31, 2015. A triggering mechanism must be identified, with a schedule for implementation.

M. The SIP revision is subject to a public comment period and opportunity for a public hearing.

History of North Reading Lead Nonattainment Area SIP Process:

- N. The Exide Facility emits lead to the atmosphere, and is located in the North Reading nonattainment area.
- O. Yuasa Battery, Inc. ("Yuasa") is a Delaware corporation which owns and operates a lead-acid battery manufacturing facility ("Yuasa Facility"), located at 2901 Montrose Avenue in Laureldale Borough, Berks County, Pennsylvania. The Yuasa Facility includes various lead-emitting sources ("Yuasa Sources"), which are air contamination sources as defined by Section 3 of the APCA, 35 P.S. § 4003. The Yuasa Sources are not the subject of this COA; nevertheless, the Yuasa Sources are relevant to

this COA because DEP has determined that they, along with the Exide Sources, have the potential to affect the lead nonattainment status of the North Reading Lead Nonattainment Area.

- P. ~~Because the Exide Facility is a point source secondary lead smelter with lead emissions greater than 0.5 tons per year, it must be included in atmospheric dispersion modeling for demonstration of attainment per 40 CFR 51.117(c)(2).~~
- Q. ~~DEP sent Exide a letter dated July 18, 2011, advising Exide of the requirements for the SIP submission, the need for Exide's cooperation in developing the SIP submission, and the need to establish an aggressive time line in order to meet the CAA submission requirements.~~
- R. ~~Despite continued work by both Exide and DEP on issues related to the SIP submission, that submission was not completed as required by June 30, 2012.~~
- S. ~~On February 25, 2014, the EPA published in the Federal Register a "Finding of Failure To Submit State Implementation Plans Required for the 2008 Lead National Ambient Air Quality Standards" ("EPA Finding").~~
- T. ~~The EPA Finding stated that "If Pennsylvania has not submitted and the EPA has not approved the required attainment plans for its nonattainment areas by no later than 2 years after the effective date of this finding, the EPA must promulgate a federal implementation Plan (FIP) for the affected nonattainment area. In addition, the CAA provides for the imposition of sanctions if the state does not submit the required attainment SIP within specific timeframes."~~
- U. ~~The EPA Finding further stated that "If the EPA has not affirmatively determined that Pennsylvania has made the required complete nonattainment SIP submissions within 18 months of the effective date of this action then, pursuant to CAA section 179(a) and (b) and 40 CFR 52.31, the offset sanction identified in CAA section 179(b)(2) will apply in any area subject to the findings for which a complete submission has not been made. If the EPA has not affirmatively determined that Pennsylvania has made a complete submission for each area subject to the findings within 6 months after the emission offset sanction is imposed, then the highway funding sanction will also apply in any area subject to the finding for which a complete submission has not been made, in accordance with CAA section 179(b)(1) and 40 CFR 52.31. The 18-month clock will stop and the sanctions will not take effect, within 18 months after the date of this finding, if the EPA finds that Pennsylvania has made a complete nonattainment SIP submission for each area for which the finding is being made or if the EPA makes a determination the area is attaining the standard consistent with the EPA's Clean Data Policy. In addition, the EPA is not required to promulgate a FIP if Pennsylvania makes the required SIP submittal, and the EPA takes final action to approve the submittal, or if EPA makes a final determination the area is attaining the standard consistent with the Clean Data Policy, within 2 years of the EPA's finding."~~
- V. ~~On June 10, 2015, DEP finalized a modeling determination ("Modeling Determination") for the North Reading Lead Nonattainment Area, concluding that the area would achieve modeled lead attainment if both Exide and Yuasa would undertake certain emission reduction and/or facility modification projects, and/or accept certain enforceable operational and/or emission limitations. The Modeling Determination is incorporated into this COA as Attachment A.~~

- ~~W. With regard to the Exide Facility, the Modeling Determination used stack and fugitive emissions estimates based on implementation of Exide Plan Approval I, along with some additional emission restrictions, which are detailed in Paragraph 3, below.~~
- ~~X. Exide has submitted modeling demonstrating attainment of the 2008 Pb NAAQS with emission rates for source groups S62, S63, and S64 which are higher than the emission rates in this COA. This Agreement shall not preclude Exide from seeking future modifications of any permitted emission limitations or requirements in this COA, or any otherwise lawful modification that also demonstrates continued attainment and maintenance of the 2008 Pb NAAQS.~~
- ~~Y. It is necessary to make certain details used in the Department's Modeling Determination enforceable by including them as requirements in this Consent Order and Agreement.~~

ORDER

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by Exide as follows:

- ~~1. Authority. This Consent Order and Agreement ("COA") is an Order of the Department authorized and issued pursuant to Sections 4 and 10.1 of the APCA, 35 P.S. §§ 4004 and 10.1, and Section 1917-A of the Administrative Code, 71 P.S. § 510-17.~~
- ~~2. Findings.~~
 - ~~a. Exide agrees that the findings in Paragraphs A through Y are true and correct and, in any matter or proceeding involving Exide and the Department, Exide shall not challenge the accuracy or validity of these findings.~~
 - ~~b. The parties do not authorize any other persons to use the findings in this COA in any matter or proceeding.~~
3. Required Action.
 - a. *Exide Plan Approval I:*
 1. Exide shall not resume operation of any portion of the Exide Facility until Exide has completed all the Exide Facility modification work proposed in Exide Plan Approval I, as described on Page 2 of Plan Approval I.
 2. Exide shall comply with all emission, testing, monitoring, recordkeeping, reporting, work practice, and additional requirements in Exide Plan Approval I.
 3. If Exide elects to implement the Exide Facility modification work proposed in Exide Plan Approval I ("Plan Approval Work"), in preparation for resuming operation of the Exide Facility, Exide shall nevertheless only proceed with the Plan Approval Work at such times as Exide Plan Approval I, or an extension

thereof, remains valid, or at such times as the Plan Approval Work is authorized by some other air quality plan approval.

4. Exide shall submit an application to extend Plan Approval I by no later than June 30, 2015. Nevertheless, this requirement shall not be construed to imply that the Department will or will not grant such extension.

b. *Emission Restrictions:* Exide shall meet the following restrictions:

1. Exide shall not permit exceedances of the following stack emission limits for lead:

- i. S55: 5.02732E-03 g/sec
- ii. S62: 2.265E-03 g/sec
- iii. S13: 3.98590E-04 g/sec
- iv. S63: 6.041E-03 g/sec
- v. S19: 1.91900E-03 g/sec
- vi. S23A: 1.08700E-03 g/sec
- vii. S64: 6.041E-03 g/sec
- viii. S47: 1.85900E-03 g/sec
- ix. S70: 1.58760E-04 g/sec

2. In the event that any Exide Facility modifications beyond those approved in Exide Plan Approval I are required in order to meet the limits in Paragraph (3)(b)(1), Exide shall, before implementing those modifications, obtain from DEP either an issued air quality plan approval, or else an approved determination in writing, that the relevant modifications do not require an air quality plan approval.

3. For any Exide Sources affected by the requirement in Paragraph 3(b)(1), which would not otherwise be scheduled to be stack tested as part of Exide Plan Approval I requirements, Exide shall, unless otherwise approved in writing by the Department, perform stack testing of such sources within 180 days of startup of such sources, to demonstrate compliance with the emission limitations in Paragraph 3(b)(1). Any such stack testing shall comply with the requirements in Condition 001 in Section C of Exide Plan Approval I.

4. For all affected sources at the Exide Facility, Exide shall comply with all provisions of 40 CFR Part 63, Subpart X, including, but not limited to testing, monitoring, recordkeeping and reporting provisions. Also, for the purposes of this COA, all of the sources associated with stacks listed in Paragraph 3(b)(1)(i)-(viii) shall be considered sources subject to the 40 CFR Section 63.543(a) standards for lead emissions from process vents, and, in addition to any other standards listed in this COA, shall also comply with those standards, including any related requirements in Subpart X including, but not limited to testing, monitoring, recordkeeping and reporting provisions for lead emissions. The sources associated with stacks listed in Paragraph 3(b)(1)(i)-(viii) shall demonstrate compliance with the standards listed in Paragraph 3(b)(1)(i)-(viii) using the same requirements as are used to demonstrate compliance with the stack emission standards in 40 CFR Section 63.543, including, but not limited to testing, monitoring, recordkeeping

and reporting provisions. The stack listed in Paragraph 3(b)(1)(ix) shall, in addition to meeting the lead emission limit and other requirements specified in Paragraph 3(b), meet the requirements for testing, monitoring, recordkeeping and reporting of lead emissions contained in 40 CFR Section 63.543 (a), (b) and (g), and 63.548(i) and 63.550(a), (c)(4) and (d)(7).

c. *Fencing:* By no later than August 24, 2015, Exide shall ensure that a fence limiting public access to the Exide Facility is installed and/or maintained as per the diagram in Attachment A of this COA.

d. *Contingency Measures.* Control measures to bring the North Reading Lead Nonattainment Area into attainment with the Lead NAAQS include contingency measures that are ready to be implemented if a monitored exceedance of the Lead NAAQS occurs, as measured at the DEP air quality monitors.

1. Exide shall implement contingency measures as provided in (3)(d)(3) if all of the following occur:

i. any monitored exceedance of the Lead NAAQS occurs, as measured at the DEP monitors.

ii. the Department determines in writing that Exide's ongoing emissions cause or significantly contribute to the Lead NAAQS exceedance.

iii. the Department determines in writing that specific contingency measures from among those listed below are necessary and appropriate to abate the emissions which the Department has determined are causing or significantly contributing to the Lead NAAQS exceedance.

2. Exide shall implement contingency measure(s) as provided in (3)(d)(3) if the Department notifies Exide that a monitored violation of the Lead NAAQS has occurred, as measured at the DEP monitors, and identifies in the notification one or more of the contingency measure(s) from those listed in (3)(d)(3) to be implemented by Exide.

3. As provided in Paragraph (3)(d)(1) and (2), Exide shall do the following:

i. Within one day after written Department notice, Exide shall increase the in-plant road cleaning at the Exide Facility to 10 hours each working day, and shall continue in-plant road cleaning activities at this frequency unless and until otherwise approved in writing by DEP. Exide may forgo cleaning during days when natural precipitation makes cleaning unnecessary or when sand or similar material has been spread on plant roadways to provide traction on ice or snow.

ii. Within 60 days after written Department notice, Exide shall submit to the Department either an RFD or a plan approval application for installation of HEPA filters on any or all of the following baghouses, as may be required by the Department notice: C19, C23A and C47. In the event that an RFD is

submitted and subsequently denied, Exide shall within 60 days of such denial submit to the Department a plan approval application. Exide shall install and begin operating the HEPA filters within 180 days of approval of either an RFD or issuance of a plan approval, unless otherwise proposed by Exide in the Study required under Paragraph (3)(d)(2)(iv) below. After implementing this measure Exide or the Department shall collect air quality data for lead and review it to see whether attainment of the NAAQS has been restored.

iii. If the ambient air data measured by DEP following implementation of 3(d)(2)(ii) has failed to restore attainment of the NAAQS for lead, Exide shall, within 60 days after written Department notice, submit to the Department either an RFD or a plan approval application for an increase in the stack height for any or all of the following stacks, as may be required by the Department notice: S13, S23A and S70. In the event that an RFD is submitted and subsequently denied, Exide shall within 60 days of such denial submit to the Department a plan approval application. Exide shall complete construction of the higher stacks within 180 days of approval of either an RFD or issuance of a plan approval, unless otherwise proposed by Exide in the Study required under Paragraph (3)(d)(2)(iv) below.

iv. By no later than 180 days after written Department notice, Exide shall submit to the Department an investigative study ("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.

A. 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.

B. The Department will either approve or modify the projects and deadlines proposed in the Study ("Study Elements"). Upon the Department approval or modification of the Study Elements ("Department Approval"), the items so approved or modified shall be deemed incorporated by reference as Order items in this COA and shall be completed by the approved deadlines. The immediate contingency measure specified in Paragraph (3)(d)(2)(i) 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 Department Approval, unless continuance of the measure is required in the Department Approval. In the

event that Exide disputes any modifications made by the Department to the Study Elements in the Department Approval, Exide retains the right to appeal the Department Approval, but shall nonetheless carry out the Study Elements as proposed by Exide during the pendency of any appeal.

- v. If Exide identifies and demonstrates to the Department's satisfaction alternative control measures(s) that would achieve equal or greater lead emission reductions than the contingency measures identified above, Exide may substitute the new control measure(s) for the contingency measure(s) identified above upon the Department's written approval. Any substitute contingency measures shall be implemented under the same time frame as the original measure, unless both parties agree to a modified contingency schedule.
- e. *Semiannual Reports:* Exide shall submit semiannual reports to the Department of Exide's progress in complying with the requirements of this COA. Semiannual reports shall be due each January 31 and July 31 for the preceding semiannual period. Once the initial work required by this COA is complete, Exide may petition the Department for approval of a reduction in frequency of, or elimination of the ongoing requirement for these reports.

4. ~~Stipulated Civil Penalties.~~

- a. ~~In the event Exide fails to comply in a timely manner with the provisions of Paragraph 3, Exide shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a civil penalty in the amount of \$375 per day that any of the provisions of Paragraph 3 remain unfulfilled.~~
- b. ~~Stipulated civil penalty payments shall be payable within 15 days of notification by the Department that they are due. Payments shall be made by corporate check or the like made payable to the Commonwealth of Pennsylvania - Clean Air Fund and sent to Mr. William Weaver, Program Manager, Air Quality Program, 909 Elmerton Ave., Harrisburg, Pennsylvania, 17110, along with a transmittal of penalty form, a copy of which is attached.~~
- c. ~~Any payment under this paragraph shall neither waive Exide's duty to meet its obligations under this COA nor preclude the Department from commencing an action to compel Exide's compliance with the terms and conditions of this COA. The payment resolves only Exide's liability for civil penalties arising from the violation of this COA for which the payment is made.~~

5. ~~Additional Remedies.~~

- a. ~~In the event Exide fails to comply with any provision of this COA, the Department may, in addition to the remedies prescribed herein, pursue any remedy available for a violation of an order of the Department, including an action to enforce this COA.~~

- b. ~~The remedies provided by this paragraph and Paragraphs 3 and 4 are cumulative and the exercise of one does not preclude the exercise of any other. The failure of the Department to pursue any remedy shall not be deemed to be a waiver of that remedy. The payment of a stipulated civil penalty, however, shall preclude any further assessment of civil penalties for the violation for which the stipulated civil penalty is paid.~~
6. ~~Reservation of Rights.~~ The Department reserves the right to require additional measures to achieve compliance with applicable law. Exide reserves the right to challenge any action which the Department may take to require those measures.
7. ~~Liability of Operator.~~ Exide shall be liable for any violations of this COA, including those caused by, contributed to, or allowed by its officers, agents, employees, or contractors.
8. ~~Transfer of Site.~~
- a. ~~The duties and obligations under this COA shall not be modified, diminished, terminated or otherwise altered by the transfer of any legal or equitable interest in the Facility or any part thereof.~~
- b. ~~If Exide intends to transfer any legal or equitable interest in the Facility which is affected by this COA, Exide shall serve a copy of this COA upon the prospective transferee of the legal and equitable interest at least 30 days prior to the contemplated transfer and shall simultaneously inform the Southeastern Regional Office of the Department of such intent.~~
9. ~~Correspondence with Department.~~ All correspondence with the Department concerning this COA shall be addressed to:

William Weaver
Program Manager
Air Quality Program
Southeastern Regional Office
909 Elmerton Ave.
Harrisburg, PA 17110

10. ~~Correspondence with Exide.~~ All correspondence with Exide concerning this COA shall be addressed to:

David Wagner, EHS Manager
Exide Technologies
PO Box 14294
Reading, PA 19612-4294

with a copy to:

Robert Collings, Esq.
Schneider, Harrison, Segal and Lewis LLP

1600 Market Street, Suite 3600
Philadelphia, PA 19103

~~Exide shall notify the Department whenever there is a change in the contact person's name, title, or address. Service of any notice or any legal process for any purpose under this COA, including its enforcement, may be made by mailing a copy by first class mail to the above address.~~

~~11. Severability. The paragraphs of this COA shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.~~

~~12. Entire Agreement. This COA shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.~~

~~13. Attorney Fees. The parties shall bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this COA.~~

~~14. Modifications. No changes, additions, modifications, or amendments of this COA shall be effective unless they are set out in writing and signed by the parties hereto.~~

~~15. Titles. A title used at the beginning of any paragraph of this COA may be used to aid in the construction of that paragraph, but shall not be treated as controlling.~~

~~16. This COA shall not be considered as a limitation or abridgment of the Department's rights and duties to take action as necessary to implement emergency control strategies under Section 6.2 of the APCA, 35 P.S. § 4006.2.~~

~~17. Termination. This COA shall terminate once all of the following have occurred: 1.) the relevant portions of the COA have been incorporated in a State Implementation Plan ("SIP"); 2.) EPA approves the SIP, and 3.) the EPA-approved SIP provisions of the COA have been incorporated into an air quality operating permit for the Exide Facility.~~

~~18. Counterparts. This Consent Order and Agreement may be signed in counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument. Facsimile signatures or those transmitted by electronic means shall be valid and effective.~~

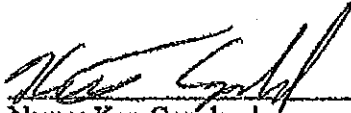
~~19. This COA does not grant a variance from any requirement of the APCA, the Clean Air Act, 42 U.S.C. § 7401 et seq., or any regulations promulgated under either of these statutes; nor does it purport to modify any requirement of Pennsylvania's State Implementation Plan as approved under the Section 110 of the Clean Air Act, 42 U.S.C. § 7410.~~

IN WITNESS WHEREOF, the parties hereto have caused this COA to be executed by their duly authorized representatives. The undersigned representatives of Exide certify under penalty of law, as

provided by 18 Pa. C.S. § 4904, that they are authorized to execute this COA on behalf of Exide; that Exide consents to the entry of this COA as a final ORDER of the Department; and that Exide hereby knowingly waives its rights to appeal this COA and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, the Act of July 13, 1988, P.L. 530, No. 1988-94, 35 P.S. §7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provision of law.

FOR EXIDE TECHNOLOGIES:

FOR THE COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION:



Name: Ken Copeland
Title: Vice President, Recycling

William Weaver
Regional Manager, Air Quality

Craig S. Lambeth
Assistant Counsel

provided by 18 Pa. C.S. § 4904, that they are authorized to execute this COA on behalf of Exide; that Exide consents to the entry of this COA as a final ORDER of the Department; and that Exide hereby knowingly waives its rights to appeal this COA and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, the Act of July 13, 1988, P.L. 530, No. 1988-94, 35 P.S. §7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provision of law.

FOR EXIDE TECHNOLOGIES:

Name: Ken Copeland
Title: Vice President, Recycling

FOR THE COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION:

William R. Weaver

William Weaver
Regional Manager, Air Quality

Craig S. Lambeth

Craig S. Lambeth
Assistant Counsel

Weaver, William

From: Nolan, Sean
Sent: Wednesday, June 10, 2015 11:03 AM
To: Weaver, William
Cc: Epps, Joyce; Furlan, Kristen M.; Dalal, Kirit; Lazor, Nicholas; Bordner, Randy; Wehr, Deborah; Hanlon, Thomas; Lambeth, Craig; Duke, Alicia
Subject: North Reading Lead SIP Modeling Update
Attachments: Exide and Yuasa Sources for Modeling Demo.xlsx; Exide_Fence.pdf; Overall_Fence.pdf; Yuasa_Fence.pdf

Bill,

The purpose of this email is to provide you with an update on the status of the North Reading lead SIP modeling. I have completed the modeling. There was a change that needed to be addressed since my June 1, 2015 email to you stating that the modeling was complete. That change has been memorialized below:

After receiving a copy of the proposed fence line (the same one that was addressed in the June 1, 2015 email to you), Yuasa Batteries had concern with the location of the proposed fence line along the southern edge of the boundary. After diagnosing the situation, Yuasa Batteries proposed a lower emission rate for the S20 source, reducing the overall impact of that source within the modeling domain. This emission reduction eliminated the need for the southern side of the fence, reducing the size of the fence to that in the attached figure.

I have provided you with three new maps (see the attached PDFs) which outlines the location of the fence line with respect to Exide and the location of the fence line with respect to Yuasa, along with the modeling parameters (see the attached Excel file) that were used for the attainment demonstration necessary for the North Reading lead SIP.

Please feel free to contact me with any additional questions regarding this matter.

Best regards,

Sean

Sean P. Nolan | Chief, Quality Assurance and Data Assessment Section
 Department of Environmental Protection | Bureau of Air Quality
 Rachel Carson State Office Building
 400 Market Street | Hbg PA 17105
 Phone: 717.772.3377 | Fax: 717.772.2303
www.depweb.state.pa.us

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Point Sources

Source ID	Facility	Eastlog (meters)	Northlog (meters)	Elevation (meters)	Emission Rate (grams/sec)	Height (meters)	Temperature (Kelvin)	Velocity (meters/sec)	Diameter (meters)
S62	Exide	422572.84	4470535.44	109.69	2.26500E-03	30.48	310	21.556	1.829
S64	Exida	422570.38	4470659.47	114.3	6.04100E-03	30.48	311	22.928	2.896
S63	Exida	422543.43	4470680.06	114.49	6.04100E-03	30.48	319	22.928	2.896
S19	Exide	422553	4470424.43	108.83	1.91900E-03	22.25	295	24	1.8
S47	Exide	422531.68	4470489.59	113.9	1.85900E-03	22.86	311		1.8
S70	Exida	422572.28	4470408.57	106.55	1.58760E-04	9.45	302.59		0.457
S55	Exide	422587.92	4470558.83	109.6	5.02732E-03	34.63	302.5		2.286
S13	Exide	422524.24	4470640.64	115.84	3.98590E-04	7.62	331.48	5.031	0.914
S23A	Exide	422524.45	4470594.46	118.59	1.08700E-03	7.62	313.43	13.929	1.346
Y_S01	Yuasa	422803	4470625	112.52	6.87948E-04	14.32	311.6	20.2	0.83
Y_S03_1	Yuasa	422808	4470578	112.49	4.59000E-04	6.1	28	22.56	1.7
Y_S03_2	Yuasa	422808	4470578	112.49	3.52794E-04	9.140001	28	22.56	1.7
Y_S03_3	Yuasa	422808	4470578	112.49	3.52794E-04	7.62	28	22.56	1.7
Y_S15	Yuasa	422804	4470638.1	112.52	1.74986E-04	12.8	354	9.43	0.91
Y_S20	Yuasa	422804	4470604.2	112.49	2.52000E-04	11.678	343.15	10.52	0.5099999
BIEL	Yuasa	422757.7	4470595.7	111.95	1.40000E-05	7.9248	300	10.16	0.3048
BUFFORGB	Yuasa	422792.2	4470583.1	112.7	1.34000E-04	8.2	300	12.7	0.9144
JOVEN	Yuasa	422785.1	4470552.1	112.5	1.40000E-05		300	16	0.3048

Area Sources

Source ID	Facility	Eastlog (meters)	Northlog (meters)	Elevation (meters)	Emission Rate (grams/sec)	Release Height (meters)	Length of X (meters)	Length of Y (meters)	Angle of Orientation (Optional) (degrees)
RI_A1_05	Exide	422429.72	4470143.54	102.5	1.947	2.55	4	2.372	
FURNACE	Exide	422538.92	4470474.78	112	2.3980	11.28	25.97	48.17	-5
AREA_1	Yuasa	422712.5	4470764.7	113.75	1.10000E-06	2.55	4	2.372	
AREA_2	Yuasa	422717.01	4470495.942	108.99	6.14000E-10	2.55	12	2.372	
AREA_3	Yuasa	422717.51	4470489.542		1.33000E-09		16	2.372	

