SECOND 10-YEAR MAINTENANCE PLAN

for the

Bristol, Tennessee Lead (Pb) Area



Prepared by the

Tennessee Department of Environment and Conservation Air Division

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EXECUTIVE SUMMARY

This submittal addresses the required second (10-year) maintenance plan for the Bristol lead (Pb) maintenance area (MA). The Redesignation Request and First 10-year maintenance plan was submitted by the Tennessee Division of Air Pollution Control (TDAPC) on July 10, 2015, and approved by EPA on July 17, 2016.

This document is organized into the following sections: an introduction, maintenance plan requirements, MA air quality (with a commitment to continued monitoring), MA emission inventories, contingency measures, and a commitment to verifying attainment of the 2008 Pb National Ambient Air Quality Standards (NAAQS). This document also includes the TDAPC Board approval process including steps taken for public participation.

Since the submittal of the first maintenance plan, ambient Pb levels have been monitored within the MA. Prior to recent remediation activity, concentrations remained below the 3-month rolling average 2008 Pb NAAQS, consistent with the Pb-emitting facility shutting down in 2014.

Since there is no longer a permitted, operating facility in the MA, Pb point source emissions are near zero. These point emissions are expected to remain at this level throughout the remainder of the second 10-year maintenance period unless a new facility with Pb emissions is permitted in the MA. Recent remediation efforts have resulted in ambient Pb levels above the 2008 Pb NAAQS. These efforts are temporary in nature and are intended to restore the area by remediating the former facility.

This plan discusses contingency measures that will be put into place if Pb emissions trigger additional monitoring or controls.

1 INTRODUCTION

The MA for the 2008 Pb National Ambient Air Quality Standard (NAAQS) consists of an area in Bristol, TN within Sullivan County, located in northeastern Tennessee, approximately 100 miles northeast of Knoxville, Tennessee. The MA boundaries include a 1.25-kilometer (0.78 mile) radius around the former lead acid battery manufacturing plant operated by the Exide Technologies facility (or Exide), shown in Figure 1. The Exide facility operated from 1994 to 2014. During this timeframe, the facility set up and maintained an ambient monitoring network for Pb. From January 2007 to January 2008, air quality monitoring data at the Exide's site indicated that the rolling 3-month average Pb concentrations exceeded the 2008 Pb NAAQS. Subsequently, the Environmental Protection Agency (EPA) designated the area as nonattainment for the 2008 Pb NAAQS (based on the 2007-2009 design value), effective December 31, 2010.



Figure 1 - Location of the Lead Maintenance Area, with a 1.25 km Radius Surrounding the Former Exide Technologies Facility

In October 2014, the Exide facility discontinued operations and subsequently surrendered their operating permitting. Through a cover letter dated July 10, 2015, the State of Tennessee submitted a redesignation request and a first 10-year maintenance plan for the Bristol area. On July 7, 2016, EPA approved this redesignation request and the first 10-year maintenance plan, and consequently redesignated the area to Attainment/Maintenance for the 2008 Pb NAAQS. In this document, the State of Tennessee is submitting this second 10-year maintenance plan for the Bristol area.

[🛧] TDEC Lead Monitor 47-163-3004

2 MAINTENANCE PLAN

Under §175A. Maintenance Plans of the Federal Clean Air Act (FCAA), the state must submit a revision to the state implementation plan (SIP) to ensure the maintenance of the National Ambient Air Quality Standard (NAAQS) covering the second ten-year period following approval of the area's redesignation to attainment.

3 MONITORING NETWORK

TDAPC has operated a Pb monitoring network consisting of collocated high-volume, filter-based Pb samplers at a State and Local Air Monitoring Stations (SLAMS) site (ID: 47-163-3004), located at 364 Exide Drive in Bristol, TN since 2010. This site serves as a maximum impact monitoring site in this MA and is used to determine NAAQS attainment status. Prior to recent remediation activity starting in 2021, compliance with the 2008 Pb NAAQS was demonstrated by ambient monitoring data since the area was redesignated to Attainment/Maintenance in 2015.

3.1 AIR QUALITY

Since TDAPC deployed Pb samplers, ambient Pb levels have varied in response to activity at the facility. During an extended period of inactivity at the facility, ambient Pb values consistently remained below the 2008 Pb NAAQS. However, remediation efforts at the facility in recent years resulted in significant disturbances of contaminated materials. These disturbances have led to fluctuations in ambient Pb levels, including exceedances of the 2008 Pb NAAQS level. Exceeding the level of the 2008 Pb NAAQS occurs when average monitored values exceed 0.15 μ g/m³ over a three-month period. **Figure 2** displays the 3-month rolling average values from 2010 through 2023 at this site, ranging between 0 to 0.257 μ g/m³.



Figure 2 - Pb 3-Month Rolling Average Monitoring Values from 2010-2023

From 2010 to 2013, Pb concentrations were variable and below the 2008 Pb NAAQS. Between 2013 and 2021, Pb concentrations steadily declined to near zero levels. This downward trend corresponded with the Exide Technology facility ceasing operations and surrendering their operating permit in 2014, eliminating all point source emissions in the MA (**Figure 3**).



Figure 3 - Daily Pb Values During Inactivity

In late 2021 and early 2022, a remediation effort of the former Exide Technology facility resulted in temporary, high daily values as shown in **Figure 4**. Following these observations, TDAPC notified the agencies overseeing remediation efforts. With the temporary pause in remediation on April 8, 2022, ambient lead concentrations returned to near-zero levels. However, new remediation activity in late 2023 resulted in ambient Pb concentrations exceeding the 2008 Pb NAAQS.



Figure 4 - Daily Pb Values During Remediation Efforts

Prior to the temporary 2021 remediation activities, three-year design values had consistently been below the 2008 Pb NAAQS of 0.15 μ g/m³ since the area was redesignated as Attainment/Maintenance as shown in <u>Table 1</u>. The design value of Pb based on 2021 to 2023 is expected to be 0.26 μ g/m³ in response to the recent remediation activity.

