STATE OF TENNESSEE
REGULAR MEETING
AIR POLLUTION CONTROL BOARD
Nashville Room, 3rd Floor Tennessee Tower
312 Rosa L. Parks Avenue
In Person and
Remote Access Via WebEx link

Wednesday June 08, 2022
9:30 A.M.

	Item	Presenter	Page
1.	Roll Call		
2.	Approval of the Board Meeting Minutes		**02**
3.	NESHAP Rule Revisions	Mark Reynolds	**06**
4.	Bristol TN Lead SIP Revision Board Order 22-009	Paul LaRock	**206**
5.	APC COE Renewal • Davidson County Certificate of Exemption Board Order: 22-005 • Hamilton County Certificate of Exemption Board Order: 22-006 • Knox County Certificate of Exemption Board Order: 22-007 • Shelby County Certificate of Exemption Board Order: 22-008	Marc Corrigan	**336**

The meeting will be held in compliance with Tennessee Code Annotated Section 8-44-108, as amended by Chapter 490 of the 1999 Public Acts of the Tennessee General Assembly. The meeting will be conducted permitting participation by electronic or other means of communication. Consequently, some members of the Tennessee Air Pollution Control Board are allowed to and may participate by electronic or other means of communication and may not be physically present at the announced location of the meeting.

Air Pollution Control Board
of the
State of Tennessee
Regular Meeting

On Wednesday February 09, 2022, at 9:30 A.M., the Air Pollution Control Board of the State of Tennessee, (hereinafter, referred to as the "Board"), began its meeting on the 3rd Floor of the Tennessee Tower in the Nashville Room. The following Board members were physically present:

Dr. Ronnè Adkins
Mr. Mike Haverstick
Dr. Shawn Hawkins
Mr. Richard Holland
Ms. Caitlin Jennings
Mayor Ken Moore
Ms. Amy Spann
Mr. Greer Tidwell
Mayor Larry Waters

The following Board members joined the meeting via WebEx:

Dr. John Benitez
Dr. Joshua Fu
Dr. Chunrong Jia
Mr. Stephen Moore

The following Board member was absent:

Mr. Jimmy West

Dr. Ronne' Adkins represented the Chairman, Commissioner David Salyers by proxy. Ms. Michelle Owenby, Director of the Division of Air Pollution Control, served as the Technical Secretary.

The Technical Secretary welcomed Board members and those attending via WebEx.

The Vice-Chairman, Mayor Larry Waters, called the meeting to order and asked for a Roll Call and the response was as follows:

Dr. Adkins	Present	Dr. Benitez	WebEx
Dr. Fu	WebEx	Mr. Haverstick	Present
Dr. Hawkins	Present	Mr. Holland	Present
Ms. Jennings	Present	Dr. Jia	WebEx
Mayor Moore	Present	Mr. Moore	WebEx
Ms. Spann	Present	Mr. Tidwell	Present
Mayor Waters	Present	Mr. West	Absent

Nine (9) Board members were present and Four (4) via WebEx.

Deputy Commissioner, Greg Young, presented the Board with a Bureau of Environment Update.

Bill Miller with the Office of General Counsel (OGC) presented the board with the Conflict of Interest. Mr. Miller stated that the Conflict of Interest is at least 8 that "represent the public interest" as defined by Tenn. Comp. R. & Regs. 0400-30-17-.02(1).

The next item on the agenda was the approval of the minutes from the January 12, 2022, Board meeting.

Mayor Moore made a motion to approve the minutes and Dr. Benitez seconded the motion.

The Vice-Chairman asked for a Roll Call and the response was as follows:

Dr. Adkins	Yes	Dr. Benitez	Yes
Dr. Fu	Yes	Mr. Haverstick	Yes
Dr. Hawkins	Yes	Mr. Holland	Yes
Ms. Jennings	Yes	Dr. Jia	Yes
Mayor Moore	Yes	Mr. Moore	Yes
Ms. Spann	Yes	Mr. Tidwell	Yes
Mayor Waters	Yes		

The January 12, 2022, minutes were approved as written.

The motion carried with thirteen (13) affirmative votes.

Mr. Travis Blake with the Division of Air Pollution Control presented a request from Eastman Chemical Company BO 22-004 for a variance from the prompt notification requirements of TAPCR 1200-03-20-.03 for excess SO_2 emissions of less than 24 hours duration. Mr. Blake answered questions from the Board.

Mr. Holland made a motion to approve, and Mayor Moore seconded the motion.

The Vice-Chairman asked for a Roll Call and the response was as follows:

Dr. Adkins	Yes	Dr. Benitez	Yes
Dr. Fu	Yes	Mr. Haverstick	Yes
Dr. Hawkins	Yes	Mr. Holland	Yes
Ms. Jennings	Yes	Dr. Jia	Yes
Mayor Moore	Yes	Mr. Moore	Abstained
Ms. Spann	Yes	Mr. Tidwell	Yes

Mayor Waters Yes

The motion carried with twelve (12) affirmative votes and one (1) abstention.

Mr. Mark Reynolds, Division of Air Pollution Control, gave a presentation to the Board members on the final Regional Haze State Implementation Plan (SIP) BO 22-002. Mr. Reynolds stated that numerous comments were received during the public comment period. Mr. Reynolds reviewed some of the comments and the Division's responses. Mr. Reynolds stated the definition of regional haze and the main sources of regional haze. The two federal Class I areas in Tennessee are the Great Smoky Mountains National Park and Joyce Kilmer-Slick Rock Wilderness Area. The Division has been coordinating with the other southeastern states through the VISTAS organization. The SIP for the second planning period was due on July 31, 2021. However, most states have not submitted their SIP's yet. Mr. Reynolds stated several of the regional haze rule requirements including the long-term strategy, which includes enforceable emissions limitations, compliance schedules, and other measures as necessary to achieve the reasonable progress goals. Facilities were chosen for a reasonable progress analysis based on an Area of Influence (AoI) analysis and CAMx PSAT photochemical modeling analysis. A reasonable progress analysis was submitted for Eastman Chemical Company and TVA Cumberland. Recent data has shown a dramatic decrease in both sulfur dioxide and nitrogen oxides, which has resulted in monitoring data showing improvement in visibility. Mr. Reynolds concluded by answering a few questions from the Board members.

Lilly Anderson with National Parks Conservation Association, Amy Kelly with Sierra Club, and Mallory Kirby addressed the board with comments.

Richard Holland addressed the Board that his company was named in the presentation but there was no direct effect for voting.

Mayor Moore made a motion to approve, Dr Hawkins seconded the motion.

The Vice-Chairman asked for a Roll Call and the response was as follows:

Dr. Adkins	Yes	Dr. Benitez	Yes
Dr. Fu	Yes	Mr. Haverstick	Yes
Dr. Hawkins	Yes	Mr. Holland	Yes
Ms. Jennings	Yes	Dr. Jia	Yes
Mayor Moore	Yes	Mr. Moore	Abstained
Ms. Spann	Yes	Mr. Tidwell	Yes
Mayor Waters	Yes		

The motion carried with twelve (12) affirmative votes and one (1) abstention.

Mr. Grant Ruhl with OGC presented the updated/revised 2022 Air Pollution Control Manual to the board. Mr. Ruhl answered questions from the board.

There being no further business to discuss before the Board, the meeting was adjourned at 11:35am.

_____
(Signed) Michelle Owenby, Technical Secretary
Tennessee Air Pollution Control Board

Approved at Nashville, Tennessee on June 8, 2022

_____
(Signed) Mayor Larry Waters, Vice-Chairman
Tennessee Air Pollution Control Board

_____
(Signed) David Salyers, Chairman
Tennessee Air Pollution Control Board

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Sequence Number: _____
Rule ID(s): _____
File Date: _____
Effective Date: _____

Rulemaking Hearing Rule(s) Filing Form

Rulemaking Hearing Rules are rules filed after and as a result of a rulemaking hearing (Tenn. Code Ann. § 4-5-205).

Pursuant to Tenn. Code Ann. § 4-5-229, any new fee or fee increase promulgated by state agency rule shall take effect on July 1, following the expiration of the ninety (90) day period as provided in § 4-5-207. This section shall not apply to rules that implement new fees or fee increases that are promulgated as emergency rules pursuant to § 4-5-208(a) and to subsequent rules that make permanent such emergency rules, as amended during the rulemaking process. In addition, this section shall not apply to state agencies that did not, during the preceding two (2) fiscal years, collect fees in an amount sufficient to pay the cost of operating the board, commission or entity in accordance with § 4-29-121(b).

Agency/Board/Commission:	Air Pollution Control Board
Division:	Air Pollution Control
Contact Person:	Mark A. Reynolds
Address:	William R. Snodgrass Tennessee Tower 312 Rosa L. Parks Avenue, 15th Floor Nashville, Tennessee
Zip:	37243
Phone:	(615) 532-0559
Email:	mark.a.reynolds@tn.gov

Revision Type (check all that apply):

X Amendment
___ New
___ Repeal

Rule(s) (**ALL** chapters and rules contained in filing must be listed here. If needed, copy and paste additional tables to accommodate multiple chapters. Please make sure that **ALL** new rule and repealed rule numbers are listed in the chart below. Please enter only **ONE** Rule Number/Rule Title per row.)

Chapter Number	**Chapter Title**
0400-30-38	Emission Standards for Hazardous Air Pollutants
Rule Number	**Rule Title**
0400-30-38-.01	Federal Standards for Hazardous Air Pollutants
0400-30-38-.02	Reserved

Chapter Number	**Chapter Title**
1200-03-02	Definitions
Rule Number	**Rule Title**
1200-03-02-.01	General Definitions

Chapter Number	**Chapter Title**
1200-03-04	Open Burning
Rule Number	**Rule Title**
1200-03-04-.04	Exceptions to Prohibition

Chapter Number	**Chapter Title**
1200-03-05	Visible Emission Regulations

Rule Number	Rule Title
1200-03-05-.05	Standard for Certain Existing Sources

Chapter Number	Chapter Title
1200-03-09	Construction and Operating Permits
Rule Number	**Rule Title**
1200-03-09-.01	Construction Permits
1200-03-09-.02	Operating Permits
1200-03-09-.04	Exemptions

Chapter Number	Chapter Title
1200-03-11	Repealed

Chapter Number	Chapter Title
1200-03-16	New Source Performance Standards
Rule Number	**Rule Title**
1200-03-16-.01	General Provisions

Chapter Number	Chapter Title
1200-03-20	Limits on Emissions Due to Malfunctions, Startups, and Shutdowns
Rule Number	**Rule Title**
1200-03-20-.03	Notice Required When Malfunction Occurs

Chapter Number	Chapter Title
1200-03-21	General Alternate Emission Standards
Rule Number	**Rule Title**
1200-03-21-.01	General Alternate Emission Standard

Chapter Number	Chapter Title
1200-03-26	Administrative Fees Schedule
Rule Number	**Rule Title**
1200-03-26-.02	Construction and Annual Fees

Chapter Number	Chapter Title
1200-03-31	Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements
Rule Number	**Rule Title**
1200-03-31-.01	Reserved
1200-03-31-.02	Definitions
1200-03-31-.03	Intent of the Board for Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements
1200-03-31-.04	Standards for Existing Sources
1200-03-31-.05	Standards for New Sources
1200-03-31-.06	Opportunity for Early Reductions Schedule
1200-03-31-.07	Residual Risk and Revisions to MACT
1200-03-31-.08	Reserved
1200-03-31-.09	Reserved
1200-03-31-.10	Reserved
1200-03-31-.11	Reserved
1200-03-31-.12	Reserved
1200-03-31-.13	Reserved

Place substance of rules and other info here. Please be sure to include a detailed explanation of the changes being made to the listed rule(s). Statutory authority must be given for each rule change. For information on formatting rules go to https://sos.tn.gov/products/division-publications/rulemaking-guidelines.

Chapter 0400-30-38
Emission Standards for Hazardous Air Pollutants

Amendments

The Table of Contents of Chapter 0400-30-38 Emission Standards for Hazardous Air Pollutants is amended by deleting it in its entirety and substituting instead the following:

Table of Contents

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Rule 0400-30-38-.01 Stationary Reciprocating Internal Combustion Engines is amended by deleting it in its entirety and substituting instead the following:

0400-30-38-.01 Federal Standards for Hazardous Air Pollutants

(1) The provisions of the subparts and appendices of 40 CFR 63 listed in subparagraph (b) of this paragraph are hereby incorporated by reference as published in the July 1, 2020 edition of the Code of Federal Regulations (CFR), except as provided in subparagraph (a) of this paragraph. In certain cases, a different version of the federal regulation is incorporated by reference which will be specified in subparagraph (b) of this paragraph.