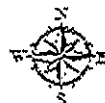
Volume Sources

Source ID	Facility	Eastlog (meters)	Northlog (meters)	Elevation (meters)	Emission Rate (grams/sec)	Release Height (meters)	Length of Y (meters)	Length of Z (meters)
RI_A1_01	Exide	422438.2	4470220.9	103.59	5.04000E-06	2.55	6.977	2.372
RI_A1_02	Exide	422442.5	4470206.5	103.59	5.04000E-06	2.55	6.977	2.372
RI_A1_03	Exide	422447.5	4470191.5	103.59	5.04000E-06	2.55	6.977	2.372
RI_A1_04	Exide	422451.5	4470177.52	103.59	5.04000E-06	2.55	6.977	2.372
RI_A2_01	Exide	422474.5	4470320.1	103.59	7.08800E-06	2.55	6.977	2.372
RI_A2_02	Exide	422463.35	4470309.6	103.59	7.08800E-06	2.55	6.977	2.372
RI_A2_03	Exide	422451.9	4470299.9	103.59	7.08800E-06	2.55	6.977	2.372
RI_A2_04	Exide	422443	4470284.5	103.59	7.08800E-06	2.55	6.977	2.372
RI_A2_05	Exide	422434	4470271.5	103.72	7.08800E-06	2.55	6.977	2.372
RI_A2_06	Exide	422426	4470263	103.47	7.08800E-06	2.55	6.977	2.372
RI_A2_07	Exide	422425.2	4470248	103.34	7.08800E-06	2.55	6.977	2.372
RI_A2_08	Exide	422431.35	4470234.28	103.48	7.08800E-06	2.55	6.977	2.372
RI_A3_01	Exide	422516	4470363	105.61	1.92200E-05	2.55	6.977	2.372
RI_A3_02	Exide	422504	4470352.9	105.45	1.92200E-05	2.55	6.977	2.372
RI_A3_03	Exide	422504	4470341.76	104.98	1.92200E-05	2.55	6.977	2.372
RI_A3_04	Exide	422504	4470331.4	104.49	1.92200E-05	2.55	6.977	2.372
RI_A4_01	Exide	422526.1	4470373.67	106.1	1.63800E-05	2.55	6.512	2.372
RI_A4_02	Exide	422537.05	4470385.1	106.52	1.63800E-05	2.55	6.512	2.372
RI_A4_03	Exide	422548.5	4470396	106.61	1.63800E-05	2.55	6.512	2.372
RI_A4_04	Exide	422558.4	4470408.35	106.82	1.63800E-05	2.55	6.512	2.372
RI_A5_01	Exide	422597.5	4470469.2	106.99	1.96600E-05	2.55	6.279	2.372
RI_A5_02	Exide	422591.9	4470456.2	106.83	1.96600E-05	2.55	6.279	2.372
RI_A5_03	Exide	422586.2	4470443.5	106.75	1.96600E-05	2.55	6.279	2.372
RI_A5_04	Exide	422578.37	4470431.5	106.71	1.96600E-05	2.55	6.279	2.372
RI_A5_05	Exide	422569.08	4470420.03	106.95	1.96600E-05	2.55	6.279	2.372
RI_B_01	Exide	422608	4470579.8	110.19	1.35800E-05	2.55	6.465	2.372
RI_B_02	Exide	422609.3	4470565.7	109.74	1.35800E-05	2.55	6.465	2.372
RI_B_03	Exide	422610.7	4470551.7	109.51	1.35800E-05	2.55	6.465	2.372
RI_B_04	Exide	422611.6	4470537.8	109.33	1.35800E-05	2.55	6.465	2.372
RI_B_05	Exide	422610.8	4470523.9	108.88	1.35800E-05	2.55	6.465	2.372
RI_B_06	Exide	422609	4470510	108.34	1.35800E-05	2.55	6.465	2.372

RI B 07	Exide	422605.9	4470496.3	108.17	1.35800E-05	2.55	6.465	2.372
RI B 08	Exide	422601.8	4470482.8	107.21	1.35800E-05	2.55	6.465	2.372
RI B 09	Exide	422606.8	4470594.3	111.28	1.35800E-05	2.55	6.465	2.372
RI C 01	Exide	422603.42	4470608.55	112.22	1.09000E-05	2.55	6	2.372
RI C 02	Exide	422607.9	4470620.8	112.38	1.09000E-05	2.55	6	2.372
RI C 03	Exide	422609	4470633.8	112.43	1.09000E-05	2.55	6	2.372
RI C 04	Exide	422609.75	4470647	112.23	1.09000E-05	2.55	6	2.372
RI C 05	Exide	422610.27	4470660.05	111.85	1.09000E-05	2.55	6	2.372
RI C 06	Exide	422611.36	4470672.95	111.38	1.09000E-05	2.55	6	2.372
RI C 07	Exide	422613.7	4470685.9	111.23	1.09000E-05	2.55	6	2.372
RI C 08	Exide	422614.5	4470698.85	112	1.09000E-05	2.55	6	2.372
RI C 09	Exide	422613.9	4470711.79	111.57	1.09000E-05	2.55	6	2.372
RI C 10	Exide	422612	4470724.56	111.36	1.09000E-05	2.55	6	2.372
RI C 11	Exide	422609.4	4470737.32	111.61	1.09000E-05	2.55	6	2.372
RI C 12	Exide	422607.25	4470750.1	111.84	1.09000E-05	2.55	6	2.372
RI C 13	Exide	422604.92	4470762.9	112.09	1.09000E-05	2.55	6	2.372
RI C 14	Exide	422603.24	4470775.95	111.77	1.09000E-05	2.55	6	2.372
RI C 15	Exide	422601.08	4470788.9	111.52	1.09000E-05	2.55	6	2.372
RI C 16	Exide	422599.23	4470801.88	111.62	1.09000E-05	2.55	6	2.372
RI C 17	Exide	422598	4470814.9	111.55	1.09000E-05	2.55	6	2.372
RI C 18	Exide	422595	4470827.6	111.76	1.09000E-05	2.55	6	2.372
RI C 19	Exide	422587	4470837.9	111.71	1.09000E-05	2.55	6	2.372
RI C 20	Exide	422581.04	4470850.05	111.53	1.09000E-05	2.55	6	2.372
RI D1 01	Exide	422571.32	4470869.5	114.76	1.11600E-05	2.55	5.628	2.372
RI D1 02	Exide	422575.6	4470677.85	114.53	1.11600E-05	2.55	5.628	2.372
RI D1 03	Exide	422580	4470666.55	114.35	1.11600E-05	2.55	5.628	2.372
RI D1 04	Exide	422584.5	4470655.3	114.08	1.11600E-05	2.55	5.628	2.372
RI D1 05	Exide	422589	4470643.8	113.82	1.11600E-05	2.55	5.628	2.372
RI D1 06	Exide	422592.8	4470632	113.85	1.11600E-05	2.55	5.628	2.372
RI D1 07	Exide	422596.9	4470620.1	113.48	1.11600E-05	2.55	5.628	2.372
RI D2 01	Exide	422556.2	4470777	115.95	2.77200E-07	2.55	8	2.372
RI D2 02	Exide	422559.4	4470760	115.87	2.77200E-07	2.55	8	2.372
RI D2 03	Exide	422562.3	4470743	115.2	2.77200E-07	2.55	8	2.372
RI D2 04	Exide	422565	4470726	115.07	2.77200E-07	2.55	8	2.372
RI D2 05	Exide	422567	4470708.3	115.15	2.77200E-07	2.55	8	2.372
UITZ5000	Yuasa	422832.1	4470555.4	112.95	4.68000E-08	3	5.581	2.791
UITZ500P	Yuasa	422830.8	4470567.3	112.78	4.68000E-08	3	5.581	2.791
UITZ500Q	Yuasa	422829.4	4470579.2	112.68	4.68000E-08	3	5.581	2.791
UITZ500R	Yuasa	422819	4470579.8	112.68	4.68000E-08	3	5.581	2.791
UITZ500U	Yuasa	422832	4470555.9	112.68	4.68000E-07	3	5.581	2.791
UITZ500V	Yuasa	422830.5	4470567.8	112.68	4.68000E-07	3	5.581	2.791
UITZ500W	Yuasa	422829	4470579.7	112.68	4.68000E-07	3	5.581	2.791
UITZ500X	Yuasa	422827.5	4470591.6	112.35	4.68000E-07	3	5.581	2.791
UITZ500Y	Yuasa	422826	4470603.5	112.32	4.68000E-07	3	5.581	2.791
UITZ500Z	Yuasa	422824.5	4470615.4	112.38	4.68000E-07	3	5.581	2.791
UITZ5010	Yuasa	422823	4470627.3	112.41	4.68000E-07	3	5.581	2.791
UITZ5011	Yuasa	422821	4470639.2	112.42	4.68000E-07	3	5.581	2.791
UITZ5012	Yuasa	422819	4470651.1	112.47	4.68000E-07	3	5.581	2.791
UITZ5013	Yuasa	422817	4470659.6	112.5	4.68000E-07	3	5.581	2.791
UITZ5014	Yuasa	422815	4470658.3	112.53	4.68000E-07	3	5.581	2.791



 Exide Fence Location



0 55 110 220 330 440 Meters





— Proposed Yuasa Ferry Location



0 20 40 80 120 160 Meters



 Exide Fence Location
Proposed Yuasa Fence Location



0 55 110 220 330 440 Meters





APPENDIX C-2

Portions of the Consent Order and Agreement Between DEP and Yuasa

**Bureau of Air Quality
Department of Environmental Protection**

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COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION

IN THE MATTER OF:

Yuasa Battery, Inc.	:	Lead Nonattainment Issues;
2901 Montrose Avenue	:	and Operating Permit/NSPS Violations
Laureldale, PA 19605	:	Laureldale Borough, Berks County

CONSENT ORDER AND AGREEMENT

This Consent Order and Agreement ("COA") is entered into this 12th day of June, 2015 by and between the Commonwealth of Pennsylvania, Department of Environmental Protection ("Department" or "DEP") and Yuasa Battery, Inc. ("Yuasa").

The Department has found and determined the following:

A. The Department is the agency with the duty and authority to administer and enforce the Air Pollution Control Act, Act of January 8, 1960, P.L. 2119 (1959), as amended, 35 P.S. § 4001 et seq. ("APCA"); Section 1917-A of the Administrative Code of 1929, Act of April 9, 1929, P. L. 177, as amended, 71 P.S. § 510-17 and the rules and regulations promulgated thereunder.

Yuasa Facility Details:

B. Yuasa is a Delaware corporation authorized to do business in Pennsylvania, with a mailing address of 2901 Montrose Avenue, Laureldale, PA 19605.

C. Yuasa owns and operates a lead-acid battery manufacturing facility ("Yuasa Facility"), located at 2901 Montrose Avenue in Laureldale Borough, Berks County, Pennsylvania.

D. The Yuasa Facility is presently covered by State Only Operating Permit No. 06-03029 ("Yuasa Permit"), and by Plan Approval No. 06-03029C ("Yuasa Plan Approval C").

E. The Yuasa Facility includes the following operating or proposed lead-emitting sources ("Yuasa Sources"):

a.) authorized under the Yuasa Permit:

- 1.) Source 101 Pasting Operation controlled by HEPA Filter C01A and Scrubber C01B. Source 101 ultimately vents to atmosphere through a stack designated as S01 in the Yuasa Permit.
- 2.) Source 102 Oxide Bin controlled by Bin Vent Filter C02. The configuration of this source has been modified in Yuasa Plan Approval C from that stated in the Yuasa Permit. See below for details.
- 3.) Source 103 Battery Assembly (four lines) controlled by Fabric Filters C03, C06 and C07. Source 103 ultimately vents to atmosphere through three stacks designated as S03, S06 and S07 in the Yuasa Permit.

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~~4.) Source 105 Grid and Small Parts Casting, controlled by Fabric Filter C15. Fabric Filter C15 ultimately vents to atmosphere through a stack designated as S15 in the Yuasa Permit.~~

~~b.) authorized under the Yuasa Plan Approval C.~~

~~1.) Source 102 Oxide Bin controlled by Bin Vent Filter C02 and HEPA Filter C02A. This source vents indoors.~~

~~2.) Source 102A 2nd Oxide Bin. Yuasa has informed DEP that this source was never constructed, and that there are no plans to construct it.~~

~~3.) Source 105A New Melt Pot and Casting, controlled by Fabric Filter C15 and HEPA Filter C15A. Source 105A ultimately vents to atmosphere through a stack designated as S15 in the Yuasa Plan Approval C.~~

~~4.) Source 120 Ball Mill, controlled by Fabric Filter C20 and HEPA Filter C20A. Source 120 ultimately vents to atmosphere through a stack designated as S20 in the Yuasa Plan Approval C.~~

~~5.) Source 121 Four Lead Oxide Silos, controlled by Bin Vent Filters C21 and HEPA Filters C21A. These sources vent indoors.~~

~~c.) In addition to the lead emissions from the stacks of the abovementioned sources, fugitive lead emissions are estimated to occur from several other vents at the Facility. These vents are in place primarily to vent heat for employee comfort. Lead is assumed to be present in these exhausts simply because lead is present in the indoor building air. The affected building vents are as follows:~~

~~1.) several exhaust vents over ovens.~~

~~2.) one vent associated with operations in the Source 105/105A area.~~

~~3.) four general ventilation stacks in the Bielomatic (battery assembly) area.~~

~~d.) Fugitive lead emissions are also estimated to occur from Plant Roadways at the Facility.~~

~~F. The following sources authorized by the Yuasa Permit are not known to be sources of lead emissions: Source 104 Formation Room controlled by Scrubbers C04, C08, C09, C10, C11 and C12. Source 104 ultimately vents to atmosphere through six stacks designated as S04, S08, S09, S11, S12 and S13 in the Yuasa Permit.~~

~~G. Each portion of the Yuasa Sources described above is an air contamination source as defined by Section 3 of the APCA, 35 P.S. § 4003.~~

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Background of Requirements for Commonwealth to Submit State Implementation Plan (SIP):

- ~~H. On November 22, 2010, at 75 FR 71033, the U.S. Environmental Protection Agency (EPA) designated the North Reading area in Berks County as nonattainment for the 2008 lead National Ambient Air Quality Standard (NAAQS) of 0.15 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).~~
- ~~I. The North Reading Lead Nonattainment Area consists of Laureldale Borough, Muhlenberg Township & Alsace Township.~~
- ~~J. Pursuant to the requirements of the Clean Air Act (CAA), the Commonwealth of Pennsylvania was required to develop and submit a SIP revision for each lead nonattainment area to EPA by June 30, 2012.~~
- ~~K. The SIP revision was required to include:~~
- ~~• Inventories of lead emissions within the nonattainment area for a base year and the attainment year.~~
 - ~~• Permanent and enforceable control measures sufficient to attain the standard, and an analysis of "reasonably available control measures" and "reasonably available control technology" (RACM/RACT) for any facility in a nonattainment area emitting 0.5 tons per year or greater. Measures implemented to meet the RACM/RACT requirement must be incorporated into a federally enforceable vehicle, such as a plan approval or operating permit.~~
 - ~~• A demonstration that emissions have been reduced over time ("reasonable further progress").~~
 - ~~• A demonstration of attainment using AERMOD, the approved dispersion model. The modeling must include allowable emissions expected at the projected attainment date, including any new control measures and taking economic growth into account. Modeling must take into consideration all sources of lead emissions within the nonattainment area "that may be required to be controlled."~~
 - ~~• Contingency measures that require only minimal further action by the state agency to activate if the area fails to meet RFP or to attain the NAAQS by December 31, 2015. A triggering mechanism must be identified, with a schedule for implementation.~~

- ~~L. The SIP revision is subject to a public comment period and opportunity for a public hearing.~~

History of North Reading Lead Nonattainment Area SIP Process:

- ~~M. The Yuasa Facility emits lead to the atmosphere, and is located in the North Reading non-attainment area.~~
- ~~N. Exide is a Delaware corporation which owns a currently idled secondary lead smelter facility ("Exide Facility"), located at Spring Valley Road and Nolan Street in Laureldale Borough, Berks County, Pennsylvania. The Exide Facility includes various lead-emitting sources ("Exide Sources"), which are air contamination sources as defined by Section 3 of the APCA, 35 P.S. § 4003. The Exide Sources are not the subject of this COA; nevertheless, the Exide Sources are relevant to this COA~~

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because DEP has determined that they, along with the Yuasa Sources, have the potential to affect the lead nonattainment status of the North Reading Lead Nonattainment Area.

~~O. 40 CFR 51.117(a)(2) provides that states must include, as a part of their attainment modeling demonstration, an analysis showing that the SIP will attain and maintain the standard in any area that has lead air concentrations in excess of the national ambient air quality standard concentration. EPA has stated, in the "SIP Toolkit - Attainment Demonstrations and Air Quality Modeling" found at <http://www.epa.gov/oagps001/lead/kitmodel.html>, that "In doing the analysis, required under 40 CFR 51.117(a)(2), EPA expects the state will take into consideration all sources of lead emissions within the nonattainment area that may be required to be controlled, taking into consideration the attainment needs of the area."~~

~~P. Based on dispersion modeling at potential to emit emission rates, DEP has determined that Yuasa is a potential contributor to modeled (as opposed to actual) Lead NAAQS exceedences, and that therefore the lead emissions from the Yuasa Facility should be specifically included in the modeling demonstration of attainment for the North Reading Lead Nonattainment Area.~~

~~Q. On February 25, 2014, the EPA published in the Federal Register a "Finding of Failure To Submit State Implementation Plans Required for the 2008 Lead National Ambient Air Quality Standards" ("EPA Finding").~~

~~R. The EPA Finding stated that "If Pennsylvania has not submitted and the EPA has not approved the required attainment plans for its nonattainment areas by no later than 2 years after the effective date of this finding, the EPA must promulgate a federal implementation Plan (FIP) for the affected nonattainment area. In addition, the CAA provides for the imposition of sanctions if the state does not submit the required attainment SIP within specific timeframes."~~

~~S. The EPA Finding further stated that "If the EPA has not affirmatively determined that Pennsylvania has made the required complete nonattainment SIP submissions within 18 months of the effective date of this action then, pursuant to CAA section 179(a) and (b) and 40 CFR 52.31, the offset sanction identified in CAA section 179(b)(2) will apply in any area subject to the findings for which a complete submission has not been made. If the EPA has not affirmatively determined that Pennsylvania has made a complete submission for each area subject to the findings within 6 months after the emission offset sanction is imposed, then the highway funding sanction will also apply in any area subject to the finding for which a complete submission has not been made, in accordance with CAA section 179(b)(1) and 40 CFR 52.31. The 18-month clock will stop and the sanctions will not take effect, within 18 months after the date of this finding, if the EPA finds that Pennsylvania has made a complete nonattainment SIP submission for each area for which the finding is being made or if the EPA makes a determination the area is attaining the standard consistent with the EPA's Clean Data Policy. In addition, the EPA is not required to promulgate a FIP if Pennsylvania makes the required SIP submittal, and the EPA takes final action to approve the submittal, or if EPA makes a final determination the area is attaining the standard consistent with the Clean Data Policy, within 2 years of the EPA's finding."~~

~~T. On June 10, 2015, DEP finalized a modeling determination ("Modeling Determination") for the North Reading Lead Nonattainment Area, concluding that the area would achieve modeled lead attainment if both Exide and Yuasa would undertake certain emission reduction and/or facility~~

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modification projects, and/or accept certain enforceable operational and/or emission limitations. The Modeling Determination is incorporated into this COA as Attachment A.

U. It is necessary to make certain details used in the Department's Modeling Determination enforceable by including them as requirements in this Consent Order and Agreement.

December 19, 2013 Notice of Violation:

V. Condition 013 in Section B of Yuasa Plan Approval C ("PAB013"), as well as 25 Pa. Code Sections 127.25 and 127.444, provide that a person may not cause or permit the operation of a source subject to § 127.11 (relating to plan approval requirements), unless the source and air cleaning devices identified in the application for the plan approval and the plan approval issued to the source, are operated and maintained in accordance with specifications in the application and conditions in the plan approval issued by the Department. A person may not cause or permit the operation of an air contamination source subject to this chapter in a manner inconsistent with good operating practices.

W. Condition 001(a)(6) for Source Group 01 in Section E of Yuasa Plan Approval C ("PAE001") provides in relevant part that the permittee shall not cause to be discharged into the atmosphere from "any other lead-emitting operation" (i.e. Sources 105A & 121) any gases that contain in excess of 0.0001 grains of lead per dry standard cubic foot.

X. The federal Standards of Performance for Lead-Acid Battery Manufacturing Plants, found in 40 CFR Subpart KK, provide at 40 CFR Section 60.372(a)(6), that on and after the date on which the performance test required to be conducted by 40 CFR 60.8 is completed, the permittee subject to the provisions of this subpart shall not cause to be discharged into the atmosphere from any other lead-emitting operation any gases that contain in excess of 1.00 milligram of lead per dry standard cubic meter of exhaust (0.000437 gr/dscf).

Y. On October 15, 2013, Yuasa conducted lead emission testing with regard to equipment authorized under Yuasa Plan Approval C. The results of that testing on the Source 105A New Melt Pot and Casting (Source 105A) showed lead emissions of 0.000620 grains/dscf, compared to the limit in the plan approval of 0.0001 grains/dscf, and the limit in NSPS Subpart KK of 0.000437 grains/dscf.

Z. On December 19, 2013, DEP sent Yuasa a Notice of Violation regarding the situation described in Paragraph Y.

AA. On January 9, 2014, Yuasa sent DEP an NOV response letter stating that they had thoroughly inspected the relevant baghouse and had done a fluorescent powder leak test, but no leaks were found. The letter stated that the next steps would be as follows:

- 1.) remove and clean stack sampling port to ensure no contamination of samples
- 2.) conduct series of engineering emission tests to identify the cause of the exceedence, and make appropriate control device adjustments.
- 3.) replace the HEPA filters.

BB. On May 28- 29, 2014 and June 4, 2014, Yuasa conducted repeat stack testing of the Source 105A New Melt Pot and Casting. The results of that testing, submitted to DEP on August 6, 2014, showed lead emissions of 0.0000747 and 0.0000111 grains/dscf for the two test events respectively, which

complied with the limit in the plan approval of 0.0001 grains/dscf, and the limit in NSPS Subpart KK of 0.000437 grains/dscf.

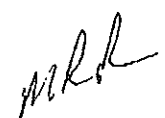
CC. By causing or permitting the conditions described in Paragraph Y above, Yuasa violated PAB013 and PAE001 as well as 25 Pa. Code Sections 127.25 and 127.444 and 40 CFR Section 60.372(a)(6).

DD. The violations described in Paragraph CC above, constitute unlawful conduct under Section 8 of the APCA, 35 P.S. § 4008, and subject Yuasa to a claim for civil penalties under Section 9.1 of the APCA, 35 P.S. § 4009.1.