Year	2011-	2012-	2013-	2014-	2015-	2016-	2017-	2018-	2019-	2020-	2021-
	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023
Design Value	0.08	0.07	0.05	0.01	0.01	0	0	0	0.07	0.07	0.26

Table 1- Lead Monitoring Design Values in the Maintenance Area ($\mu g/m^3$)

3.2 PLAN FOR PB MONITORING

The November 12, 2008, federal rule establishing the 2008 Pb NAAQS (73 FR 67029) requires a maximum impact ambient air Pb monitor to determine attainment status. This sole monitor is sufficiently appropriate to monitor any fugitive emissions resulting from disturbance of the soil since there are currently no point sources located in the MA.

TDAPC will continue to quality assure any monitoring data to meet the requirements of 40 CFR Part 58 and all other federal requirements. TDAPC will enter any data into AQS on a timely basis in accordance with federal guidelines.

Should TDAPC petition to discontinue monitoring, TDAPC will only seek removal of the monitor via a petition to the U.S. EPA Region 4 monitoring group to ensure the necessary regulatory steps and guidelines for discontinuing monitoring are met. If EPA approves the petition to discontinue monitoring, TDAPC commits to resume monitoring at any point if monitoring is required by regulations in 40 CFR Part 58, Appendix D, Section 4.5. TDAPC will consult with U.S. EPA Region 4 prior to making changes to the existing monitoring network, should changes become necessary in the future.

4 EMISSIONS INVENTORY

TDAPC compiled Pb emissions data from the most recent U.S. EPA's National Emissions Inventory (2020 NEI) for the base year and projected the emissions data to 2030 (interim year) and 2035 (future year). These inventories were used to evaluate continued compliance with the NAAQS over the second 10-year maintenance period.

4.1 2020 NEI: BASE YEAR INVENTORY

Emissions data from the 2020 NEI demonstrate that there is currently no facility/point source that produces Pb emissions within the MA. The former Exide Technologies facility located within the MA discontinued operations in 2014 and surrendered their operating permit on October 30, 2014. Other nearby point sources of Pb located in Sullivan County are shown in **Figure 5**.



Figure 5 – Pb Point Source Locations in Sullivan County

The 2020 NEI Pb emissions for these facilities are displayed in **Table 2** in addition to their distance from the MA centered around the former Exide Technologies facility location. The two largest industrial sources within 25 km of this area (Eastman Chemical and Domtar Paper Company) emitted 0.04 and 0.01 tpy of Pb, respectively. The total 2020 Pb emissions within 50 km of this area are 0.1 tons/year. For a frame of reference, the former Exide Technologies facility reported 0.5 tons/year in the 2012 attainment year as shown in the first 10-Year Maintenance Plan.

Facility	Emissions	Emissions	Location
	(lb/year)	(ton/year)	
Eastman Chemical	84.45	0.04	24 Km W
Domtar	15.59	0.01	
Microporous Products	0.32	0.0002	10 Km S
East TN Natural Gas	0.005	2.5 E-06	8 Km N
Tri-Cities Regional	108.79	0.05	13 Km SW
Airport			
Total	209.16	0.1	

Table 2 – Pb Point Source Emissions in Sullivan County – 2020 NEI

The 2020 NEI area source Pb emissions by source sector for Sullivan County are listed in

Table 3. Area sources are only reported to the NEI every three years, according to the Air Emissions Reporting Requirements (AERR) rule. The 2020 NEI and future projections of the 2020 NEI Pb emissions for Sullivan County are in Appendix A. These were obtained from the Emissions Inventory System (EIS) maintained by EPA. For Sullivan County, 2020 Pb area source emissions are 0.00174 tons/year, well below the point source emissions of 0.1 tons per year.

Source Category	Emissions	Emissions
	(lb/yr)	(ton/year)
Area Source Sector		
Fuel Comb - Comm/Institutional - Natural Gas	0.21	1.03 E-04
Miscellaneous Non-Industrial NEC	0.84	4.20 E-04
Fuel Comb - Comm/Institutional - Oil	0	0
Fuel Comb - Comm/Institutional - Other	0.011	5.54 E-06
Fuel Comb - Industrial Boilers, ICEs - Coal	0	0
Fuel Comb - Residential - Other	0	0
Fires - Prescribed Fires	1.51	7.53 E-04
Fuel Comb - Industrial Boilers, ICEs - Natural Gas	0.56	2.80 E-04
Fuel Comb - Comm/Institutional - Coal	0	0
Fires - Wildfires	0.094	4.68 E-05
Fuel Comb - Residential - Oil	0.13	6.62 E-05
Fuel Comb - Industrial Boilers, ICEs - Oil	0.008	4.34 E-06
Gas Stations	0.12	6.10 E-05
Area Source Total	3.48	1.74 E-03

Table 3 - Pb Area and Point Source Emissions (By Sector) in Sullivan County - 2020 NEI

No Pb emissions were reported for on-road or nonroad sectors in the 2020 NEI for Sullivan County. A dash has been inserted in Table 4 to indicate the lack of emissions for these sectors in the 2020 NEI. On-road sources include light-duty and heavy-duty motor vehicles. Since the removal of Pb from gasoline for motor vehicles, on-road emissions are expected to be near zero. Nonroad sources include emissions from aircraft, rail, and commercial marine vessels. While airports contain aircraft emissions, they are considered a point source for reporting purposes in the NEI. Refer to **Table 2** for airport emissions.

A summary of 2020 NEI (Base Year) Pb emissions are displayed by sector in **Table 4**.

Area sources were apportioned to the MA using the population of the MA compared to the population in Sullivan County. The population in the MA was estimated as the total population in census blocks whose geographical centroids fall inside the MA boundary. According to the 2010 Census data, the population in the MA is 291, and the total population in Sullivan County is 156,823. Therefore, the partial county fraction is 291/156,823 = 0.19%. This is basically the same growth rate as assessed in the first 10-year Maintenance Plan for the MA since no significant population growth was experienced in the MA over the last 8 years.