(a) Any reference contained in 40 CFR 63 to the:

1. Administrator shall instead be a reference to the Technical Secretary.

2. EPA regional office shall instead be a reference to the EPA Region IV office.

(b) List of federal regulations under 40 CFR Part 63:

1. 40 CFR Part 63 Subpart A: General provisions;

2. 40 CFR Part 63 Subpart B: Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j);

3. 40 CFR Part 63 Subpart D: Regulations Governing Compliance Extensions for Early Reductions of Hazardous Air Pollutants;

4. 40 CFR Part 63 Subpart F: National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry;

5. 40 CFR Part 63 Subpart G: National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater;

6. 40 CFR Part 63 Subpart H: National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks;

7. 40 CFR Part 63 Subpart I: National Emission Standards for Organic Hazardous Air Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks;

8. 40 CFR Part 63 Subpart J: National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production;

9. Reserved;

10. 40 CFR Part 63 Subpart L: National Emission Standards for Coke Oven Batteries;

11. 40 CFR Part 63 Subpart M: National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities;

12. 40 CFR Part 63 Subpart N: National Emission Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks;

13. 40 CFR Part 63 Subpart O: Ethylene Oxide Emissions Standards for Sterilization Facilities;

14. Reserved;

15. 40 CFR Part 63 Subpart Q: National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers;

16. 40 CFR Part 63 Subpart R: National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations);

17. 40 CFR Part 63 Subpart S: National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry;

18. 40 CFR Part 63 Subpart T: National Emission Standards for Halogenated Solvent Cleaning;

19. 40 CFR Part 63 Subpart U: National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins;

20. Reserved;

21. 40 CFR Part 63 Subpart W: National Emission Standards for Hazardous Air Pollutants for Epoxy Resins Production and Non-Nylon Polyamides Production;

22. 40 CFR Part 63 Subpart X: National Emission Standards For Hazardous Air Pollutants From Secondary Lead Smelting;

23. 40 CFR Part 63 Subpart Y: National Emission Standards for Marine Tank Vessel Loading Operations;

24. Reserved;

25. 40 CFR Part 63 Subpart AA: National Emission Standards for Hazardous Air Pollutants from Phosphoric Acid Manufacturing Plants;

26. 40 CFR Part 63 Subpart BB: National Emission Standards for Hazardous Air Pollutants from Phosphate Fertilizers Production Plants;

27. 40 CFR Part 63 Subpart CC: National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries;

28. 40 CFR Part 63 Subpart DD: National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations;

29. 40 CFR Part 63 Subpart EE: National Emission Standards for Magnetic Tape Manufacturing Operations;

30. Reserved;

31. 40 CFR Part 63 Subpart GG: National Emission Standards for Aerospace Manufacturing and Rework Facilities;

32. 40 CFR Part 63 Subpart HH: National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities;

33. 40 CFR Part 63 Subpart II: National Emission Standards for Shipbuilding and Ship Repair (Surface Coating);

34. 40 CFR Part 63 Subpart JJ: National Emission Standards for Wood Furniture Manufacturing Operations;

35. 40 CFR Part 63 Subpart KK: National Emission Standards for the Printing and Publishing Industry;

36. 40 CFR Part 63 Subpart LL: National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants;

37. 40 CFR Part 63 Subpart MM: National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills;

38. 40 CFR Part 63 Subpart NN: National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing at Area Sources;

39. 40 CFR Part 63 Subpart OO: National Emission Standards for Tanks—Level 1;

40. 40 CFR Part 63 Subpart PP: National Emission Standards for Containers;

41. 40 CFR Part 63 Subpart QQ: National Emission Standards for Surface Impoundments;

42. 40 CFR Part 63 Subpart RR: National Emission Standards for Individual Drain Systems;

43. 40 CFR Part 63 Subpart SS: National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process;

44. 40 CFR Part 63 Subpart TT: National Emission Standards for Equipment Leaks—Control Level 1;

45. 40 CFR Part 63 Subpart UU: National Emission Standards for Equipment Leaks—Control Level 2 Standards;

46. 40 CFR Part 63 Subpart VV: National Emission Standards for Oil-Water Separators and Organic-Water Separators;

47. 40 CFR Part 63 Subpart WW: National Emission Standards for Storage Vessels (Tanks)—Control Level 2;

48. 40 CFR Part 63 Subpart XX: National Emission Standards for Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations;

49. 40 CFR Part 63 Subpart YY: National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards;

50. Reserved;

51. Reserved;

52. Reserved;

53. 40 CFR Part 63 Subpart CCC: National Emission Standards for Hazardous Air Pollutants for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants;

54. 40 CFR Part 63 Subpart DDD: National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production;

55. 40 CFR Part 63 Subpart EEE: National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors;

56. Reserved;

57. 40 CFR Part 63 Subpart GGG: National Emission Standards for Pharmaceuticals Production;

58. 40 CFR Part 63 Subpart HHH: National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities;

59. 40 CFR Part 63 Subpart III: National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production;

60. 40 CFR Part 63 Subpart JJJ: National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins;

61. Reserved;

62. 40 CFR Part 63 Subpart LLL: National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry;

63. 40 CFR Part 63 Subpart MMM: National Emission Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production;

64. 40 CFR Part 63 Subpart NNN: National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing;

65. 40 CFR Part 63 Subpart OOO: National Emission Standards for Hazardous Air Pollutant Emissions: Manufacture of Amino/Phenolic Resins;

66. 40 CFR Part 63 Subpart PPP: National Emission Standards for Hazardous Air Pollutant Emissions for Polyether Polyols Production;

67. 40 CFR Part 63 Subpart QQQ: National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting;

68. 40 CFR Part 63 Subpart RRR: National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production;

69. Reserved;

70. 40 CFR Part 63 Subpart TTT: National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting;

71. 40 CFR Part 63 Subpart UUU: National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units;

72. 40 CFR Part 63 Subpart VVV: National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works;

73. Reserved;

74. 40 CFR Part 63 Subpart XXX: National Emission Standards for Hazardous Air Pollutants for Ferroalloys Production: Ferromanganese and Silicomanganese;

75. Reserved;

76. Reserved;

77. 40 CFR Part 63 Subpart AAAA: National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills;

78. Reserved;

79. 40 CFR Part 63 Subpart CCCC: National Emission Standards for Hazardous Air Pollutants: Manufacturing of Nutritional Yeast;

80. 40 CFR Part 63 Subpart DDDD: National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products;

81. 40 CFR Part 63 Subpart EEEE: National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline);

82. 40 CFR Part 63 Subpart FFFF: National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing;

83. 40 CFR Part 63 Subpart GGGG: National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production;

84. 40 CFR Part 63 Subpart HHHH: National Emission Standards for Hazardous Air Pollutants for Wet-Formed Fiberglass Mat Production;

85. 40 CFR Part 63 Subpart IIII: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks;

86. 40 CFR Part 63 Subpart JJJJ: National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating;

87. 40 CFR Part 63 Subpart KKKK: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans;

88. Reserved;

89. 40 CFR Part 63 Subpart MMMM: National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products;

90. 40 CFR Part 63 Subpart NNNN: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Large Appliances;

91. 40 CFR Part 63 Subpart OOOO: National Emission Standards for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and Other Textiles;

92. 40 CFR Part 63 Subpart PPPP: National Emission Standards for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products;

93. 40 CFR Part 63 Subpart QQQQ: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products;

94. 40 CFR Part 63 Subpart RRRR: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Furniture;

95. 40 CFR Part 63 Subpart SSSS: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil;

96. 40 CFR Part 63 Subpart TTTT: National Emission Standards for Hazardous Air Pollutants for Leather Finishing Operations;

97. 40 CFR Part 63 Subpart UUUU: National Emission Standards for Hazardous Air Pollutants for Cellulose Products Manufacturing;

98. 40 CFR Part 63 Subpart VVVV: National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing;

99. 40 CFR Part 63 Subpart WWWW: National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production;

100. 40 CFR Part 63 Subpart XXXX: National Emissions Standards for Hazardous Air Pollutants: Rubber Tire Manufacturing;

101. 40 CFR Part 63 Subpart YYYY: National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines;

102. 40 CFR Part 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines;

103. 40 CFR Part 63 Subpart AAAAA: National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants;

104. 40 CFR Part 63 Subpart BBBBB: National Emission Standards for Hazardous Air Pollutants for Semiconductor Manufacturing;

105. 40 CFR Part 63 Subpart CCCCC: National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks;

106. 40 CFR Part 63 Subpart DDDDD: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters;

107. 40 CFR Part 63 Subpart EEEEE: National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries;

108. 40 CFR Part 63 Subpart FFFFF: National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities;

109. 40 CFR Part 63 Subpart GGGGG: National Emission Standards for Hazardous Air Pollutants: Site Remediation;

110. 40 CFR Part 63 Subpart HHHHH: National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing;

111. 40 CFR Part 63 Subpart IIIII: National Emission Standards for Hazardous Air Pollutants: Mercury Emissions From Mercury Cell Chlor-Alkali Plants;

112. 40 CFR Part 63 Subpart JJJJJ: National Emission Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing;

113. 40 CFR Part 63 Subpart KKKKK: National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing;

114. 40 CFR Part 63 Subpart LLLLL: National Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing;

115. 40 CFR Part 63 Subpart MMMMM: National Emission Standards for Hazardous Air Pollutants: Flexible Polyurethane Foam Fabrication Operations;

116. 40 CFR Part 63 Subpart NNNNN: National Emission Standards for Hazardous Air Pollutants: Hydrochloric Acid Production;

117. Reserved;

118. 40 CFR Part 63 Subpart PPPPP: National Emission Standards for Hazardous Air Pollutants for Engine Test Cells/Stands;

119. 40 CFR Part 63 Subpart QQQQQ: National Emission Standards for Hazardous Air Pollutants for Friction Materials Manufacturing Facilities;

120. 40 CFR Part 63 Subpart RRRRR: National Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing;

121. 40 CFR Part 63 Subpart SSSSS: National Emission Standards for Hazardous Air Pollutants for Refractory Products Manufacturing;

122. 40 CFR Part 63 Subpart TTTTT: National Emissions Standards for Hazardous Air Pollutants for Primary Magnesium Refining;

123. 40 CFR Part 63 Subpart UUUUU: National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units;

124. Reserved;

125. 40 CFR Part 63 Subpart WWWWW: National Emission Standards for Hospital Ethylene Oxide Sterilizers;

126. Reserved;

127. 40 CFR Part 63 Subpart YYYYY: National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities;

128. 40 CFR Part 63 Subpart ZZZZZ: National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources;

129. Reserved;

130. 40 CFR Part 63 Subpart BBBBBB: National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities;

131. Reserved;

132. 40 CFR Part 63 Subpart DDDDDD: National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources;

133. 40 CFR Part 63 Subpart EEEEEE: National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources;

134. 40 CFR Part 63 Subpart FFFFFF: National Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources;

135. 40 CFR Part 63 Subpart GGGGGG: National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources—Zinc, Cadmium, and Beryllium;

136. 40 CFR Part 63 Subpart HHHHHH: National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources;

137. Reserved;

138. 40 CFR Part 63 Subpart JJJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources;

139. Reserved;

140. 40 CFR Part 63 Subpart LLLLLL: National Emission Standards for Hazardous Air Pollutants for Acrylic and Modacrylic Fibers Production Area Sources;

141. 40 CFR Part 63 Subpart MMMMMM: National Emission Standards for Hazardous Air Pollutants for Carbon Black Production Area Sources;

142. 40 CFR Part 63 Subpart NNNNNN: National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: Chromium Compounds;

143. 40 CFR Part 63 Subpart OOOOOO: National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources;

144. 40 CFR Part 63 Subpart PPPPPP: National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources;

145. 40 CFR Part 63 Subpart QQQQQQ: National Emission Standards for Hazardous Air Pollutants for Wood Preserving Area Sources;

146. 40 CFR Part 63 Subpart RRRRRR: National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing Area Sources;

147. 40 CFR Part 63 Subpart SSSSSS: National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources

148. 40 CFR Part 63 Subpart TTTTTT: National Emission Standards for Hazardous Air Pollutants for Secondary Nonferrous Metals Processing Area Sources;

149. Reserved;

150. 40 CFR Part 63 Subpart VVVVVV: National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources;

151. 40 CFR Part 63 Subpart WWWWWW: National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations;

152. 40 CFR Part 63 Subpart XXXXXX: National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories;

153. 40 CFR Part 63 Subpart YYYYYY: National Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities;

154. 40 CFR Part 63 Subpart ZZZZZZ: National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries;

155. 40 CFR Part 63 Subpart AAAAAAA: National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing;

156. 40 CFR Part 63 Subpart BBBBBBB: National Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry;

157. 40 CFR Part 63 Subpart CCCCCCC: National Emission Standards for Hazardous Air Pollutants for Area Sources: Paints and Allied Products Manufacturing;

158. 40 CFR Part 63 Subpart DDDDDDD: National Emission Standards for Hazardous Air Pollutants for Area Sources: Prepared Feeds Manufacturing;

159. 40 CFR Part 63 Subpart EEEEEEE: National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category;

160. Reserved;

161. Reserved;

162. 40 CFR Part 63 Subpart HHHHHHH: National Emission Standards for Hazardous Air Pollutant Emissions for Polyvinyl Chloride and Copolymers Production;

163. Appendix A to Part 63: Test Methods;

164. Appendix B to Part 63: Sources Defined for Early Reduction Provisions;

165. Appendix C to Part 63: Determination of the Fraction Biodegraded (Fbio) in a Biological Treatment Unit;

166. Appendix D to Part 63: Alternative Validation Procedure for EPA Waste and Wastewater Methods; and

167. Appendix E to Part 63: Monitoring Procedure for Nonthoroughly Mixed Open Biological Treatment Systems at Kraft Pulp Mills Under Unsafe Sampling Conditions.