ORDER

After full and complete negotiation of all matters set forth in this Consent Order and Agreement and upon mutual exchange of covenants contained herein, the parties desiring to avoid litigation and intending to be legally bound, it is hereby ORDERED by the Department and AGREED to by Yuasa as follows:

1. ~~Authority.~~ This Consent Order and Agreement ("COA") is an Order of the Department authorized and issued pursuant to Sections 4 and 10.1 of the APCA, 35 P.S. §§ 4004 and 10.1, and Section 1917-A of the Administrative Code, 71 P.S. § 510-17.
2. ~~Assessment.~~ In resolution of the Department's claim for civil penalties, which the Department is authorized to pursue under 35 P.S. § 4009.1, the Department hereby assesses a civil penalty of \$1,261.19, which Yuasa hereby agrees to pay.
3. ~~Civil Penalty Settlement.~~ Within 15 days of receipt of a fully executed copy of this COA, Yuasa shall pay the civil penalty assessed in Paragraph 2. This payment is in settlement of the Department's claim for civil penalties for the violations set forth in Paragraphs CC and DD above. The payment shall be made by corporate check or the like made payable to the Commonwealth of Pennsylvania - Clean Air Fund and sent to Mr. William Weaver, Program Manager, Air Quality Program, 909 Elmerton Ave., Harrisburg, Pennsylvania, 17110, along with a transmittal of penalty form, a copy of which is attached. The payment of the civil penalty shall constitute final resolution of this matter.
4. ~~Findings.~~
 - a. Yuasa agrees that the findings in Paragraphs A through DD are true and correct and, in any matter or proceeding involving Yuasa and the Department, Yuasa shall not challenge the accuracy or validity of these findings.
 - b. The parties do not authorize any other persons to use the findings in this COA in any matter or proceeding.
5. **Required Action.**
 - a. *Emission Restrictions:* Yuasa shall comply with the following:
 1. By no later than December 31, 2015, Yuasa shall complete any facility modifications projected to be necessary in order to meet the lead stack emission



limits in Paragraph (5)(a)(1)(i)-(vi). Yuasa shall comply with those limits at all times after December 31, 2015, and shall demonstrate compliance with those limits by reference method stack testing by no later than June 30, 2016. Past stack testing of selected stacks may be used to satisfy the initial compliance demonstration aspect of this condition, provided that the source/control configuration has not since changed, and that any stack test so used is approved by DEP and was conducted since January 1, 2013:

- i. S01: 6.87948E-04g/sec
 - ii. S03: 4.59000E-04g/sec
 - iii. S06: 3.52794E-04g/sec
 - iv. S07: 3.52794E-04 g/sec
 - v. S15: 1.74986E-04g/sec
 - vi. S20: 2.52000E-04 g/sec
2. In the event that any Yuasa Facility modifications are required in order to meet any of the emission limits in Paragraph (5)(a)(1), Yuasa shall, before implementing those modifications, obtain from DEP either an issued air quality plan approval, or else an approved determination in writing, that the relevant modifications do not require an air quality plan approval.
3. Yuasa shall, unless otherwise approved in writing by the Department, conduct stack testing on all the stacks listed in Paragraph 5(a)(1) in 2020, and thereafter in any year that is divisible, without remainder, by five.
4. For any stack testing used to demonstrate compliance with this COA, Yuasa shall unless otherwise approved in writing by the Department, perform such testing in accordance with the requirements in Condition 001 in Section C of Yuasa Plan Approval C.
5. For all affected sources at the Yuasa Facility, Yuasa shall comply with all applicable provisions of 40 CFR Part 63, Subpart P, including, but not limited to applicable monitoring, recordkeeping and reporting provisions. Also, for the purposes of this COA, all of the sources associated with stacks listed in Paragraph 5(a)(1)(i)-(vi) shall be considered sources subject to the 40 CFR Section §63.11423(a) standards, and, in addition to any other standards listed in this COA, shall also comply with applicable provisions of those standards, including any related requirements in Subpart P including, but not limited to testing, monitoring, recordkeeping and reporting provisions. The sources associated with stacks listed in Paragraph 5(a)(1)(i)-(vi) shall demonstrate compliance with the standards listed in Paragraph 5(a)(1)(i)-(vi) using the same requirements as are used to demonstrate compliance with the applicable provisions of 40 CFR Section §63.11423(a) standards including, but not limited to testing, monitoring, recordkeeping and reporting provisions.

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- b. *Fencing*: By no later than August 24, 2015, Yuasa shall ensure that a fence limiting public access to the Yuasa Facility is installed and/or maintained with respect to the property owned by Yuasa as per the diagram in Attachment A of this COA.
- c. *Contingency Measures*. Control measures to bring the North Reading Lead Nonattainment Area into attainment with the Lead NAAQS include contingency measures that are ready to be implemented if a monitored exceedance of the Lead NAAQS occurs at the DEP air quality monitors.
1. Yuasa shall implement contingency measures as provided in (5)(c)(3) if all of the following occur:
 - i. any monitored exceedance of the Lead NAAQS occurs in the North Reading Lead Nonattainment Area, as measured at the DEP monitors.
 - ii. the Department determines in writing that Yuasa's ongoing emissions cause or significantly contribute to the Lead NAAQS exceedance. DEP would make this determination based on analysis of ambient air quality, meteorological conditions and activities at the Yuasa site, using the best professional judgment of its meteorologists, engineers and inspectors.
 2. Yuasa shall implement contingency measure(s) as provided in (5)(c)(3) if the Department notifies Yuasa that a monitored violation of the Lead NAAQS has occurred, as measured at the DEP monitors, and identifies in the notification that the contingency measure in (5)(c)(3) shall be implemented by Yuasa.
 3. As provided in Paragraph (5)(c)(1) and (2), Yuasa shall do the following:
 - i. By no later than 180 days after written Department notice, Yuasa shall submit to the Department an investigative study ("Study") identifying the potential or likely source(s) of emissions principally contributing to the exceedance so that a strategy may be developed to reduce the likelihood of another exceedance.
 - A. The study will list all best practices and best available technologies identified from similar facilities and, for each technology or practice, will (i) identify those technologies and/or practices that Yuasa 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. Yuasa will provide justification for any projects deemed not to be technically feasible or cost effective or necessary for attainment.
 - B. The Department will either approve or modify the projects and deadlines proposed in the Study ("Study Elements"). Upon the Department approval or modification of the Study Elements ("Department Approval"), the elements so approved or modified shall be deemed incorporated by reference as Order elements in this COA and shall be completed by the

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approved deadlines. In the event that Yuasa disputes any modifications made by the Department to the Study Elements in the Department Approval, Yuasa retains the right to appeal the Department Approval, but shall nonetheless carry out the Study Elements as proposed by Yuasa during the pendency of any appeal.

- d. *Semiannual Reports:* Yuasa shall submit semiannual reports to the Department of Yuasa's progress in complying with the requirements of this COA. Semiannual reports shall be due each January 31 and July 31 for the preceding semiannual period. The first semiannual report shall include information regarding any recent stack tests which Yuasa may wish to use to show compliance with Paragraph 5(a)(1), as well as a re-calculation of the results of any such tests in terms grams/second, to show compliance with the standards in Paragraph 5(a)(1). Once the initial work (as set forth in Paragraphs 5(a)(1) and 5(b)) required by this COA is complete, Yuasa may petition the Department for approval of a reduction in frequency of, or elimination of, the ongoing requirement for these reports.

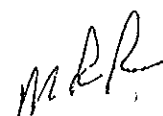
6. ~~Stipulated Civil Penalties.~~

- a. ~~In the event Yuasa fails to comply in a timely manner with the provisions of Paragraph 5 ("Required Action"), Yuasa shall be in violation of this Consent Order and Agreement and, in addition to other applicable remedies, shall pay a civil penalty in the amount of \$375 per day that any of the provisions of Paragraph 5 remain unfulfilled.~~
- b. ~~Stipulated civil penalty payments shall be payable within 15 days of notification by the Department that they are due, and shall be forwarded as described in Paragraph 3.~~
- c. ~~Any payment under this paragraph shall neither waive Yuasa's duty to meet its obligations under this COA nor preclude the Department from commencing an action to compel Yuasa's compliance with the terms and conditions of this COA. The payment resolves only Yuasa's liability for civil penalties arising from the violation of this COA for which the payment is made.~~

7. ~~Additional Remedies.~~

- a. ~~In the event Yuasa fails to comply with any provision of this COA, the Department may, in addition to the remedies prescribed herein, pursue any remedy available for a violation of an order of the Department, including an action to enforce this COA.~~
- b. ~~The remedies provided by this paragraph and Paragraphs 2-6 are cumulative and the exercise of one does not preclude the exercise of any other. The failure of the Department to pursue any remedy shall not be deemed to be a waiver of that remedy. The payment of a stipulated civil penalty, however, shall preclude any further assessment of civil penalties for the violation for which the stipulated civil penalty is paid.~~

- ~~8. Reservation of Rights. The Department reserves the right to require additional measures to achieve compliance with applicable law. Yuasa reserves the right to challenge any action which the Department may take to require those measures.~~
- ~~9. Liability of Operator. Yuasa shall be liable for any violations of this COA, including those caused by, contributed to, or allowed by its officers, agents, employees, or contractors.~~
- ~~10. Transfer of Site.~~
- ~~a. The duties and obligations under this COA shall not be modified, diminished, terminated or otherwise altered by the transfer of any legal or equitable interest in the Facility or any part thereof.~~
- ~~b. If Yuasa intends to transfer any legal or equitable interest in the Facility which is affected by this COA, Yuasa shall serve a copy of this COA upon the prospective transferee of the legal and equitable interest at least 30 days prior to the contemplated transfer and shall simultaneously inform the Southeast Regional Office of the Department of such intent.~~
- ~~11. Correspondence with Department. All correspondence with the Department concerning this COA shall be addressed to:~~
- ~~William Weaver
Program Manager
Air Quality Program
Southeast Regional Office
909 Elmerton Ave.
Harrisburg, PA 17110~~
- ~~12. Correspondence with Yuasa. All correspondence with Yuasa concerning this COA shall be addressed to:~~
- ~~Yuasa Battery, Inc.
Attention: Environmental, Health and Safety Manager
2901 Montrose Avenue
Laureldale, PA 19605~~
- ~~Yuasa shall notify the Department whenever there is a change in the contact person's name, title, or address. Service of any notice or any legal process for any purpose under this COA, including its enforcement, may be made by mailing a copy by first class mail to the above address.~~
- ~~13. Severability. The paragraphs of this COA shall be severable and should any part hereof be declared invalid or unenforceable, the remainder shall continue in full force and effect between the parties.~~
- ~~14. Entire Agreement. This COA shall constitute the entire integrated agreement of the parties. No prior or contemporaneous communications or prior drafts shall be relevant or admissible~~



for purposes of determining the meaning or extent of any provisions herein in any litigation or any other proceeding.

15. ~~Attorney Fees.~~ The parties shall bear their respective attorney fees, expenses and other costs in the prosecution or defense of this matter or any related matters, arising prior to execution of this COA.
16. ~~Modifications.~~ No changes, additions, modifications, or amendments of this COA shall be effective unless they are set out in writing and signed by the parties hereto.
17. ~~Titles.~~ A title used at the beginning of any paragraph of this COA may be used to aid in the construction of that paragraph, but shall not be treated as controlling.
18. ~~This COA shall not be considered as a limitation or abridgment of the Department's rights and duties to take action as necessary to implement emergency control strategies under Section 6.2 of the APCA, 35 P.S. § 4006.2.~~
19. ~~Termination.~~ This COA shall terminate once all of the following have occurred: 1.) the relevant portions of the COA have been incorporated in a State Implementation Plan ("SIP"); 2.) EPA approves the SIP, and 3.) the EPA approved SIP provisions of the COA have been incorporated into an air quality operating permit for the Yuasa Facility.
20. ~~Counterparts.~~ This Consent Order and Agreement may be signed in counterparts, each of which shall be deemed to be an original and all of which together shall constitute one and the same instrument. Facsimile signatures or those transmitted by electronic means shall be valid and effective.
21. ~~This COA does not grant a variance from any requirement of the APCA, the Clean Air Act, 42 U.S.C. § 7401 et seq., or any regulations promulgated under either of these statutes; nor does it purport to modify any requirement of Pennsylvania's State Implementation Plan as approved under the Section 110 of the Clean Air Act, 42 U.S.C. § 7410.~~
22. **Force Majeure.**
 - a. In the event that Yuasa is prevented from complying in a timely manner with any time limit imposed in this COA solely because of a strike, fire, flood, act of God, or other circumstance beyond Yuasa's control and which Yuasa, by the exercise of all reasonable diligence, is unable to prevent, then Yuasa may petition the Department for an extension of time. An increase in the cost of performing the obligations set forth in this COA shall not constitute circumstances beyond Yuasa's control. Yuasa's economic inability to comply with any of the obligations of this COA shall not be grounds for any extension of time.
 - b. Yuasa shall only be entitled to the benefits of this paragraph if it notifies the Department within five (5) working days by telephone and within ten (10) working days in writing of the date it becomes aware or reasonably should have become aware of the event impeding performance. The written submission shall include all necessary documentation, as well as a notarized affidavit from an authorized individual specifying the reasons for the delay,

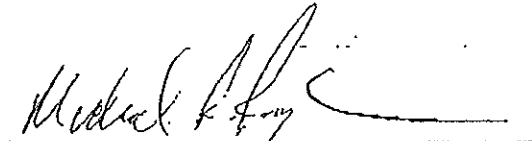
the expected duration of the delay, and the efforts which have been made and are being made by Yuasa to mitigate the effects of the event and to minimize the length of the delay. The initial written submission may be supplemented within ten working days of its submission. Yuasa's failure to comply with the requirements of this paragraph specifically and in a timely fashion shall render this paragraph null and of no effect as to the particular incident involved.

- c. The Department will decide whether to grant all or part of the extension requested on the basis of all documentation submitted by Yuasa and other information available to the Department. If Yuasa challenges the Department's decision through litigation, Yuasa shall have the burden of proving that the Department's refusal to grant the requested extension was an abuse of discretion based upon the information then available to it.

IN WITNESS WHEREOF, the parties hereto have caused this COA to be executed by their duly authorized representatives. The undersigned representatives of Yuasa certify under penalty of law, as provided by 18 Pa. C.S. § 4904, that they are authorized to execute this COA on behalf of Yuasa; that Yuasa consents to the entry of this COA as a final ORDER of the Department; and that Yuasa hereby knowingly waives its rights to appeal this COA and to challenge its content or validity, which rights may be available under Section 4 of the Environmental Hearing Board Act, the Act of July 13, 1988, P.L. 530, No. 1988-94, 35 P.S. § 7514; the Administrative Agency Law, 2 Pa. C.S. § 103(a) and Chapters 5A and 7A; or any other provision of law.

FOR YUASA BATTERY, INC.:

FOR THE COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL PROTECTION:



Name: Michael Raybuck
Title: Vice President, Mfg. & Eng.

William Weaver
Regional Manager, Air Quality

Craig S. Lambeth
Assistant Counsel

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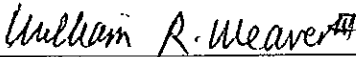
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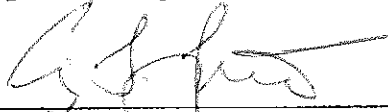
FOR YUASA BATTERY, INC.:

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DEPARTMENT OF ENVIRONMENTAL PROTECTION:

Name: Michael Raybuck
Title: Vice President, Mfg. & Eng.



William Weaver
Regional Manager, Air Quality



Craig S. Lambeth
Assistant Counsel

Weaver, William

From: Nolan, Sean
Sent: Wednesday, June 10, 2015 11:03 AM
To: Weaver, William
Cc: Epps, Joyce; Furlan, Kristen M.; Dalal, Kiril; Lazor, Nicholas; Bordner, Randy; Wehr, Deborah; Hanlon, Thomas; Lambeth, Craig; Duke, Alicia
Subject: North Reading Lead SIP Modeling Update
Attachments: Exide and Yuasa Sources for Modeling Demo.xlsx; Exide_Fence.pdf; Overall_Fence.pdf; Yuasa_Fence.pdf

Bill,

The purpose of this email is to provide you with an update on the status of the North Reading lead SIP modeling. I have completed the modeling. There was a change that needed to be addressed since my June 1, 2015 email to you stating that the modeling was complete. That change has been memorialized below:

After receiving a copy of the proposed fence line (the same one that was addressed in the June 1, 2015 email to you), Yuasa Batteries had concern with the location of the proposed fence line along the southern edge of the boundary. After diagnosing the situation, Yuasa Batteries proposed a lower emission rate for the S20 source, reducing the overall impact of that source within the modeling domain. This emission reduction eliminated the need for the southern side of the fence, reducing the size of the fence to that in the attached figure.

I have provided you with three new maps (see the attached PDFs) which outlines the location of the fence line with respect to Exide and the location of the fence line with respect to Yuasa, along with the modeling parameters (see the attached Excel file) that were used for the attainment demonstration necessary for the North Reading lead SIP.

Please feel free to contact me with any additional questions regarding this matter.

Best regards,

Sean

Sean P. Nolan | Chief, Quality Assurance and Data Assessment Section
Department of Environmental Protection | Bureau of Air Quality
Rachel Carson State Office Building
400 Market Street | Hbg PA 17105
Phone: 717.772.3377 | Fax: 717.772.2303
www.depweb.state.pa.us

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Point Sources

Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate (grams/sec)	Height (meters)	Temperature (Kelvin)	Velocity (meters/sec)	Diameter (meters)
S62	Exide	422572.84	4470535.44	109.69	2.26500E-03	30.48	310	21.556	0.329
S64	Exide	422570.38	4470659.47	114.3	6.04100E-03	30.48	311	22.928	0.329
S63	Exide	422549.43	4470680.05	114.49	6.04100E-03	30.48	319	23.928	0.329
S19	Exide	422553	4470424.43	108.83	1.51900E-03	22.25	295	7.2	1.217
S47	Exide	422531.68	4470489.59	113.9	1.85900E-03	22.86	311	6	1.829
S70	Exide	422572.28	4470408.57	106.55	1.58760E-04	9.45	302.59	35.3	0.457
S55	Exide	422537.92	4470558.83	109.6	5.02732E-03	34.63	302.5	9	2.286
S13	Exide	422524.24	4470640.64	115.84	3.98590E-04	7.62	331.48	5.031	0.914
S23A	Exide	422524.45	4470594.46	118.59	1.08700E-03	7.62	313.43	13.929	1.346
Y S01	Yuasa	422801	4470625	112.52	6.87948E-04	14.32	311.6	20.2	0.83
Y S01 1	Yuasa	422808	4470578	112.49	4.59000E-04	6.1	300	22.56	1.7
Y S03 2	Yuasa	422808	4470578	112.49	3.32794E-04	9.140001	300	22.56	1.7
Y S03 3	Yuasa	422808	4470578	112.49	3.32794E-04	7.62	291.2	22.56	0.839998
Y S15	Yuasa	422804	4470538.1	112.52	1.74986E-04	12.8	354.82	9.43	0.91
Y S70	Yuasa	422804	4470504.2	112.49	2.50000E-04	11.678	343.13	10.52	0.5099999
BUEL	Yuasa	422757.7	4470595.7	111.96	1.40000E-03	7.324	300	10.16	0.3048
BUFFORGE	Yuasa	422792.2	4470583.1	112.7	1.34000E-04	8.2	300	10.16	0.9144
7OVEN	Yuasa	422785.1	4470552.1	112.5	1.40000E-03	7.324	300	10.16	0.3048

Area Sources

Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate / Area (grams/(sec-m ²))	Release Height (meters)	Length of X (meters)	Length of Y (meters)	Angle of Orientation (Optional) (degrees)
RI A1 05	Exide	422429.72	4470143.34	102.3	1.94750E-06	2.55	4	2.372	
FURNACE	Exide	422538.92	4470474.78	112	2.35900E-06	11.28	25.97	48.17	-3
AREA 1	Yuasa	422712.5	4470764.7	113.75	1.10000E-10	2.55	4	2.372	
AREA 2	Yuasa	422717.01	4470495.942	108	6.14000E-10	2.55	12	2.372	
AREA 3	Yuasa	422717.51	4470489.542	108	1.33000E-09	2.55	16	2.372	

Volume Sources

Source ID	Facility	Easting (meters)	Northing (meters)	Elevation (meters)	Emission Rate (grams/sec)	Release Height (meters)	Length of Y (meters)	Length of Z (meters)
RI A1 01	Exide	422438.2	4470220.9	103.4	5.04000E-06	2.55	6.977	2.372
RI A1 02	Exide	422438.2	4470206.5	103.4	5.04000E-06	2.55	6.977	2.372
RI A1 03	Exide	422438.2	4470191.5	103.4	5.04000E-06	2.55	6.977	2.372
RI A1 04	Exide	422438.2	4470177.52	103.4	5.04000E-06	2.55	6.977	2.372
RI A2 01	Exide	422474.1	4470320.1	103.4	7.08800E-06	2.55	6.977	2.372
RI A2 02	Exide	422463.35	4470299.6	103.4	7.08800E-06	2.55	6.977	2.372
RI A2 03	Exide	422451.9	4470285.05	103.4	7.08800E-06	2.55	6.977	2.372
RI A2 04	Exide	422443	4470269.96	103.4	7.08800E-06	2.55	6.977	2.372
RI A2 05	Exide	422434	4470275	103.72	7.08800E-06	2.55	6.977	2.372
RI A2 06	Exide	422426	4470261	103.47	7.08800E-06	2.55	6.977	2.372
RI A2 07	Exide	422425.2	4470249	103.34	7.08800E-06	2.55	6.977	2.372
RI A2 08	Exide	422431.35	4470242.23	103.48	7.08800E-06	2.55	6.977	2.372
RI A3 01	Exide	422516	4470363	105.61	1.92200E-05	2.55	6.977	2.372
RI A3 02	Exide	422504.9	4470352.9	105.45	1.92200E-05	2.55	6.977	2.372
RI A3 03	Exide	422504.9	4470341.76	104.98	1.92200E-05	2.55	6.977	2.372
RI A3 04	Exide	422504.9	4470331.4	104.49	1.92200E-05	2.55	6.977	2.372
RI A4 01	Exide	422526.1	4470373.67	106.1	1.63800E-05	2.55	6.512	2.372
RI A4 02	Exide	422537.05	4470385.1	106.32	1.63800E-05	2.55	6.512	2.372
RI A4 03	Exide	422548.5	4470396	106.61	1.63800E-05	2.55	6.512	2.372
RI A4 04	Exide	422558.4	4470408.35	106.82	1.63800E-05	2.55	6.512	2.372
RI A5 01	Exide	422597.5	4470469.2	106.99	1.96600E-05	2.55	6.279	2.372
RI A5 02	Exide	422591.9	4470456.2	106.83	1.96600E-05	2.55	6.279	2.372
RI A5 03	Exide	422586.2	4470443.5	106.75	1.96600E-05	2.55	6.279	2.372
RI A5 04	Exide	422578.37	4470431.5	106.71	1.96600E-05	2.55	6.279	2.372
RI A5 05	Exide	422569.08	4470420.03	106.55	1.96600E-05	2.55	6.279	2.372
RI B 01	Exide	422608	4470579.8	110.19	1.35800E-05	2.55	6.465	2.372
RI B 02	Exide	422609.3	4470565.7	109.74	1.35800E-05	2.55	6.465	2.372
RI B 03	Exide	422610.7	4470551.7	109.51	1.35800E-05	2.55	6.465	2.372
RI B 04	Exide	422611.6	4470537.8	109.33	1.35800E-05	2.55	6.465	2.372
RI B 05	Exide	422610.8	4470523.9	108.88	1.35800E-05	2.55	6.465	2.372
RI B 06	Exide	422609	4470510	108.34	1.35800E-05	2.55	6.465	2.372