Emissions for Bristol MA (PPY)													
Year	Point	Nonroad ⁽²⁾		Area		Onroad ⁽³⁾	Total						
			MA %	County	MA								
2020	-0 ⁽¹⁾	-	0.19	66	0.13 (0.0001 tons/yr)	-	0.13 (0.0001 tons/yr)						

Table 4 - 2020 Base Year Pb Emissions for the Bristol Maintenance Area (Pounds Per Year)

(1) The Exide Technologies facility was shut down in 2014.

(2) No Pb emissions were found in Sullivan County for the Nonroad sector in using the EIS Gateway Tool.

(3) No Pb emissions were found in Sullivan County for the Onroad sector in using the EIS Gateway Tool.

4.2 **PROJECTED EMISSIONS**

2020 NEI Pb emissions were projected to 2030 and 2035 to demonstrate continued compliance with the 2008 Pb NAAQS. The partial county fraction was calculated as the ratio of human population in the MA to the total population of Sullivan County, which is 0.19, as described in Section 4.1.

The SIP requires a projection of the emissions inventory to at least 10 years from the base year inventory for the second 10-year Maintenance Plan to ensure continued compliance with the 2008 Pb NAAQS. In consultation with U.S. EPA, TDAPC selected the year 2020 as the base year for the second 10-year Maintenance Plan, resulting in future emissions inventory projections for 2030 (interim year) and 2035 (future year), as shown in **Table 5**.

Maintenance is demonstrated when the projected future-year (2035) emission totals are below or at the 2020 base year totals. For the MA, there is no difference in Pb emissions between the base year and projected future years (2030 and 2035), largely because the former Exide Technology facility has not been in operation since 2014 and the growth in area emissions is expected to be negligible. This analysis confirms that the MA will continue to comply with the 2008 Pb NAAQS in the remaining time frame of the second 10-year Maintenance period, in the absence of remediation efforts.

Table 5 - Pb Emissions Inventory for the Maintenance Area:	Base Year 2020 and Projected 2030 and
2035 (tpy)	

Source	2020	2030	2035	Safety
	Base Year	Interim	Maintenance	Margin
Exide	0.01 ⁽¹⁾	0.01 ⁽²⁾	0.01 ⁽³⁾	0
TOTAL	0.01	0.01	0.01	0

- (1) 2020 base year emissions are to be 0.01 tons per year [area source emissions of 0.0001 tpy (same in 2010) or 0.01 tpy conservatively assessed for growth] and zero-point source emissions since the facility has shut down and surrendered its operating permit(s) on October 30, 2014.
- (2) 2030 interim emissions are projected to be [area source emissions of 0.0001 tpy (same in 2010) or 0.01 tpy conservatively assessed for growth] and zero-point source emissions since the facility has shut down and surrendered its operating permit(s) on October 30, 2014.
- (3) 2035 emissions are projected to be at the 2020 and 2030 levels (only area source emissions) or below at a rate of (-.5%) employment reductions for industrial growth based on the latest Bureau of Labor Statistics (BLS) 2012-2022 national assessment for industrial growth.

5 MAINTENANCE DEMONSTRATION

The U.S. EPA 1992 guidance states, "a state can generally demonstrate maintenance of the NAAQS by either showing that future emissions of a pollutant or its precursors will not exceed the level of the attainment inventory or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS."

Because the Bristol lead MA is site-specific, that is, the Maintenance Plan is a site-specific SIP for the former Exide Technology facility, the maintenance demonstration method will be ambient monitoring and new source review (NSR) permitting requirements. If a new permitted source is located within the MA, compliance with emissions limits and standard operating procedures for point source and fugitive emissions from the Pb maximum achievable control technology (MACT) standard within a NSR permitting program will be utilized to ensure compliance with the 2008 Pb NAAQS.

TN APC regulations (1200-03) Chapter 9, construction and operating permits, supported by air dispersion modeling, will help demonstrate that any Pb emissions from future sources located in the MA will not cause or contribute to a violation of the 2008 Pb NAAQS.

6 CONTINGENCY PLANS

Section 175A of the federal Clean Air Act (CAA) requires each maintenance plan to contain contingency provisions that will promptly correct any violations of the NAAQS that occur after an area has been redesignated to Attainment/Maintenance. In accordance with the EPA guidance implementing the requirements of §175A, contingency plans are not required to be fully adopted and take effect without further action by the state but, rather, a plan should ensure that contingency measures are expeditiously adopted when triggered. The contingency plan must also be an enforceable part of the SIP and should identify the measures to be adopted, a schedule and procedure for adoption and implementation, and a specific time constraint on action to be taken by the state. Additionally, the plan should identify specific indicators or triggers that will be used to determine when the contingency measures are to be implemented. The intent of the indicators and triggers is to allow the state to take early action to remedy an actual or potential violation of the 2008 Pb NAAQS.

6.1 CONTINGENCY MEASURES IN THE FIRST 10-YEAR MAINTENANCE PLAN

The contingency measures of the first 10-year maintenance plan are stated in Chapter 6 of the 2016 first 10-year Maintenance Plan, including the following trigger levels:

Requirement 2 of 4 in Chapter 6 of the first 10-Year Maintenance Plan for this MA reads:

CHAPTER 6 – REQUIREMENT 2 OF 4

A commitment to expeditiously enact and implement additional contingency control measures in response to exceeding specified predetermined levels (triggers) or in the event that future violations of the ambient standard occur.

6.2 **DEMONSTRATION**

Tennessee hereby commits to adopt and expeditiously implement necessary corrective actions in the following circumstances:

Warning Level Response:

A warning level response shall be prompted whenever a lead 3-month rolling average concentration of 0.135 μ g/m3 (90% of the standard) occurs within the maintenance area. A warning level response will consist of a study to determine whether the lead value indicates a trend toward higher lead values. The study will evaluate whether the trend, if any, is likely to continue and, if so, the control measures necessary to reverse the trend taking into consideration, ease, and timing for implementation as well as economic and social considerations. Implementation of necessary controls in response to a warning level response trigger will take place as expeditiously as possible, but in no event later than 12 months from the conclusion of the most recent calendar year.