(2) The provisions of the subparts and appendices of 40 CFR Part 61 listed in subparagraph (b) of this paragraph are hereby incorporated by reference as published in the July 1, 2020, edition of the Code of Federal Regulations (CFR), except as provided in subparagraph (a) of this paragraph. In certain cases, a different version of the federal regulation is incorporated by reference which will be specified in subparagraph (b) of this paragraph.

(a) Any reference contained in 40 CFR Part 61 to the:

1. Administrator shall instead be a reference to the Technical Secretary; and

2. EPA regional office shall instead be a reference to the EPA Region IV office.

(b) List of Federal Regulations under 40 CFR Part 61:

1. 40 CFR Part 61 Subpart A: General provisions;

2. 40 CFR Part 61 Subpart B: National Emission Standards for Radon Emissions From Underground Uranium Mines;

3. 40 CFR Part 61 Subpart C: National Emission Standard for Beryllium;

4. 40 CFR Part 61 Subpart D: National Emission Standard for Beryllium Rocket Motor Firing;

5. 40 CFR Part 61 Subpart E: National Emission Standard for Mercury;

6. 40 CFR Part 61 Subpart F: National Emission Standard for Vinyl Chloride;

7. Reserved;

8. 40 CFR Part 61 Subpart H: National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities;

9. 40 CFR Part 61 Subpart I: National Emission Standards for Radionuclide Emissions

From Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered by Subpart H;

10. 40 CFR Part 61 Subpart J: National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene;

11. 40 CFR Part 61 Subpart K: National Emission Standards for Radionuclide Emissions From Elemental Phosphorus Plants;

12. 40 CFR Part 61 Subpart L: National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants;

13. 40 CFR Part 61 Subpart M: National Emission Standard for Asbestos;

14. 40 CFR Part 61 Subpart N: National Emission Standard for Inorganic Arsenic Emissions From Glass Manufacturing Plants;

15. 40 CFR Part 61 Subpart O: National Emission Standard for Inorganic Arsenic Emissions From Primary Copper Smelters;

16. 40 CFR Part 61 Subpart P: National Emission Standard for Inorganic Arsenic Emissions From Arsenic Trioxide and Metallic Arsenic Production Facilities;

17. 40 CFR Part 61 Subpart Q: National Emission Standards for Radon Emissions From Department of Energy Facilities;

18. 40 CFR Part 61 Subpart R: National Emission Standards for Radon Emissions From Phosphogypsum Stacks;

19. Reserved;

20. 40 CFR Part 61 Subpart T: National Emission Standards for Radon Emissions From the Disposal of Uranium Mill Tailings;

21. Reserved;

22. 40 CFR Part 61 Subpart V: National Emission Standard for Equipment Leaks (Fugitive Emission Sources);

23. 40 CFR Part 61 Subpart W: National Emission Standards for Radon Emissions From Operating Mill Tailings;

24. Reserved;

25. 40 CFR Part 61 Subpart Y: National Emission Standard for Benzene Emissions From Benzene Storage Vessels;

26. Reserved;

27. Reserved;

28. 40 CFR Part 61 Subpart BB: National Emission Standard for Benzene Emissions From Benzene Transfer Operations;

29. Reserved;

30. Reserved;

31. Reserved;

32. 40 CFR Part 61 Subpart FF: National Emission Standard for Benzene Waste Operations;

33. Appendix A to Part 61: National Emission Standards for Hazardous Air Pollutants, Compliance Status Information;

34. Appendix B to Part 61: Test Methods;

35. Appendix C to Part 61: Quality Assurance Procedures;

36. Appendix D to Part 61: Methods for Estimating Radionuclide Emissions; and

37. Appendix E to Part 61: Compliance Procedures Methods for Determining Compliance With Subpart I.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Rule 0400-30-38-.02 Paint Stripping, Auto Body Refinishing, and Miscellaneous Surface Coating Operations is amended by deleting it in its entirety and substituting instead the follow:

0400-30-38-.02 Reserved

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-02
Definitions

Amendments

Subparagraph (g) of paragraph (1) of Rule 1200-03-02-.01 General Definitions is amended by deleting it in its entirety and substituting instead the following:

(g) “Best available control technology (BACT)” means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under these rules which would be emitted from any proposed new or modified air contaminant source which the Technical Secretary, on a case-by-case bases, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under Chapters 0400-30-38 and 1200-03-16 of these rules. If the Technical Secretary determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an emission standard infeasible, a design, equipment, work practice, or operational standard, or combination thereof, may be prescribed instead to require the application of best available control technology. Such standard shall, to the degree possible, set forth the emission reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-04
Open Burning

Amendments

Part 3 of subparagraph (c) of paragraph (1) of Rule 1200-03-04-.04 Exceptions to Prohibition is amended by deleting it in its entirety and substituting instead the following:

3. All regulated asbestos containing materials have been removed in accordance with part (2)(b)13 of Rule 0400-30-38-.01; and

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-05
Visible Emission Regulations

Amendments

Subparagraph (b) of Paragraph (2) of Rule 1200-03-05-.05 Standard for Certain Existing Sources is amended by deleting it in its entirety and substituting instead the following:

(b) The air contaminate source is not regulated under the rules contained in Chapter 0400-30-38, Chapter 1200-03-16, and Chapters 1200-03-25 and paragraph (4) of Rule 1200-03-09-.01.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Amendments

Subparagraph (d) of paragraph (2) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

(d) "Best available control technology (BACT)" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under these rules which would be emitted from any proposed new or modified air contaminant source which the Technical Secretary, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under Chapters 0400-30-38 and 1200-03-16 of these rules. If the Technical Secretary determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an emission standard infeasible, a design, equipment, work practice, or operational standard, or combination thereof, may be prescribed instead to require the application of best available control technology. Such standard shall, to the degree possible, set forth the emission reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results. This definition does not apply to major sources and major modifications, as defined in subparagraph (4)(b) of this rule, which are subject to the provisions of paragraph (4) of this rule.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subpart (i) of part 1 of subparagraph (d) of paragraph (4) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

(i) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and such source does not belong to any of the categories listed under subpart (b)1.(i), or any other stationary source category which, as of the (effective date of this rule) is being regulated under Chapters 0400-30-38 and 1200-03-16.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subitem XXVII of item (IV) of subpart (iv) of part 1 of subparagraph (b) of paragraph (5) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

XXVII. Any other stationary source category which, as of August 7, 1980, is being regulated under Chapter 1200-03-16, New Source Performance Standards or Chapter 0400-30-38, Emission Standards for Hazardous Air Pollutants, or Chapter 1200-03-31, Standards For Hazardous Air Contaminants For Source Categories.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subitem II of item (I) of subpart (xi) of part 1 of subparagraph (b) of paragraph (5) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

II. The National Emission Standards for Hazardous Air Pollutants (NESHAP) contained in Chapter 0400-30-38 and Chapter 1200-03-31 or;

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Item (XXVII) of subpart (ii) of part 4 of subparagraph (b) of paragraph (8) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

(XXVII) Any other stationary source category which, as of August 7, 1980, is being regulated under Chapter 1200-03-16, New Source Performance Standards, or Chapter 0400-30-38, Emission Standards for Hazardous Air Pollutants. or Chapter 1200-03-31, Standards For Hazardous Air Contaminants For Source Categories, or 40 CFR Part 60 and 61 (July 1, 1993).

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

The first sentence of subparagraph (b) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting "Chapter 1200-03-11" and replacing it with "Chapter 0400-30-38" so that as amended the first sentence of the subparagraph shall read as follows:

Definitions - The following terms are defined as they uniquely apply to this paragraph. All other terms shall have the meaning given to them in Chapter 1200-03-02, Chapter 0400-30-38, Chapter 1200-03-30 Chapter 1200-03-31, Chapter 1200-03-32 and Chapter 1200-03-20.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subpart (iii) of part 1 of subparagraph (c) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

(iii) Any source, including an area source, subject to a standard or other requirement under section 112 of the Federal Act, Chapter 0400-30-38, or Chapter 1200-03-31 except that a source is not required to obtain a permit solely because it is subject to regulations or requirements under section 112(r) of the Federal Act or Chapter 1200-03-32;

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subpart (i) of part 2 of subparagraph (c) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

(i) All non-major sources including those subject to Section 112 of the Federal Act or Chapter 0400-30-38 or Chapter 1200-03-31 and section 111 of the Federal Act or Chapter 1200-03-16. If the Administrator promulgates future regulations which prohibit the exemption of a non-major source from the requirements of this paragraph, such source will be so permitted by the Technical Secretary. Upon the Administrator's written notification to the Technical Secretary that such sources must be permitted according to the provisions of this paragraph, the Technical Secretary shall notify the sources that the applications are due within 180 days of his written notice. The Technical Secretary shall have up to 90 days to accomplish the notification commencing upon his notification from the Administrator.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Section A of subitem IV of item (I) of subpart (ii) of part 5 of subparagraph (f) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

A. A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the federal Act. Further, federally enforceable emission caps assumed to avoid classification as a modification under Chapter 0400-30-38, Chapter 1200-30-16, Chapter 1200-03-31, paragraph (4) of Rule 1200-

03-09-.01 or paragraph (5) of Rule 1200-03-09-.01 are included in the criteria of this section.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subitem V of item (I) of subpart (ii) of part 5 of subparagraph (f) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

V. Are not modifications under Title I of the Federal Act or the federal regulations promulgated pursuant thereto. Further, the minor permit modification process may be used only for changes that are not modifications under Chapter 0400-30-38, Chapter 1200-03-31, Chapter 1200-03-16, paragraph (4) of Rule 1200-03- 09-.01 or paragraph (5) of Rule 1200-03-09-.01; and

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Paragraph (1) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

(1) The permit exemptions listed in paragraph (4) of this rule do not apply if an air contaminant source is subject to a standard or requirement contained in the following, except if the air contaminant source belongs to a source category listed in paragraph (5) of Rule 1200-03-09-.07, even if the source itself is not eligible for authorization, or except where specifically stated:

Chapter 0400-30-38 (Emission Standards for Hazardous Air Pollutants);
Chapter 1200-03-18 (Volatile organic compounds);
Chapter 1200-03-19 (Emission standards and monitoring requirements for additional control areas);
Chapter 1200-03-22 (Lead emission standards);
Chapter 1200-03-27 (Nitrogen oxides); and
Paragraph (2) of Rule 1200-03-31-.05 (Case-by-case determinations of hazardous air pollutant requirements).

In addition, the exemption provided for the air contaminant sources in paragraph (4) of this rule does not exempt the sources from inclusion in determining if a major stationary source or major modification construction permit is required under paragraphs (4) and (5) of Rule 1200-03-09-.01.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 10 of subparagraph (a) of paragraph (2) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

10. “Hazardous air pollutant” means any air contaminant regulated in Chapter 0400-30-38, or listed in paragraph (6) of Rule 1200-03-31-.02.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 9 of subparagraph (d) of paragraph (4) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

9. Any emission unit with the potential to emit radionuclides which will result in a dose to the most exposed member of the public of less than 0.1 millirem per year. Even though radionuclide air contaminant sources are regulated under Chapter 0400-30-38, this exemption is still valid except that recordkeeping and reporting requirements must be met.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 15 of subparagraph (a) of paragraph (5) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

15. “Hazardous air pollutant” means any air contaminant regulated in Chapter 0400-30-38 or listed in paragraph (6) of Rule 1200-03-31-.02.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 3 of subparagraph (c) of paragraph (5) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

3. Any emission unit or activity which is a subset of a process emission source, fuel burning installation, or incinerator, and which has a potential to emit less than 5 tons per year of a regulated air pollutant, by annual certification of compliance as required in item (11)(d)1(ii)(I) of Rule 1200-03-09-.02, may, at the discretion of the Technical Secretary, be considered to meet the monitoring and related recordkeeping and reporting requirements of subpart (11)(e)1(iii) of Rule 1200-03-09-.02 and part (2)(b)1 of Rule 1200-03-10-.04, and the compliance requirements of subpart (11)(e)3(i) of Rule 1200-03-09-.02 for that regulated air pollutant except where generally applicable requirements of the state implementation plan specifically impose monitoring and related record keeping and reporting requirements, or except where any applicable procedures and methods are required pursuant to Rule 1200-03-10-.04. This provision shall not relieve any emissions unit or activity from any applicable standard or requirement under Chapters 0400-30-38 and 1200-03-31, and subparagraph (1)(dd) of Rule 1200-03-02-.01.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 28 of subparagraph (f) of paragraph (5) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

28. Vacuum cleaning systems used exclusively for industrial, commercial, or residential housekeeping purposes, except those systems used to collect hazardous air contaminants regulated by Chapter 0400-30-38.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-11
Hazardous Air Contaminants

Repeal

Chapter 1200-03-11 Hazardous Air Contaminants is Repealed.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Amendment