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RI B 07	Exide	422605.9	4470496.3	108.17	1.35800E-05	2.55	6.465	2.372
RI B 09	Exide	422601.8	4470482.8	107.21	1.35800E-05	2.55	6.465	2.372
RI B 09	Exide	422606.8	4470594.3	111.28	1.35800E-05	2.55	6.465	2.372
RI C 01	Exide	422603.42	4470603.55	112.22	1.09000E-05	2.55	6	2.372
RI C 02	Exide	422607.9	4470620.8	112.38	1.09000E-05	2.55	6	2.372
RI C 03	Exide	422609	4470633.8	112.43	1.09000E-05	2.55	6	2.372
RI C 04	Exide	422609.75	4470647	112.23	1.09000E-05	2.55	6	2.372
RI C 05	Exide	422610.27	4470650.05	111.85	1.09000E-05	2.55	6	2.372
RI C 06	Exide	422611.36	4470672.93	111.28	1.09000E-05	2.55	6	2.372
RI C 07	Exide	422613.7	4470685.9	111.23	1.09000E-05	2.55	6	2.372
RI C 08	Exide	422614.5	4470698.83	112	1.09000E-05	2.55	6	2.372
RI C 09	Exide	422615.9	4470711.75	111.57	1.09000E-05	2.55	6	2.372
RI C 10	Exide	422612	4470724.56	111.36	1.09000E-05	2.55	6	2.372
RI C 11	Exide	422609.4	4470737.32	111.61	1.09000E-05	2.55	6	2.372
RI C 12	Exide	422607.35	4470750.1	111.84	1.09000E-05	2.55	6	2.372
RI C 13	Exide	422604.92	4470762.9	112.08	1.09000E-05	2.55	6	2.372
RI C 14	Exide	422603.24	4470775.95	111.77	1.09000E-05	2.55	6	2.372
RI C 15	Exide	422601.08	4470788.9	111.52	1.09000E-05	2.55	6	2.372
RI C 16	Exide	422599.23	4470801.88	111.62	1.09000E-05	2.55	6	2.372
RI C 17	Exide	422598	4470814.9	111.55	1.09000E-05	2.55	6	2.372
RI C 18	Exide	422595	4470827.6	111.76	1.09000E-05	2.55	6	2.372
RI C 19	Exide	422597	4470837.9	111.71	1.09000E-05	2.55	6	2.372
RI C 20	Exide	422581.04	4470850.05	111.53	1.09000E-05	2.55	6	2.372
RI D1 01	Exide	422571.32	4470689.5	114.76	1.11600E-05	2.55	5.628	2.372
RI D1 02	Exide	422575.6	4470677.85	114.53	1.11600E-05	2.55	5.628	2.372
RI D1 03	Exide	422580	4470666.55	114.33	1.11600E-05	2.55	5.628	2.372
RI D1 04	Exide	422584.5	4470655.3	114.08	1.11600E-05	2.55	5.628	2.372
RI D1 05	Exide	422589	4470643.8	113.82	1.11600E-05	2.55	5.628	2.372
RI D1 06	Exide	422592.8	4470632	113.85	1.11600E-05	2.55	5.628	2.372
RI D1 07	Exide	422595.9	4470620.1	113.48	1.11600E-05	2.55	5.628	2.372
RI D2 01	Exide	422556.2	4470777	115.95	2.77200E-07	2.55	8	2.372
RI D2 02	Exide	422559.4	4470760	115.87	2.77200E-07	2.55	8	2.372
RI D2 03	Exide	422562.3	4470743	115.2	2.77200E-07	2.55	8	2.372
RI D2 04	Exide	422565	4470726	115.07	2.77200E-07	2.55	8	2.372
RI D2 05	Exide	422567	4470708.3	115.15	2.77200E-07	2.55	8	2.372
UITZ5000	Yuasa	422832.1	4470555.4	112.96	4.68000E-08	3	5.581	2.791
UITZ500P	Yuasa	422830.8	4470567.3	112.78	4.68000E-08	3	5.581	2.791
UITZ500Q	Yuasa	422829.4	4470579.2	112.8	4.68000E-08	3	5.581	2.791
UITZ500R	Yuasa	422819	4470579.8	112.8	4.68000E-08	3	5.581	2.791
UITZ500U	Yuasa	422832	4470555.9	112.96	4.68000E-07	3	5.581	2.791
UITZ500V	Yuasa	422830.5	4470567.8	112.78	4.68000E-07	3	5.581	2.791
UITZ500W	Yuasa	422829	4470579.7	112.57	1.02000E-07	3	5.581	2.791
UITZ500X	Yuasa	422827.5	4470591.6	112.39	1.02000E-07	3	5.581	2.791
UITZ500Y	Yuasa	422826	4470603.5	112.32	1.02000E-07	3	5.581	2.791
UITZ500Z	Yuasa	422824.5	4470615.4	112.38	1.02000E-07	3	5.581	2.791
UITZ5010	Yuasa	422823	4470627.3	112.41	1.02000E-07	3	5.581	2.791
UITZ5011	Yuasa	422821.4	4470639.2	112.42	1.02000E-07	3	5.581	2.791
UITZ5012	Yuasa	422819.7	4470651.1	112.42	1.02000E-07	3	5.581	2.791
UITZ5013	Yuasa	422818	4470659.6	112.42	1.02000E-07	3	5.581	2.791
UITZ5014	Yuasa	422816.5	4470658.3	112.42	1.02000E-07	3	5.581	2.791

NIRK

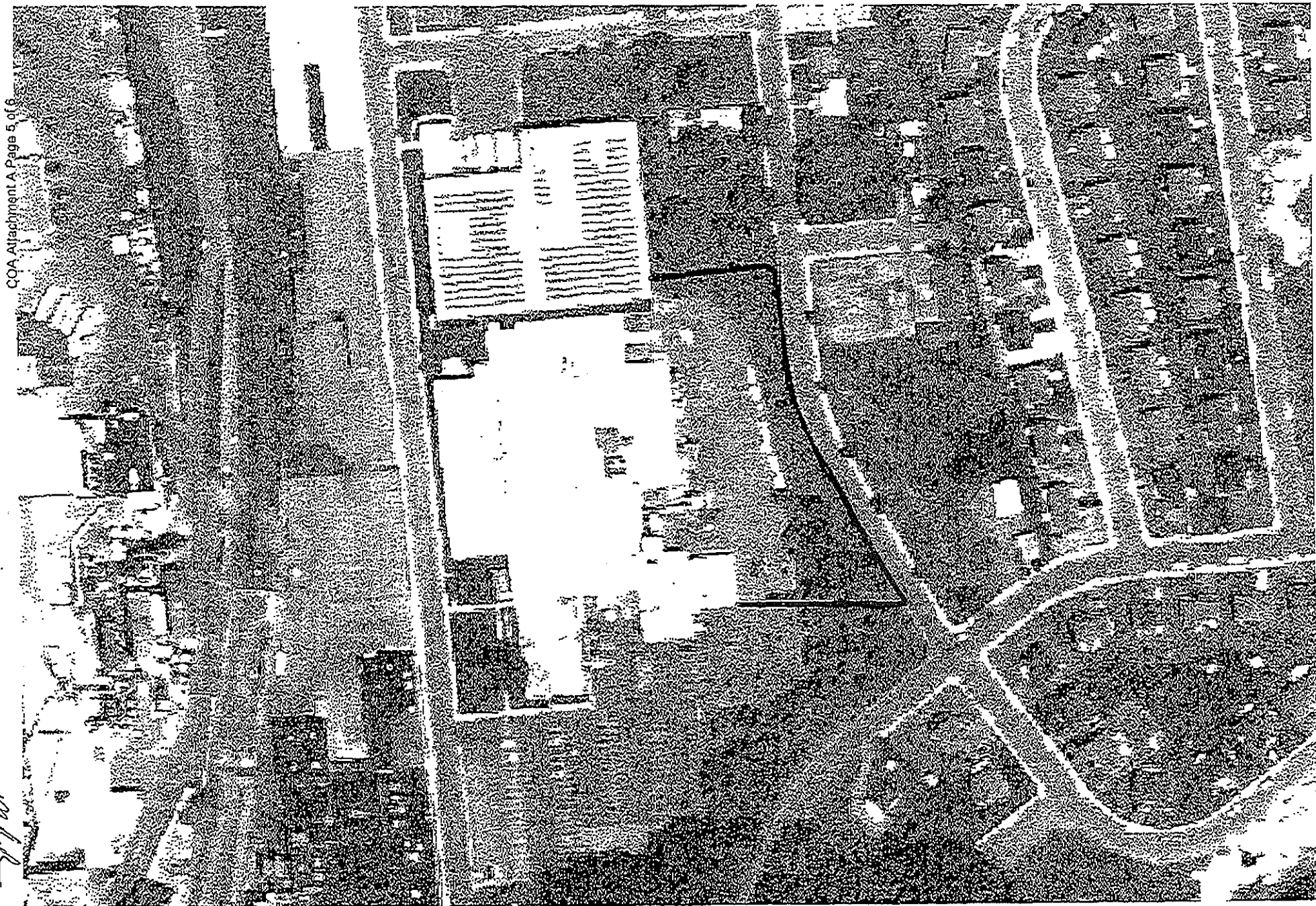


MLT

 Exide Fence Location



0 55 110 220 330 440 Meters



COA Attachment A Page 5 of 6

mlh

— Proposed Yuasa Fence Location



0 20 40 80 120 160 Meters



COA Attachment A Page 6 of 6

MLR

 Exide Fence Location
Proposed Yuasa Fence Location



0 55 110 220 330 440 Meters



APPENDIX C-3

Exide RACT Analysis

**Bureau of Air Quality
Department of Environmental Protection**

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5. RACM/RACT DETERMINATION

5.1 INTRODUCTION

Any state containing an area designated as nonattainment with respect to the Pb NAAQS must develop for submission a State Implementation Plan (SIP) meeting the requirements of part D, Title I, of the CAA which provides for attainment of the Pb NAAQS. The State of Pennsylvania is required to submit all components of the lead Part D SIP for the North Reading Area.

SIPs submitted to meet the Part D requirements must, among other things, include a Reasonably Available Control Measures (RACM) analysis (which includes Reasonably Available Control Technology (RACT) analysis). PADEP has requested that, as part of this application, Exide include a RACM/RACT analysis for the proposed NAAQS Control Measures Project. Exide is providing the results of the analysis in a manner that supports PADEP's requisite SIP submittal to U.S. EPA.

U.S. EPA expands on the State of Pennsylvania's 25 Pa. Code §129.92 guidance regarding how states shall meet the statutory requirements for RACM (including RACT) in Section F of the preamble of the final Federal rule entitled "National Ambient Air Quality Standards for Lead" (Federal Register notice dated November 11, 2008) and in Section II of the Lead Addendum to the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990" (Federal Register notice dated December 22, 1993). Specifically, a RACM/RACT analysis includes the following four (4) basic steps:

- Step 1 – Identification and Ranking of Available Control Technologies. *The suggested starting point for specifying RACM in lead nonattainment areas is outlined in Appendix I of the Lead Addendum to the "General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990," (Federal Register on December 22, 1993) as the listing of available control measures for fugitive lead-bearing dust. Pursuant to 25 Pa. Code §129.92(b), a ranking of the available control options for the affected source shall be in descending order of control effectiveness.*
- Step 2 – Elimination of Technically Infeasible Options. *Determine if any of the technologies identified in Step 1 are evaluated in terms of technical feasibility consistent with U.S. EPA's Lead Addendum to the "General Preamble for the Implementation of*

Title I of the Clean Air Act Amendments of 1990,” (Federal Register on December 22, 1993)

- Step 3 – Elimination of Economically Infeasible Options. *The remaining control alternatives not eliminated in Step 2 are evaluated in terms of economic feasibility consistent with U.S. EPA’s Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990,” (Federal Register on December 22, 1993) and U.S. EPA’s “OAQPS Control Cost Manual” (Fourth Edition), EPA 450/3-90-006 January 1990 and subsequent revisions.*
- Step 4 – Selection of RACM/RACT. *The highest ranked remaining technology is identified as RACM/RACT.*

5.2 STEP 1 – IDENTIFICATION AND RANKING OF AVAILABLE CONTROL OPTIONS

Exide’s proposed NAAQS control measure project for the Reading Facility described herein involves the installation of additional building enclosures and the addition and reconfiguration of ventilation and emission controls, all designed to enhance the existing Facility measures that currently capture and control Pb emissions fugitive dust sources.

Exide reviewed the following key technical resources in order to identify all available control options for the control of lead-bearing fugitive dust emissions at the Reading Facility:

- U.S. EPA’s Maximum Achievable Control Technology (MACT) standards for the secondary lead smelting industry (i.e., 40 CFR Part 63, Subpart X (National Emission Standards for Hazardous Air Pollutants from Secondary Lead Smelting)).
- U.S. EPA’s Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (Federal Register notice dated December 22, 1993).
- RACT/BACT/LAER Clearinghouse (RBLC) on the U.S. EPA Technical Transfer Network (TTN). The search was limited to determinations occurring after 1990 <http://cfpub1.epa.gov/RBLC/>.
- Operating permits for similar lead products and smelting facilities.
- Process knowledge by control measures designers.

5.2.1 Review of Maximum Achievable Control Technology (MACT) Standards

When developing a MACT standard for a particular source category, U.S. EPA looks at the current level of emissions achieved by best-performing similar sources through clean processes, control devices, work practices, or other methods. These emissions levels set a baseline, often referred to as the "MACT floor" for the new standard. At a minimum, a MACT standard promulgated by U.S. EPA must achieve, throughout the industry, a level of emissions control that is at least equivalent to the MACT floor. MACT standards are therefore more stringent than RACT, which U.S. EPA defines as "the lowest emission limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility."

In 1997 U.S. EPA promulgated MACT standards under 40 CFR Part 63, Subpart X that apply to various emissions units located at a secondary lead smelter. On January 5, 2012 U.S. EPA issued final amendments to 40 CFR Part 63, Subpart X. U.S. EPA issued these amendments following a recent risk and technology review of secondary Pb smelting sources. In issuing these rule amendments U.S. EPA concluded that full enclosure of operations within buildings with air inflow vented to control devices, along with implementation of comprehensive work practices, is the current MACT to address risks due to Pb emissions from secondary Pb smelting sources. The compliance date for Subpart X requirements that are new or changed by the January 5, 2012 amendments and apply to existing sources is January 6, 2014. The compliance date for new sources (i.e., affected sources which commenced construction or reconstruction after May 19, 2011) is March 5, 2012, or upon startup of operations, whichever is later. Since the current attainment date of the 2008 Pb NAAQS is December 31, 2015, for purposes of this analysis, Exide references the Subpart X requirements, as amended January 5, 2012.

U.S. EPA identifies the following as Maximum Achievable Control Technology for the control of lead-bearing fugitive dust emissions:

- Operation of listed fugitive emission sources in a total enclosure (40 CFR §63.544(a)) that is maintained at negative pressure at all times, vented to a control device designed to capture lead particulate, and in compliance with the requirements of 40 CFR §63.544(c), which include the following:

- Total enclosures must be free of significant cracks, gaps, corrosion or other deterioration that could cause lead bearing material to be released.
 - Measures must be in place to prevent tracking of Pb bearing material out of the enclosure by personnel or equipment used in handling the material.
 - An area must be designated to decontaminate equipment and any rinsate must be collected and properly managed.
 - Enclosures must be ventilated to ensure negative pressure values of at least 0.013 mm of mercury (0.007 inches of water).
 - Inward flow of air must be maintained through any natural draft openings in the enclosures.
- Operation and maintenance of enclosure vents, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. (40 CFR §63.543(k))
 - Implementation of measures and work practice controls to control fugitive dust emission from certain sources ((40 CFR §63.545(a)). At a minimum these measures and controls must be in compliance with the requirements of 40 CFR §63.545(c), which include the following:
 - If cleaning practices are specified, cleaning must be by wet wash or a vacuum equipped with a filter rated by the manufacturer to achieve 99.97 percent capture efficiency for 0.3 micron particles in a manner that does not generate fugitive lead dust.
 - Paving of all areas subject to vehicle traffic and cleaning of the pavement twice per day, except on days when natural precipitation makes cleaning unnecessary or when sand or similar material has been spread on plant roadways to provide traction on ice or snow.

- Cleaning of accidental releases of lead dust exceeding 10 pounds must be initiated within one hour.
- Batteries that are not stored in a total enclosure must be inspected once per week and any broken batteries moved to an enclosure within 72 hours of discovery.
- Washing of vehicles at each material storage and handling area exit. The vehicle wash must include washing of tires, undercarriage and exterior surface of the vehicle followed by vehicle inspection.
- Performing maintenance activities that could generate lead dust in a manner that minimizes emissions of fugitive dust.
- Collection and transport of all lead bearing dust (i.e. lead bearing material which is a dust) within closed conveyor systems or in sealed, leak-proof containers unless the collection and transport activities are contained within a total enclosure. All other lead bearing material must be contained and covered for transport outside of a total enclosure in a manner that prevents spillage or dust formation. Intact batteries and lead ingot product are exempt from the requirement to be covered for transport.

5.2.2 Review of the Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990”

Exide reviewed Appendix I, Section B of U.S. EPA’s Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (Federal Register notice dated December 22, 1993) in order to identify potential control measures that may be available for the Reading Facility’s sources of lead-bearing fugitive dust emissions. The review of this guidance indicated that the following control measures may be available for control of the Reading Facility’s sources of lead-bearing fugitive dust emissions:

- Pave, vegetate, or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.
- Require dust control plans for construction or land-clearing projects.

- Require haul trucks to be covered.
- Provide for traffic rerouting or rapid clean up of temporary (and not readily preventable) sources of dust on paved roads (water erosion runoff, mud/dirt carryout areas, material spills, skid control sand). Delineate who is responsible for cleanup.
- Require paving, chemically stabilizing, or otherwise stabilizing permanent unpaved haul roads, and parking or staging areas at commercial, municipal, or industrial facilities.
- Develop traffic reduction plans for unpaved roads. Use of speed bumps, low speed limits, etc., to encourage use of other (paved) roads.
- Limit use of recreational vehicles on open land (e.g., confine operations to specific areas, require use permits, outright ban).
- Require curbing and pave or stabilize (chemically or with vegetation) shoulders of paved roads.
- Pave or chemically stabilize unpaved roads.
- Pave, vegetate, or chemically stabilize unpaved parking areas.
- Require dust control measures for material storage piles.
- Provide for storm water drainage to prevent water erosion onto paved roads.
- Require revegetation, chemical stabilization, or other abatement of wind erodible soil, including lands subjected to water mining, abandoned farms, and abandoned construction sites.
- Rely upon the soil conservation requirements (e.g., conservation plans, conservation reserve) of the Food Security Act to reduce emissions from agricultural operations.
- Require washing of undercarriages and wheels of vehicles immediately prior to leaving the plant area.
- Require that water used for dust suppression and vehicle washing contain a limited amount of lead (e.g., less than or equal to 0.1 ppm).

5.2.3 Use of the RACT/BACT/LAER Clearinghouse (RBLC)

The RACT/BACT/LAER Clearinghouse (RBLC) is an important source for reviewing recent RACM/RACT determinations and control options. However, the RBLC is, like all databases, only as good as the data that is entered into it. Exide has made a significant effort to review all entries to determine the validity of the data and the relevance of the data with respect to the

proposed project. Provided below are several key considerations Exide made when reviewing the RBLC data.

- Exide utilized all sections of the RBLC to review possible RACM/RACT determinations (Exide searched all determinations since 1990, including draft determinations still in process.)
- Exide only utilized RBLC entries that were representative of industry standard or facility-specific processes/units. In addition, Exide only included entries that were complete and enabled an accurate comparison/analysis of data. Entries that did not allow the development of a RACM/RACT emission rate in standard units of measure for a given process type (e.g., gr/dscf, lb/ton, ppmdv, etc.) were excluded from the review.

The Exide Reading Facility searched the RBLC in order to identify potential add-on Pb control technologies currently used at other similar facilities (i.e., lead acid battery manufacturing, secondary lead smelting, or miscellaneous lead products or smelting facilities) that may be suitable for the Reading Facility's sources of fugitive dust emissions. The review of the RBLC indicated that there was no evidence of add-on emission control equipment installed on similar fugitive emissions sources for the express purpose of abating lead emissions. However, Exide identified a lead smelting facility operating in Florida that controls Pb emissions from the roadways and grounds of the facility by following the Standard Operating Procedures for Fugitive Dust Control During Operational Activities specified in this source's operating permit. A discussion of these requirements is detailed in Section 5.2.4.

5.2.4 Review of Operating Permits for Similar Lead Products and Smelting Facilities

Exide reviewed the air operating permit for the lead smelting facility identified in Section 5.2.3 which was readily available on the Florida Department of Environmental Protection (FDEP) website in order to identify the control methods being utilized by similar facilities. Exide identified that this lead smelting facility utilizes hoods or enclosure hoods vented to compartmentalized, shaker style fabric baghouses to minimize lead process fugitive emissions. Certain totally enclosed areas of this facility are maintained under negative pressure, and the air from within these areas is routed through ducts into a cartridge baghouse. Partially enclosed

areas include vehicle wash stations and potential sources of process fugitive emissions are controlled by hoods over each emissions source. The face of each hood meets the currently applicable 40 CFR Part 63, Subpart X face velocity requirements. To minimize lead-bearing fugitive dust, vehicular traffic areas at this facility are mostly paved and periodically wetted down by an automatic sprinkler system. Unpaved areas are grassed. Traffic paths are vacuumed three (3) times per day and employee parking lots are vacuumed a minimum of three (3) times per week.

5.2.5 Discussions with Control Measures Designers

Exide contacted the environmental engineering group at AECOM in order to identify the various existing or emerging control technologies that are available for the for the control of lead-bearing process fugitive and lead-bearing fugitive dust emissions at the Reading Facility. During these discussions, AECOM recommended total enclosure of all existing and potential lead-bearing fugitive dust emissions sources. A recommended total enclosure would have the capability to capture and control fugitive dust emissions if maintained under negative pressure conditions at all times. AECOM also recommended the addition and reconfiguration of ventilation and emission controls to optimize the performance of providing negative pressure conditions of the enclosures.

5.2.6 Identification and Ranking of Available Control Options

Through Exide's review of U.S. EPA's Maximum Achievable Control Technology (MACT) standards for the secondary lead smelting industry, U.S. EPA's RBLC database, and operating permits for similar industrial facilities and Exide's discussions with AECOM, the technologies listed in Table 5-1, which are ranked in order from the most effective to least effective, were identified as potential RACM/RACT for the Reading Facility's lead-bearing fugitive dust emissions sources:

Table 5-1
Potentially Applicable Lead Control Options

Rank	Control Option
1	• Total facility enclosure under negative pressure and vented to a control device (40 CFR §63.544(a)). • Operation and maintenance of air pollution control equipment in a manner consistent with safety and good air pollution control practices (40 CFR §63.543(k)). • Measures and work practice controls identified in Section 5.2.1 (40 CFR §63.545(c)). • All fugitive dust control measures identified in Section 5.2.2. (Appendix I, Section B of U.S. EPA’s Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (Federal Register notice dated December 22, 1993)).
2	• Partial facility enclosure under negative pressure and vented to a control device and use of ventilation hoods at sources of process fugitive emissions. • Operation and maintenance of air pollution control equipment in a manner consistent with safety and good air pollution control practices (40 CFR §63.543(k)). • Measures and work practice controls identified in Section 5.2.1 (40 CFR §63.545(c)). • All fugitive dust control measures identified in Section 5.2.2. (Appendix I, Section B of U.S. EPA’s Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (Federal Register notice dated December 22, 1993)).

5.3 STEP 2 – TECHNICAL FEASIBILITY ANALYSIS

In Section V, Appendix 2 of the Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (Federal Register notice dated December 22, 1993), U.S. EPA clarifies that the “technological feasibility of applying an emission reduction method to a particular source should consider the sources process and operating procedures, raw materials, physical plant layout, and any other environmental impacts such as water pollution, waste disposal, and energy requirements. The process, operating procedures, and raw materials used by a source can affect the feasibility of implementing process changes that reduce emissions and the selection of add-on emission control equipment. The operation and longevity of control equipment can be significantly influenced by the raw materials used and the process to which it is applied. The feasibility of modifying processes or applying control equipment is also influenced by the physical layout of the particular plant. The space available in which to implement such changes may limit the choices and will also affect the costs of control.” Each control technology option identified in Table 5-1 was evaluated in accordance with this guidance for technical feasibility. The control options identified as being infeasible or not otherwise applicable are presented in Table 5-2.

Table 5-2
Technically Infeasible Lead Control Options

Technically Infeasible Control Option	Rationale for Infeasibility
Periodic wetting of plant roadways with water to suppress the generation of fugitive dust emissions.	The facility experiences seasonable temperatures that are below freezing. Wetting of roadways would also generate additional contaminated wastewater requiring treatment prior to discharge.
Pave, vegetate, or chemically stabilize access points where unpaved traffic surfaces adjoin paved roads.	There are no unpaved traffic surfaces.
Require paving, chemically stabilizing, or otherwise stabilizing permanent unpaved haul roads, and parking or staging areas at commercial, municipal, or industrial facilities.	There are no unpaved traffic surfaces.
Develop traffic reduction plans for unpaved roads. Use of speed bumps, low speed limits, etc., to encourage use of other (paved) roads.	There are no unpaved traffic surfaces.
Limit use of recreational vehicles on open land (e.g., confine operations to specific areas, require use permits, outright ban).	The facility has security which prevents access of recreational vehicles.
Pave or chemically stabilize unpaved roads.	There are no unpaved traffic surfaces.
Pave, vegetate, or chemically stabilize unpaved parking areas.	There are no unpaved parking areas.
Require dust control measures for material storage piles.	All material storage piles are located inside enclosure.
Require revegetation, chemical stabilization, or other abatement of wind erodible soil, including lands subjected to water mining, abandoned farms, and abandoned construction sites.	The project site does not include any erodible soil.
Rely upon the soil conservation requirements (e.g., conservation plans, conservation reserve) of the Food Security Act to reduce emissions from agricultural operations.	The project site does not include agricultural operations.

It was determined through this evaluation that the remaining potential control options available for the control of fugitive dust emissions at the Reading Facility are technically feasible.