Should it be determined through the warning level study that action is necessary to reverse the noted trend, the procedures for control selection and implementation outlined under "action level response" shall be followed.

Action Level Response:

An action level response shall be prompted whenever the 3-month rolling average concentration of 0.143 µg/m3 (95% of the standard) or greater occurs within the maintenance area. A violation of the standard (any 3-month rolling average over a 36-month rolling average period (3-calendar years plus the preceding 2 months) exceeds 0.15 µg/m3) shall also prompt an action level response. In the event that the action level is triggered and is not found to be due to an exceptional event, malfunction, or noncompliance with a permit condition or rule requirement, TDAPC in conjunction with the entity(ies) believed to be responsible for the exceedance will evaluate additional control measures needed to assure future attainment of the NAAQS for the lead standard. In this case, measures that can be implemented in a short time will be selected in order to be in place within 18 months from the close of the calendar year that prompted the action level. TDAPC will also consider the timing of an action level trigger and determine if additional, significant new regulations not currently included as part of the maintenance provisions will be implemented in a timely manner and will constitute our response.

6.3 CONTINGENCY MEASURES FOR THE SECOND 10-YEAR MAINTENANCE PLAN

For the purposes of the second 10-year maintenance plan, the contingency measures are different because there is no permitted facility in the maintenance area.

Contingency measure implementation will be triggered by the following conditions as long as the current SLAMS monitor in the MA is operated. If the current SLAMs monitor is removed, the same contingency measure implementation would apply to any future monitor that might be required by the Pb monitoring regulations in 40 CFR Part 58, Appendix D, Section 4.5, as described in Section 2.2.

A. The 0.15 μg/m3 rolling 3-month arithmetic average 2008 Pb NAAQS is exceeded at the ambient air quality monitoring site ID (47-163-3004) impacted by lead emissions from the former Exide facility.

If, at any time during the period of the maintenance plan, trigger level condition **A**. occurs, the following contingency measures will be evaluated and implemented as appropriate:

- 1. Report individual samples exceeding the trigger level to U.S. EPA Region 4 within 30 days of discovery.
- 2. If trigger levels are exceeded, notify the current owners of the former Exide Technologies property within 30 days of discovery. Encourage the entity to implement measures to reduce entrainment of Pb associated with these activities. An example measure includes dust suppression by water misting. Encourage the current owners of the former Exide Technologies property to provide a remediation plan and schedule to TDAPC within a month of discovering trigger level exceedances.
- 3. Notify U.S. EPA Region 4 Planning and Monitoring staff of any remediation schedule and plans resulting in high Pb values within a month of becoming aware of the schedule and plans.

4. After trigger levels are observed, ensure monitoring levels decline to sustained, background levels.

If the current SLAMs monitor is removed and monitoring is discontinued, monitoring activities would resume in accordance with regulations in 40 CFR Part 58, Appendix D, Section 4.5. Section 4.5 requirements are listed in Appendix C of this document.

7 VERIFICATION OF CONTINUED ATTAINMENT

CAA §110(a)(2)(E) requires States to provide for adequate funding, and legal authority under State law to carry out its SIP-related requirements.

TDAPC has the legal authority and funding necessary to implement control strategies for Pb under rules and regulations provisions in Tennessee's Air Pollution Control Regulations (TAPCR) (1200-03 and 0400-30) to verify continued attainment with the 2008 Pb NAAQS.

Tennessee updates its comprehensive inventory in accordance with the U.S.EPA's AERR rule (i.e., emissions statements). As discussed in Section 4, TDAPC submits, and commits to submit, emission inventories (statements) every three years in addition to a yearly submission by December 31 for certain sources depending on their emissions thresholds (i.e., mega sources).

Any facility that is not listed in the latest emission inventory, or for the closing of which credit was taken in demonstrating attainment, will not be allowed to construct, reopen, modify, or reconstruct without meeting all applicable state and federal new source review (NSR) requirements including dispersion modeling analyses to assess the impact of these sources. Once the area is redesignated, TDAPC will implement NSR through the state permitting program.

Tennessee commits to attain and maintain the Pb NAAQS for the area and will require control measures for future sources coming to the area unless the State demonstrates through modeling that the standard can be maintained without one or more control measures.

Tennessee, through TDAPC's enforcement program and Office of General Counsel, has the legal authority and necessary resources to actively enforce any violations of its rules or permit provisions. It intends to continue enforcing all rules that relate to the emission of Pb in the MA.

Currently, there are no industrial Pb emission sources located in the MA since the Exide Technologies facility shut down and surrender its operating permit in October 2014.

8 AGREED ORDER

To make the contingency measures in the second 10-year maintenance plan legally enforceable, the TN APC Board has adopted Agreed Order Docket No. xxxxx, which is attached as Appendix D, as a part of the SIP for Pb.

9 CONCLUSIONS

In July 2016, the U.S. EPA approved Tennessee's redesignation request and first 10-year maintenance plan for the Bristol Pb MA which met the requirements of Section 110 (a) (1) of the 1990 CAA. The required second 10-year maintenance plan for this MA is in this document.

Based on the results in this document, the MA meets the requirements for maintenance plans under the CAA and U.S. EPA guidance. TDAPC monitoring demonstrated sustained air quality improvements over the previous 10-year period excluding times during recent remediation efforts. These air quality improvements are due to permanent and enforceable measures. Further, because there is no permitted facility in the MA, Tennessee expects continued compliance (i.e., maintenance) with the 2008 Pb NAAQS with an increasing margin of safety in the absence of active remediation activities resulting in high Pb values.

The State of Tennessee hereby requests that the second 10-year maintenance plan for the MA be approved in accordance with the U.S. EPA. SIP approval of the maintenance plan provisions as contained herein.