Subparagraph (a) of paragraph (11) of Rule 1200-03-16-.01 General Provisions is amended by deleting in its entirety and substituting instead the following:

(a) Introduction

This paragraph contains requirements for control devices used to comply with applicable rules of Chapter 0400-30-38 and this chapter. The requirements are placed here for administrative convenience and only apply to facilities covered by rules referring to this paragraph.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-20
Limits on Emissions Due to Malfunctions, Startups, and Shutdowns

Amendment

Paragraph (1) of Rule 1200-03-20-.03 Notice Required When Malfunction Occurs is amended by deleting it in its entirety and substituting instead the following:

(1) When any air contaminant source malfunctions in such a manner as to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-03 or any permit issued thereto, or of sufficient duration to cause damage to property or public health, the owner or operator of the air contaminant source shall promptly notify the Technical Secretary of such malfunction and provide a statement giving all pertinent facts, including the estimated duration of the malfunction**.** Violations of the visible emission standard (excluding visible emissions caused by hazardous air pollutants named in Chapter 0400-30-38) which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification will be within 24 hours of the malfunction and shall be provided by telephone to the Division's Nashville office. The Technical Secretary shall be notified when the malfunction has been corrected. In attainment and unclassified areas if emissions other than from sources designated as significantly impacting on a nonattainment area in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required. Any malfunction that creates an imminent hazard to health must be reported by telephone immediately to the Division's Nashville office and to the State Civil Defense.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Amendment

Subparagraph (d) of paragraph (2) of Rule 1200-03-21-.01 General Alternate Emission Standard is amended by deleting it in its entirety and substituting instead the following:

(d) The pollutants involved in the alternate emission standard must be comparable emissions, and no interpollutant trades are allowed. Air contaminant sources subject to the standards in Chapter 0400-30-38 cannot apply the alternate emission standard to hazardous air contaminants. Air contaminant sources subject to emission standards in Chapter 1200-03-16, or paragraph (4) of Rule 1200-03-09-.01 or subparagraph (5)(b) of Rule 1200-03-09-.01 cannot use an alternate emission standard, except for reductions in actual emissions below the level required in these rules. Such reduction may be used as credit for existing source. However, all applicable standards and requirements established under paragraph (4) of Rule 1200-03-09-.01, under Chapters 0400-30-38 and 1200-03-16, and according to a lowest-achievement-emission-rate (LAER) determination under paragraph (5) of Rule 1200-03-09-.01 must be complied with and are not superseded or replaced by the alternate emission standard.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Amendments

Part 1 of subparagraph (i) of paragraph (2) of Rule 1200-03-26-.02 Construction and Annual Fees is amended by deleting it in its entirety and substituting instead the following:

1. Each pollutant regulated under Chapter 0400-30-38 Emission Standards for Hazardous Air Pollutants (Excluding Transitory Asbestos from construction, demolition, and renovation).

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subparts (i) and (ii) of part 1 of subparagraph (i) of paragraph (3) of Rule 1200-03-26-.02 Construction and Annual Fees are amended by deleting them in their entirety and substituting instead the following:

(i) Sources that are subject to federally promulgated hazardous air pollutant standards that can be imposed under Chapter 0400-30-38 or Chapter 1200-03-31 will place such regulated emissions in the specific hazardous air pollutant under regulation. If the pollutant is also in the family of volatile organic compounds or the family of particulates, the pollutant shall not be placed in that respective family category.

(ii) A miscellaneous category of hazardous air pollutants shall be used for hazardous air pollutants listed at part (2)(i)12. of this rule that do not have an allowable emission standard under Chapter 0400-30-38 or Chapter 1200-03-31. A pollutant placed in this category shall not be subject to being placed in any other category such as volatile organic compounds or particulates.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-31
Case by Case Determinations of Hazardous Air Pollutant Control Requirements

Amendments

Chapter 1200-03-31 Case by Case Determinations of Hazardous Air Pollutant Control Requirements is amended by deleted in its entirety and substituting instead the following:

Chapter 1200-03-31
Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements

Table of Contents

1200-3-31-.01 Reserved

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.02 Definitions - The following definitions are applicable to this chapter:

(1) “Major Source” means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants. In addition, the provisions of subpart (11)(b)14(i) of Rule 1200-03-09-.02 are recognized as to the grouping or aggregation of emissions for the purpose of calculating emission potential as it relates to the applicability thresholds of this definition. Additionally, electric utility steam generating units will not be regulated as major sources until the United States Environmental Protection Agency decides that they should be so regulated pursuant to Section 112(n) of the federal Clean Air Act.

(2) “Area Source” means any stationary source of hazardous air pollutants that is not a major source. Mobile sources such as vehicles, trains, planes, ships, et cetera are not area sources.

(3) “New Source” means a stationary source that emits hazardous air pollutants as they are defined in this paragraph and is constructed or reconstructed on or after the date that the United States Environmental Protection Agency approves the major source operating permit program submitted by the State of Tennessee in accordance with Section 502(d) of the federal Clean Air Act.

(4) “Stationary Source” shall have the meaning given to it in subparagraph (1)(ddd) of Rule 1200-03-02-.01.

(5) “Existing Source” is any stationary source that emits hazardous air pollutants as they are defined in paragraph (6) of this rule and is not a new source.

(6) “Hazardous Air Pollutant” - means any of the following air contaminants:

CAS No.	Chemical name
75070	Acetaldehyde
60355	Acetamide

75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate(DEHP)
542881	Bis(chloromethyl) ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-Dichloro benzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine
60117	Dimethyl aminoazobenzene
119937	3,3'-Dimethyl benzidine
79447	Dimethyl carbamoyl chloride

68122	Dimethyl formamide
57147	1,1-Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dinitro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl Chloride (Chloroethane)
106934	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichlorethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (Hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methoxychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis(2-chloronaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methylene diphenyl diisocyanate (MDI)
101779	4,4'-Methylenedianiline
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane
684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine

56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls (Arochlors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine (2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachoroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethylene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixture)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes
0	Antimony Compounds
0	Arsenic Compounds (inorganic including arsine)
0	Beryllium Compounds
0	Cadmium Compounds
0	Chromium Compounds
0	Cobalt Compounds
0	Coke Oven Emissions
0	Cyanide compounds[1]
0	Glycol ethers[2, 6]

[1] X'CN where X = H' or any other group where a formal dissociation may occur. For example KCN or $Ca(CN)_2$

[2] Include mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-$(OCH_2CH_2)_n$- OR'.
Where:
n = 1, 2, or 3:
R = alkyl C7 or less; or
R = phenyl or alkyl substituted phenyl;

0 Lead Compounds
0 Manganese Compounds
0 Mercury Compounds
0 Fine mineral fibers[3]
0 Nickel Compounds
0 Polycyclic Organic Matter[4]
0 Radionuclides (including radon)[5]
0 Selenium Compounds

(7) "Federal Clean Air Act" means the federal statutes found at 42 U.S.C. 7401 et seq. as amended by Public Law No. 101-549 (November 15, 1990).

(8) "MACT" means maximum achievable control technology. It is a case-by-case determination of what constitutes a maximum achievable reduction of hazardous air pollutants considering the costs of achieving the emission reduction and any non-air quality health and environmental impacts and energy requirements. MACT may include but is not limited to: control equipment, work practice standards, emission standards, process modifications or raw materials substitution and/or reformulation.

(9) "GACT" means generally available control technology. It is a case-by-case determination of what constitutes reasonable and proper control for hazardous air pollutants from area sources. GACT may include, but is not limited to: control equipment, work practice standards, emission standards, process modification or raw materials substitution and/or reformulation.

(10) Reserved.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.03 Intent of the Board

For Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements:

(1) The role of the United States Environmental Protection Agency is recognized by the Board as being essential in the setting of case-by-case determinations of hazardous air pollutant control requirements. The federal Agency is in the unique position to conduct research and compile national data bases as to the source by source control levels that are being achieved or proposed in the regulation of hazardous air pollutants. As the State of Tennessee does not fully possess these abilities, the Technical Secretary shall utilize the federal Agency's resources prior to setting a case-by-case hazardous air pollutant requirement. In addition, the Technical Secretary shall recognize any federal law, federal regulation, or lawfully promulgated policy of the United States Environmental Protection Agency pertaining to case-by-case determinations of hazardous air pollutant requirements as the minimum acceptable criteria prior to the setting of a case-by-case hazardous air pollutant requirement under the provisions of this rule.

(2) The Technical Secretary may consider other applicable criteria in the absence of any data or requirement of the United States Environmental Protection Agency. In such case, the Technical Secretary shall rely upon generally accepted engineering principles and any unique aspects of a source category as a whole that would be a prohibitory factor in the imposition of a requirement for industries in that source category.

R' = H or alkyl C7 or less; or
OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

This action deletes each individual compound in a group called the surfactant alcohol ethoxylates and their derivatives (SAED) from the glycol ethers category in the list of hazardous air pollutants (HAP) established by section 112(b)(1) of the Clean Air Act (CAA).

[3] Includes mineral fiber 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 than one benzene ring, and which have a boiling point greater than or equal to 100^0 C.

[5] a type of atom which spontaneously undergoes radioactive decay.

[6] The substance ethylene glycol monobutyl ether (EGBE, 2-Butoxyethanol) (Chemical Abstract Service (CAS) Number 111-76-2) is deleted from the list of hazardous air pollutants established by 42 U.S.C. 7412(b)(1).

(3) To the extent possible, it is the Board's intent to impose MACT and GACT limitations equivalent to that required by the United States Environmental Protection Agency at the time of the case-by-case determination. Should there be a prudent reason to be more stringent than the federal equivalent the Technical Secretary may issue a more stringent MACT or GACT requirement. In exercise of the authority to issue a more stringent requirement, the Technical Secretary shall issue a determination specifying the rationale employed in the setting of a more stringent requirement. The determination shall accompany the permit in which the case-by-case determination is declared. As the declaration of a case-by-case requirement will be specified on a permit, disputes regarding the imposition of MACT or GACT are to be resolved in the manner prescribed by Rule 1200-03-09-.05. If GACT is done on a permit by rule basis, the Board will view the public hearing process as the permittee's opportunity to object to the requirements of GACT. However, the permittee may appeal the applicability of GACT to their operations as to commenced date or emission/production magnitude applicability thresholds present at their source.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.04 Standard for Existing Sources

(1) Major sources will be issued an operating permit pursuant to the provisions of paragraph (11) of Rule 1200-03-09-.02 listing their current hazardous air pollutant emission rate on a pollutant-by-pollutant basis. These "hollow permits" will remain in effect until one or more of the following activities occur:

(a) When the United States Environmental Protection Agency promulgates MACT for a source specific category pursuant to Sections 112(d) or (h) of the federal Clean Air Act, the Technical Secretary shall specify MACT for all existing major sources in that category as a revision to their "hollow permit". Upon written notification from the Technical Secretary, the source shall have 180 days to prepare their application for a MACT permit revision and submit it to the Technical Secretary. The Technical Secretary shall process the application by issuing a permit within 9 months of receipt of a complete application. MACT revisions to hollow permits shall be issued within 18 months of promulgation. A compliance schedule to attain MACT by a date certain shall be made part of the permit. The length of the schedule to attain compliance shall be determined by the complexities of coming into compliance and the Board's intent to be equivalent to the federal MACT. The Technical Secretary shall provide that the source's compliance schedule is at least as long as the federal rules allow. In most areas, this should not exceed three years. The Technical Secretary is authorized to grant up to a one-year extension to comply as long as it does not conflict with the federal requirements and there is sufficient justification to grant the additional time.

(b) If the United States Environmental Protection Agency fails to meet the Federal Clean Air Act schedules prescribed in Section 112(e)(1) and/or (3) for timely promulgation of MACT requirements thereby invoking the "MACT hammer" provisions at Section 112(j) of the federal Clean Air Act, the Technical Secretary shall specify MACT for all sources in the source category in question as a permit revision to their "hollow permit". Sources subject to the missed MACT standard shall file a complete MACT permit revision application with the Technical Secretary no later than 18 months after the federally missed deadline for the source category. The Technical Secretary shall process the MACT permit revision application by issuing a permit within 18 months of his receipt of a complete application.

(2) Area sources that are not exempt from the requirement to obtain a permit pursuant to Rule 1200-03-09-.04 will be issued an operating permit specifying GACT with an appropriate compliance schedule to achieve that requirement by a date certain within 18 months of the United States Environmental Protection Agency's promulgation of a source specific GACT standard if they are in that source specific category. The date to achieve compliance shall be no less than that allowed by the federal rule which promulgated GACT for that source category. If a source is not exempted from the requirement to obtain a permit pursuant to Rule 0400-30-09-.04, it shall be the duty of such area source owner or operator to register their annual emissions of hazardous air pollutants with the Technical Secretary utilizing the forms prescribed by the Technical Secretary. In the interest of efficiency, the Technical Secretary may bring proposed regulations to the Board that would permit area sources by rule on a source category specific basis. It is the intent of the Board that such rule would be effective within 18 months of the federal GACT promulgation. The rule will also provide that compliance with GACT shall be attained no later than that specified by the equivalent federal rule.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.05 Standards for New Sources

(1) Major sources shall utilize MACT as prescribed by the Technical Secretary upon start up regardless of whether or not the United States Environmental Protection Agency has established MACT under Section 112(d) or (h) of the Federal Clean Air Act. MACT shall be prescribed on the source's construction permit and transferred to the source's operating permit upon startup of the facility.

