Updated 10-Year Maintenance Plan

Troy, AL

Lead (Pb) Maintenance Area

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SUMMARY

This document fulfills Alabama's requirement under the Federal Clean Air Act Amendments of 1990 (CAA Section 175A(b)) to submit a second maintenance plan showing that the Partial Pike County maintenance area will continue to maintain the 2008 Lead National Ambient Air Quality Standard (NAAQS) over the remainder of the 20-year maintenance period.

The Partial Pike County maintenance area is located within a radius of 0.8 miles from the Sanders Lead Company (Sanders Lead; Figure 1)

There has been and will continue to be the implementation of permanent and enforceable reductions in lead emissions, along with continued compliance with all applicable requirements through the end of the maintenance period, which is 2038. Alabama will continue to operate its air quality monitors at Sanders Lead, and additional contingency measures will be implemented in response to predetermined levels (triggers) or in the event that violations of the ambient standard occur. Further information concerning this may be found in Chapter 4.

HISTORIC BACKGROUND

On October 5, 1978, EPA promulgated primary and secondary NAAQS for lead (Pb). Both primary and secondary standards were set at a level of 1.5 $\mu g/m^3$. In 1995, the entire state of Alabama was designated as attainment for the 1978 standard.

On October 15, 2008, EPA revised both the level and the form of the NAAQS, lowering the standard from 1.5 $\mu g/m^3$ to 0.15 $\mu g/m^3$ and changing the form from a 3-month block average to a maximum rolling 3-month average over a three-year period (73 FR 67039). On October 1, 2009, the State of Alabama submitted designation recommendations. The State recommended that only the portion of Pike County within a radius of 0.8 miles from Sanders Lead (see Figure 1) should be designated nonattainment for the Pb NAAQS. All other areas were recommended as unclassifiable/attainment.

In a letter dated June 14, 2010, EPA agreed with the State's recommendations for the nonattainment area, but they deferred making designation decisions for all other areas in Alabama. Designations were published on November 22, 2010, (75 FR 71033), with an effective date of December 31, 2010. EPA agreed with the State's recommendations for all other areas of Alabama and designated all other areas as unclassifiable/attainment.

Upon meeting the standard after the required three-year monitoring period, Alabama submitted a 10-year maintenance plan and redesignation request on January 3, 2018, to redesignate the Troy area to attainment. The area was formally redesignated to attainment on June 20, 2018 (83 FR 28543).

On November 11, 2019, the electrical supply provided by the City of Troy, Alabama, to Sanders Lead was interrupted for approximately two hours. Subsequently, elevated ambient lead emissions were measured at the lead ambient air monitor. These elevated ambient lead levels led to the October 2019-December 2019 and November 2019-January 2020 three-month rolling averages exceeding the 2008 lead NAAQS.

In an effort to prevent a recurrence of this event, the City of Troy agreed to reconfigure its electrical system to provide Sanders Lead with additional substations, which would restore power to the facility within 5 seconds of any future power outage. ADEM submitted a letter along with the relevant supporting documents to EPA on March 15, 2021. The Sanders Lead facility was notified through a letter from the City of Troy dated May 17, 2021, that the work to provide the facility with a redundant power source had been completed.

Due to a lightning storm, on March 18, 2022, Sanders Lead experienced a loss of power to parts of the facility. In a letter dated April 7, 2022, Sanders informed ADEM that a lightning strike disabled the switching system that was installed in May 2021. This subsequently led to exceedances of the lead NAAQS for the January 2022-March 2022, February 2022-April 2022, and March 2022-May 2022 monitoring periods.

ADEM noted that two additional elevated ambient readings occurred on March 6, 2022, and March 30, 2022. Since there were no noted upsets in the plant operations on these days, no definitive cause was determined for these occurrences.

In March and April of 2025, there were also elevated ambient readings of the Lead NAAQS at Sanders Lead. Ambient readings recorded on April 19 and April 25, 2025, were influenced by the construction activities associated with necessary efforts to meet a Consent Order between the company and ADEM. The deadline for the Consent Order was June 30, 2025.

The elevated ambient readings for March and April of 2025 resulted in exceedances of the lead NAAQS for the February 2025-April 2025, March 2025-May 2025, and April 2025-June 2025 monitoring periods.

To address these exceedances, on December 3, 2025, Alabama submitted a Lead Contingency Plan as a SIP revision to EPA.