Appendix A: 2020 NEI v2 - Sullivan County Lead (Pb) Point and Area Source Emissions

SULLIVAN COUNTY 2020 NEI – POINT SOURCE EMISSIONS BY RELEASE POINT

rel pt1 latitude	rel pt1 longitude	stack height (ft)	stack diameter (ft)	exit gas temp (f)	exit gas velocity	exit gas velocity uom	exit gas flow rate	exit gas flow uom	pollutant code	total emissions	emissions uom	Base Year: 2020 (TON)	Interim Year: 2030	Future Year: 2035
36.5491	-82.5672	276	5 11	l 31	3 47.7	FPS	4533.1	ACFS	7439921	3.118604	LB	0.001559302	0.053836756	0.316339338
36.5491	-82.5672	198	3 10.3	34	40.4	FPS	3364.53851	ACFS	7439921	12.081244	LB	0.006040622	0.208559657	1.225475478
36.5491	-82.5672	188	3 4	20	0 25.3	FPS	317.9	ACFS	7439921	0.3950232	LB	0.000197512	0.006819323	0.040069652
36.4435	-82.5235	42.2	2.67	20	0 1.5	FPS	8.37967	ACFS	7439921	0.00510608	LB	2.55304E-06	8.81467E-05	0.000517941
36.52222	-82.5411	125	5 2.5	5 70	0 70	FPS	343.4	ACFS	7439921	0	LB	0	C	0
36.52222	-82.5411	75	3.5	5 43	1 5098.987	FPM	49058	ACFM	7439921	0.833208	LB	0.000416604	0.014383748	0.084517453
36.52222	-82.5411	105	; 4	39	0 32.2	FPS	396.4	ACFS	7439921	0.61943	LB	0.000309715	0.010693279	0.062832625
36.52222	-82.5411	62	2 1.4	1 7	5 16	FPS	24.6	ACFS	7439921	0.1046	LB	0.0000523	0.00180572	0.010610226
36.52222	-82.5411	70	6	5 40	0 49	FPS	1384.7	ACFS	7439921	0	LB	0	C	0
36.52222	-82.5411	50	3.5	5 19	8 54	FPS	519.3	ACFS	7439921	0.1254	LB	0.0000627	0.002164792	0.012720099
36.52222	-82.5411	230	14	4 33	7 61	FPS	9385.5	ACFS	7439921	43.986	LB	0.021993	0.759334474	4.461772675
		113	1.16	63	7 52.1	FPS	3341	ACFM	7439921	0.00061	LB	0.00000305	1.05305E-05	6.18761E-05
36.52222	-82.5411	37	7 5	5 15	0 44.9	FPS	881.2	ACFS	7439921	0.08434	LB	0.00004217	0.001455969	0.008555129
36.52222	-82.5411	62	. 1.4	1 7	5 16	FPS	24.6	ACFS	7439921	0.03652	LB	0.00001826	0.000630448	0.00370445
36.52222	-82.5411	50	3.5	i 19	8 54	FPS	519.3	ACFS	7439921	0.02	LB	0.00001	0.000345262	0.002028724
36.52222	-82.5411	35	1.75	63	0 1132.923	FPM	2725	ACFM	7439921	0.015458	LB	0.000007729	0.000266853	0.001568001
36.52222	-82.5411	250	3	3 29	5 55	FPS	2763.2	ACFS	7439921	11.006	LB	0.005503	0.189997618	1.116406813
36.52222	-82.5411	375	5 10) 16	0 119	FPS	9341.5	ACFS	7439921	26.999	LB	0.0134995	0.466086288	2.738675952
36.52222	-82.5411	62	2 1.4	1 7	5 16	FPS	24.6	ACFS	7439921	0.0544	LB	0.0000272	0.000939112	0.005518129
36.52222	-82.5411	200) 10) 16	7 18	FPS	1413	ACFS	7439921	0.12	LB	0.00006	0.002071571	0.012172344
36.52222	-82.5411	250) 1	129	5 116	FPS	91.1	ACFS	7439921	0.010236	LB	0.000005118	0.000176705	0.001038301
36.52222	-82.5411	62	2 1.4	l 7	5 16	FPS	24.6	ACFS	7439921	0.1602	LB	0.0000801	0.002765548	0.016250079
36.52222	-82.5411	62	2 1.4	l 7	5 16	FPS	24.6	ACFS	7439921	0.1584	LB	0.0000792	0.002734474	0.016067494
36.52222	-82.5411	62	2 1.4	1 7	5 16	FPS	24.6	ACFS	7439921	0.11914	LB	0.00005957	0.002056725	0.012085109
36.4379	-82.2888	40) 5	5 52	0 10.4	FPS	204.20399	ACFS	7439921	0.208454	LB	0.000104227	0.003598561	0.021144782
36.4379	-82.2888	38	1.67	40	0 16.3	FPS	35.70355	ACFS	7439921	0.0452704	LB	2.26352E-05	0.000781507	0.004592057
36.4379	-82.2888	53	1 2	2 50	4.094	FPS	12.86168	ACFS	7439921	0.071064	LB	0.000035532	0.001226785	0.007208462
36.479	-82.411								7439921	108.79415	LB	0.054397075	1.878123692	11.03566511
											Total	0.104585929	3.610953545	3.715539474