(2) Area sources that are not exempt from the requirement to obtain a permit in accordance with Rule 1200-03-09-.04 shall utilize GACT as prescribed by the Technical Secretary upon start up if the United States Environmental Protection Agency has established GACT under Section 112(d)(5). GACT shall be prescribed on the source's construction permit and transferred to the source's operating permit upon startup of the facility.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.06 Opportunity for Early Reductions Schedule

(1) The owner or operator of an existing source of hazardous air pollutants may be issued an operating permit allowing six additional years to comply with a future MACT commencing on the compliance date of that MACT limit if each of the following criteria are satisfied:

(a) The source will utilize control and/or work practices that will result in a 90 per centum or more reduction in emissions of hazardous air pollutants (95 per centum in the case of hazardous air pollutants which are particulates).

1. The reduction shall be determined with respect to verifiable and actual emissions in a base year not earlier than calendar year 1987.

2. If there is evidence that emissions in the base year 1987, or any subsequent base year are artificially or substantially greater than emissions in other years prior to the implementation of the early emission reductions, the Technical Secretary shall require the use of an arithmetic average of the years commencing upon the suspect year and ending upon the period of time when the person seeking the early reductions schedule files their plan for the purpose of determining base year emission levels.

3. The Technical Secretary may allow a source to use 1985 or 1986 emission data for the purpose of determining base year emissions if the source has submitted such data to the Technical Secretary in a form that can be used to make the baseline calculations and further that such information was in the Technical Secretary’s possession prior to November 15, 1990.

(2) The early emission reduction must occur prior to the federal proposal of a source category specific MACT standard to which the source will be subject. Federal proposal will be considered effective when the United States Environmental Protection Agency publishes the standard in the Federal Register. The reduction need not actually occur prior to the federal proposal if the source owner or operator has committed to an enforceable schedule that extends no further than January 1, 1994.

(3) A major source operating permit must be issued to the source owner or operator pursuant to the provisions of paragraph (11) of Rule 1200-03-09-.02 detailing the schedule to attain the early emission reductions and the enforceable emission limit that is to be attained. For the purposes of this paragraph, the Technical Secretary shall issue the permit within nine months of a complete application.

(4) The early reductions of less toxic hazardous air pollutants shall not be credited toward the reduction of highly toxic hazardous air pollutants (such as, but not limited to chlorinated dioxins and furans) that pose high risks of adverse public health effects associated with exposure to small quantities of such highly toxic hazardous air pollutants. The Technical Secretary shall use the relative risks of chlorinated dioxins and furans as a qualitative benchmark in determining whether or not a hazardous air pollutant is highly toxic.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.07 Residual Risk and Revisions to MACT

(1) MACT standards are subject to revision if the United States Environmental Protection Agency determines that the existing MACT standards are insufficient to protect the public pursuant to the residual risk provisions of Section 112(f) of the federal Clean Air Act. Upon such finding, the Technical Secretary shall modify previously set MACT limitations in that source category to conform to the federally promulgated revised MACT standards within 18 months of such federal promulgation. The modification will be a permit revision to the source's operating permit consistent with the provisions of paragraph (11) of Rule 1200-03-09-.02. The Technical Secretary shall prescribe a compliance schedule on the permit amendment that will specify an expeditious date to attain compliance with the revised MACT standards. The length of the schedule will be determined by the complexities of coming into compliance and the Board's desire to be equivalent to any federally revised MACT requirements.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.08 through 1200-03-31-.12 Reserved

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-31-.13 Reserved

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

* If a roll-call vote was necessary, the vote by the Agency on these rulemaking hearing rules was as follows:

Board Member	Aye	No	Abstain	Absent	Signature (if required)
Dr. Ronné Adkins Commissioner's Designee, Dept. of Environment and Conservation					
Dr. John Benitez Licensed Physician with experience in health effects of air pollutants					
Dr. Joshua Fu Involved with Institution of Higher Learning on air pollution evaluation and control					
Mike Haverstick Working in management in Private Manufacturing					
Dr. Shawn A. Hawkins Working in field related to Agriculture or Conservation					
Richard Holland Working for Industry with technical experience					
Caitlin Roberts Jennings Small Generator of Air Pollution representing Automotive Interests					
Dr. Chunrong Jia Environmental Interests					
Ken Moore Working in Municipal Government					
Stephen Moore Working for Industry with technical experience					
Amy Spann, PE Registered Professional Engineer					
Greer Tidwell, Jr. Conservation Interest					
Larry Waters County Mayor					
Jimmy West Commissioner's Designee, Dept. of Economic and Community Development					

I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Air Pollution Control Board on 06/08/2022 and is in compliance with the provisions of T.C.A. § 4-5-222.

I further certify the following:

Notice of Rulemaking Hearing filed with the Department of State on: 10/20/2021

Rulemaking Hearing(s) Conducted on: (add more dates). 12/15/2021

Date: _____

Signature: _____

Name of Officer: Michelle W. Owenby

Title of Officer: Technical Secretary

Agency/Board/Commission: Air Pollution Control Board

Rule Chapter Number(s): 0400-30-38, 1200-03-02, 1200-03-04, 1200-03-05, 1200-03-09, 1200-03-11, 1200-03-16, 1200-03-20, 1200-03-21, 1200-03-26, and 1200-03-31

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

_____
Herbert H. Slatery III
Attorney General and Reporter

_____
Date

Department of State Use Only

Filed with the Department of State on: _____

Effective on: _____

_____
Tre Hargett
Secretary of State

Public Hearing Comments

One copy of a document that satisfies T.C.A. § 4-5-222 must accompany the filing.

1. Comment: The Division of Air Pollution Control (Division), on behalf of Air Pollution Control Board (Board), received a comment from the Tennessee Chamber of Commerce and Industry (Chamber). The comment stated that the Chamber understands that the purpose of the proposed amendment is to incorporate the National Emissions Standards for Hazardous Air Pollutants (NESHAP) by reference to create more efficiency for the Division since these requirements cannot be enforced unless they are adopted in the state regulations or referenced in permits. However, it was presented to the Board that the Board would still be required to adopt the standards each year and thus would have the opportunity to review and consider whether the exact federal standards are best for Tennessee or whether a variation (equally as stringent) is more appropriate. The Chamber asked for clarification on how the Division will ensure that any future amendment of the NESHAP standards will be subject to review and approval of the Board prior to adoption in Tennessee.

   Response: The Division intends to keep Chapter 0400-30-38 current with the comparable federal regulations by updating Chapter 0400-30-38 on an annual basis. Any future revision to Chapter 0400-30-38 would require a rulemaking hearing notice to be filed with the Office of the Secretary of State and a rulemaking hearing prior to consideration by the Board.

Regulatory Flexibility Addendum

Pursuant to T.C.A. §§ 4-5-401 through 4-5-404, prior to initiating the rule making process, all agencies shall conduct a review of whether a proposed rule or rule affects small business.

(1) The type or types of small business and an identification and estimate of the number of small businesses subject to the proposed rule that would bear the cost of, or directly benefit from the proposed rule.

Small businesses are already subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) that the Board is incorporating by reference. It is estimated that less than 250 small businesses per year are subject to the current NESHAP and likewise subject to this rulemaking.

(2) The projected reporting, recordkeeping, and other administrative costs required for compliance with the proposed rule, including the type of professional skills necessary for preparation of the report or record.

This rulemaking does not add any additional reporting, recordkeeping, and other administrative costs. The NESHAP already require reporting and recordkeeping. There is some skill necessary for preparing reports and records. An employee at a small business with a degree in engineering or environmental studies would generally prepare the reports or records; however, a college degree is not necessary.

(3) A statement of the probable effect on impacted small businesses and consumers.

This rulemaking will not impose any additional requirements on small businesses currently subject to the NESHAP.

(4) A description of any less burdensome, less intrusive or less costly alternative methods of achieving the purpose and objectives of the proposed rule that may exist, and to what extent the alternative means might be less burdensome to small business.

The Division of Air Pollution Control on behalf of the Board evaluated how the other states in EPA Region IV were enforcing NESHAP. All states in EPA Region IV other than Tennessee have incorporated the NESHAP regulations by reference. Also, the EPA has recommended adoption by reference.

(5) A comparison of the proposed rule with any federal or state counterparts.

The other seven states in EPA Region IV have adopted NESHAP regulations by reference. This rulemaking will have no impact on attracting or detracting economic activity in Tennessee.

(6) Analysis of the effect of the possible exemption of small businesses from all or any part of the requirements contained in the proposed rule.

There is no exemption available for small businesses from the requirements of the NESHAP since these regulations are based on the type and amount of air pollutants emitted from a source. The only way for a small business to no longer be subject to the requirements of the NESHAP would be to eliminate the emission of air pollutants from the source.

Impact on Local Governments

Pursuant to T.C.A. §§ 4-5-220 and 4-5-228, “On any rule and regulation proposed to be promulgated, the proposing agency shall state in a simple declarative sentence, without additional comments on the merits for the policy of the rule or regulation, whether the rule or regulation may have a projected financial impact on local governments.” The statement shall describe the financial impact in terms of increase in expenditures or decrease in revenues.”

The Board does not believe this rulemaking will result in an increase in expenditures or decrease in revenues for local governments.

Additional Information Required by Joint Government Operations Committee

All agencies, upon filing a rule, must also submit the following pursuant to T.C.A. § 4-5-226(i)(1).

(A) A brief summary of the rule and a description of all relevant changes in previous regulations effectuated by such rule;

The proposed amendments to Chapter 0400-30-38 will incorporate by reference all National Emission Standards for Hazardous Air Pollutants (NESHAP) from 40 C.F.R. Parts 61 and 63. Currently, the requirements of a NESHAP must be placed in a permit before the State of Tennessee can enforce them. The Tennessee Air Pollution Control Board (Board) proposes to repeal all of Chapter 1200-03-11 and one rule in Chapter 1200-03-31, which currently reproduce some, but not all, of the NESHAP regulations. The proposed rule will incorporate by reference the federal NESHAP regulations and allow the Technical Secretary of the Board to enforce these federal regulations directly. In addition, current references in other rules to Chapter 1200-03-11 will be revised to reference to Chapter 0400-30-38.

(B) A citation to and brief description of any federal law or regulation or any state law or regulation mandating promulgation of such rule or establishing guidelines relevant thereto;

Pursuant to Clean Air Act section 112, Tennessee is required to enforce the NESHAP as part of its federally authorized air program and incorporating the NESHAP into Chapter 0400-30-38 will streamline permitting and compliance-related evaluations. According to Tennessee Code Annotated section 68-201-103 the intent an purpose of Tennessee Code Annotated Title 68, Chapter 201, Part 1 is to maintain purity of the air resources of the state consistent with the protection of normal health, general welfare, and physical property of the people, maximum employment and the full industrial development of the state and for the Board to do so through the prevention, abatement, and control of air pollution by all practical and economically feasible methods.

(C) Identification of persons, organizations, corporations or governmental entities most directly affected by this rule, and whether those persons, organizations, corporations or governmental entities urge adoption or rejection of this rule;

Persons, organizations, corporations, or governmental entities most directly affected by this rule are regulated facilities that are subject to the NESHAP. The Air Pollution Control Board has not received any indication from these persons that they object to this rulemaking. The U.S. Environmental Protection Agency is a proponent of this rulemaking.

(D) Identification of any opinions of the attorney general and reporter or any judicial ruling that directly relates to the rule or the necessity to promulgate the rule;

The Board is not aware any.

(E) An estimate of the probable increase or decrease in state and local government revenues and expenditures, if any, resulting from the promulgation of this rule, and assumptions and reasoning upon which the estimate is based. An agency shall not state that the fiscal impact is minimal if the fiscal impact is more than two percent (2%) of the agency's annual budget or five hundred thousand dollars ($500,000), whichever is less;

This rulemaking will not increase or decrease state or local government revenues and expenditures.

(F) Identification of the appropriate agency representative or representatives, possessing substantial knowledge and understanding of the rule;

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(615) 532-0559
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(G) Identification of the appropriate agency representative or representatives who will explain the rule at a scheduled meeting of the committees;

Horace Tipton
Legislative Liaison
Office of General Counsel

(H) Office address, telephone number, and email address of the agency representative or representatives who will explain the rule at a scheduled meeting of the committees; and

Office of General Counsel
Tennessee Department of Environment and Conservation
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 2nd Floor
Nashville, Tennessee 37243
(615) 253-5339
Horace.Tipton@tn.gov

(I) Any additional information relevant to the rule proposed for continuation that the committee requests.

(1) A description of the action proposed, the purpose of the action, the legal authority for the action and the plan for implementing the action.