5.4 STEP 3 – ECONOMIC FEASIBILITY ANALYSIS

In Section V, Appendix 2 of the Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (Federal Register notice dated December 22, 1993), U.S. EPA clarifies that “economic feasibility considers the cost of reducing emissions and the difference in costs between the particular source and other similar sources that have implemented emission reductions...(U.S. EPA) presumes that it is reasonable for similar sources to bear similar costs of emission reductions. Economic feasibility rests very little on the ability of a particular source to "afford" to reduce emissions to the level of similar sources. Less efficient sources would be rewarded by having to bear lower emission reduction costs if affordability were given high consideration. Rather, economic feasibility for RACT purposes is largely determined by evidence that other sources in a source category have in fact applied the control technology in question. The capital costs, annualized costs, and cost effectiveness of an emission reduction technology should be considered in determining its economic feasibility. The "OAAQS Control Cost Manual, Fourth Edition," EPA-450/3-90-006, January 1990, describes procedures for determining these costs. The above costs should be determined for all technologically-feasible emission reduction options.” Exide understands that economic feasibility for RACT purposes is largely determined by evidence that other sources in a source category have in fact applied the control technology in question and rests very little on the ability of a particular source to "afford" to reduce emissions to the level of similar sources. Although Exide, through review of the RBLC and readily available operating permits for similar sources, has not identified examples of sources that are applying all of the remaining technically feasible control technologies identified it can be assumed that secondary lead smelting facilities do exist which are implementing the Subpart X MACT standards, and will implement the new and changed amended Subpart X requirements when they become applicable, as these standards are federally enforceable. With this assumption in mind, and in accordance with this guidance, it was determined that each of the remaining technically feasible potential control options available for the control of process fugitive and fugitive dust emissions at the Reading Facility are economically feasible for RACT purposes. Since Exide has not rejected any of these potential control options. a specific discussion of the capital costs, annualized costs, and cost effectiveness of each respective technology is not included.

5.5 STEP 4 – SELECTION OF RACM/RACT

Through discussions with the AECOM and review of U.S. EPA’s MACT standards for the secondary lead smelting industry, U.S. EPA’s Lead Addendum to the “General Preamble for the Implementation of Title I of the Clean Air Act Amendments of 1990” (Federal Register notice dated December 22, 1993), U.S. EPA’s RBLC database, and operating permits for similar facilities, Exide identified the technologies previously listed in Table 5-1 as potential RACM/RACT for the Reading Facility’s lead-bearing fugitive dust emissions sources. Exide conducted a control analysis to determine if any technically and economically feasible options exist. Based on these analyses, Exide concludes that the technologies presented in Table 5-3 are RACM/RACT for lead-bearing fugitive dust emissions.

Table 5-3
Selection of RACM/RACT

Selected RACM/RACT	Description of Project Implementation
Operation of listed fugitive emission sources in a total enclosure (40 CFR §63.544(a)) that is maintained at negative pressure at all times, vented to a control device designed to capture lead particulate, and in compliance with the requirements of 40 CFR §63.544(c).	The proposed NAAQS Control Measures Project will total enclose the operations that are potential sources of fugitive dust. These enclosures will be free of significant cracks, gaps, corrosion or other deterioration that could cause lead bearing material to be released. The enclosures will feature provisions to prevent tracking out of Pb bearing material and designated areas and equipment to decontaminate equipment and vehicles exiting the enclosures. Any rinsate from these decontamination areas will be captured and treated at the Facility's onsite wastewater treatment plan. The enclosures will be ventilated to dust collectors for control of PM and Pb emissions. This ventilation will ensure negative pressure values of at least 0.013 mm of mercury (0.007 inches of water), and inward air flow at any natural draft openings.
Operation and maintenance of enclosure vents, including associated air pollution control equipment and monitoring equipment, in a manner consistent with safety and good air pollution control practices for minimizing emissions. (40 CFR §63.543(k))	Exide will operate the sources, proposed enclosures and associated dust collectors in a manner consistent with safety and good air pollution control practices and in accordance with the Facility's SOP manual that describes in detail procedures for inspection, maintenance, and bag leak detection and corrective action plans for all enclosure dust collectors.
Implementation of measures and work practice controls to control fugitive dust emission from certain sources ((40 CFR §63.545(a)). At a minimum these measures and controls must be in compliance with the requirements of 40 CFR §63.545(c),	Exide will operate according to the Facility's standard operating procedures (SOP) manual that describes measures and work practices implemented to control fugitive dust emissions. Any cleaning practices specified will be performed by wet wash or high efficiency vacuum equipment. All areas subject to vehicle traffic are currently paved and cleaned at least twice per day, except on days when natural precipitation makes cleaning unnecessary or when sand or similar material has been spread on plant roadways to provide traction on ice or snow, and these

Selected RACM/RAC	Description of Project Implementation
	practices will continue. The Facility currently has procedures in place to clean any outdoor accidental releases of lead dust immediately and these will also continue. The proposed NAAQS Control Measures Project will totally enclose areas where maintenance activities are currently conducted outdoors. The enclosures will include features that provide for collection and transport of all lead bearing dust within the total enclosures.
Require dust control plans for construction or land-clearing projects.	When construction activity during implementation of the NAAQS Control Measures Project involves existing structures, the roof and wall panels of these structures will be systematically replaced to achieve an enclosure with minimal air leakage. The interior of roof and wall panels and the respective support steel will be vacuum-cleaned prior to commencement of the work. The interior of the area to undergo roof and/or wall panel replacement will be masked from the interior using temporary suspended dust and debris trap barriers.
Require haul trucks to be covered.	Any lead-bearing material currently transported outside of enclosures will be contained and covered for transport in a manner that prevents spillage or dust formation.
Provide for traffic rerouting or rapid clean up of temporary (and not readily preventable) sources of dust on paved roads (water erosion runoff, mud/dirt carryout areas, material spills, skid control sand). Delineate who is responsible for cleanup.	The Facility currently has procedures in place to clean any outdoor accidental releases of lead dust immediately and these will continue.
Require curbing and pave or stabilize (chemically or with vegetation) shoulders of paved roads.	Facility roadways are currently paved and curbed for control of storm water run-on and runoff and collection and treatment of storm water capture from paved surfaces. These systems will continue to be maintained.
Provide for storm water drainage to prevent water erosion onto paved roads.	Facility roadways are currently paved and curbed for control of storm water run-on.
Require washing of undercarriages and wheels of vehicles immediately prior to leaving the	The enclosures will feature provisions to prevent tracking out of Pb bearing material and designated

Selected RACM/RACT	Description of Project Implementation
plant area.	areas and equipment to decontaminate equipment and vehicles exiting the enclosures.
Require that water used for dust suppression and vehicle washing contain a limited amount of lead (e.g., less than or equal to 0.1 ppm).	The Facility uses fresh water supplied by the local utility that will ensure this level is met.

5.5.1 Schedule for Implementation

This RACM/RACT proposal will be implemented upon notification of approval.



APPENDIX D-1

AQS AMP355 Combined Site Sample Values Report 2011 – 2014

**Bureau of Air Quality
Department of Environmental Protection**

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User ID: AES

COMBINED SITE SAMPLE VALUES

Report Request ID: 1339807

Report Code: AMP355

Jun. 3, 2015

GEOGRAPHIC SELECTIONS

Tribal Code	State	County	Site	Parameter	POC	City	AQCR	UAR	CBSA	CSA	EPA Region

42 045

42 055

PROTOCOL SELECTIONS

Parameter Classification	Parameter	Method	Duration

COMBINABLE 14129

SELECTED OPTIONS

SORT ORDER

Option Type	Option Value
SHOW SOURCE	YES
EVENTS PROCESSING	EXCLUDE REGIONALLY CONCURRED EVENTS
MERGE PDF FILES	YES

Order	Column
1	STATE_CODE
2	COUNTY_CODE
3	SITE_ID
4	PARAMETER_CODE
5	YEAR

DATE CRITERIA

Start Date	End Date
2011 11 01	2014 12 31

APPLICABLE STANDARDS

Standard Description
Lead 3-Month 2009

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-045-0002
COUNTY: (045) Delaware
CITY: (13208) Chester
SITE ADDRESS: FRONT ST & NORRIS ST
SITE COMMENTS: CHESTER COPAMS SITE / PHILADELPHIA GAS P2300111 PA SITE CODE

STATE: (42) Pennsylvania
AQCR: (045) METROPOLITAN PHILADELPHIA
URBANIZED AREA: (6160) PHILADELPHIA, PA-NJ
LAND USE: INDUSTRIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
LATITUDE: 39.835556
LONGITUDE: -75.3725

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2012

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1								0.010				
2							0.010					
3				0.011	0.011							
4			0.011									
5												0.010
6										0.010		
7								0.010				
8							0.009					
9				0.011	0.010							
10			0.011								0.010	0.010
11									0.010			
12												
13								0.010				
14						0.010	0.010					
15				0.010	0.010							
16			0.011									
17											0.010	0.010
18									0.010	0.010		
19								0.010				
20						0.010	0.010					
21				0.010	0.010							
22			0.011									
23											0.010	0.010
24									0.009	0.010		
25								0.010				
26						0.010	0.010					
27				0.011	0.010							
28			0.011									
29											0.010	0.010
30									0.008			
31												
NO.:	0	0	5	5	5	3	5	5	4	3	4	5
MAX:	0	0	.011	.011	.011	.01	.01	.01	.01	.01	.01	.01
MEAN:			.011	.0106	.0102	.01	.0098	.01	.0093	.01	.01	.01

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-045-0002
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REPORT FOR: 2013

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1									0.009	0.010		
2								0.010				
3		0.010				0.010						
4	0.010			0.010	0.009							
5			0.010									
6											0.010	0.010
7										0.010		
8												
9												
10	0.010				0.009							
11												
12											0.010	0.010
13												
14								0.010				
15						0.010						
16	0.010				0.010							
17												
18											0.010	0.010
19												
20								0.009				
21		0.010				0.010	0.009					
22	0.010			0.009	0.010							
23			0.010									
24											0.010	0.010
25												
26								0.010				
27		0.010					0.010					
28	0.010			0.009	0.009							
29			0.010									
30											0.010	0.010
31										0.010		
NO.:	5	3	3	3	5	3	2	4	1	3	5	5
MAX:	.01	.01	.01	.01	.01	.01	.01	.01	.009	.01	.01	.01
MEAN:	.01	.01	.01	.0093	.0094	.01	.0095	.0098	.009	.01	.01	.01

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

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UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1											0.010	0.010
2									0.009	0.010		
3								0.010				
4		0.010				0.010	0.010					
5	0.010			0.010	0.010							
6			0.010									
7											0.010	0.010
8									0.010	0.010		
9								0.010				
10		0.010				0.010	0.010					
11	0.010			0.010	0.010							
12			0.010									
13											0.010	
14									0.010			
15								0.010				
16		0.010				0.010	0.010					
17	0.010				0.010							
18			0.010									
19											0.010	0.010
20									0.010	0.010		
21								0.010				
22		0.012				0.010	0.010					
23	0.010			0.012								
24			0.010									
25											0.010	0.010
26									0.010	0.010		
27								0.010				
28		0.010				0.010	0.010					
29	0.010			0.010	0.010							
30			0.009									
31												0.010
NO.:	5	5	5	4	4	5	5	5	5	4	5	5
MAX:	.01	.012	.01	.012	.01	.01	.01	.01	.01	.01	.01	.01
MEAN:	.01	.0104	.0098	.0105	.01	.01	.01	.01	.0098	.01	.01	.01

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "***".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-045-0004
COUNTY: (045) Delaware
CITY: (22296) Eddystone
SITE ADDRESS: Industrial Highway (Rte 291)
SITE COMMENTS: New Lead site PA_ID P020

STATE: (42) Pennsylvania
AQCR: (045) METROPOLITAN PHILADELPHIA
URBANIZED AREA: (6160) PHILADELPHIA, PA-NJ
LAND USE: INDUSTRIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
LATITUDE: 39.862928
LONGITUDE: -75.325689

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0:(0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2012

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1								0.010				
2						0.010	0.010					
3				0.010								
4												
5											0.010	
6									0.010	0.010		
7								0.010				
8						0.010	0.009					
9				0.010	0.022							
10												
11									0.010	0.010	0.010	0.010
12												
13								0.010				
14						0.010	0.010					
15				0.010	0.010							
16												
17											0.010	
18									0.010			
19												
20						0.010	0.010					
21				0.010								
22												
23											0.010	0.010
24									0.009	0.011		
25												
26						0.010	0.010					
27				0.010	0.009							
28			0.010									
29											0.010	
30									0.009	0.010		
31								0.010				
NO.:	0	0	1	5	3	5	5	4	5	4	5	2
MAX:	0	0	.01	.01	.022	.01	.01	.01	.01	.011	.01	.01
MEAN:			.01	.01	.0137	.01	.0098	.01	.0096	.0103	.01	.01

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

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CITY: (22296) Eddystone
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URBANIZED AREA: (6160) PHILADELPHIA, PA-NJ
LAND USE: INDUSTRIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
LATITUDE: 39.862928
LONGITUDE: -75.325689

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2013

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1									0.010			
2								0.010				
3						0.010	0.010					
4					0.010							
5												
6											0.010	0.010
7									0.010	0.010		
8								0.010				
9						0.010	0.010					
10	0.010				0.010							
11											0.010	0.011
12									0.010	0.010		
13												
14								0.010				
15						0.010						
16	0.010											
17												
18											0.010	0.010
19									0.010	0.010		
20								0.010				
21						0.010						
22				0.010	0.010							
23												
24											0.011	0.010
25									0.010	0.010		
26								0.010				
27						0.010	0.010					
28				0.010	0.010							
29												
30											0.011	0.010
31										0.010		
NO.:	2	0	0	2	4	5	3	5	5	5	5	5
MAX:	.01	0	0	.01	.01	.01	.01	.01	.01	.01	.011	.011
MEAN:	.01			.01	.01	.01	.01	.01	.01	.01	.0104	.0102

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-045-0004
COUNTY: (045) Delaware
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LAND USE: INDUSTRIAL
LOCATION SETTING: URBAN AND CENTER CITY

CAS NUMBER: 7439-92-1
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SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
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PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2014

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1											0.010	0.010
2									0.009	0.010		
3								0.010				
4		0.010				0.009	0.010					
5	0.010				0.010							
6			0.010									
7												
8									0.010	0.010	0.010	0.010
9								0.025				
10		0.010				0.010						
11	0.010			0.014	0.010							
12												
13											0.010	0.010
14									0.010	0.022		
15								0.010				
16		0.010				0.010						
17	0.010			0.010	0.010							
18			0.010									
19											0.011	
20									0.010	0.010		
21								0.010				
22		0.010				0.010	0.010					
23	0.011			0.010	0.010							
24			0.010									
25											0.010	0.010
26									0.010	0.010		
27								0.010				
28		0.011				0.024	0.010					
29	0.011			0.010	0.010							
30												
31												0.010
NO.:	5	5	3	4	5	5	3	5	5	5	5	5
MAX:	.011	.011	.01	.014	.01	.024	.01	.025	.01	.022	.011	.01
MEAN:	.0104	.0102	.01	.011	.01	.0126	.01	.013	.0098	.0124	.0102	.01

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-055-0002
COUNTY: (055) Franklin
CITY: ()
SITE ADDRESS: 9716 Upper Strasburg Rd
SITE COMMENTS: New Lead site PA_ID 3760

STATE: (42) Pennsylvania
AQCR: (196) SOUTH CENTRAL PENNSYLVANIA
URBANIZED AREA: ()
LAND USE: AGRICULTURAL
LOCATION SETTING: RURAL

CAS NUMBER: 7439-92-1
LATITUDE: 40.059828
LONGITUDE: -77.710608

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2011

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1												
2												
3												
4												
5												
6												
7												
8												
9												
10												
11												
12												
13												
14												
15												
16												
17												
18												
19												
20												
21												
22												
23												0.011
24												
25												
26												
27												
28												
29												
30												
31												
NO.:	0	0	0	0	0	0	0	0	0	0	0	1
MAX:	0	0	0	0	0	0	0	0	0	0	0	.011
MEAN:												.011

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-055-0002
COUNTY: (055) Franklin
CITY: ()
SITE ADDRESS: 9716 Upper Strasburg Rd
SITE COMMENTS: New Lead site PA_ID 3760

STATE: (42) Pennsylvania
AQCR: (196) SOUTH CENTRAL PENNSYLVANIA
URBANIZED AREA: ()
LAND USE: AGRICULTURAL
LOCATION SETTING: RURAL

CAS NUMBER: 7439-92-1
LATITUDE: 40.059828
LONGITUDE: -77.710608

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2012

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1								0.010				
2						0.010	0.010					
3		0.011										
4	0.012		0.011									
5												0.010
6									0.010	0.011		
7												
8						0.010	0.010					
9		0.011										
10	0.011		0.011									0.010
11												
12									0.010	0.011		
13								0.011				
14						0.010	0.010					
15		0.011		0.010								
16	0.011		0.011									
17											0.010	0.010
18									0.010			
19												
20						0.010	0.011					
21		0.011		0.011	0.010							
22	0.014		0.012									
23												0.010
24									0.011	0.010		
25								0.010				
26						0.010	0.010					
27		0.011		0.011	0.010							
28	0.011											
29											0.010	0.010
30									0.011			
31								0.010				
NO.:	5	5	4	3	2	5	5	4	5	3	2	5
MAX:	.014	.011	.012	.011	.01	.01	.011	.011	.011	.011	.01	.01
MEAN:	.0118	.011	.0113	.0107	.01	.01	.0102	.0103	.0104	.0107	.01	.01

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-055-0002
COUNTY: (055) Franklin
CITY: ()
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STATE: (42) Pennsylvania
AQCR: (196) SOUTH CENTRAL PENNSYLVANIA
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LAND USE: AGRICULTURAL
LOCATION SETTING: RURAL

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PQA0:(0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2013

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1									0.009	0.010		
2								0.009				
3		0.010				0.010	0.009					
4	0.010			0.014	0.009							
5			0.010									
6											0.010	0.010
7									0.010			
8								0.009				
9		0.010				0.010	0.009					
10	0.010			0.010	0.010							
11			0.010								0.010	0.010
12									0.010	0.010		
13												
14								0.010				
15		0.010				0.010	0.009					
16	0.010			0.011	0.010							
17			0.010									
18											0.010	0.010
19									0.010	0.010		
20								0.009				
21		0.010				0.010	0.009					
22	0.010			0.009	0.010							
23			0.010									
24											0.010	0.010
25									0.010	0.010		
26								0.009				
27		0.010				0.009	0.009					
28	0.010			0.009	0.011							
29			0.010									
30											0.010	0.010
31										0.010		
NO.:	5	5	5	5	5	5	5	5	5	5	5	5
MAX:	.01	.01	.01	.014	.011	.01	.009	.01	.01	.01	.01	.01
MEAN:	.01	.01	.01	.0106	.01	.0098	.009	.0092	.0098	.01	.01	.01

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "***".

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
AIR QUALITY SYSTEM
COMBINED SITE SAMPLE VALUES

Jun. 3, 2015

(14129) Lead (TSP) LC

SITE ID: 42-055-0002
COUNTY: (055) Franklin
CITY: ()
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SITE COMMENTS: New Lead site PA_ID 3760

STATE: (42) Pennsylvania
AQCR: (196) SOUTH CENTRAL PENNSYLVANIA
URBANIZED AREA: ()
LAND USE: AGRICULTURAL
LOCATION SETTING: RURAL

CAS NUMBER: 7439-92-1
LATITUDE: 40.059828
LONGITUDE: -77.710608

SUPPORT AGENCY: (0851) Pennsylvania Department Of Environmental Protection
MONITOR TYPE: SLAMS
PQA0: (0851) Pennsylvania Department Of Environmental Protection

REPORT FOR: 2014

UNITS: 105

	MONTH											
Day	JANUARY	FEBRUARY	MARCH	APRIL	MAY	JUNE	JULY	AUGUST	SEPTEMBER	OCTOBER	NOVEMBER	DECEMBER
1											0.010	
2									0.009	0.010		
3								0.009				
4		0.010				0.009	0.009					
5	0.010			0.010	0.010							
6			0.010									
7												
8									0.010	0.010	0.010	0.010
9								0.009				
10		0.010				0.009	0.009					
11	0.010			0.010	0.010							
12			0.010									
13											0.010	0.010
14									0.010	0.010		
15								0.010				
16		0.010					0.009					
17	0.010			0.010	0.010							
18			0.010									
19											0.010	0.010
20									0.009			
21								0.010				
22		0.010				0.009	0.009					
23	0.010			0.010	0.010							
24			0.010									
25												0.010
26									0.010			
27								0.009				
28		0.010				0.009	0.009					
29	0.010			0.010	0.010							
30			0.010									
31												0.010
NO.:	5	5	5	5	5	4	5	5	5	3	4	5
MAX:	.01	.01	.01	.01	.01	.009	.009	.01	.01	.01	.01	.01
MEAN:	.01	.01	.01	.01	.01	.009	.009	.0094	.0096	.01	.01	.01

Note: Missing samples from the primary monitor that have been augmented with samples from collocated monitors are flagged with "**".



APPENDIX D-2

Exide Technical Letter and Response Concerning Met Data

**Bureau of Air Quality
Department of Environmental Protection**

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pennsylvania

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BUREAU OF AIR QUALITY

September 12, 2014

Robert Jordan
Reading Facility Manager
Exide Technologies
Environmental Office
P.O. Box 14294
Reading, PA 19612

RE: Exide Meteorological Data Quality Assurance/Quality Control

Dear Mr. Jordan:

This letter is a request for clarification on information which was shared in an email exchange during June 2009 with Andrew Fleck, Environmental Group Manager at the Department of Environmental Protection (DEP) and Harry Pehote, Environmental Specialist, Exide Technologies Reading Recycling.

Mr. Fleck requested, on June 8, 2009, hourly meteorological data measured at the facility for the most recently available complete five year period, specifically, data from 2003 through 2007. Mr. Pehote replied, on June 22, 2009, with the weather station data for the Exide Reading site starting the end of May 2003 through mid-August 2008.

I realize that subsequent communications moved away from using that data in the modeling demonstration. Nevertheless, DEP is requesting a written response from Exide concerning the on-site meteorological data. Was the meteorological data for Exide's on-site Meteorological station for the years 2003-2008 Quality Assured and Quality Controlled (QA/QC) according to 40 CFR 51, Appendix W (Guideline of Air Quality Models) and Meteorological Monitoring Guidance for Regulatory Modeling Applications? If so, please provide the appropriate documentation (as is outlined in the guidance documents above). If not, please provide that information in written form.

Thank you for your attention to this matter. Should you have questions or need additional information, please contact me by e-mail at senolan@pa.gov or by telephone at 717-772-3377.

Sincerely,

Sean P. Nolan
Environmental Group Manager

cc: Andrew Fleck, DEP
William Weaver, DEP



Reading Recycling
Environmental, Health and Safety
3000 Montrose Avenue
Reading, PA 19605

FedEx Tracking # 7714 1959 6582

October 8, 2014

Mr. Sean Nolan
Environmental Group Manager
Bureau of Air Quality
PA Department of Environmental Protection
Rachel Carson State Office Building
P. O. Box 8468
Harrisburg, PA 17105-8468

Re: Exide Meteorological Data Quality Assurance/Quality Control

Dear Mr. Nolan:

This letter is in response to your letter of September 12, 2014 and your request for clarification on the on-site meteorological data. Exide installed and maintained this weather station for internal use to respond to odor complaints or other inquiries regarding community air quality concerns. Exide has ceased to maintain the weather station and there is no documentation to support whether the data was obtained in adherence to 40 CFR 51 Appendix W.

If you have any further questions, please contact me at (610) 921-4156.