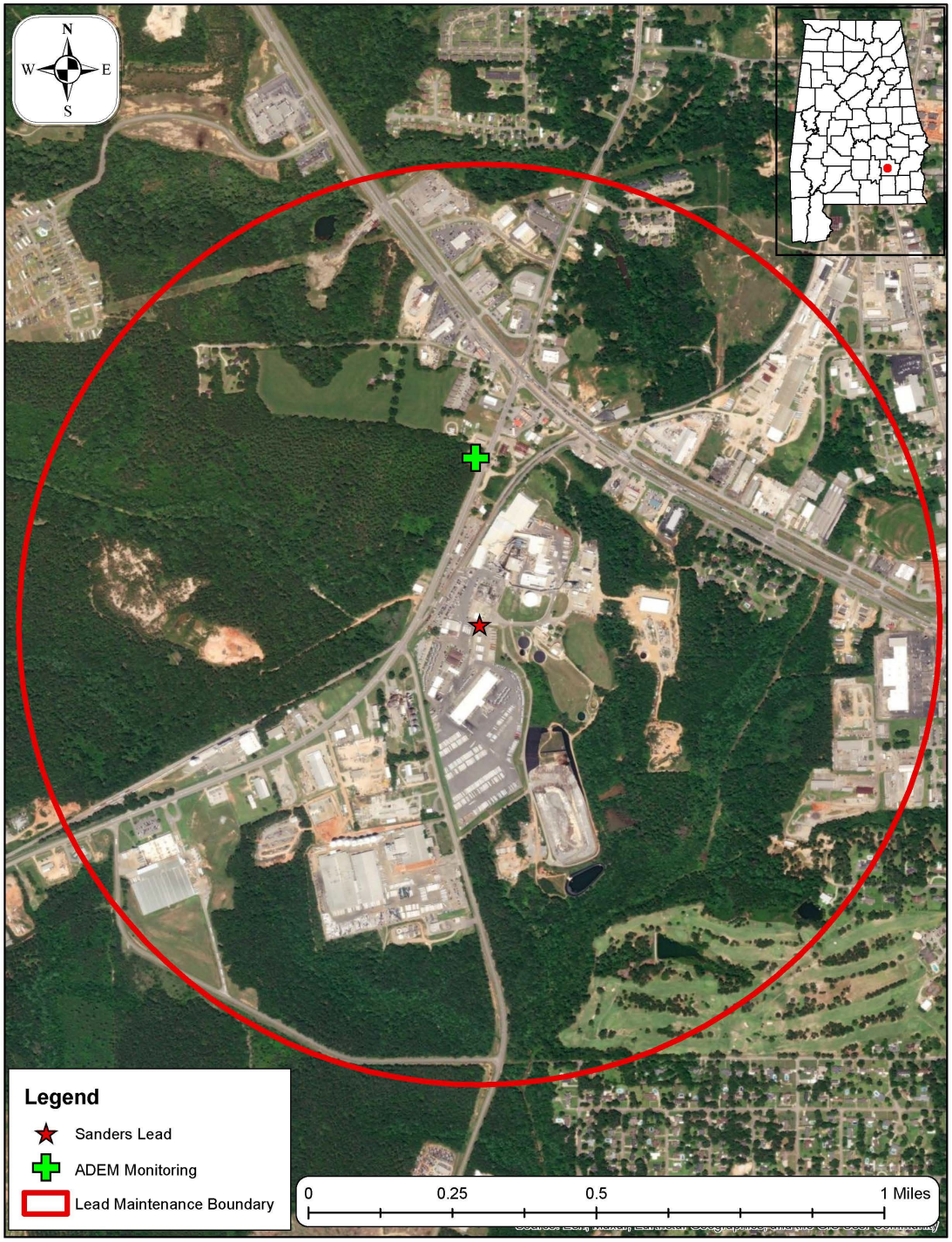

Figure 1 The Troy, AL Lead Maintenance area

INTRODUCTION

Section 175A(b) of the Clean Air Act (CAA) states that eight years after redesignation of any area as an attainment area, the State shall submit to the Administrator an additional revision of the applicable state implementation plan for maintaining the national primary ambient air quality standard for 10 years after the expiration of the first 10-year period.

To satisfy this requirement, this maintenance plan will address the following:

- Control measures
- Lead Air Dispersion Modeling for Sanders Lead Company
- Attainment Inventory and Demonstration
- Contingency Measures

CHAPTER 1

Control Measures

Per 40 CFR part 63 Subpart X (Lead MACT), Sanders Lead must prepare and follow a Fugitive Standard Operating Procedures manual that describes in detail the measures that will be put in place and implemented to control the fugitive dust emissions from plant roadways, plant buildings, accidental releases, battery storage areas, equipment maintenance, material storage areas, and material handling areas.