The action proposed is to incorporate by reference all National Emission Standards for Hazardous Air Pollutants (NESHAP) from 40 CFR Parts 61 and 63. The proposed rule will incorporate by reference the NESHAP regulations and allow the Technical Secretary of the Board to enforce these federal regulations directly instead of including them in individual permits. The statutory authority for this rulemaking is Tennessee Code Annotated Title 68, Chapter 201, Part 1. The NESHAP regulations protect public health by limiting the emissions of air pollution. These rules effectuate the intent of Tennessee Code Annotated section 68-201-103 “to maintain purity of the air resources of the state consistent with the protection of normal health, general welfare and physical property of the people, maximum employment and the full industrial development of the state” and for the board to do so “through the prevention, abatement and control of air pollution by all practical and economically feasible methods.”

(2) A determination that the action is the least-cost method for achieving the stated purpose.

This rulemaking is believed to be the least-cost method for the State to enforce the NESHAP regulations. The Division of Air Pollution Control (Division) evaluated how the other states in EPA Region IV were enforcing the NESHAP regulations. The other seven states in EPA Region IV have incorporated the NESHAP regulations by reference. Also, the EPA has recommended adoption by reference.

(3) A comparison of the cost-benefit relation of the action to nonaction.

This rulemaking incorporates by reference all federal NESHAP and authorizes the Technical Secretary to enforce these regulations directly. There will be no additional costs associated with the proposed rule. Regulated facilities are already required to comply with the most current version of the NESHAP regardless of whether they are incorporated in a permit, because EPA has authority under Clean Air Act section 112 to enforce the federal NESHAP regulations in states. If the rules are not promulgated, the Technical Secretary will not be able to enforce the NESHAP directly in the event that a permit for a regulated source has not yet been issued or must be revised to incorporate the relevant NESHAP provisions. Based on this comparison, the benefits of moving forward with this rulemaking outweigh the costs.”

(4) A determination that the action represents the most efficient allocation of public and private resources.

This action represents the most efficient allocation of public and private resources. The NESHAP regulations help protect public health by limiting the emissions of air pollution. By making these changes, the Board will full incorporate the federal regulations so that they can be directly enforced by the Technical Secretary.

(5) A determination of the effect of the action on competition.

This rulemaking will not affect competition.

(6) A determination of the effect of the action on the cost of living in the geographical area in which the action would occur.

Cost of living in the geographical area in which the action would occur will not be affected.

(7) A determination of the effect of the action on employment in the geographical area in which the action would occur.

It is not anticipated that the action will affect employment.

(8) The source of revenue to be used for the action.

The action can be accommodated with existing resources.

(9) A conclusion as to the economic impact upon all persons substantially affected by the action, including an analysis containing a description as to which persons will bear the costs of the action and which persons will benefit directly and indirectly from the action.

There will be no additional costs associated with this rulemaking. Regulated facilities are already required to comply with the most current version of the NESHAP regulations regardless of whether they are incorporated in a permit, because EPA has authority under Clean Air Act section 112 to enforce the NESHAP regulations in states. However, this rule will allow the Technical Secretary to enforce the most current version of the federal requirements even if the provisions of the current version have not been incorporated into a permit.

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Rule ID(s): _____
File Date: _____
Effective Date: _____

Rulemaking Hearing Rule(s) Filing Form

Rulemaking Hearing Rules are rules filed after and as a result of a rulemaking hearing (Tenn. Code Ann. § 4-5-205).

Pursuant to Tenn. Code Ann. § 4-5-229, any new fee or fee increase promulgated by state agency rule shall take effect on July 1, following the expiration of the ninety (90) day period as provided in § 4-5-207. This section shall not apply to rules that implement new fees or fee increases that are promulgated as emergency rules pursuant to § 4-5-208(a) and to subsequent rules that make permanent such emergency rules, as amended during the rulemaking process. In addition, this section shall not apply to state agencies that did not, during the preceding two (2) fiscal years, collect fees in an amount sufficient to pay the cost of operating the board, commission or entity in accordance with § 4-29-121(b).

Agency/Board/Commission:	Air Pollution Control Board
Division:	Air Pollution Control
Contact Person:	Mark A. Reynolds
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Revision Type (check all that apply):
X Amendment
___ New
___ Repeal

Rule(s) (**ALL** chapters and rules contained in filing must be listed here. If needed, copy and paste additional tables to accommodate multiple chapters. Please make sure that **ALL** new rule and repealed rule numbers are listed in the chart below. Please enter only **ONE** Rule Number/Rule Title per row.)

Chapter Number	**Chapter Title**
0400-30-38	Emission Standards for Hazardous Air Pollutants
Rule Number	**Rule Title**
0400-30-38-.01	~~Stationary Reciprocating Internal Combustion Engines~~ Federal Standards for Hazardous Air Pollutants
0400-30-38-.02	~~Paint Stripping, Autobody Refinishing, and Miscellaneous Surface Coating Operations~~ Reserved

Chapter Number	**Chapter Title**
1200-03-02	Definitions
Rule Number	**Rule Title**
1200-03-02-.01	General Definitions

Chapter Number	**Chapter Title**
1200-03-04	Open Burning
Rule Number	**Rule Title**
1200-03-04-.04	Exceptions to Prohibition

Chapter Number	Chapter Title
1200-03-05	Visible Emission Regulations
Rule Number	**Rule Title**
1200-03-05-.05	Standard for Certain Existing Sources

Chapter Number	Chapter Title
1200-03-09	Construction and Operating Permits
Rule Number	**Rule Title**
1200-03-09-.01	Construction Permits
1200-03-09-.02	Operating Permits
1200-03-09-.04	Exemptions

Chapter Number	Chapter Title
1200-03-11	~~Hazardous Air Contaminants~~ Repealed
Rule Number	**Rule Title**
~~1200-03-11-.01~~	~~General Provisions~~
~~1200-03-11-.02~~	~~Asbestos~~
~~1200-03-11-.03~~	~~Beryllium~~
~~1200-03-11-.04~~	~~Mercury~~
~~1200-03-11-.05~~	~~Vinyl Chloride~~
~~1200-03-11-.06~~	~~Equipment Leaks (Fugitive Emission Sources)~~
~~1200-03-11-.07~~	~~Equipment Leaks (Fugitive Emission Sources) of Benzene~~
~~1200-03-11-.08~~	~~Emission Standards for Emissions of Radionuclides Other than Radon from Department of Energy Facilities~~
~~1200-03-11-.09~~	~~Inorganic Arsenic Emissions from Glass Manufacturing Plants~~
~~1200-03-11-.10~~	~~Inorganic Arsenic Emissions From Primary Copper Smelters~~
~~1200-03-11-.11~~	~~Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities~~
~~1200-03-11-.12~~	~~Reserved~~
~~1200-03-11-.13~~	~~Reserved~~
~~1200-03-11-.14~~	~~Reserved~~
~~1200-03-11-.15~~	~~Reserved~~
~~1200-03-11-.16~~	~~Reserved~~
~~1200-03-11-.17~~	~~National Emission Standards for Radon Emissions from Department of Energy Facilities~~

Chapter Number	Chapter Title
1200-03-16	New Source Performance Standards
Rule Number	**Rule Title**
1200-03-16-.01	General Provisions

Chapter Number	Chapter Title
1200-03-20	Limits on Emissions Due to Malfunctions, Startups, and Shutdowns
Rule Number	**Rule Title**
1200-03-20-.03	Notice Required When Malfunction Occurs

Chapter Number	Chapter Title
1200-03-21	General Alternate Emission Standards
Rule Number	**Rule Title**
1200-03-21-.01	General Alternate Emission Standard

Chapter Number	Chapter Title
1200-03-26	Administrative Fees Schedule
Rule Number	**Rule Title**
1200-03-26-.02	Construction and Annual Fees

Chapter Number	Chapter Title
1200-03-31	~~Case-By-Case~~ Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements
Rule Number	**Rule Title**

1200-03-31-.01	~~General Provisions [Reserved]~~ Reserved
1200-03-31-.02	Definitions
1200-03-31-.03	Intent of the Board for ~~Case-by-Case~~ Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements
1200-03-31-.04	Standards for Existing Sources
1200-03-31-.05	~~Standard~~ Standards for New Sources
1200-03-31-.06	Opportunity for Early Reductions Schedule
1200-03-31-.07	Residual Risk and Revisions to MACT
1200-03-31-.08	Reserved
1200-03-31-.09	Reserved
1200-03-31-.10	Reserved
1200-03-31-.11	Reserved
1200-03-31-.12	Reserved
1200-03-31-.13	~~Perchloroethylene Air Emission Standards for Dry Cleaning Facilities~~ Reserved

Place substance of rules and other info here. Please be sure to include a detailed explanation of the changes being made to the listed rule(s). Statutory authority must be given for each rule change. For information on formatting rules go to https://sos.tn.gov/products/division-publications/rulemaking-guidelines.

Chapter 0400-30-38
Emission Standards for Hazardous Air Pollutants

Amendments

The Table of Contents of Chapter 0400-30-38 Emission Standards for Hazardous Air Pollutants is amended by deleting it in its entirety and substituting instead the following:

Table of Contents

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Rule 0400-30-38-.01 Stationary Reciprocating Internal Combustion Engines is amended by deleting it in its entirety and substituting instead the following:

0400-30-38-.01 ~~Stationary Reciprocating Internal Combustion Engines~~ Federal Standards for Hazardous Air Pollutants

(1) ~~Emergency stationary reciprocating internal combustion engines subject to the provisions of this rule may qualify for a permit by rule as specified in Rule 1200-03-09-.07.~~ The provisions of the subparts and appendices of 40 CFR 63 listed in subparagraph (b) of this paragraph are hereby incorporated by reference as published in the July 1, 2020 edition of the Code of Federal Regulations (CFR), except as provided in subparagraph (a) of this paragraph. In certain cases, a different version of the federal regulation is incorporated by reference which will be specified in subparagraph (b) of this paragraph.

(a) Any reference contained in 40 CFR 63 to the:

1. Administrator shall instead be a reference to the Technical Secretary.

2. EPA regional office shall instead be a reference to the EPA Region IV office.

(b) List of federal regulations under 40 CFR Part 63:

1. 40 CFR Part 63 Subpart A: General provisions;

2. 40 CFR Part 63 Subpart B: Requirements for Control Technology Determinations for Major Sources in Accordance With Clean Air Act Sections, Sections 112(g) and 112(j);

3. 40 CFR Part 63 Subpart D: Regulations Governing Compliance Extensions for Early Reductions of Hazardous Air Pollutants;

4. 40 CFR Part 63 Subpart F: National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry;

5. 40 CFR Part 63 Subpart G: National Emission Standards for Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater;

6. 40 CFR Part 63 Subpart H: National Emission Standards for Organic Hazardous Air Pollutants for Equipment Leaks;

7. 40 CFR Part 63 Subpart I: National Emission Standards for Organic Hazardous Air

Pollutants for Certain Processes Subject to the Negotiated Regulation for Equipment Leaks;

8. 40 CFR Part 63 Subpart J: National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production;

9. Reserved;

10. 40 CFR Part 63 Subpart L: National Emission Standards for Coke Oven Batteries;

11. 40 CFR Part 63 Subpart M: National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities;

12. 40 CFR Part 63 Subpart N: National Emission Standards for Chromium Emissions From Hard and Decorative Chromium Electroplating and Chromium Anodizing Tanks;

13. 40 CFR Part 63 Subpart O: Ethylene Oxide Emissions Standards for Sterilization Facilities;

14. Reserved;

15. 40 CFR Part 63 Subpart Q: National Emission Standards for Hazardous Air Pollutants for Industrial Process Cooling Towers;

16. 40 CFR Part 63 Subpart R: National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations);

17. 40 CFR Part 63 Subpart S: National Emission Standards for Hazardous Air Pollutants from the Pulp and Paper Industry;

18. 40 CFR Part 63 Subpart T: National Emission Standards for Halogenated Solvent Cleaning;

19. 40 CFR Part 63 Subpart U: National Emission Standards for Hazardous Air Pollutant Emissions: Group I Polymers and Resins;

20. Reserved;

21. 40 CFR Part 63 Subpart W: National Emission Standards for Hazardous Air Pollutants for Epoxy Resins Production and Non-Nylon Polyamides Production;

22. 40 CFR Part 63 Subpart X: National Emission Standards For Hazardous Air Pollutants From Secondary Lead Smelting;

23. 40 CFR Part 63 Subpart Y: National Emission Standards for Marine Tank Vessel Loading Operations;

24. Reserved;

25. 40 CFR Part 63 Subpart AA: National Emission Standards for Hazardous Air Pollutants from Phosphoric Acid Manufacturing Plants;

26. 40 CFR Part 63 Subpart BB: National Emission Standards for Hazardous Air Pollutants from Phosphate Fertilizers Production Plants;

27. 40 CFR Part 63 Subpart CC: National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries;

28. 40 CFR Part 63 Subpart DD: National Emission Standards for Hazardous Air Pollutants from Off-Site Waste and Recovery Operations;

29. 40 CFR Part 63 Subpart EE: National Emission Standards for Magnetic Tape Manufacturing Operations;

30. Reserved;

31. 40 CFR Part 63 Subpart GG: National Emission Standards for Aerospace Manufacturing and Rework Facilities;

32. 40 CFR Part 63 Subpart HH: National Emission Standards for Hazardous Air Pollutants From Oil and Natural Gas Production Facilities;