Sincerely,

David A. Wagner
EHS Manager
Exide Reading Facility

Attachments

cc: Robert Jordan – Exide Reading Plant Manager
Fred Ganster – Exide EHS Department





APPENDIX D-3

Climate Division 3 Chart

**Bureau of Air Quality
Department of Environmental Protection**

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PENNSYLVANIA CLIMATE DIVISION 3

PRECIPITATION													
MONTHLY TABLE													YEAR
YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	
1980												0.66	
1981	0.52	4.45	1.38	4.03	4.16	4.61	4.06	2.71	3.36	3.39	1.48	3.44	
1982	3.95	2.97	2.21	5.59	3.59	7.53	2.92	2.90	3.05	1.71	3.71	1.96	
1983	2.89	3.09	5.71	8.88	5.36	3.74	1.21	2.57	2.01	5.25	6.23	7.82	
1984	1.56	4.33	5.09	4.48	7.45	4.43	7.84	2.83	1.91	3.14	2.71	2.36	
1985	1.19	2.55	1.81	0.94	5.31	3.09	4.68	4.14	6.09	1.80	6.07	1.53	
1986	3.72	3.68	2.11	4.14	1.65	2.09	5.09	5.35	2.16	2.47	6.77	5.09	
1987	3.92	1.11	1.96	3.98	3.25	2.90	4.27	3.61	7.41	2.87	3.98	1.65	
1988	2.63	3.47	2.15	2.67	6.30	0.95	7.58	3.69	2.84	2.52	5.16	0.99	
1989	2.33	2.67	3.59	2.00	9.29	6.54	7.55	2.73	5.12	4.56	2.41	0.86	
1990	5.10	2.06	2.11	3.35	7.12	2.86	3.59	6.72	2.13	4.23	2.54	5.58	
1991	3.24	1.26	4.19	2.72	2.89	2.14	4.48	4.28	3.82	2.44	2.34	3.94	
1992	1.68	1.67	4.15	1.76	4.26	3.43	4.48	2.84	4.12	1.95	5.08	4.03	
1993	2.06	2.55	6.57	6.72	1.57	2.83	3.43	4.07	7.21	3.63	4.04	4.85	
1994	5.43	3.32	6.26	3.01	3.87	3.22	6.47	5.54	3.01	1.14	4.23	2.48	
1995	3.77	2.31	2.32	1.83	3.88	2.40	4.70	1.19	3.64	7.45	4.38	2.40	
1996	6.32	1.97	4.29	5.11	3.77	5.63	7.19	3.48	5.16	6.10	4.02	7.74	
1997	3.00	1.85	4.17	2.08	3.16	2.37	4.42	3.61	2.60	2.13	3.80	2.66	
1998	4.58	4.01	4.88	4.98	5.35	5.36	2.83	3.02	1.84	3.61	1.28	0.83	
1999	6.30	2.80	4.10	3.19	2.38	1.73	1.05	4.45	11.64	2.99	2.65	2.97	
2000	3.08	2.35	6.05	3.28	4.25	4.89	3.50	3.73	5.84	1.19	2.33	3.96	
2001	2.89	2.33	4.89	2.30	3.95	4.19	2.78	3.41	3.76	0.80	1.12	2.20	
2002	2.67	0.56	4.06	3.48	4.72	4.31	1.27	2.92	4.09	6.96	4.40	5.00	
2003	2.07	4.68	4.09	2.74	4.25	8.46	3.72	5.28	8.29	5.67	4.17	5.01	
2004	2.03	2.73	2.67	5.28	3.71	4.89	8.74	5.61	8.03	2.46	4.51	3.68	
2005	4.63	2.06	4.13	5.10	1.59	2.90	6.18	2.22	1.07	9.78	3.44	3.36	
2006	4.79	2.13	0.86	3.92	2.49	10.84	4.91	3.23	6.07	4.71	5.35	2.31	
2007	3.21	2.34	4.29	6.81	1.67	4.35	4.04	4.57	1.08	5.60	3.04	5.06	
2008	1.45	5.72	4.30	3.14	4.51	2.94	4.87	2.02	5.95	2.85	2.65	6.28	
2009	2.36	0.66	1.66	3.89	5.50	5.69	4.53	8.23	4.12	5.83	1.94	6.25	
2010	2.47	3.55	5.45	2.54	3.56	2.34	5.51	2.31	4.22	6.71	2.43	2.85	
2011	2.55	2.80	5.96	6.71	4.14	3.10	2.79	11.84	11.65	4.08	4.46	4.09	
2012	2.92	1.35	1.63	2.65	4.77	3.60	3.83	4.36	5.14	7.05	1.15	4.23	
2013	4.02	1.93	2.64	2.86	3.19	8.17	6.13	4.98	1.99	4.67	2.77	4.61	
2014	3.23	4.77											
2015													
2016													

SEASONAL TABLE					YEAR
YEAR	WINTER	SPRING	SUMMER	AUTUMN	
1981	5.63	9.57	11.38	8.23	
1982	10.36	11.39	13.35	8.47	
1983	7.94	19.95	7.52	13.49	
1984	13.71	17.02	15.10	7.76	
1985	6.10	8.06	11.91	13.96	
1986	8.93	7.90	12.53	11.40	
1987	10.12	9.19	10.78	14.26	
1988	7.75	11.12	12.22	10.52	
1989	5.99	14.88	16.82	12.09	
1990	8.02	12.58	13.17	8.90	
1991	10.08	9.80	10.90	8.60	
1992	7.29	10.17	10.75	11.15	
1993	8.64	14.86	10.33	14.88	
1994	13.60	13.14	15.23	8.38	
1995	8.56	8.03	8.29	15.47	
1996	10.69	13.17	16.30	15.28	
1997	12.59	9.41	10.40	8.53	
1998	11.25	15.21	11.21	6.73	
1999	9.93	9.67	7.23	17.28	
2000	8.40	13.58	12.12	9.36	
2001	9.18	11.14	10.38	5.68	
2002	5.43	12.26	8.50	15.45	
2003	11.75	11.08	17.46	18.13	
2004	9.77	11.66	19.24	15.00	
2005	10.37	10.82	11.30	14.29	
2006	10.28	7.27	18.98	16.13	
2007	7.86	12.77	12.96	9.72	
2008	12.23	11.95	9.83	11.45	
2009	9.30	11.05	18.45	11.89	
2010	12.27	11.55	10.16	13.36	
2011	8.20	16.81	17.73	20.19	
2012	8.36	9.05	11.79	13.34	
2013	10.18	8.69	19.28	9.43	
2014	12.61				
2015					
2016					

ANNUAL TABLE		YEAR
YEAR	ANNUAL	
1981	37.59	
1982	42.09	
1983	54.76	
1984	48.13	
1985	39.20	
1986	44.32	
1987	40.91	
1988	40.95	
1989	49.65	
1990	47.39	
1991	37.74	
1992	39.45	
1993	49.53	
1994	47.98	
1995	40.27	
1996	60.78	
1997	35.85	
1998	42.57	
1999	46.25	
2000	44.45	
2001	34.62	
2002	44.44	
2003	58.43	
2004	54.34	
2005	46.46	
2006	51.61	
2007	46.06	
2008	46.68	
2009	50.66	
2010	43.94	
2011	64.17	
2012	42.68	
2013	47.96	
2014		
2015		
2016		

*Precipitation data reported in inches

*Data source: NOAA / NCDC at <ftp://ftp.ncdc.noaa.gov/pub/data/cirs/climdiv/climdiv-pcpndv-v1.0.0-20140604>

*Surface moisture condition thresholds determined by the U.S. EPA "AERSURFACE User's Guide" (EPA-454/B-08-001, January 2008), Section 2.2

*Default months assigned to seasons (i.e., Winter is Dec (previous year), Jan, and Feb; Spring is Mar, Apr, and May; Summer is Jun, Jul, and Aug; Autumn is Sep, Oct, and Nov.)

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APPENDIX D-4

Ambient Air Boundary Diagram

**Bureau of Air Quality
Department of Environmental Protection**

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— Proposed Yuasa Fence Location



0 20 40 80 120 160 Meters

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**Comment and Response Document
For the North Reading Nonattainment Area
2008 Lead National Ambient Air Quality Standard
Attainment Demonstration**

On June 20, 2015, the Pennsylvania Department of Environmental Protection (Department or DEP) requested written comments and provided notice of a public hearing on the proposed Attainment Demonstration and Base Year Inventory for the North Reading Lead Nonattainment Area that will be submitted to the U.S. Environmental Protection Agency (EPA) as a State Implementation Plan Revision (Attainment Demonstration SIP) (45 *Pa.B.* 3278). There were no witnesses who provided testimony during the public hearing held at the Muhlenberg Township Recreation Building (3025 River Road, Reading, PA) on July 22, 2015. The public comment period closed on July 23, 2015.

One commentator, listed below, submitted written comments to DEP on the Attainment Demonstration SIP during the public comment period. The comments are addressed in this document.

Alexandra C. Chiaruttini, Esquire
Stock and Leader
On behalf of the County of Berks
achiaruttini@stockandleader.com

COMMENTS AND RESPONSES

Dispersion Modeling

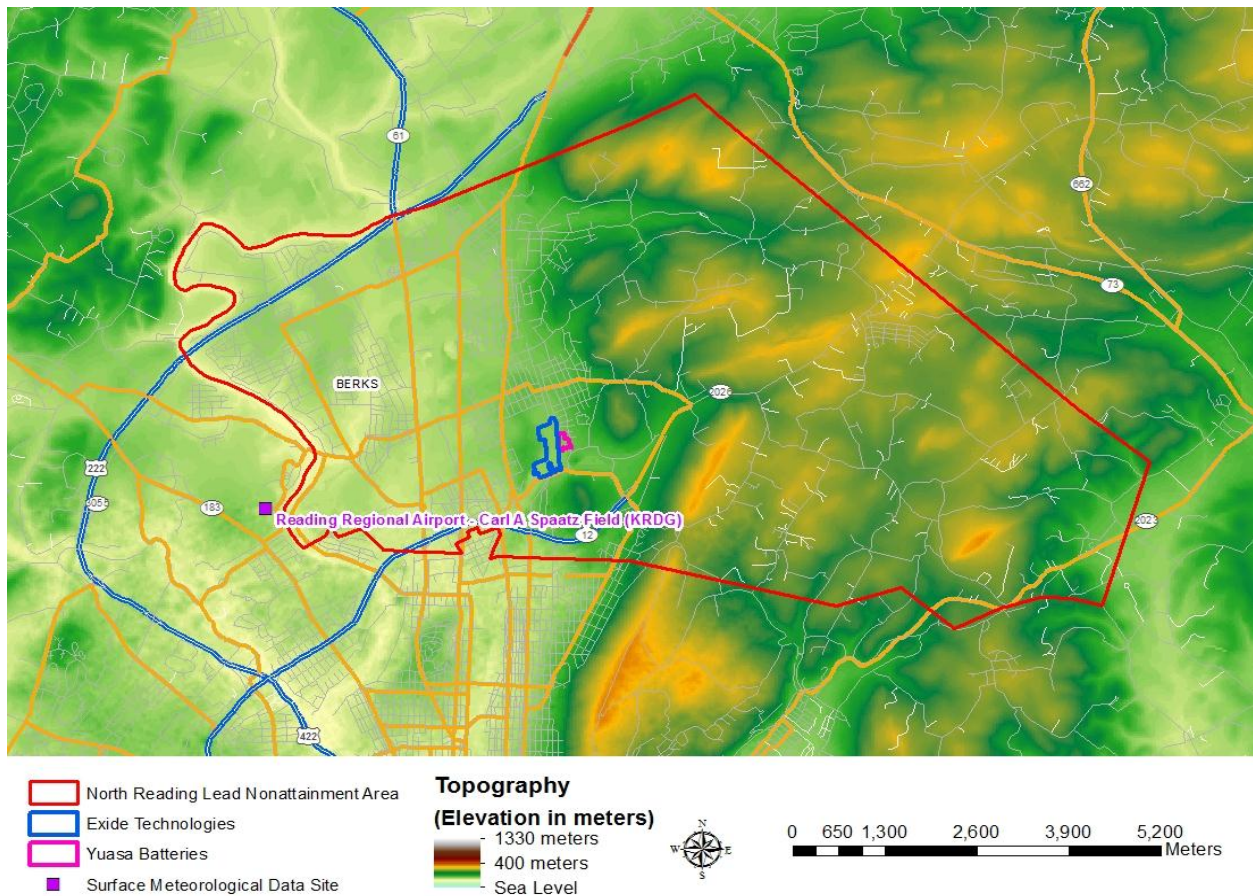
Comment 1: The commentator asserts that the air dispersion modeling analysis conducted in support of the North Reading Nonattainment Area Lead SIP uses meteorological data from the Reading Regional Airport. The commentator states that these data are not representative of meteorological conditions in and around Exide/Yuasa where the highest lead concentrations are predicted to occur, per the criteria established in Section 8.3 of 40 CFR 51, Appendix W. The commentator asserts that Berks County has examined and compared the Exide meteorological station data and compared it to the Reading Area Airport meteorological data, and that the results of this comparison demonstrate that the elevated terrain immediately to the east of Exide/Yuasa causes a diurnal upslope/downslope wind flow that is not captured by the Reading Airport data. The commentator asserts that this difference is most pronounced in the nighttime hours, which are typically associated with poor atmospheric dispersion and thus higher pollutant impacts. The failure to account for the localized effects during poor dispersion conditions, according to the commentator, will underestimate the maximum modeled impact and thus will falsely show attainment when attainment has not been achieved.

The commentator states that, because the Reading Airport data are not representative of meteorological conditions near Exide/YUASA particularly during nighttime hours, they should

not be used in an air dispersion modeling to demonstrate the effectiveness of the proposed Lead SIP. The commentator concludes that “the Department should run the SIP modeling using meteorological data that reflects the impact of the area immediately surrounding Exide and YUASA.” According to the commentator, by utilizing Reading Airport data, the Lead SIP will predict attainment where attainment will not, in fact, be achieved because of the unique local (micro) meteorological conditions and patterns. The commentator adds that if the Department would like to view the County’s meteorological data comparison, please do not hesitate to request it.

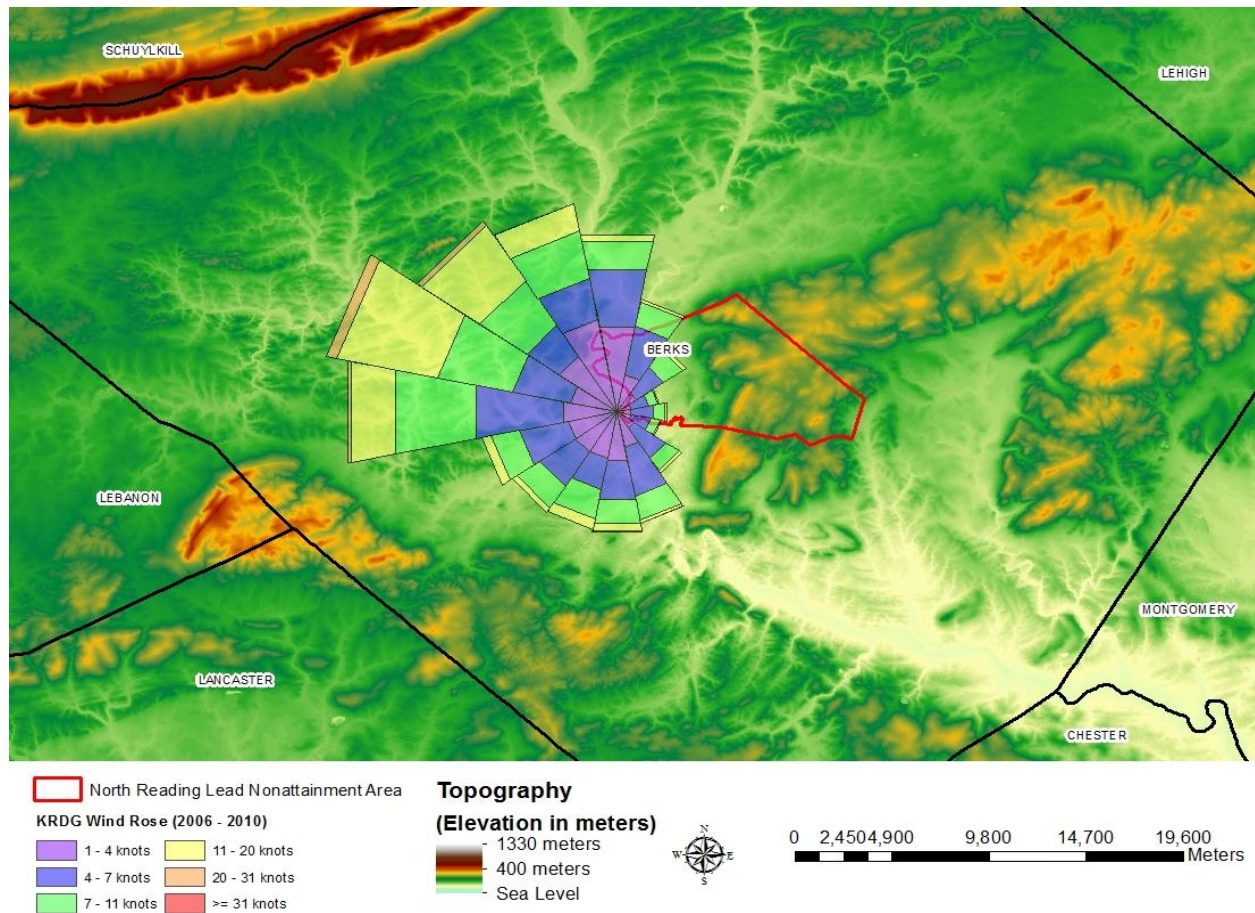
Response: The Department disagrees with the commentator’s claim that the air dispersion modeling analysis conducted in support of the Attainment Demonstration SIP uses unrepresentative meteorological data or that the analysis will falsely show attainment. The Department explains in its discussion of air dispersion modeling in Section VI of the Attainment Demonstration SIP that the Department used meteorological data collected at the Reading Airport in its modeling analysis for the attainment demonstration. The Department conducted an analysis with respect to the commentator’s assertion that meteorological data collected at the Reading Airport is not representative of meteorological conditions in and around the Exide Technologies (Exide)/Yuasa Batteries (Yuasa) facilities. The Department reviewed Section 8.3 of the Guideline on Air Quality Models (Guideline), referenced by the commentator, which pertains to meteorological input data. Section 8.3 of the Guideline is found in 40 CFR 51, Appendix W. That provision, Section 8.3, specifically states that “[t]he representativeness of the data is dependent on: (1) The proximity of the meteorological monitoring site to the area under consideration; (2) the complexity of the terrain; (3) the exposure of the meteorological monitoring site; and (4) the period of time during which data are collected.” As discussed in the Attainment Demonstration SIP, the Reading Airport has Automated Surface Observation Station (ASOS) meteorological equipment. The airport is located approximately two and a half miles southwest of the Exide/Yuasa facilities. As is the case with the Exide/Yuasa facilities, the Reading Airport is situated to the west of elevated terrain. A map illustrating the location of the meteorological data tower, the two facilities (Exide and Yuasa), and the corresponding terrain is provided in Figure 1 of this Comment and Response Document.

Figure 1 – Topographical Map of the North Reading Lead Nonattainment Area and Surrounding Region



The meteorological data collected at the Reading Airport represents the region west of the elevated terrain well. Figure 2 displays the wind rose of the meteorological data collected at the Reading Airport from 2006 to 2010. The wind rose illustrates wind speed as a function of wind direction.

Figure 2 – Map Illustrating Wind Rose of Reading Airport Meteorological Data (2006-10) with Respect to the Topography



As is evident in the Figure 2, the Reading Airport is “seeing” the elevated terrain off to the east. The lack of wind directions coming from the due east is evidence that the terrain to the east is impeding wind flow. Instead, the wind is traveling along the path of least resistance (in areas where the wind is undergoing less surface friction), which is why the wind rose is illustrating winds blowing predominately from the north, west and south.

The Department’s modeling for the Attainment Demonstration SIP used data that took into account very low wind speeds. As discussed in Section VI of the Attainment Demonstration SIP, the modeling analysis utilized meteorological data that was processed with the AERMINUTE program. On March 8, 2013, the U.S. Environmental Protection Agency (EPA) released a memorandum entitled, “Use of ASOS meteorological data in AERMOD dispersion modeling,” available at http://www.epa.gov/ttn/scram/guidance/clarification/20130308_Met_Data_Clarification.pdf. The memorandum discusses the development of the AERMINUTE preprocessor to utilize 1-minute wind speeds that are recorded at an ASOS station. Specifically, the memorandum states “[a]nother important consequence of the AERMINUTE program is the introduction of

lower wind speeds (<1.5 m/s or 3 knots) into the meteorological data used in AERMOD as compared to the use of standard NWS [National Weather Service] observations only.” On a meteorological basis, lower wind speeds are attributable to the poorest dispersion characteristics within AERMOD. The Department utilized the AERMINUTE preprocessor to ascertain these exact meteorological conditions.

When the attainment run of the dispersion modeling for the Attainment Demonstration SIP was complete, the Department determined that the maximum modeled concentration was $0.1291 \mu\text{g}/\text{m}^3$ (this value does not include the background concentration). (See Attainment Demonstration SIP, Section VI-G.) The maximum modeled concentration occurred during the July, August, and September 2009 three-month period. The Department analyzed wind conditions during this three-month period to determine if the modeling concentrations were representative of worst case meteorological conditions at the Reading Airport. The wind rose that represents the wind profile at the Reading Airport during the July, August, and September 2009 three-month period is illustrated in Figure 3 below.

Figure 3 - Map Illustrating Wind Rose of Reading Airport Meteorological Data (July–September 2009) with Respect to the Topography

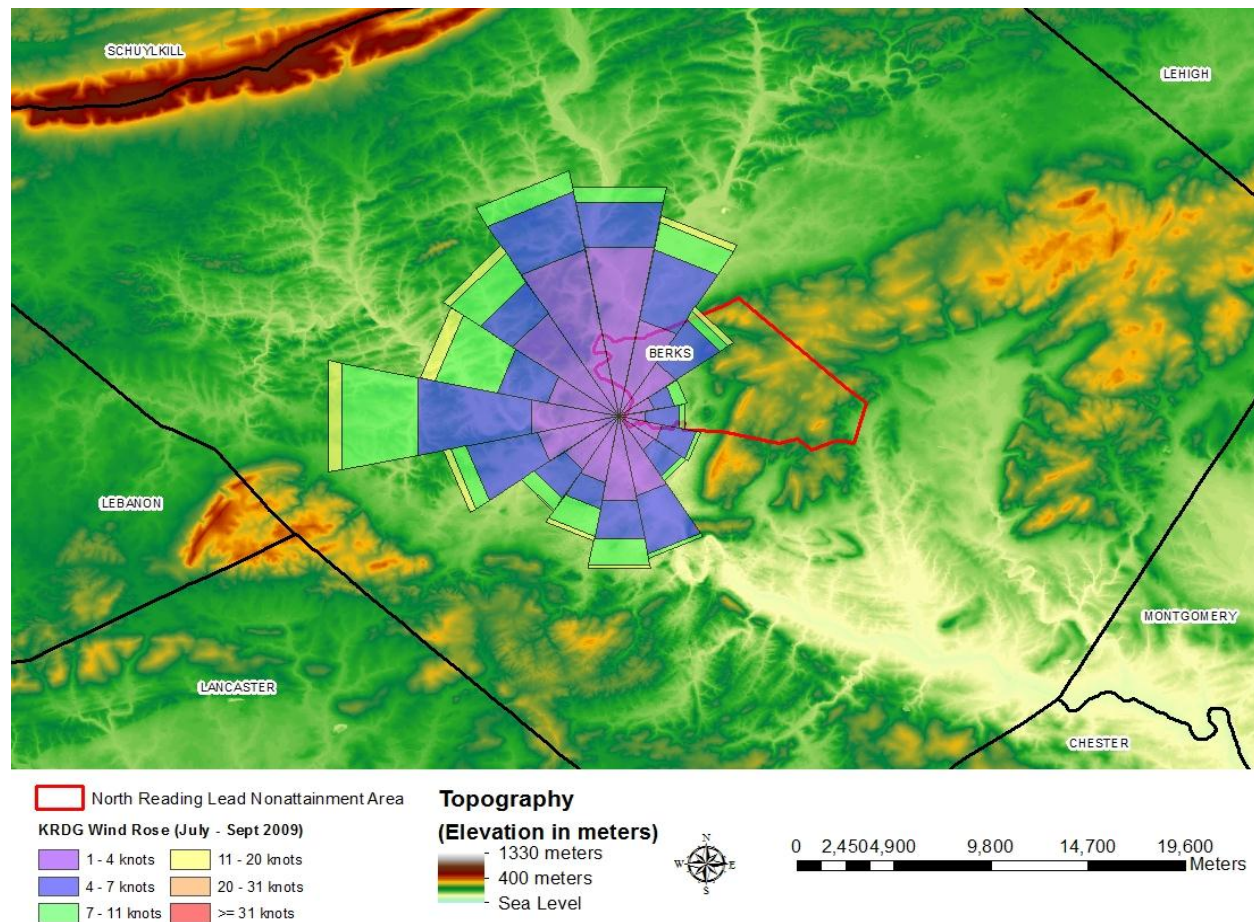


Figure 3 illustrates the continual influence of the terrain to the east of Reading Airport on the wind data captured at the Reading Airport and that the winds were predominately light during the July, August, and September 2009 three-month period. As stated above, the light winds are indicative of less horizontal dispersion of pollutants, resulting in higher ambient concentrations. Figure 4 and Figure 5 below illustrate the frequency that a particular wind speed category occurs during 2006-2010 and July-September 2009, respectively.