SULLIVAN COUNTY 2020 NEI – AREA AND POINT SOURCE EMISSIONS BY SECTOR

		total		Base Year:	Interim Year:	Future Year:
sector	data category	emissions	emissions uom	2020(TON)	2030	2035
Fires - Prescribed Fires	Area	1.50572	LB	0.00075286	0.001504971	0.002211296
Fires - Wildfires	Area	0.09366	LB	0.00004683	9.36134E-05	0.000137549
Fuel Comb - Comm/Institutional - Coal	Area	0	LB	0	0	0
Fuel Comb - Comm/Institutional - Natural Gas	Area	0.2066142	LB	0.000103307	8.49221E-08	1.64086E-09
Fuel Comb - Comm/Institutional - Oil	Area	0	LB	0	0	0
Fuel Comb - Comm/Institutional - Other	Area	0.01108774	LB	5.54387E-06	5.30531E-08	4.00855E-09
Fuel Comb - Industrial Boilers, ICEs - Coal	Area	0	LB	0	0	0
Fuel Comb - Industrial Boilers, ICEs - Natural Gas	Area	0.5591996	LB	0.0002796	1.92543E-08	9.38208E-11
Fuel Comb - Industrial Boilers, ICEs - Oil	Area	0.008674978	LB	4.33749E-06	2.76793E-17	1.6698E-23
Fuel Comb - Residential - Oil	Area	0.13241804	LB	6.6209E-05	7.65238E-08	1.78675E-09
Fuel Comb - Residential - Other	Area	0	LB	0	0	0
Gas Stations	Area	0.12192185	LB	6.09609E-05	1.34565E-06	1.61758E-07
Miscellaneous Non-Industrial NEC	Area	0.840025608	LB	0.000420013	0.011029672	0.067773921
			Total	0.001739661	0.012629835	0.014369496
sector	data category	total emissions	emissions uom	2020	2030	2035
Fuel Comb - Comm/Institutional - Natural Gas	Point	0.3247884	LB	0.000162394	0.000162394	0.000162394
Fuel Comb - Industrial Boilers, ICEs - Biomass	Point	12.081244	LB	0.006040622	0.006040622	0.006040622
Fuel Comb - Industrial Boilers, ICEs - Coal	Point	70.985	LB	0.0354925	0.059208127	0.076472219
Fuel Comb - Industrial Boilers, ICEs - Natural Gas	Point	11.64599408	LB	0.005822997	0.011554811	0.016276874
Industrial Processes - Chemical Manuf	Point	1.551418	LB	0.000775709	0.006068021	0.016971537
Industrial Processes - Petroleum Refineries	Point	0.010236	LB	0.000005118	3.83768E-07	1.05088E-07
Industrial Processes - Pulp & Paper	Point	3.5136272	LB	0.001756814	0.001756814	0.001756814
Mobile - Aircraft	Point	108.79415	LB	0.054397075	0.054397075	0.054397075
Waste Disposal	Point	0.2654	LB	0.0001327	0.011787783	0.111099663
			Total	0.104585929	0.150976031	0.283177303

Appendix B: Air Quality System (AQS) Pb Monitoring Data

Pollutant: Pb

Year: 2014

Exceptional Events: Included (if any)

Obs	Valid Months	Max 3mo Avg	Month of Max	1 st Max	2 nd Max	3 rd Max	4 th Max	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
61				0.172	0.036	0.035	0.031	Included	1	471633001	364 Exide Dr.	Bristol	Sullivan	TN	04
61	•	•	•	0.035	0.03	0.03	0.03	Included	1	471633002	364 Exide Dr. On Exide Property	Bristol	Sullivan	TN	04
61	•		•	0.03	0.03	0.03	0.03	Included	2	471633002	364 Exide Dr. On Exide Property	Bristol	Sullivan	TN	04
61	•		•	0.051	0.03	0.03	0.03	Included	1	471633003	364 Exide Dr.	Bristol	Sullivan	TN	04
53	12	0	1	0.006	0.006	0.006	0.006	None	1	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04
56	12	0	1	0.006	0.006	0.006	0.005	None	2	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04

Geographic Area: Tennessee Pollutant: Pb

Pollutant: Pb

Year: 2015

Obs	Valid Months	Max 3mo Avg	Month of Max	First Max	Second Max	Third Max	Fourth Max	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
20				0.077	0.036	0.021	0.02	Included	1	471633001	364 Exide Dr.	Bristol	Sullivan	TN	04
20				0.05	0.022	0.021	0.02	Included	1	471633002	364 Exide Dr. On	Bristol	Sullivan	TN	04
17				0.047	0.03	0.022	0.021	Included	2	471633002	364 Exide Dr. On	Bristol	Sullivan	TN	04
20				0.054	0.038	0.018	0.018	Included	1	471633003	364 Exide Dr.	Bristol	Sullivan	TN	04
52	11	0.01	1	0.039	0.031	0.031	0.013	None	1	471633004	364 Exide Dr	Bristol	Sullivan	TN	04
48	11	0.01	1	0.012	0.01	0.01	0.008	None	2	471633004	364 Exide Dr	Bristol	Sullivan	TN	04

Pollutant: Pb

Year: 2016

Obs	Valid Months	Max 3mo Avg	Month of Max	First Max	Second Max	Third Max	Fourth Max	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
59	12	0	1	0.007	0.006	0.006	0.005	None	1	471633004	364 Exide Dr Bristol Tr	Bristol	Sullivan	TN	04
53	12	0	1	0.009	0.006	0.005	0.005	None	2	471633004	364 Exide Dr Bristol Tr	Bristol	Sullivan	TN	04
											37620				

Pollutant: Pb

Year: 2017

Obs	Valid Months	Max 3mo Avg	Month of Max	First Max	Second Max	Third Max	Fourth Max	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
32	11	0	1	0.008	0.006	0.005	0.004	None	1	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04
54	11	0	1	0.014	0.01	0.006	0.005	None	2	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04

Pollutant: Pb

Year: 2018

Obs	Valid Months	Max 3mo Avg	Month of Max	First Max	Second Max	Third Max	Fourth Max	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
56	12	0	1	0.028	0.012	0.006	0.004	None	1	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04
57	12	0	1	0.024	0.013	0.005	0.005	None	2	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04

Pollutant: Pb

Year: 2019

Exceptional Events: Included (if any)

Obs	Valid Months	Max 3mo Avg	Month of Max	First Max	Second Max	Third Max	Fourth Max	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
60	12	0	1	0.024	0.011	0.007	0.005	None	1	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04
54	12	0	1	0.025	0.011	0.008	0.006	None	2	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04

Geographic Area: Tennessee

Pollutant: Pb

Year: 2020

Exceptional Events: Included (if any)

Obs	Valid Months	Max 3mo Avg	Month of Max	First Max	Second Max	Third Max	Fourth Max	Exc Events	Monitor Number	Site ID	Address	City	County	State	EPA Region
57	12	0	1	0.008	0.005	0.004	0.004	None	1	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04
52	12	0	1	0.008	0.008	0.004	0.004	None	2	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04