After the Partial Pike County area was initially designated as nonattainment on November 22, 2010, Sanders Lead added new emission controls to achieve emission reductions that are permanent and enforceable. These controls are listed below:

- Each of the volume sources and two of the haul roads, which were sources of fugitive emissions, were enclosed and the emissions routed to a new stack. The furnace and refining building operations were enclosed, and canopy hoods were installed over each blast furnace. These lead emissions were then routed through a cartridge-style baghouse and HEPA filter (Stack 11) and limited to 0.067 lb/hr and 0.00043 gr/dscf.

- The battery breaker/shredder operations building was enclosed with lead emissions routed through a cartridge-style baghouse and HEPA filter (Stack 12) and limited to 0.033 lb/hr and 0.00043 gr/dscf.

- Sanders Lead relocated the industrial battery decasing operation to the inside of the existing raw material storage building. This building was enclosed with lead emissions routed through a cartridge-style baghouse and HEPA filter (Stack 13) and 0.022 lb/hr and 0.00043 gr/dscf.

- Sanders Lead installed a building connection tunnel for the transport of materials from the shredder (pre-construction source A) to the raw materials storage building. Half of the emissions from this tunnel were routed to Stack 12 and half to Stack 13.

- The alloying kettles and the alloying kettle flue system lead emissions, which went to both Stack 4 and Stack 5, are now controlled by a cartridge-style baghouse and HEPA filter (Stack 14) and limited to 0.027 lb/hr and 0.00043 gr/dscf.

Plant or haul roads and grounds are maintained in the following manner so that dust will not become airborne:

1. By the application of water any time the surface of the road is sufficiently dry to allow the creation of dust emissions by the act of wind or vehicular traffic;

2. By reducing the speed of vehicular traffic to a point below that at which dust emissions are created;

3. By paving;

4. By the application of binders to the road surface at any time the road surface is found to allow the creation of dust emissions.

The addition of the new controls combined with existing programs, such as, the New Source Review (NSR) program, addressed in ADEM Admin. Code r. 335-3-14-.05, and provisions for the Prevention of Significant Deterioration (PSD) permitting program, addressed in ADEM Admin. Code r. 335-3-14-.04, resulted in the area being redesignated to attainment on June 20, 2018.

In addition, the City of Troy reconfigured its electrical system to provide Sanders Lead with additional substations, which would restore power to the facility within 5 seconds of any future power outage. This reconfiguration was also included as a permit condition in Sanders Lead's revised Title V permit dated March 11, 2021.

In May, 2023, Sanders Lead also purchased a small sweeper unit to remove lead-bearing dust in the alley outside of the enclosed slag storage area.

Sanders Lead installed an emergency generator (Air Permit 210-0005-X036; Appendix A), which will provide electricity to the existing building room air baghouse and HEPA filter (Stack 11). They also installed a new baghouse and HEPA filter to control furnace canopy/building air (Stack 17; Air Permit 210-0005-X035; Appendix B), which will work in conjunction with Stack 11. Additionally, Sanders Lead raised stacks 4a, 10, and 14, and merged stack 4 into the newly raised stack 4a. These necessary efforts were undertaken to meet a Consent Order between the company and ADEM with a June 30, 2025, deadline.

CHAPTER 2

Lead Air Dispersion Modeling for the Sanders Lead Company

In June, 2025, an air quality analysis (Appendix C) was performed for lead by JB Air Consulting on behalf of Sanders Lead, to demonstrate whether emissions from recent on-site improvements at the facility in Troy, Alabama, will comply with the lead National Ambient Air Quality Standards (NAAQS.)

AIR QUALITY MODELS:

The American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD), version 24142, was used in default mode for modeling lead. AERMOD does not have the ability to compute 3-month rolling averages for lead. Therefore, the modeling results were then post-processed through the LEADPOST program (version 13262) to calculate the 3-month rolling averages.

METEOROLOGICAL DATA:

Surface and upper air meteorological data for the years 2019-2023 were used in all modeling. The surface data was from the Troy, Alabama, National Weather Service (NWS) site and the upper air data was from the Birmingham, Alabama, NWS site.

GOOD ENGINEERING PRACTICE ANALYSIS:

A Good Engineering Practice (GEP) Analysis was performed to assess possible building downwash effects. It was determined that all the stacks that were modeled are within the influence area (5L) of one or more of the controlling buildings and have heights less than the GEP stack height. Therefore, building downwash was considered for those sources in the modeling.

MODEL SETUP:

The stack parameters and emission rates for sources at Sanders Lead undergoing modeling are listed in Appendix C. These include point sources (stacks) and volume sources (haul-roads).

