



## COMMENTS AND RESPONSES ON

### PROPOSED REVISION TO

#### MISSOURI STATE IMPLEMENTATION PLAN –

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

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

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

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

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

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

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

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

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

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

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

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

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

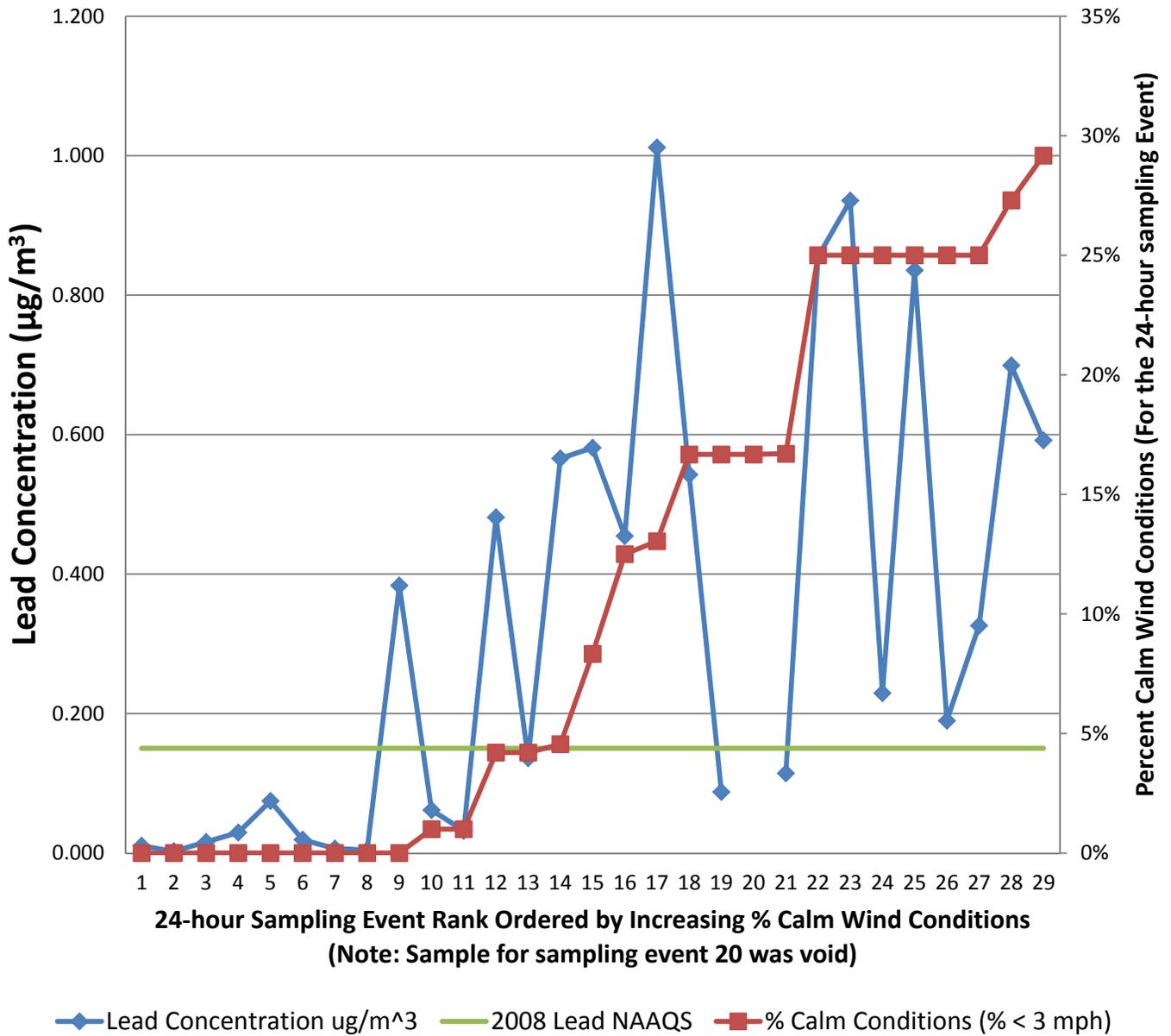
RESPONSE: The Missouri ambient air monitoring network is designed by the State of Missouri and approved by US EPA Region VII consistent with 40 CFR 58 through the annual Monitoring Network Plan proposal and approval process cited in 40 CFR 58.10. The Air Program's 2011 Monitoring Network Plan [<http://dnr.mo.gov/env/apcp/docs/2011monitoringnetwork.pdf>]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

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

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

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

## 24-Hour Airborne PM<sub>10</sub> Lead Concentrations vs. % Calm Wind Conditions. Exide- Forest City Levee Monitor



**Chart 1**

24-Hour Airborne PM<sub>10</sub> Lead Concentrations vs. % Calm Wind Conditions at the Exide- Forest City Levee Monitor

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

RESPONSE: State Implementation Plans pursuant to the CAA are plans intended to address the six criteria pollutants, including lead. Lead is the only pollutant that is both a criteria pollutant and a hazardous air pollutant (HAP). Arsenic and cadmium are HAPs. HAPs are regulated pursuant to CAA Section 112 and are controlled by the federal MACT regulations. The revised secondary lead smelter MACT is a key building block of this plan so in that regard this plan does address arsenic emissions from the facility. EPA notes that the controls of this revised MACT cut arsenic emissions by 68% [77 Federal Register 575].

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

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

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

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

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