Geographic Area: Tennessee

Pollutant: Pb

Year: 2021

	Valid	Max	Month	First	Second	Third	Fourth	Evc	Monitor						EPA
	vanu	3mo	WORLD	THISC	Jecona	1111 U	Tourtin		WORRO						
Obs	Months		ofMax	May	Max	Max	Max	Events	Number	Site ID	Address	Citv	County	State	Region
	WORT	Avg		IVIAA	IVIAA	IVIAA	IVIGA	LVCIICS	Number						110010

58	12	0.07	10	0.795	0.09	0.08	0.059	None	1	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	ΤN	04
56	12	0.07	10	0.775	0.082	0.076	0.055	None	2	471633004	364 Exide Dr Bristol Tn 37620	Bristol	Sullivan	TN	04

Pollutant: Pb

Year: 2022

Obs	Valid Months	Max 3mo Avg	Month of Max	First Max	Second Max	Third Max	Fourth Max	Exc Events	Monitor Number	Site ID		Ad	dres	55		City	County	State	EPA Region
61	12	0.04	3	0.179	0.149	0.138	0.064	None	1	471633004	364	Exide	Dr	Bristol	Tn	Bristol	Sullivan	TN	04
57	12	0.04	3	0.182	0.152	0.147	0.064	None	2	471633004	364	Exide	Dr	Bristol	Tn	Bristol	Sullivan	TN	04

Appendix C: Appendix D to 40 CFR 58, Section 4.5: Lead (Pb) Design Criteria

https://www.ecfr.gov/current/title-40/part-58/appendix-Appendix D to Part 58

- (a) State and, where appropriate, local agencies are required to conduct ambient air Pb monitoring near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, taking into account the logistics and potential for population exposure. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year based on either National **E**mission the most recent Inventory (http://www.epa.gov/ttn/chief/eiinformation.html) or other scientifically justifiable methods and data (such as improved emissions factors or site-specific data) taking into account logistics and the potential for population exposure.
 - (i) One monitor may be used to meet the requirement in paragraph 4.5(a) for all sources involved when the location of the maximum Pb concentration due to one Pb source is expected to also be impacted by Pb emissions from a nearby source (or multiple sources). This monitor must be sited, taking into account logistics and the potential for population exposure, where the Pb concentration from all sources combined is expected to be at its maximum.
 - (ii) The Regional Administrator may waive the requirement in paragraph 4.5(a) for monitoring near Pb sources if the State or, where appropriate, local agency can demonstrate the Pb source will not contribute to a maximum Pb concentration in ambient air in excess of 50 percent of the NAAQS (based on historical monitoring data, modeling, or other means). The waiver must be renewed once every 5 years as part of the network assessment required under § 58.10(d).
 - (iii) State and, where appropriate, local agencies are required to conduct ambient air Pb monitoring near each of the airports listed in Table D–3A for a period of 12 consecutive months commencing no later than December 27, 2011. Monitors shall be sited to measure the maximum Pb concentration in ambient air, taking into account logistics and the potential for population exposure, and shall use an

approved Pb-TSP Federal Reference Method or Federal Equivalent Method. Any monitor that exceeds 50 percent of the Pb NAAQS on a rolling 3-month average (as determined according to 40 CFR part 50, Appendix R) shall become a required monitor under paragraph 4.5(c) of this Appendix, and shall continue to monitor for Pb unless a waiver is granted allowing it to stop operating as allowed by the provisions in paragraph 4.5(a)(ii) of this appendix. Data collected shall be submitted to the Air Quality System database according to the requirements of 40 CFR part 58.16.

d			
	Airport	County	State
	Merrill Field	Anchorage	AK
	Pryor Field Regional	Limestone	AL
	Palo Alto Airport of Santa Clara County	Santa Clara	CA
	McClellan-Palomar	San Diego	CA
	Reid-Hillview	Santa Clara	CA
	Gillespie Field	San Diego	CA
	San Carlos	San Mateo	CA

Table D-3A Airports To Be Monitored for Lead

Nantucket Memorial	Nantucket	MA
Oakland County International	Oakland	МІ
Republic	Suffolk	NY
Brookhaven	Suffolk	NY
Stinson Municipal	Bexar	ТΧ
Northwest Regional	Denton	ТΧ
Harvey Field	Snohomish	WA
Auburn Municipal	King	WA

(b) [Reserved]

- (c) The EPA Regional Administrator may require additional monitoring beyond the minimum monitoring requirements contained in paragraph 4.5(a) of this appendix where the likelihood of Pb air quality violations is significant or where the emissions density, topography, or population locations are complex and varied. The EPA Regional Administrators may require additional monitoring at locations including, but not limited to, those near existing additional industrial sources of Pb, recently closed industrial sources of Pb, airports where piston-engine aircraft emit Pb, and other sources of reentrained Pb dust.
- (d) The most important spatial scales for source-oriented sites to effectively characterize the emissions from point sources are microscale and middle scale. The most important spatial scale for non-source-oriented sites to characterize typical lead concentrations in urban areas is the neighborhood scale. Monitor siting should be conducted in accordance with 4.5(a)(i) with respect to source-oriented sites.
 - (1) Microscale—This scale would typify areas in close proximity to lead point sources. Emissions from point sources such as primary and secondary lead smelters, and primary copper smelters may under fumigation conditions

likewise result in high ground level concentrations at the microscale. In the latter case, the microscale would represent an area impacted by the plume with dimensions extending up to approximately 100 meters. Pb monitors in areas where the public has access, and particularly children have access, are desirable because of the higher sensitivity of children to exposures of elevated Pb concentrations.