A Cartesian receptor grid extending out to 50 kilometers (km) was used in the modeling analysis. The receptor grid was generated using the following:

(1.) 100 meter (m) spacing along the fence line.

(2.) 100 m spacing from fence line out to 5 km.

(3.) 250 m spacing from 5 km to 7 km.

(4.) 500 m spacing from 7 km to 10 km.

The maximum predicted concentration for lead occurred in 100-meter spacing. Receptor terrain elevations were generated using the EPA AERMAP program.

NAAQS ANALYSIS:

Table 1 lists the overall maximum 3-month average predicted concentration for the 5-year meteorological dataset (2019-2023). Table 2 lists the maximum 3-month average predicted concentration per year.

Year	Predicted Conc. ($\mu g/m^3$)	Back-ground ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	% of NAAQS
2019-2023	0.0525	0.006	0.0585	0.15	39

Table 1 (Maximum 3-Month Average Concentration)

Year	Predicted Conc. ($\mu g/m^3$)	Back-ground ($\mu g/m^3$)	Total Conc. ($\mu g/m^3$)	NAAQS ($\mu g/m^3$)	% of NAAQS
2019	0.0517	0.006	0.0577	0.15	38
2020	0.0482	0.006	0.0542	0.15	36
2021	0.0525	0.006	0.0585	0.15	39
2022	0.0445	0.006	0.0505	0.15	34
2023	0.0373	0.006	0.0433	0.15	29

Table 2 (Maximum 3-Month Average Concentration Per Year)

CHAPTER 3

Attainment Inventory and Demonstration

The following table shows the yearly maximum value each year from 2018 (year the area was redesignated to attainment) to current available data for the Partial Pike County maintenance area. The most recent design value (2023-2025) is 0.29 µg/^{m3}.

Alabama has quality assured all data shown in Table 3 in accordance with 40 CFR 58 Appendix A. ADEM has recorded the data in the AQS database and has adhered to annual air monitoring data certification in accordance with 40 CFR 58.16.

Site Location	**Year**	**Pb 3-Month Rolling Average Yearly Maximum (µg/m$^{3)}$**
01-109-0003 Sanders Lead, Troy	2018	0.11
	2019	0.16
	2020	0.17
	2021	0.09
	2022	0.22
	2023	0.15
	2024	0.14
	2025	0.29

Table 3 (Attainment Inventory)

Table 4 below shows the adjusted yearly maximum values after the removal of data for which contingency plans have been implemented to rectify exceedances. The most recent design value for this table (2023-2025) is 0.15. Table 4 depicts the removal of the following data:

1. November 11, 2019 (1.768 µg/m^3): This exceedance was caused by a power outage inside the city's power supply system. The power outage was due to a blown fuse.

2. March 18, 2022 (0.968 µg/m^3): This exceedance was caused by a loss of power due to lightning storm.

3. April 1, 2025 (0.191 µg/m^3), April 7, 2025 (0.240 µg/m^3), April 13, 2025 (0.079 µg/m^3), April 19, 2025 (0.398 µg/m^3), and April 25, 2025 (1.976 µg/m^3): These exceedances were caused by large construction projects necessary to meet a Consent Order between Sanders Lead Company and ADEM.

Site Location	**Year**	**Pb 3-Month Rolling Average Yearly Maximum (µg/$m^{3)}$**
01-109-0003 Sanders Lead, Troy	2018	0.11
	2019	0.09
	2020	0.09
	2021	0.09
	2022	0.17
	2023	0.15
	2024	0.14
	2025	0.12

Table 4 (Adjusted Attainment Inventory)

The raw data used to calculate the values in Tables 3 and 4 can be found in Appendix D. The raw data was collected at the Troy, Alabama monitoring site. In accordance with 40 CFR Part 50, Appendix R, the lead NAAQS is met at a monitoring site when the identified design value is valid and less than or equal to 0.15 µg/m^3.

The data completeness requirement has been met. There are four air quality monitors sited in the vicinity of the Sanders Lead facility. ADEM operates two of them with one being the primary FRM lead monitor, and the other being a co-located monitor. ADEM monitors are located at the northwestern edge of the Sanders Lead facility, approximately 175 meters from the plant property. These monitors were sited by ADEM and approved by EPA Region 4. The Ambient Air Monitoring Plan for ADEM can be found at the following link: https://adem.alabama.gov/air/air-quality-information. In addition, Sanders has a similar setup to ADEM with two monitors (one FRM and one Collocated) located in the same fenced area where the ADEM monitors are located.

Sanders Lead has had power outages and construction projects which caused the monitor to exceed the 3-month rolling average for the lead standard in 2019, 2020, 2022 and 2025. There are contingency plans in place for these events.