Figure 4 – Wind Speed Frequency Distribution Bar Chart for 2006–2010

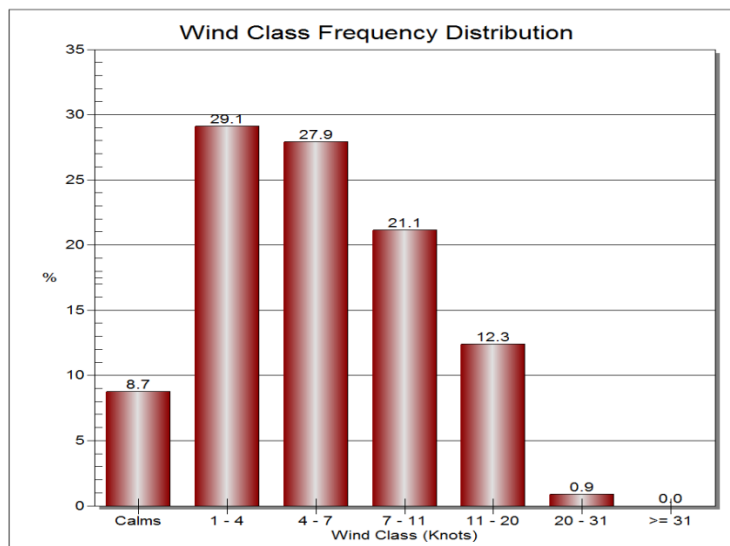
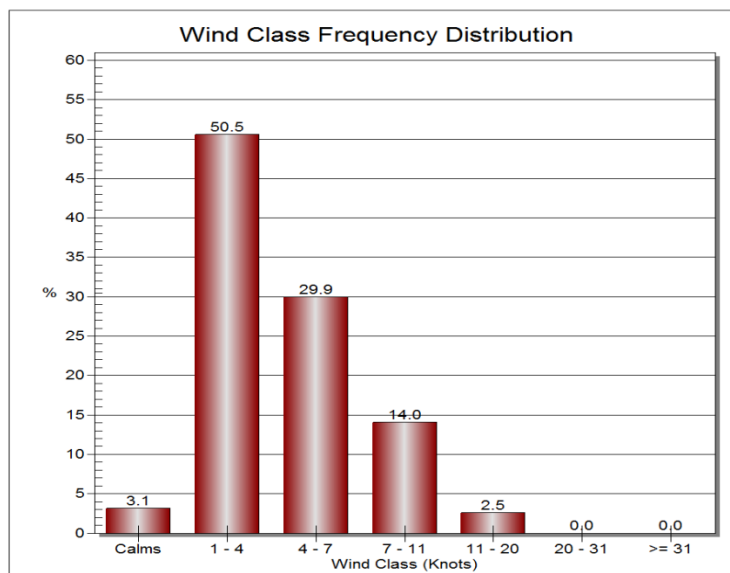


Figure 5 – Wind Speed Frequency Distribution Bar Chart for July–September 2009



The examination of Figure 5 illustrates that the lighter wind speed classes, the 1-4 knot range, occurred more frequently during this 3-month average period than during the entire 5-year meteorological dataset, which is represented in Figure 4.

According to the comment, the commentator appears to have based the analysis on comparing data collected at the Exide meteorological station and the Reading Airport. As stated in the Attainment Demonstration SIP, the Department did not utilize the data collected at the Exide meteorological station due to a lack in documentation that the data had been appropriately quality assured (QA)/quality controlled (QC), as outlined in the Guideline. After receiving confirmation on October 10, 2014 from Mr. David Wagner, EHS Manager at Exide Technologies' Reading facility, that there was no documentation to support that the data collected at Exide's meteorological station was completed in accordance with the Guideline, the Department concluded that it is not appropriate to utilize the Exide meteorological station data for the Attainment Demonstration SIP modeling demonstration or any subsequent analysis comparing meteorological data sites. Without the appropriate QA/QC documentation, there is no way of knowing if the wind data collected at Exide's meteorological tower is accurate.

The Department notes that a complete set of the modeling data (extracted onto three DVDs) supporting the Attainment Demonstration SIP was provided to Berks County's consultant, Fred Osman, on July 9, 2015, and also to EPA Region III staff, at the beginning of the public comment period on the SIP revision for the North Reading Lead Nonattainment Area (45 Pa. B. 3278, June 20, 2015).

In conclusion, the meteorological data collected at the Reading Airport is representative of the meteorological conditions in and around the Exide/Yuasa facilities. The Reading Airport data was used appropriately to demonstrate attainment within the North Reading lead nonattainment area and is not expected to falsely show attainment of the 2008 lead NAAQS.

Comment 2: The air dispersion modeling analysis conducted in support of the North Reading Nonattainment Area Lead SIP used a background concentration from Ridley Park, PA, approximately 45 miles from Exide/YUASA. The commentator explains that the Department's rationale for using such a distant monitor was that the two monitors (Laureldale North and Laureldale South) in the North Reading Nonattainment area were influenced by Exide/Yuasa. The commentator asserts that because Exide, which is responsible for the overwhelming majority of emissions in the modeling analysis, has been idled for more than two years, the Department's concern is unwarranted. Instead, according to the commentator, the Department should have utilized the Department's Laureldale North and Laureldale South monitor data to establish the background concentration.

The commentator writes that even if there is legitimate reason for concern that operations from the idled Exide facility and YUASA have influenced recent monitor values at the two Laureldale stations, EPA has established procedures to account for this type of situation. According to the commentator, these procedures are set forth in Section 8.2.2 of 40 CFR 51, Appendix W, whereby concentrations influenced by that source's operations (e.g., when the wind blows from the source to the monitor) are discounted in the development of the overall background

concentration. The commentator asserts that the Department did not follow the methodology set forth in the federal rule.

The commentator writes that “we note the irony of the Department’s use of the Ridley Park monitor.” The commentator states that the selected Ridley Park monitor was originally sited as a result of the 1-ton lead source, Exelon Generation – Eddystone facility, in Delaware County. Based on EPA’s Source Management System, the Exelon Generation – Eddystone facility last operated on April 28, 2011. Since the one ton source ceased operation, the Ridley Park monitor used to establish background for the lead SIP in this case, has been monitoring ambient air since May 2011. The commentator suggests that the Department should explain why it is ok to use this particular monitor when, the commentator asserts, it is essentially monitoring ambient air in a formerly influenced lead area and not use a similar monitoring station next to Exide, which has been idled since 2013. The commentator asserts that of the greatest concern to this issue is that the Department’s approach fails to account for the well documented legacy lead contamination in the Laureldale area. According to the commentator, this factor is illustrated by data from the first quarter of this year, the most recent data which DEP has made publically available. The commentator states that in the first quarter Ridley Park had fourteen lead samples, three of which measured $0.011 \mu\text{g}/\text{m}^3$, and the remainder of which were $0.01 \mu\text{g}/\text{m}^3$. The commentator states that Laureldale North, during the same period and with a totally idled lead smelter, had four readings above $0.011 \mu\text{g}/\text{m}^3$ with the highest at $0.044 \mu\text{g}/\text{m}^3$ and Laureldale South had seven readings above $0.011 \mu\text{g}/\text{m}^3$, with a maximum of $0.022 \mu\text{g}/\text{m}^3$.

The commentator states that a review of these data clearly shows that Ridley Park is not representative of Laureldale as a background site. Moreover, according to the commentator, if the Department were to use the Laureldale data for the background concentration, and add it to the modeled concentration, the area will exceed the Lead NAAQS. The commentator asserts that DEP’s approach to the background concentration was to look at the three distant monitors and choose the highest of the 3-month averages over 2012-2014. According to the commentator, if you apply the same approach to the Laureldale monitors, but look at only concentrations after Exide idled, the background concentration should be $0.099 \mu\text{g}/\text{m}^3$ (Laureldale North). The commentator states that the concentration was from the 3-month period ending June 2013, which was the first 3-month period that did not include any Exide operations (Exide was idle as of the end of March 2013).

However, the commentator suggests that to be even more forgiving to Exide, if one considers that Exide still had storage piles through January 2014, you should look at only 3-month averages after May 2014. The commentator asserts that if you consider only those data the highest 3-month average is $0.028 \mu\text{g}/\text{m}^3$ (Laureldale South), and that this 3-month average is for the period ending February 2015. The commentator asserts that if you add either of these concentrations to the predicted max concentration from the Department’s modeling the total concentration exceeds the Lead NAAQS. Therefore, according to the commentator, the Department should re-calculate the background concentration using data from the two Laureldale stations in conjunction with the procedures established in Section 8.2.2 of 40 CFR 51, Appendix W.

Response: The Department disagrees with the commentator's assertion that there was error in the use of the background lead concentration or that a different background concentration should be used.

In order to determine the background concentration used in the Attainment Demonstration SIP for the North Reading Lead Nonattainment Area, the Department used an approach consistent with EPA guidance. General guidance on background concentrations can be found in Section 8.2 of the Guideline on Air Quality Models (Guideline), 40 CFR 51, Appendix W. Section 8.2.2 of the Guideline is entitled "Recommendations (Isolated Single Source)". The Attainment Demonstration SIP for the North Reading Lead Nonattainment Area consisted of multiple sources, Exide Technologies and Yuasa Batteries. Therefore, the Department does not believe Section 8.2.2 of the Guideline is adequate for use in the Attainment Demonstration SIP. The Department used an approach consistent with Section 8.2.3 of the Guideline, entitled "Recommendations (Multi-Source Areas)". The approach outlines guidance about two components of background, contributions of nearby sources and contributions of other sources. Nearby sources are those sources that are expected to cause a significant concentrations gradient in the vicinity of the sources modeled. Nearby sources should be explicitly modeled. In the Attainment Demonstration SIP, the main source being modeled was Exide Technologies (Exide) and the nearby source was Yuasa Batteries (Yuasa). As outlined in Section VI of the Attainment Demonstration SIP, both sources were explicitly modeled. The contributions of other sources were determined to be those sources outside of the Exide and Yuasa facility area. The Department's approach to determining the regional level of air quality was the best way to analyze the contribution of other sources.

The commentator suggests that the Department should have followed Section 8.2.2 of the Guideline, but the concentrations the commentator states would have resulted are not supported by the requisite meteorological analysis. The Exide and Yuasa facilities would need to be treated as one source for analysis under Section 8.2.2. As part of the 2008 lead NAAQS, EPA released a lead SIP toolkit (<http://www.epa.gov/oar/lead/implement.html>). On August 10, 2012, as part of the lead SIP toolkit, EPA produced an Addendum to a questions and answers (Q&A) document that was originally produced on July 11, 2011. The response to Question 18 in that Addendum (found here: <http://www.epa.gov/oar/lead/pdfs/20120810modelqanda.pdf>) goes into detail on how background concentrations should be properly accounted for in attainment demonstrations, specifically invoking meteorology. The response specifically states:

"[f]or isolated single sources, the Guideline discusses two options of determining background concentrations. The first, discussed in Section 8.2.2.b is the use of air quality data collected in the vicinity of the source to determine the background concentrations. Background concentrations are determined by excluding observations when the source being modeled is impacting the monitor. The guideline offers guidance that monitors inside a 90-degree sector downwind of the source may be used to determine the area of impact. Meteorological data used in the source contribution analysis should be representative of the monitored area. Because observed values often represent a 24-hour sample, it may be difficult to separate hours within a sample when modeled sources are impacting the monitor. In these cases, it may be necessary to exclude many 24-hour values entirely, such

that the remaining observations are no longer robustly representative. This may necessitate the use of the second option, as discussed in Section 8.2.2.c. This option is to use a 'regional site' when there are no monitors located in the vicinity of the source. As defined in the Guideline, a regional site is one that is located away from the area of interest but is impacted by similar natural and man-made sources.”

Overall, the background concentration should take the same form (a 3-month average) as the modeled results. Samples for lead are run every sixth day and are run all day (for a 24-hour period). During a consecutive 3-month period, there are on average 15 to 16 samples taken at a particular monitor. Due to the nature of the meteorological pattern in the Exide/Yuasa portion of the nonattainment area, it would be too difficult to calculate a background concentration using the Laureldale North and Laureldale South monitors. As seen in the meteorological data, the terrain to the east of the Exide and Yuasa facilities causes the Laureldale North and Laureldale South monitors to be impacted directly from the two facilities most days. To that end, as stated in EPA’s response to Question 18 in the EPA guidance on the determination of a background concentration, “it may be necessary to exclude many 24-hour values entirely, such that the remaining observations are no longer robustly representative.” The guidance goes on to discuss Section 8.2.2.c. of the Guideline, which highlights the use of a “regional site.”

Additionally, the Department reviewed EPA’s final *Integrated Science Assessment for Lead* (ISA) report. The ISA report, issued in June 2013, indicates that the national non-source oriented monthly average ambient lead concentration is $0.01 \mu\text{g}/\text{m}^3$. As stated in Section VI of the Attainment Demonstration SIP, the Department determined that the representative background lead concentration was $0.012 \mu\text{g}/\text{m}^3$, which is slightly higher than the background concentration outlined in the ISA report.

The commentator also questioned the use of the Ridley Park monitor in the background concentration calculation. As explained in Section VI, Subsection D of the Attainment Demonstration SIP, the Department did not solely use the Ridley Park monitor value, but used multiple monitors. That Subsection explains, “In order to adhere to these guidelines and determine a representative background concentration for the North Reading Nonattainment Area, an analysis was conducted using three different lead monitors in eastern Pennsylvania. Figure 5 illustrates the location of these monitors with respect to the North Reading lead nonattainment area. The three monitors are DEP’s Chester, Ridley Park, and Upper Strasburg monitors. The analysis used ambient lead data from 2012 to 2014.” The SIP continues, “After a detailed examination of the 2012 to 2014 ambient lead monitoring data, the DEP used the highest monitored design value concentration at the Ridley Park monitor in Delaware County. In fact, all three areas (Chester, Ridley Park, and Upper Strasburg) had 3-month averages for lead concentrations close to $0.01 \mu\text{g}/\text{m}^3$, which is indicative of regional ambient air concentrations in areas uninfluenced by local lead sources.”

In conclusion, the Department used the correct representative background lead concentration for the Attainment Demonstration SIP.

Comment 3: The commentator states that the design value is at 94% of the NAAQS. According to the commentator, this may sound like a reasonable margin of safety, but the commentator writes that it should be noted that the lead method strives for a bias error of less than 15% at a 95% confidence level. The commentator states that at a positive measurement bias of only half that amount we would result in a measured NAAQS exceedance, if all of the assumptions in the model were correct and we were sampling at the maximum impact point.

Response: The Department disagrees. The commentator's statement appears to refer to EPA's Data Quality Objectives (DQO) in terms of measurement uncertainty. This DQO is set forth in 40 CFR Part 58, Appendix A, Section 2.3.1.4 and is entitled "Measurement Uncertainty for Pb methods." As provided in 40 CFR Part 58, Appendix A, Section 2.3.1, the "DQO will be developed by EPA to support the primary SLAMS for each criteria pollutant." As such, this objective was developed for NAAQS monitoring purposes, not modeling purposes.

In addition, EPA sets the NAAQS with an "adequate margin of safety." "Based on consideration of the entire body of evidence and information available at this time, as well as the recommendations of CASAC [the federal Clean Air Science Advisory Committee] and public comments, the Administrator [of EPA] has decided that a level for the primary Pb [lead] standard of $0.15 \mu\text{g}/\text{m}^3$, in combination with the specified choice of indicator, averaging time, and form, is requisite to protect public health, including the health of sensitive groups, with an adequate margin of safety." 73 FR 66964, at 67006 (November 12, 2008).

The Department uses conservative assumptions in the model so that the modeled maximum design value is the worst-case scenario. Finally, EPA also issues the guidance for modeling to demonstrate attainment of the NAAQS. Therefore, by following all of the standards, rules, recommendations and calculation methodologies issued by EPA and meeting the standards promulgated by EPA, the Attainment Demonstration SIP for the North Reading provides an "adequate margin of safety."

Monitoring

The commentator comments that the County reiterates the following issues (see comments 4, 5, 6, 7 and 8) with current monitoring data and the need for additional monitors near Exide:

Comment 4: The commentator asserts that not all fugitive sources from Exide have been identified, either by the Department nor Exide. The commentator states that although fugitive sources are reasonably expected to be reduced by enclosure of portions of the facility in the future, the Department still has not conducted a sufficiently thorough analysis of fugitive sources.

Response: The Department disagrees with the claim that not all fugitive sources from Exide have been identified. The Department also disagrees with the assertion that the Department has not conducted a sufficiently thorough analysis of fugitive sources. The Department discusses fugitive emissions throughout the Attainment Demonstration SIP, and includes supporting documentation in the appendices.

For instance, Appendix B-3 of the Attainment Demonstration SIP is a November 7, 2011, All4 Inc. memorandum evaluating Exide road dust, which the Department used to characterize the road source emissions in the modeling input for the attainment demonstration in the Attainment Demonstration SIP. (As mentioned above in response to Comment 1, a complete set of the modeling data (extracted onto three DVDs) supporting the Attainment Demonstration SIP was provided to Berks County's consultant, Fred Osman, on July 9, 2015 and also to EPA Region III, at the beginning of the comment period.)

Appendix B-2 of the Attainment Demonstration SIP revision is a December 24, 2014 Department memorandum evaluating the Exide non-road fugitive submissions, with 53 pages of attachments. The attachments consist of Exide's initial fugitive emission submission to the Department, a comment letter from Stock and Leader on behalf of Berks County, a Department comment and response document on the comment letter, and later fugitive emission submissions to the Department by Exide. As noted in the December 24, 2014 Department memorandum, Berks County disagreed in its July 29, 2013 comment letter with the methodology used in Exide's April 24, 2013 estimates, suggesting in that letter that, "It is possible that Exide, in addition to including analysis and application of existing fugitive emission data in its possession, could utilize at least some of the methodology used by the Frisco facility in its submission to EPA, so long as it were to utilize and apply site specific information from the Reading plant." (Quote is from July 29, 2013 Stock and Leader letter, page 4.) After reviewing Exide's submittal, and Berks County's comments, the Department "requested that Exide submit revised emission estimates site-specific to Reading, utilizing methodology like that used by Exide to calculate fugitive lead emissions for the Exide Frisco (Texas) facility in its response to EPA's May 27, 2010 Secondary Lead Smelting Section 114 Information Collection Request related to review and revision of the 40 CFR Part 63, Subpart X, National Emission Standards For Hazardous Air Pollutants From Secondary Lead Smelting." (Quote is from December 24, 2014 Department memorandum, page 1.)

Accordingly, the subsequent analyses submitted by Exide to DEP were done similarly to the Exide Frisco plant analysis submitted to EPA for the Secondary Lead Smelting Information Collection request.

The Department has completed a thorough analysis of the fugitive emissions at the Exide site, and has accounted for both roadway and non-road fugitive emissions in the modeling analysis.

Additionally, with regard to monitor location, the Department notes that Berks County challenged the location of the ambient air monitors in the federal Third Circuit Court of Appeals in *Berks County v. U.S. Environmental Protection Agency*, No. 14-2913. The challenge was a petition for review of EPA's promulgation of a final rule entitled, "Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; Infrastructure Requirements for the 2008 Lead National Ambient Air Quality Standards," 79 FR 19009 (Apr. 7, 2014). The Department intervened in the case in support of EPA. The parties' positions regarding monitor location and other issues were briefed by the parties and a decision is awaited at the time of drafting of this Comment and Response Document. The Department incorporates into this response the briefs filed by the Department and EPA in that case.

Comment 5: The commentator asserts that Exide fugitive sources have not been inventoried in the Exide Title V permit to date.

Response: The Exide Title V permit is not a part of the control strategy in the Attainment Demonstration SIP used for demonstrating attainment for the area. The Attainment Demonstration SIP does take into account fugitive emissions - see Table 4: Stationary Source Lead Emissions (Including Fugitive Emissions) for 2010 and Table 7: Exide 2015 Projected Source and Fugitive Lead Emissions for Attainment Modeling. The values for fugitive emissions were also used in the modeling input for the attainment demonstration in the Attainment Demonstration SIP. Please also see response to Comment 4.

Comment 6: The commentator asserts that Exide fugitive sources and emissions have never been included in the Department's analysis and location of the DEP Laureldale North monitoring station, and that this results in artificially low lead concentrations at the DEP Laureldale North station – the very station that the Department will rely upon to determine attainment in this area.

Response: The Department agrees that fugitive emissions were not incorporated in the dispersion modeling used, in part, to site the Laureldale-North monitor in 2009. The Department disagrees, however, that this results in artificially low lead concentrations at the monitor. The Laureldale North ambient air monitor was sited properly, in accordance with the requirements in 40 CFR 58.10(a)(4) pertaining to lead monitoring. As required, the Department submitted a plan to the U.S. Environmental Protection Agency (EPA) for establishing source-oriented lead monitoring sites for lead sources emitting 1.0 tpy or greater as part of the 2010 annual air monitoring network plan submitted in 2009. Prior to submittal, the Department held a 30-day public comment period on the plan and prepared a comment and response document, which was provided to EPA as part of the plan submittal. The monitoring in Berks County was described as part of this submittal. In July 2011, the Department also submitted an annual air monitoring network plan, after public comment, to EPA for establishing source-oriented lead monitoring sites for lead sources emitting equal to or greater than 0.50 tpy but less than 1.0 tpy. EPA approved both plans, and EPA has approved the subsequent annual air monitoring network plans submitted by the Department after that, under 40 CFR, Part 58, Subpart B (monitoring network).

Exide is currently bound by an enforceable Consent Order and Agreement with the Department which stipulates in Paragraph 3(a)(1), that “Exide shall not resume operation of any portion of the Exide Facility until Exide has completed all the Exide Facility modification work proposed in Exide Plan Approval I, as described on Page 2 of Plan Approval I.” Therefore, should Exide wish to resume operations, it must first comply with the requirements of the COA, including the National Emission Standards for Hazardous Air Pollutants (NESHAP) from Secondary Lead Smelting, codified in 40 CFR Part 63, Subpart X, the requirements of which are incorporated into the Exide Plan Approval (No. 06-05066I). According to EPA, the NESHAP will significantly reduce fugitive emissions at sources subject to the NESHAP.

Please also see the DEP response to Comment 4.

Comment 7: The commentator asserts that the Department should locate a monitoring station on the Exide property, at the fence line between Exide and the convent/nursing home facility and

near the foundry and slag operation buildings at Exide. According to the commentator, such monitoring station would not be measuring ambient air, but instead can assist the Department and Exide in quantifying and/or estimating fugitive lead emissions from Exide.

Response: As the Department has stated in the past, the Department would be willing to revisit monitor siting for the area, when required mitigation measures have been fully implemented and ambient levels of lead demonstrate attainment of the 2008 lead standard. At that time, the Department will reconsider the commentator's request to install additional Department monitors, if federal regulatory requirements for siting monitors (which include consideration of logistics, among other things) can be met and approval is granted by EPA. The Department notes that the request in comment 7 is for a non-ambient air monitor. Please also see the DEP responses to comments 4, 5 and 6.

Comment 8: The commentator asserts that the Department should also establish a second DEP Laureldale North station where lead NAAQS compliance can be monitored more accurately. The commentator writes that the County has submitted comments on this and related issues numerous times, and has consistently offered to pay to establish, maintain, and run such a monitoring station. The commentator states that that offer remains in place for the Department.

Response: The commentator does not specify the desired location of the "second DEP Laureldale North station where lead NAAQS compliance can be monitored more accurately." The Department monitors are located and approved by EPA in accordance with the relevant legal requirements. The commentator, EPA and the Department have addressed this in the Third Circuit Court of Appeals in *Berks County v. U.S. EPA*, No. 14-2913, for which a decision is awaited at the time of drafting of this Comment and Response Document. Please also see responses to comments 4, 6 and 7.