33. 40 CFR Part 63 Subpart II: National Emission Standards for Shipbuilding and Ship Repair (Surface Coating);

34. 40 CFR Part 63 Subpart JJ: National Emission Standards for Wood Furniture Manufacturing Operations;

35. 40 CFR Part 63 Subpart KK: National Emission Standards for the Printing and Publishing Industry;

36. 40 CFR Part 63 Subpart LL: National Emission Standards for Hazardous Air Pollutants for Primary Aluminum Reduction Plants;

37. 40 CFR Part 63 Subpart MM: National Emission Standards for Hazardous Air Pollutants for Chemical Recovery Combustion Sources at Kraft, Soda, Sulfite, and Stand-Alone Semichemical Pulp Mills;

38. 40 CFR Part 63 Subpart NN: National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing at Area Sources;

39. 40 CFR Part 63 Subpart OO: National Emission Standards for Tanks—Level 1;

40. 40 CFR Part 63 Subpart PP: National Emission Standards for Containers;

41. 40 CFR Part 63 Subpart QQ: National Emission Standards for Surface Impoundments;

42. 40 CFR Part 63 Subpart RR: National Emission Standards for Individual Drain Systems;

43. 40 CFR Part 63 Subpart SS: National Emission Standards for Closed Vent Systems, Control Devices, Recovery Devices and Routing to a Fuel Gas System or a Process;

44. 40 CFR Part 63 Subpart TT: National Emission Standards for Equipment Leaks—Control Level 1;

45. 40 CFR Part 63 Subpart UU: National Emission Standards for Equipment Leaks—Control Level 2 Standards;

46. 40 CFR Part 63 Subpart VV: National Emission Standards for Oil-Water Separators and Organic-Water Separators;

47. 40 CFR Part 63 Subpart WW: National Emission Standards for Storage Vessels (Tanks)—Control Level 2;

48. 40 CFR Part 63 Subpart XX: National Emission Standards for Ethylene Manufacturing Process Units: Heat Exchange Systems and Waste Operations;

49. 40 CFR Part 63 Subpart YY: National Emission Standards for Hazardous Air Pollutants for Source Categories: Generic Maximum Achievable Control Technology Standards;

50. Reserved;

51. Reserved;

52. Reserved;

53. 40 CFR Part 63 Subpart CCC: National Emission Standards for Hazardous Air Pollutants for Steel Pickling—HCl Process Facilities and Hydrochloric Acid Regeneration Plants;

54. 40 CFR Part 63 Subpart DDD: National Emission Standards for Hazardous Air Pollutants for Mineral Wool Production;

55. 40 CFR Part 63 Subpart EEE: National Emission Standards for Hazardous Air Pollutants from Hazardous Waste Combustors;

56. Reserved;

57. 40 CFR Part 63 Subpart GGG: National Emission Standards for Pharmaceuticals Production;

58. 40 CFR Part 63 Subpart HHH: National Emission Standards for Hazardous Air Pollutants From Natural Gas Transmission and Storage Facilities;

59. 40 CFR Part 63 Subpart III: National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production;

60. 40 CFR Part 63 Subpart JJJ: National Emission Standards for Hazardous Air Pollutant Emissions: Group IV Polymers and Resins;

61. Reserved;

62. 40 CFR Part 63 Subpart LLL: National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry;

63. 40 CFR Part 63 Subpart MMM: National Emission Standards for Hazardous Air Pollutants for Pesticide Active Ingredient Production;

64. 40 CFR Part 63 Subpart NNN: National Emission Standards for Hazardous Air Pollutants for Wool Fiberglass Manufacturing;

65. 40 CFR Part 63 Subpart OOO: National Emission Standards for Hazardous Air Pollutant Emissions: Manufacture of Amino/Phenolic Resins;

66. 40 CFR Part 63 Subpart PPP: National Emission Standards for Hazardous Air Pollutant Emissions for Polyether Polyols Production;

67. 40 CFR Part 63 Subpart QQQ: National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting;

68. 40 CFR Part 63 Subpart RRR: National Emission Standards for Hazardous Air Pollutants for Secondary Aluminum Production;

69. Reserved;

70. 40 CFR Part 63 Subpart TTT: National Emission Standards for Hazardous Air Pollutants for Primary Lead Smelting;

71. 40 CFR Part 63 Subpart UUU: National Emission Standards for Hazardous Air Pollutants for Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and Sulfur Recovery Units;

72. 40 CFR Part 63 Subpart VVV: National Emission Standards for Hazardous Air Pollutants: Publicly Owned Treatment Works;

73. Reserved;

74. 40 CFR Part 63 Subpart XXX: National Emission Standards for Hazardous Air Pollutants for Ferroalloys Production: Ferromanganese and Silicomanganese;

75. Reserved;

76. Reserved;

77. 40 CFR Part 63 Subpart AAAA: National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills;

78. Reserved;

79. 40 CFR Part 63 Subpart CCCC: National Emission Standards for Hazardous Air Pollutants: Manufacturing of Nutritional Yeast;

80. 40 CFR Part 63 Subpart DDDD: National Emission Standards for Hazardous Air Pollutants: Plywood and Composite Wood Products;

81. 40 CFR Part 63 Subpart EEEE: National Emission Standards for Hazardous Air Pollutants: Organic Liquids Distribution (Non-Gasoline);

82. 40 CFR Part 63 Subpart FFFF: National Emission Standards for Hazardous Air Pollutants: Miscellaneous Organic Chemical Manufacturing;

83. 40 CFR Part 63 Subpart GGGG: National Emission Standards for Hazardous Air Pollutants: Solvent Extraction for Vegetable Oil Production;

84. 40 CFR Part 63 Subpart HHHH: National Emission Standards for Hazardous Air Pollutants for Wet-Formed Fiberglass Mat Production;

85. 40 CFR Part 63 Subpart IIII: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Automobiles and Light-Duty Trucks;

86. 40 CFR Part 63 Subpart JJJJ: National Emission Standards for Hazardous Air Pollutants: Paper and Other Web Coating;

87. 40 CFR Part 63 Subpart KKKK: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Cans;

88. Reserved;

89. 40 CFR Part 63 Subpart MMMM: National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products;

90. 40 CFR Part 63 Subpart NNNN: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Large Appliances;

91. 40 CFR Part 63 Subpart OOOO: National Emission Standards for Hazardous Air Pollutants: Printing, Coating, and Dyeing of Fabrics and Other Textiles;

92. 40 CFR Part 63 Subpart PPPP: National Emission Standards for Hazardous Air Pollutants for Surface Coating of Plastic Parts and Products;

93. 40 CFR Part 63 Subpart QQQQ: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Wood Building Products;

94. 40 CFR Part 63 Subpart RRRR: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Furniture;

95. 40 CFR Part 63 Subpart SSSS: National Emission Standards for Hazardous Air Pollutants: Surface Coating of Metal Coil;

96. 40 CFR Part 63 Subpart TTTT: National Emission Standards for Hazardous Air Pollutants for Leather Finishing Operations;

97. 40 CFR Part 63 Subpart UUUU: National Emission Standards for Hazardous Air Pollutants for Cellulose Products Manufacturing;

98. 40 CFR Part 63 Subpart VVVV: National Emission Standards for Hazardous Air Pollutants for Boat Manufacturing;

99. 40 CFR Part 63 Subpart WWWW: National Emissions Standards for Hazardous Air Pollutants: Reinforced Plastic Composites Production;

100. 40 CFR Part 63 Subpart XXXX: National Emissions Standards for Hazardous Air Pollutants: Rubber Tire Manufacturing;

101. 40 CFR Part 63 Subpart YYYY: National Emission Standards for Hazardous Air Pollutants for Stationary Combustion Turbines;

102. 40 CFR Part 63 Subpart ZZZZ: National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines;

103. 40 CFR Part 63 Subpart AAAAA: National Emission Standards for Hazardous Air Pollutants for Lime Manufacturing Plants;

104. 40 CFR Part 63 Subpart BBBBB: National Emission Standards for Hazardous Air Pollutants for Semiconductor Manufacturing;

105. 40 CFR Part 63 Subpart CCCCC: National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks;

106. 40 CFR Part 63 Subpart DDDDD: National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters;

107. 40 CFR Part 63 Subpart EEEEE: National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries;

108. 40 CFR Part 63 Subpart FFFFF: National Emission Standards for Hazardous Air Pollutants for Integrated Iron and Steel Manufacturing Facilities;

109. 40 CFR Part 63 Subpart GGGGG: National Emission Standards for Hazardous Air Pollutants: Site Remediation;

110. 40 CFR Part 63 Subpart HHHHH: National Emission Standards for Hazardous Air Pollutants: Miscellaneous Coating Manufacturing;

111. 40 CFR Part 63 Subpart IIIII: National Emission Standards for Hazardous Air Pollutants: Mercury Emissions From Mercury Cell Chlor-Alkali Plants;

112. 40 CFR Part 63 Subpart JJJJJ: National Emission Standards for Hazardous Air Pollutants for Brick and Structural Clay Products Manufacturing;

113. 40 CFR Part 63 Subpart KKKKK: National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing;

114. 40 CFR Part 63 Subpart LLLLL: National Emission Standards for Hazardous Air Pollutants: Asphalt Processing and Asphalt Roofing Manufacturing;

115. 40 CFR Part 63 Subpart MMMMM: National Emission Standards for Hazardous Air Pollutants: Flexible Polyurethane Foam Fabrication Operations;

116. 40 CFR Part 63 Subpart NNNNN: National Emission Standards for Hazardous Air Pollutants: Hydrochloric Acid Production;

117. Reserved;

118. 40 CFR Part 63 Subpart PPPPP: National Emission Standards for Hazardous Air Pollutants for Engine Test Cells/Stands;

119. 40 CFR Part 63 Subpart QQQQQ: National Emission Standards for Hazardous Air Pollutants for Friction Materials Manufacturing Facilities;

120. 40 CFR Part 63 Subpart RRRRR: National Emission Standards for Hazardous Air Pollutants: Taconite Iron Ore Processing;

121. 40 CFR Part 63 Subpart SSSSS: National Emission Standards for Hazardous Air Pollutants for Refractory Products Manufacturing;

122. 40 CFR Part 63 Subpart TTTTT: National Emissions Standards for Hazardous Air Pollutants for Primary Magnesium Refining;

123. 40 CFR Part 63 Subpart UUUUU: National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units;

124. Reserved;

125. 40 CFR Part 63 Subpart WWWWW: National Emission Standards for Hospital Ethylene Oxide Sterilizers;

126. Reserved;

127. 40 CFR Part 63 Subpart YYYYY: National Emission Standards for Hazardous Air Pollutants for Area Sources: Electric Arc Furnace Steelmaking Facilities;

128. 40 CFR Part 63 Subpart ZZZZZ: National Emission Standards for Hazardous Air Pollutants for Iron and Steel Foundries Area Sources;

129. Reserved;

130. 40 CFR Part 63 Subpart BBBBBB: National Emission Standards for Hazardous Air Pollutants for Source Category: Gasoline Distribution Bulk Terminals, Bulk Plants, and Pipeline Facilities;

131. Reserved;

132. 40 CFR Part 63 Subpart DDDDDD: National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production Area Sources;

133. 40 CFR Part 63 Subpart EEEEEE: National Emission Standards for Hazardous Air Pollutants for Primary Copper Smelting Area Sources;

134. 40 CFR Part 63 Subpart FFFFFF: National Emission Standards for Hazardous Air Pollutants for Secondary Copper Smelting Area Sources;

135. 40 CFR Part 63 Subpart GGGGGG: National Emission Standards for Hazardous Air Pollutants for Primary Nonferrous Metals Area Sources—Zinc, Cadmium, and Beryllium;

136. 40 CFR Part 63 Subpart HHHHHH: National Emission Standards for Hazardous Air

Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources;

137. Reserved;

138. 40 CFR Part 63 Subpart JJJJJJ: National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers Area Sources;

139. Reserved;

140. 40 CFR Part 63 Subpart LLLLLL: National Emission Standards for Hazardous Air Pollutants for Acrylic and Modacrylic Fibers Production Area Sources;

141. 40 CFR Part 63 Subpart MMMMMM: National Emission Standards for Hazardous Air Pollutants for Carbon Black Production Area Sources;

142. 40 CFR Part 63 Subpart NNNNNN: National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources: Chromium Compounds;

143. 40 CFR Part 63 Subpart OOOOOO: National Emission Standards for Hazardous Air Pollutants for Flexible Polyurethane Foam Production and Fabrication Area Sources;

144. 40 CFR Part 63 Subpart PPPPPP: National Emission Standards for Hazardous Air Pollutants for Lead Acid Battery Manufacturing Area Sources;

145. 40 CFR Part 63 Subpart QQQQQQ: National Emission Standards for Hazardous Air Pollutants for Wood Preserving Area Sources;

146. 40 CFR Part 63 Subpart RRRRRR: National Emission Standards for Hazardous Air Pollutants for Clay Ceramics Manufacturing Area Sources;

147. 40 CFR Part 63 Subpart SSSSSS: National Emission Standards for Hazardous Air Pollutants for Glass Manufacturing Area Sources