Table 5 shows the lead emissions inventory for the Partial Pike County maintenance area. The lead maintenance area is the portion of Pike County within a radius of 0.8 miles from Sanders Lead; therefore, the maintenance area is only 0.3% of the entire county.

Since the 2020 NEI data was the most recent NEI, 2020 was chosen as the base year. Subsequently, the 2020 data was taken from the 2020 NEI. The 2024 point source data was taken from the 2024 Air Emissions Report (Appendix E) which is submitted to EPA yearly.

Because lead is more source-specific, the basis for the point inventory is the actual lead emissions reported by Sanders Lead, as it is the only point source of lead emissions within the maintenance area.

Total 2020 NEI area source emissions for Pike County are 19 lbs which were derived from prescribed fires. The area source emissions for the partial maintenance area were mathematically derived using the total lead emissions for the county and multiplying it by the partial maintenance area percentage. Lead emissions for the partial maintenance area would equate to 0.057 lbs and would therefore be negligible for the purpose of this maintenance plan.

Total on-road, and non-road emissions for lead are assumed to be zero. The 2020 NEI had no lead emissions listed for these source categories.

Source	2020 lbs (NEI Data)	2024 lbs (Last Year of Completed Emissions Data)	2032 lbs (Interim)	2038 lbs (Year 20)
Point	1220	720	720	720
Area	0.057	0.057	0.057	0.057
On-road	0	0	0	0
Non-road	0	0	0	0

Table 5 (Emissions Data)

Stacks 4a, 10, 11, 12, 13, 14 and 15 are subject to the 2012 secondary lead MACT (40 CFR 63, Subpart X), which restricts the individual allowable lead concentration for each stack. Due to the installation of controls and the secondary Lead MACT, lead emissions for Sanders Lead are expected to be consistent with or below the 2024 data.

The end of the 20-year maintenance period is 2038. Projected point source emissions for the end of the 20-year maintenance period are 500 lbs less than the total for the 2020 base year emissions. This equates to a 41% decrease in point source lead emissions.

CHAPTER 4

Contingency Plan

Alabama commits to adopt, within 18 months of certification of a violation of the lead standard, one or more control measure(s) (contingency measures) as needed to re-attain the standard.

The State of Alabama has the legal authority and necessary resources to actively enforce any violations of its rules or permit provisions. ADEM intends to continue all measures necessary to attain and to maintain the lead NAAQS.

The State of Alabama will use actual ambient monitoring data as the indicator or trigger to determine when these contingency measures would be implemented. In accordance with 40 CFR 58, ambient lead monitoring data that indicates a future violation of the lead NAAQS will begin the process to implement the contingency measures. Also, in the event that the 3-month rolling average of lead concentrations at the monitor in the area records a violation of 0.16µg/m3 or higher, the State will evaluate existing control measures to determine whether any further emission reduction measures should be implemented at that time.

Several factors will be considered in determining the need for additional control measures in the event of a future year violation of the lead standard. If a future year violation occurs, ADEM will consider the air quality impact of these various regulatory programs in determining the need for additional local reductions in emissions of direct lead. The State will implement all measures with respect to the control of the air pollutant concerned which were contained in the state implementation plan for the area before redesignation of the area as an attainment area.

In addition, other contingency measures to be considered will be based on an analysis of the suspected cause of the elevated lead levels from Sanders Lead. Measures may include, but are not limited to, improvements in existing control devices, addition of secondary control devices or improvements in housekeeping and maintenance. It is not possible to fully develop an appropriate list of contingency measures until the cause of the elevated levels is known. Any contingency measures implemented will require a compliance plan and expeditious compliance timeline from the entity involved.

ADEM does not expect any new future lead sources in this area. However, any new major lead source planning to locate in this area would be a point source that would be subject to the PSD program.

CONCLUSION

The Partial Pike County maintenance area has attained the 2008 Lead National Ambient Air Quality Standard (NAAQS). Documentation to that effect is contained herein. ADEM has prepared this maintenance plan that meets the requirements of Section 175A(b) of the Clean Air Act.

The State of Alabama has performed an analysis that shows the air quality improvements are due to permanent and enforceable measures. Sanders Lead is the only source of lead emissions in this area. Alabama can ensure continued compliance (maintenance) with the standard.

The State of Alabama hereby requests that this document fulfill Alabama's requirement under the Federal Clean Air Act Amendments of 1990 (CAA Section 175A(b)) to submit a second maintenance plan showing that the Partial Pike County area will continue to maintain the 2008 Lead NAAQS over the remainder of the 20-year maintenance period.