- (2) Middle scale—This scale generally represents Pb air quality levels in areas up to several city blocks in size with dimensions on the order of approximately 100 meters to 500 meters. The middle scale may for example, include schools and playgrounds in center city areas which are close to major Pb point sources. Pb monitors in such areas are desirable because of the higher sensitivity of children to exposures of elevated Pb concentrations (reference 3 of this appendix). Emissions from point sources frequently impact on areas at which single sites may be located to measure concentrations representing middle spatial scales.
- (3) Neighborhood scale—The neighborhood scale would characterize air quality conditions throughout some relatively uniform land use areas with dimensions in the 0.5-to-4.0-kilometer range. Sites of this scale would provide monitoring data in areas representing conditions where children live and play. Monitoring in such areas is important since this segment of the population is more susceptible to the effects of Pb. Where a neighborhood site is located away from immediate Pb sources, the site may be very useful in representing typical air quality values for a larger residential area, and therefore suitable for population exposure and trends analyses.
- (e) Technical guidance is found in references 4 and 5 of this appendix. These documents provide additional guidance on locating sites to meet specific urban area monitoring objectives and should be used in locating new sites or evaluating the adequacy of existing sites.

Appendix D: TN APC Board Order

Appendix E: Public Participation

A. Comments Received

The following are EPA Region IV received comments on the pre-draft Pb 2nd Maintenance Plan

dated February 20, 2024

The U.S. Environmental Protection Agency (EPA) Preliminary Comments on Tennessee's Pre-Draft Regarding Bristol Lead 2nd 10-year Maintenance Plan

General Comments

- There are several instances in the document referencing "the owners of the former Exide Technologies facility." This phrase could be misunderstood to mean the former owners of the Exide Technologies facility. Please clarify the intent with more specific language, such as "the current owners of the former Exide Technologies property."
- 2. TDAPC should revise section 5.2 to clearly identify any trigger levels or contingency measures that would exist if TDAPC follows the necessary regulatory steps and guidelines to discontinue the existing monitor successfully during the life of the maintenance plan. TDAPC should also revise the second sentence in section 5.2 to reflect this scenario with language similar to the following:

While this maintenance plan does not require monitoring for the life of the plan, until such time as the existing monitor is approved by EPA to discontinue as part of an annual ambient air monitoring network plan pursuant to Part 58 requirements, there will be one trigger level based on monitoring data to determine implementation of contingency measures.

EPA also recommends changing the title of Section 2.2 from "Commitment to Monitoring" to something like "Plan for Pb Monitoring" since the state will not necessarily be committing to monitor for the entire life of the maintenance plan.

- 3. The first sentence of section 5.3 should be clarified to state that contingency measure implementation will be triggered by the following conditions as long as the current SLAMS monitor is operated, and, if the current SLAMS monitor is removed, the same contingency measure implementation would apply to any future monitor that might be required by the Pb monitoring regulations in 40 CFR Part 58, Appendix D, Section 4.5, as described in section 2.2. The text should also clarify what contingency measures, if any, would apply if the current SLAMS monitor is removed and a future monitor has not yet been required by the Pb monitoring measures.
- 4. TDAPC should include information that identifies what activities can potentially result in higher ambient lead levels in the area, and what measures will be taken to prevent future violations from occurring as a result of such activities.

Appendix F: Public Participation (Response to Comments)

B. Response to Comments

The following are TDAPC response to EPA Region IV comments

dated March 15, 2024

Comment #1:

There are several instances in the document referencing "the owners of the former Exide Technologies facility." This phrase could be misunderstood to mean the former owners of the Exide Technologies facility. Please clarify the intent with more specific language, such as "the current owners of the former Exide Technologies property."

Division's Response to Comment #1:

These references were corrected throughout the document to "the current owners of the former Exide Technologies property".

Comment #2:

TDAPC should revise section 5.2 to clearly identify any trigger levels or contingency measures that would exist if TDAPC follows the necessary regulatory steps and guidelines to discontinue the existing monitor successfully during the life of the maintenance plan. TDAPC should also revise the second sentence in section 5.2 to reflect this scenario with language similar to the following:

While this maintenance plan does not require monitoring for the life of the plan, until such time as the existing monitor is approved by EPA to discontinue as part of an annual ambient air monitoring network plan pursuant to Part 58 requirements, there will be one trigger level based on monitoring data to determine implementation of contingency measures.

EPA also recommends changing the title of Section 2.2 from "Commitment to Monitoring" to something like "Plan for Pb Monitoring" since the state will not necessarily be committing to monitor for the entire life of the maintenance plan.

Division's Response to Comment #2:

Sections 5.2 and 5.3 were revised in accordance with EPA recommendations.

Comment #3:

The first sentence of section 5.3 should be clarified to state that contingency measure implementation will be triggered by the following conditions as long as the current SLAMS monitor is operated, and, if the current SLAMs monitor is removed, the same contingency measure implementation would apply to any future monitor that might be required by the Pb monitoring regulations in 40 CFR Part 58, Appendix D, Section 4.5, as described in section 2.2. The text should also clarify what contingency measures, if any, would apply if the current SLAMS monitor is removed and a future monitor has not yet been required by the Pb monitoring regulations.

Division's Response to Comment #3:

Section 5.3 was revised in accordance with EPA recommendations. Additionally, the following contingency measures would apply if the current SLAMS monitor is removed, and a future monitor has not yet been required by 40 CFR Part 58:

Comment #4:

TDAPC should include information that identifies what activities can potentially result in higher ambient lead levels in the area, and what measures will be taken to prevent future violations from occurring as a result of such activities.

Division's Response to Comment #4:

TDAPC discussed ongoing remediation efforts that resulted in temporary, high Pb values since 2021 in Section 3 (Monitoring Network). These activities are temporary and are intended to restore the area by remediating the former Exide facility. Except for the recent remediation activities, TDAPC does not expect any additional sources to cause high ambient Pb levels in the MA. TDAPC tracks these high Pb values through ongoing monitoring. Further, contingency measures were revised in Section 6 of this document to reflect TDAPC measures for preventing high Pb values. These measures include notifying U.S. EPA Region 4 of exceedances, communicating a remediation plan/schedule with U.S. EPA Region 4, encouraging the current owners of the former Exide Technologies facility to adopt Pb suppression activities during remediation activities, and continuing to monitor until sustained background levels are observed. Without formal jurisdiction of the recent remediation activities, TDAPC is limited in contingency measures. However, TDAPC remains committed to preventing high Pb values through the contingency measures described in this document.