Note also that based on federal regulations regarding the siting of ambient air monitors for lead, including distance from buildings, access to power sources, logistics and accessibility, among other factors, installing and operating a potential monitor at the precise location of the modeled maximum ambient air lead concentration (as identified in Figure 9: Future Case Modeling Predicted Lead Concentration in the North Reading Nonattainment Area Further Zoomed Into Area of Maximum Impact - Yuasa Parking Lot of the Attainment Demonstration SIP) would be unlikely due to the close proximity to the Yuasa building. It should also be noted that this modeled maximum ambient air lead concentration is below the level of the 2008 lead NAAQS.

Comment 9: The commentator asserts that absent monitoring and emissions data that is reflecting all of the emissions from the Exide facility, the Department's modeling will reflect lower ambient air lead concentrations than what the public is actually exposed to on a daily basis. Additionally, and most relevant to these comments, according to the commentator, the Department will ultimately determine attainment based upon monitoring station and stack emission data and modeling – and that determination will be incorrect.

Response: Please see responses to comments 4, 6, 7 and 8.

Summary

Comment 10: The commentator asserts that if the Exide plant comes back on line the entire attainment demonstration is based on a set of modeled assumptions, not all of which are completely representative of actual conditions and not all of which can be verified. The commentator asserts that the fact that the meteorological data used in the dispersion modeling analysis do not account for local topographical influences, the assumptions of fugitive emissions that cannot be verified, the selection of background data that do not account for legacy lead contamination, and the fact that stack emissions are permit limits which are only very infrequently tested, all lead to great uncertainties as to whether or not the area will truly reach attainment with an operating battery smelter. The commentator asserts that the solution to resolve these issues and provide certainty to the process is the siting and maintenance of a lead sampling network near the points of predicted maximum impact.

Response: Please see above responses to comments concerning modeling assumptions, specifically comments 1, 2 and 3 regarding meteorological data, comments 4, 5 and 6 regarding fugitive emissions, comment 2 regarding background value selection, and comments 4, 5, 6, 7, 8 and 9 regarding additional monitors.

In addition, the Department provides the following information. Stack testing requirements for the emission limits are outlined in Paragraph 9, “Required Action,” of the COA between the Department and Exide to ensure that the sources and stacks are meeting the limits agreed to in the COA. Specifically, the COA sets a time limit for the stacks to be tested upon start-up to ensure compliance with the limits. Furthermore, Paragraph 3(b)(4) of the COA invokes the requirements of the NESHAP for Secondary Lead Smelters, referenced above, for testing, monitoring, recordkeeping and reporting applicable to the sources in the COA as well as those already covered by Plan Approval (No. 06-05066I). Please see Appendix C-1 of the Attainment Demonstration SIP for relevant portions of the COA between the Department and Exide.

The overall purpose of the Attainment Demonstration SIP and all of its components is to ensure that the area can and will attain the 2008 lead NAAQS.

Comment 11: The commentator asserts that based on historical data and the Department’s dispersion modeling, at least two samplers must be sited; one at the point of modeled maximum impact and one at the point of the observed maximum historical readings. The commentator writes that the Department’s refusal to provide for this verification method puts the nearby community at risk of unknowingly being exposed to unhealthful lead levels for as long as the battery smelter operates.

The commentator asserts that the Department’s Laureldale North sampler, if it shows a NAAQS violation, would indicate, based on Department’s modeling analysis, that the maximum impact for the ambient air in the community would be approximately 5 times greater than the NAAQS. The commentator writes that a “Don’t Ask, Don’t Tell” program does not provide the public protection required by the Clean Air Act.

Response: Please see responses to comments 4, 6, 7, 8 and 9, above.

The Department monitors are located and approved by EPA in accordance with the relevant legal requirements. The Commentator does not explain what “historical data” is referred to in this comment. The Department cannot rely upon data from air monitors other than those in the Department’s approved monitoring plan (namely, Laureldale North and Laureldale South), since their operation and maintenance are not in accordance with EPA methodology.

The commentator does not explain the basis for the assertion that the maximum impact for the ambient air in the community would be approximately five times greater than the NAAQS.

The overall purpose of the Attainment Demonstration SIP and all of its components is to ensure that the area can and will attain the 2008 lead NAAQS.



NOTICES

Proposed State Implementation Plan Revision; Attainment Demonstration for the North Reading Nonattainment Area for the 2008 Lead National Ambient Air Quality Standard; Public Hearing

**[45 Pa.B. 3278]
[Saturday, June 20, 2015]**

The Department of Environmental Protection (Department) is seeking public comment on a State Implementation Plan (SIP) revision which demonstrates how the North Reading Nonattainment Area, comprised of Laureldale Borough and Muhlenberg and Alsace Townships, will attain the Federal National Ambient Air Quality Standard (NAAQS) for lead. In November 2010, the North Reading Nonattainment Area was designated by the United States Environmental Protection Agency (EPA) as not meeting the NAAQS established for lead in 2008. Lead concentrations in ambient air above the NAAQS pose a serious human health threat. Lead that is emitted into the air can be inhaled or, after it settles out of the air, can be ingested. Once in the body, lead is rapidly absorbed into the bloodstream and results in a broad range of health effects, especially affecting children.

The proposed SIP revision meets the requirements necessary for an approvable SIP revision, including a base year emission inventory, air quality modeling, air quality and emission trends, emission control strategies (including Consent Order and Agreements with two lead-emitting sources in the North Reading Nonattainment Area) and a contingency plan to bring the area back into attainment should future violations of the standard occur. After consideration of comments received, the SIP revision will be finalized and submitted to the EPA for approval.

The proposed SIP revision is available on the Department's web site at www.dep.state.pa.us (select "Air," then "Bureau of Air Quality," then "Regulations and Clean Air Plans") or through the contact persons listed as follows.

The Department will hold a public hearing to receive comments on the proposal on Wednesday, July 22, 2015, at 1 p.m. at the Muhlenberg Township Recreation Building, 3025 River Road, Reading, PA. Persons wishing to present testimony at the hearing should contact Alex Haas, P. O. Box 8468, Harrisburg, PA 17105, (717) 787-9495, alehaas@pa.gov to reserve a time. Witnesses should keep testimony to 10 minutes and should provide two written copies of their statement at the hearing.

Persons with a disability who wish to attend the hearing and require an auxiliary aid, service or other accommodation to participate in the proceeding should contact Alex Haas. TDD users may contact the Pennsylvania AT&T Relay Service at (800) 654-5984 to discuss how the Department can best accommodate their needs.

The Department must receive comments no later than Thursday July 23, 2015. Commentators are urged to submit comments using the Department's eComment at www.ahs.dep.pa.gov/eComment. Written comments can be submitted to the Policy Office, Department of Environmental Protection, Rachel Carson State Office Building, P. O. Box 2063,

Harrisburg, PA 17105-2063, ecomment@pa.gov. Use "North Reading Nonattainment Area Lead" as the subject line in written communication.

JOHN QUIGLEY,
Secretary

[Pa.B. Doc. No. 15-1165. Filed for public inspection June 19, 2015, 9:00 a.m.]

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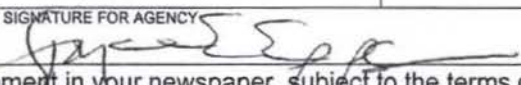
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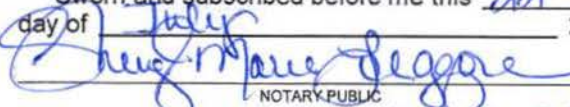
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My Commission Expires July 16, 2018
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**Proposed State Implementation Plan
Revision Attainment Demonstration for
the North Reading**

The Department of Environmental Protection (DEP) is seeking public comment on a State Implementation Plan (SIP) revision which demonstrates how the North Reading Nonattainment Area, comprised of Laureldale Borough, as well as Muhlenberg and Alsace Townships, will attain the Federal National Ambient Air Quality Standard (NAAQS) for lead. In November 2010, the North Reading Nonattainment Area was designated by the U.S. Environmental Protection Agency (EPA) as not meeting the NAAQS established for lead in 2008. Lead concentrations in ambient air above the NAAQS pose a serious human health threat. Lead that is emitted into the air can be inhaled or, after it settles out of the air, can be ingested. Once in the body, lead is rapidly absorbed into the bloodstream and results in a broad range of health effects, especially in children.

The proposed SIP revision meets the requirements necessary for an approvable SIP revision, including a base year emission inventory, air quality modeling, air quality and emission trends, emission control strategies (including Consent Order and Agreements with two lead-emitting sources in the North Reading Nonattainment Area), and a contingency plan to bring the area back into attainment should future violations occur. After consideration of comments received, the SIP revision will be finalized and submitted to the EPA for approval.

The proposed SIP revision is available on the DEP web site at www.dep.state.pa.us (select "Air," then "Bureau of Air Quality," then "Regs/Plan," then "Clean Air Plans") or through the contact persons listed as follows.

The DEP will hold a public hearing to receive comments on the proposal on Wednesday, July 22, 2015, at 1 p.m. at the Muhlenberg Township Recreation Building, 3025 River Road, Reading, PA. Persons wishing to present testimony at the hearing should contact Alex Haas at P.O. Box 8468, Harrisburg, PA 17105, (717) 787-9495 or alehaas@pa.gov to reserve time. Witnesses should keep testimony to 10 minutes and should provide two written copies of their statements at the hearing.

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The DEP must receive comments no later than Thursday July 23, 2015. Commentators are urged to submit comments using the

DEP's eComment at www.ahs.dep.pa.gov/eComment. Written comments can be submitted to The Policy Office, Department of Environmental Protection, Rachel Carson State Office Building, P.O. Box 2063, Harrisburg, PA 17105-2063, or by email to ecomment@pa.gov. Use "north Reading Nonattainment Area lead" as the subject line in written communication.

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Under Act No. 587, Approved May 16, 1929
Commonwealth of Pennsylvania, County of Dauphin} ss

Amy Kotula, being duly sworn according to law, deposes and says:

That she is a Staff Accountant of The Patriot News Co., a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, with its principal office and place of business at 2020 Technology Pkwy, Suite 300, in the Township of Hampden, County of Cumberland, State of Pennsylvania, owner and publisher of The Patriot-News and The Sunday Patriot-News newspapers of general circulation, printed and published at 1900 Patriot Drive, in the City, County and State aforesaid; that The Patriot-News and The Sunday Patriot-News were established March 4th, 1854, and September 18th, 1949, respectively, and all have been continuously published ever since;

That the printed notice or publication which is securely attached hereto is exactly as printed and published in their regular daily and/or Sunday/ Community Weekly editions which appeared on the date(s) indicated below. That neither she nor said Company is interested in the subject matter of said printed notice or advertising, and that all of the allegations of this statement as to the time, place and character of publication are true; and

That she has personal knowledge of the facts aforesaid and is duly authorized and empowered to verify this statement on behalf of The Patriot-News Co. aforesaid by virtue and pursuant to a resolution unanimously passed and adopted severally by the stockholders and board of directors of the said Company and subsequently duly recorded in the office for the Recording of Deeds in and for said County of Dauphin in Miscellaneous Book "M", Volume 14, Page 317.

PUBLICATION COPY

This ad # 0002338765 ran on the dates shown below:

June 18, 2015

Amy Kotula

Sworn to and subscribed before me this 22 day of July, 2015 A.D.

Sheryl Marie Leggore
Notary Public

COMMONWEALTH OF PENNSYLVANIA
NOTARIAL SEAL
Sheryl Marie Leggore, Notary Public
Hampden Twp., Cumberland County
My Commission Expires July 16, 2018
MEMBER, PENNSYLVANIA ASSOCIATION OF NOTARIES

see att.

The Patriot-News Co.
2020 Technology Pkwy
Suite 300
Mechanicsburg, PA 17050
Inquiries - 717-255-8213

The Patriot-News
Now you know

DEPT. OF ENVIRONMENTAL PROTECTION
RACHEL CARSON STATE OFFICE BUILDING
400 MARKET STREET
ATTN: MAISHA WEBB
HARRISBURG PA 17101

STATEMENT

ALL CHARGES ARE NET

<u>ACCT #</u>	<u>NAME</u>	<u>AD ORDER #</u>	<u>DATE</u>	<u>EDITION</u>	<u>ADDTL. INFO.</u>	<u>TYPE OF CHARGE</u>	<u>AMOUNT</u>
249758	DEPT. OF ENVIRONMENTAL PROTE	0002338765	06/18/15	REGULAR		BASIC AD CHARGE	\$418.37
249758	DEPT. OF ENVIRONMENTAL PROTE	0002338765	06/18/15	REGULAR		BOLD TEXT CHARGE	\$4.00
						AFFIDAVIT CHARGE	\$5.00
TOTAL:							\$427.37

**This is not an invoice. Please do not remit payment from this Statement.
An invoice will be generated at the end of the month. --Thank you.**

NOTE: This Statement replaces the Order Confirmation which we previously sent with Proofs of Publication



BILLING PERIOD		ADVERTISER/CLIENT NAME	
06/01/2015 - 06/30/2015		DEPARTMENT OF ENVIRONMENTAL	
TOTAL AMOUNT DUE		* UNAPPLIED AMOUNT	TERMS OF PAYMENT
\$ 413.66		\$ 0.00	DUE UPON RECEIPT

REMITTANCE ADDRESS	CURRENT NET AMOUNT DUE	30 DAYS	60 DAYS	OVER 90 DAYS
THE PATRIOT-NEWS 23794 NETWORK PL CHICAGO IL 60673-1237	\$ 413.66	\$ 0.00	\$ 0.00	\$ 0.00

ADVERTISING INVOICE / STATEMENT # :0000635633

BILLED ACCOUNT NAME AND ADDRESS	PAGE #	BILLING DATE
DEPARTMENT OF ENVIRONMENTAL PROTECTION Rachel Carson State Office Building 400 Market Street Harrisburg, PA 17105	1	06/30/2015
	BILLED ACCOUNT NUMBER	
	233427	
	ADVERTISER/CLIENT NUMBER	
	233427	

☐ Address changes on back ☐ Credit Card Payment on back

PLEASE DETACH AND RETURN UPPER PORTION WITH YOUR REMITTANCE

DATE	NEWSPAPER REFERENCE	DESCRIPTION-OTHER COMMENTS/CHARGES	BILLED UNITS	BILLING QUANTITY	AMOUNT
06/18	0002338405	Ordered by: Alex Haas, Miscellaneous Legal Notices Run Date: 06/18/2015, Proposed State Implementation Plan Revis Affidavit	1 x 88 Li	1	408.66
					5.00
				Sub Total:	413.66
			Net Amount to Pay:		\$413.66

STATEMENT OF ACCOUNT AGING OF PAST DUE AMOUNTS

CURRENT NET AMOUNT DUE	30 DAYS	60 DAYS	OVER 90 DAYS	* UNAPPLIED AMOUNT	TOTAL AMOUNT DUE
\$ 413.66	\$ 0.00	\$ 0.00	\$ 0.00	\$ 0.00	\$ 413.66



All Billing Inquires (717) 255-8213
Fed. ID # 23-1304402



* UNAPPLIED AMOUNTS ARE INCLUDED IN TOTAL AMOUNT DUE

INVOICE #	ADVERTISER INFORMATION			
	BILLING PERIOD	BILLED ACCOUNT NUMBER	ADVERTISER/CLIENT NUMBER	ADVERTISER/CLIENT NAME
0000635633	06/01/2015 - 06/30/2015	233427	233427	DEPARTMENT OF ENVIRO

PUBLICATIONS AUTHORIZATION AND INVOICE

PUBLICATIONS AUTHORIZATION (To be completed by agency):

TO: (NAME AND ADDRESS OF NEWSPAPER) Reading Eagle PO Box 582 Reading, PA 19603-0582	FEDERAL I.D. NO./SOC. SEC. NO. 23-1003740	FROM: (NAME AND ADDRESS OF AGENCY) AGENCY Alex Haas PA DEP - Bureau of Air Quality 400 Market Street - 12th Fl Harrisburg PA 17101-2301	TELEPHONE NO. 717.787.9495

HEREWITH IS ENCLOSED COPY FOR PUBLICATION OF ADVERTISEMENT FOR PROPOSALS TO

TYPE OF AD

☐ EMPLOY☐ PURCHASE☐ CONTRACT☐ SELL☐ CLASSIFIED☒ LEGAL NOTICE

PUBLISH ADVERTISEMENT (NO. OF TIMES)

MAXIMUM NO. OF LINES

DATE

ORDER NO.

1x Only

June 11, 2015

DATES OF INSERTION

Thursday, June 18, 2015

SIGNATURE FOR AGENCY

You, as vendor, are authorized to publish this advertisement in your newspaper, subject to the terms of this order, as follows: Advertisement to be published in regular advertising columns, no position specified; caption of two lines and signature to be in capitals and subject matter and title of officer to be set solid in type regularly used by your newspaper for public (legal) notice advertising; charge to be made at the rate charged to and paid by commercial advertisers for matter similarly set and occupying similar space; advertisement to be run in the editions specified above. Vendor agrees that, in the performance of any contract awarded to it hereunder, said vendor will not discriminate against any employee or other persons on account of race, color, sex, religious creed, ancestry, age or national origin and that the Commonwealth, upon receipt of satisfactory evidence of such discrimination, shall have the right to cancel said contract. Return this copy at once if you will not accept this advertisement under the terms set forth.

Return original and two copies (signed by the editor or publisher) to the agency listed above. Proof of advertising in the form of a tear sheet must be stapled to original and copies. Original must be notarized.

Commonwealth to be billed only for actual number of printed lines published.

SAP FUND	COST CENTER	GENERAL LEDGER ACCOUNT CODE	%
7027300000	3522710000	6343200	
I/O V16414000000	BP 2014		

INVOICE (To be completed by publisher):

	DATE OF INSERTION	ACTUAL NO. OF PRINTED LINES	COST PER LINE	TOTAL AMOUNT
1st Ad	6/18/15	200	1.65	330.00
2nd Ad				
3rd Ad			Bold Charge	2.00
			Affidavit Charge	5.00
GRAND TOTAL →				\$337.00

Commonwealth of Pennsylvania

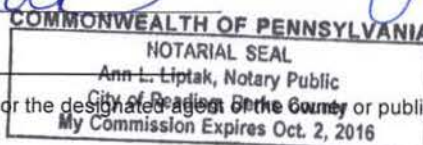
County of Berks

Before me, the subscriber, a Notary Public in and for said County, personally came Lynn Schittler who being duly sworn, doth depose and say that he is* Assistant Secretary the Reading Eagle a general newspaper published at Reading that the advertisement, of which tearsheet is attached hereto, was published in the regular advertising columns of said newspaper in the editions of said newspaper, in all respects as ordered and invoiced above; and that the Commonwealth is not charged therefor at a rate higher than is charged any ordinary advertiser for a similar amount of matter occupying similar space and set in similar matter, in said newspaper.

Sworn and subscribed before me this 18th day of June 2015
Ann L. Liptak
NOTARY PUBLIC

Lynn Schittler
SIGNATURE OF AFFIANT

My commission expires



*This affidavit must be made by the Owner, Publisher, or the designated agent of the County or publisher.

**Proposed State
Implementation Plan
Revision
Attainment
Demonstration for the
North Reading
Nonattainment Area
for the
2008 Lead National
Ambient Air Quality
Standard**

The Department of Environmental Protection (DEP) is seeking public comment on a State Implementation Plan (SIP) revision which demonstrates how the North Reading Nonattainment Area, comprised of Laureldale Borough, as well as Muhlenberg and Alsace Townships, will attain the Federal National Ambient Air Quality Standard (NAAQS) for lead. In November 2010, the North Reading Nonattainment Area was designated by the U.S. Environmental Protection Agency (EPA) as not meeting the NAAQS established for lead in 2008. Lead concentrations in ambient air above the NAAQS pose a serious human health threat. Lead that is emitted into the air can be inhaled or, after it settles out of the air, can be ingested. Once in the body, lead is rapidly absorbed into the bloodstream and results in a broad range of health effects, especially affecting children.

The proposed SIP revision meets the requirements necessary for an approvable SIP revision, including a base year emission inventory, air quality modeling, air quality and emission trends, emission control strategies (including Consent Order and Agreements with two lead-emitting sources in the North Reading Nonattainment Area), and a contingency plan to bring the area back into attainment should future violations of the standard occur. After consideration of comments received, the SIP revision will be finalized and submitted to the EPA for approval.

The proposed SIP revision is available on the DEP web site at www.dep.state.pa.us (select "Air," then "Bureau of Air Quality," then "Regs/Plan," then "Clean Air Plans") or through the contact persons listed as follows.

The DEP will hold a public hearing to receive comments on the proposal on Wednesday, July 22, 2015, at 1 p.m. at the Muhlenberg Township Recreation Building, 3025 River Road, Reading, PA. Persons wishing to present testimony at the hearing should contact Alex Haas at P.O. Box 8468, Harrisburg, PA 17105, (717) 787-9495 or alehaas@pa.gov to reserve a time. Witnesses should keep testimony to 10 minutes and should provide two written copies of their statement at the hearing.

Persons with a disability who wish to attend the hearing and require an auxiliary aid, service or other accommodation to participate in the proceeding should contact Alex Haas. TDD users may contact the Pennsylvania AT&T Relay Service at (800) 654-5984 to discuss how DEP can best accommodate their needs.

The DEP must receive comments no later than Thursday July 23, 2015. Commentators are urged to submit comments using the DEP's eComment at www.ahs.dep.pa.gov/eComment. Written comments can be submitted to The Policy Office, Department of Environmental Protection, Rachel Carson State Office Building, P.O. Box 2063, Harrisburg, PA 17105 2063, or by email to ecomment@pa.gov. Use "North Reading Nonattainment Area Lead" as the subject line in written communication.

Reading Eagle Company

Publisher of Reading Eagle | Berks Country | Business Weekly | South Schuylkill News

INVOICE NO

I00467433-06182015

P. O. Box 582
READING, PA 19603-0582
ADVERTISING INVOICE / STATEMENT
(610) 371-5174

B I L L E D T O	BILL DATE	BILL FROM	BILL TO	TERMS OF PAYMENT	PAGE
	06/20/15	06/14/15	06/20/15	Net Due 30 Days	Page 1 of 1
	DEPT OF ENVIRONMENTAL PROT.-BAQ				SALES REPRESENTATIVE
	ATTN. ALEX HAAS				Carol Hitchens
	400 MARKET STREET				BILLED ACCOUNT NO
	HARRISBURG, PA 17105				301848
					VENDOR NO
					301848
					ADVERTISER
					DEPT OF ENVIRONMENTAL PROT.-BAQ

DATE	ORDER NO	DESCRIPTION	RATE	SIZE	TIMES	AMOUNT
06/18/15	0000467433	RE- PROPOSEDSTATEIMPLEMENTATIONPLANREVISIONA		200	1	\$330.00
		Bold Text Charge				\$2.00
		AffidavitMaterial				\$5.00
		3	0.00			

Amount Due: \$337.00

Proposed State Implementation Plan Revision
Attainment Demonstration for the North Reading
Nonattainment Area for the 2008 Lead National
Ambient Air Quality Standard The Department of
Environmental Protection (DEP) is seeking public
comment on a State Implementation Plan (SIP) revision
which demonstrates how the North Reading

Tear Here

BILLED ACCOUNT NO.	BILLED ACCOUNT
301848	DEPT OF ENVIRONMENTAL PROT.-BAQ

INVOICE NO.	BILL DATE
I00467433-06182015	06/20/2015

MAKE CHECK PAYABLE TO:
READING EAGLE COMPANY
P.O. BOX 582
READING, PA 19603-0582
ADVERTISING INVOICE / STATEMENT

Amount Enclosed: \$337.00

** Legal **

REMITTANCE - DETACH & RETURN THIS PORTION WITH YOUR PAYMENT

Modeling Information Provided with PADEP's North Reading Attainment Plan Submittal

The following electronic modeling file folders accompanied PADEP's submittal:

AERMAP_11103

AERMET_14134

AERMOD_14134_ALL

AERMOD_14134_EXIDE

AERMOD_14134_YUASA

BPIP

LEADPOST

The modeling files, listed above, are too large to be entered into regulations.gov and therefore cannot be added to the electronic docket. Due to their format, they are also unable to be included in the paper docket. Those interested in the modeling files for docket EPA-R03-OAR-2015-0773 can contact: Ellen Schmitt at 215-814-5787 or via email at schmitt.ellen@epa.gov.