148. 40 CFR Part 63 Subpart TTTTTT: National Emission Standards for Hazardous Air Pollutants for Secondary Nonferrous Metals Processing Area Sources;

149. Reserved;

150. 40 CFR Part 63 Subpart VVVVVV: National Emission Standards for Hazardous Air Pollutants for Chemical Manufacturing Area Sources;

151. 40 CFR Part 63 Subpart WWWWWW: National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Plating and Polishing Operations;

152. 40 CFR Part 63 Subpart XXXXXX: National Emission Standards for Hazardous Air Pollutants Area Source Standards for Nine Metal Fabrication and Finishing Source Categories;

153. 40 CFR Part 63 Subpart YYYYYY: National Emission Standards for Hazardous Air Pollutants for Area Sources: Ferroalloys Production Facilities;

154. 40 CFR Part 63 Subpart ZZZZZZ: National Emission Standards for Hazardous Air Pollutants: Area Source Standards for Aluminum, Copper, and Other Nonferrous Foundries;

155. 40 CFR Part 63 Subpart AAAAAAA: National Emission Standards for Hazardous Air Pollutants for Area Sources: Asphalt Processing and Asphalt Roofing Manufacturing;

156. 40 CFR Part 63 Subpart BBBBBBB: National Emission Standards for Hazardous Air Pollutants for Area Sources: Chemical Preparations Industry;

157. 40 CFR Part 63 Subpart CCCCCCC: National Emission Standards for Hazardous Air Pollutants for Area Sources: Paints and Allied Products Manufacturing;

158. 40 CFR Part 63 Subpart DDDDDDD: National Emission Standards for Hazardous Air Pollutants for Area Sources: Prepared Feeds Manufacturing;

159. 40 CFR Part 63 Subpart EEEEEEE: National Emission Standards for Hazardous Air Pollutants: Gold Mine Ore Processing and Production Area Source Category;

160. Reserved;

161. Reserved;

162. 40 CFR Part 63 Subpart HHHHHHH: National Emission Standards for Hazardous Air Pollutant Emissions for Polyvinyl Chloride and Copolymers Production;

163. Appendix A to Part 63: Test Methods;

164. Appendix B to Part 63: Sources Defined for Early Reduction Provisions;

165. Appendix C to Part 63: Determination of the Fraction Biodegraded (Fbio) in a Biological Treatment Unit;

166. Appendix D to Part 63: Alternative Validation Procedure for EPA Waste and Wastewater Methods; and

167. Appendix E to Part 63: Monitoring Procedure for Nonthoroughly Mixed Open Biological Treatment Systems at Kraft Pulp Mills Under Unsafe Sampling Conditions.

(2) ~~The provisions of 40 CFR 63 Subpart ZZZZ (National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) are hereby adopted by reference as published in the July 1, 2017, edition of the Code of Federal Regulations (CFR), except as provided in subparagraph (a) of this paragraph~~ The provisions of the subparts and appendices of 40 CFR Part 61 listed in subparagraph (b) of this paragraph are hereby incorporated by reference as published in the July 1, 2020, edition of the Code of Federal Regulations (CFR), except as provided in subparagraph (a) of this paragraph. In certain cases, a different version of the federal regulation is incorporated by reference which will be specified in subparagraph (b) of this paragraph. In certain cases, a different version of the federal regulation is incorporated by reference which will be specified in subparagraph (b) of this paragraph.

(a) Any reference contained in ~~40 CFR 63 Subpart ZZZZ~~ 40 CFR Part 61 to the:

1. Administrator shall instead be a reference to the Technical Secretary; and

2. ~~Applicable~~ EPA regional office ~~for the State of Tennessee~~ shall instead be a reference to the EPA Region IV office.

(b) List of Federal Regulations under 40 CFR Part 61:

1. 40 CFR Part 61 Subpart A: General provisions;

2. 40 CFR Part 61 Subpart B: National Emission Standards for Radon Emissions From Underground Uranium Mines;

3. 40 CFR Part 61 Subpart C: National Emission Standard for Beryllium;

4. 40 CFR Part 61 Subpart D: National Emission Standard for Beryllium Rocket Motor Firing;

5. 40 CFR Part 61 Subpart E: National Emission Standard for Mercury;

6. 40 CFR Part 61 Subpart F: National Emission Standard for Vinyl Chloride;

7. Reserved;

8. 40 CFR Part 61 Subpart H: National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities;

9. 40 CFR Part 61 Subpart I: National Emission Standards for Radionuclide Emissions From Federal Facilities Other Than Nuclear Regulatory Commission Licensees and Not Covered by Subpart H;

10. 40 CFR Part 61 Subpart J: National Emission Standard for Equipment Leaks (Fugitive Emission Sources) of Benzene;

11. 40 CFR Part 61 Subpart K: National Emission Standards for Radionuclide Emissions From Elemental Phosphorus Plants;

12. 40 CFR Part 61 Subpart L: National Emission Standard for Benzene Emissions from Coke By-Product Recovery Plants;

13. 40 CFR Part 61 Subpart M: National Emission Standard for Asbestos;

14. 40 CFR Part 61 Subpart N: National Emission Standard for Inorganic Arsenic Emissions From Glass Manufacturing Plants;

15. 40 CFR Part 61 Subpart O: National Emission Standard for Inorganic Arsenic Emissions From Primary Copper Smelters;

16. 40 CFR Part 61 Subpart P: National Emission Standard for Inorganic Arsenic Emissions From Arsenic Trioxide and Metallic Arsenic Production Facilities;

17. 40 CFR Part 61 Subpart Q: National Emission Standards for Radon Emissions From Department of Energy Facilities;

18. 40 CFR Part 61 Subpart R: National Emission Standards for Radon Emissions From Phosphogypsum Stacks;

19. Reserved;

20. 40 CFR Part 61 Subpart T: National Emission Standards for Radon Emissions From the Disposal of Uranium Mill Tailings;

21. Reserved;

22. 40 CFR Part 61 Subpart V: National Emission Standard for Equipment Leaks (Fugitive Emission Sources);

23. 40 CFR Part 61 Subpart W: National Emission Standards for Radon Emissions From Operating Mill Tailings;

24. Reserved;

25. 40 CFR Part 61 Subpart Y: National Emission Standard for Benzene Emissions From Benzene Storage Vessels;

26. Reserved;

27. Reserved;

28. 40 CFR Part 61 Subpart BB: National Emission Standard for Benzene Emissions From

Benzene Transfer Operations;

29. Reserved;

30. Reserved;

31. Reserved;

32. 40 CFR Part 61 Subpart FF: National Emission Standard for Benzene Waste Operations;

33. Appendix A to Part 61: National Emission Standards for Hazardous Air Pollutants, Compliance Status Information;

34. Appendix B to Part 61: Test Methods;

35. Appendix C to Part 61: Quality Assurance Procedures;

36. Appendix D to Part 61: Methods for Estimating Radionuclide Emissions; and

37. Appendix E to Part 61: Compliance Procedures Methods for Determining Compliance With Subpart I.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Rule 0400-30-38-.02 Paint Stripping, Auto Body Refinishing, and Miscellaneous Surface Coating Operations is amended by deleting it in its entirety and substituting instead the follow:

0400-30-38-.02 ~~Paint Stripping, Auto Body Refinishing, and Miscellaneous Surface Coating Operations~~ Reserved

~~(1) Auto-body refinishing operations, which includes paint stripping and surface coating of motor vehicles and mobile equipment, subject to the provisions of this rule may qualify for a permit-by-rule as specified in Rule 1200-03-09-.07. However, no emission source subject to a rule in Chapter 1200-03-18 Volatile Organic Compounds shall qualify for permit-by-rule.~~

~~(2) The provisions of 40 CFR 63 Subpart HHHHHH (National Emission Standards for Hazardous Air Pollutants: Paint Stripping and Miscellaneous Surface Coating Operations at Area Sources) are hereby adopted by reference as published in the July 1, 2017, edition of the Code of Federal Regulations (CFR), except as provided in subparagraph (a) of this paragraph.~~

~~(a) Any reference contained in 40 CFR 63 Subpart HHHHHH to the:~~

~~1. Administrator shall instead be a reference to the Technical Secretary; and~~

~~2. Applicable EPA regional office for the State of Tennessee shall instead be a reference to the EPA Region IV office.~~

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-02
Definitions

Amendments

Subparagraph (g) of paragraph (1) of Rule 1200-03-02-.01 General Definitions is amended by deleting it in its entirety and substituting instead the following:

(g) "Best available control technology (BACT)" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under these rules which would be emitted from any proposed new or modified air contaminant source which the Technical Secretary, on a case-by-case bases, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under Chapters ~~1200-03-11~~ 0400-30-38 and 1200-03-16 of these rules. If the Technical Secretary determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an emission standard infeasible, a design, equipment, work practice, or operational standard, or combination thereof, may be prescribed instead to require the application of best available control technology. Such standard shall, to the degree possible, set forth the emission reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-04
Open Burning

Amendments

Part 3 of subparagraph (c) of paragraph (1) of Rule 1200-03-04-.04 Exceptions to Prohibition is amended by deleting it in its entirety and substituting instead the following:

3. All regulated asbestos containing materials have been removed in accordance with ~~Rule 1200-3-11-.02~~ part (2)(b)13 of Rule 0400-30-38-.01; and

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-05
Visible Emission Regulations

Amendments

Subparagraph (b) of Paragraph (2) of Rule 1200-03-05-.05 Standard for Certain Existing Sources is amended by deleting it in its entirety and substituting instead the following:

(b) The air contaminate source is not regulated under the rules contained in Chapter ~~1200-03-11~~ 0400-30-38, Chapter 1200-03-16, and Chapters 1200-03-25 and ~~Paragraph~~ paragraph (4) of Rule 1200-03-09-.01~~(4)~~.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Amendments

Subparagraph (d) of paragraph (2) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

(d) "Best available control technology (BACT)" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under these rules which would be emitted from any proposed new or modified air contaminant source which the Technical Secretary, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under Chapters ~~1200-03-11~~ 0400-30-38 and 1200-03-16 of these rules. If the Technical Secretary determines that technological or economic limitations on the application of measurement methodology to a particular class of sources would make the imposition of an emission standard infeasible, a design, equipment, work practice, or operational standard, or combination thereof, may be prescribed instead to require the application of best available control technology. Such standard shall, to the degree possible, set forth the emission reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results. This definition does not apply to major sources and major modifications, as defined in subparagraph (4)(b) of this rule, which are subject to the provisions of paragraph (4) of this rule.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subpart (i) of part 1 of subparagraph (d) of paragraph (4) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

(i) The source or modification would be a major stationary source or major modification only if fugitive emissions, to the extent quantifiable, are considered in calculating the potential to emit of the stationary source or modification and such source does not belong to any of the categories listed under subpart (b)1.(i), or any other stationary source category which, as of the (effective date of this rule) is being regulated under Chapters ~~1200-03-11~~ 0400-30-38 and 1200-03-16.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subitem XXVII of item (IV) of subpart (iv) of part 1 of subparagraph (b) of paragraph (5) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

XXVII. Any other stationary source category which, as of August 7, 1980, is being regulated under Chapter 1200-03-16, New Source Performance Standards or Chapter ~~1200-03-11~~ 0400-30-38, ~~Hazardous Air Contaminants~~ Emission Standards for Hazardous Air Pollutants, or Chapter 1200-03-31, Standards For Hazardous Air Contaminants For Source Categories.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subitem II of item (I) of subpart (xi) of part 1 of subparagraph (b) of paragraph (5) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

II. The National Emission Standards for Hazardous Air Pollutants (NESHAP) contained in Chapter ~~1200-03-11~~ 0400-30-38 and Chapter 1200-03-31 or;

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Item (XXVII) of subpart (ii) of part 4 of subparagraph (b) of paragraph (8) of Rule 1200-03-09-.01 Construction Permits is amended by deleting it in its entirety and substituting instead the following:

(XXVII) Any other stationary source category which, as of August 7, 1980, is being regulated under Chapter 1200-03-16, New Source Performance Standards, or Chapter ~~1200-03-11~~ 0400-30-38, ~~Hazardous Air Contaminants~~ Emission Standards for Hazardous Air Pollutants. or Chapter 1200-03-31, Standards For Hazardous Air Contaminants For Source Categories, or 40 CFR Part 60 and 61 (July 1, 1993).

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

The first sentence of subparagraph (b) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting "Chapter 1200-03-11" and replacing it with "Chapter 0400-30-38" so that as amended the first sentence of the subparagraph shall read as follows:

Definitions - The following terms are defined as they uniquely apply to this paragraph. All other terms shall have the meaning given to them in Chapter 1200-03-02, ~~Chapter 1200-03-11~~ Chapter 0400-30-38, Chapter 1200-03-30 Chapter 1200-03-31, Chapter 1200-03-32 and Chapter 1200-03-20.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subpart (iii) of part 1 of subparagraph (c) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

(iii) Any source, including an area source, subject to a standard or other requirement under section 112 of the Federal Act, Chapter ~~1200-03-11~~ 0400-30-38, or Chapter 1200-03-31 except that a source is not required to obtain a permit solely because it is subject to regulations or requirements under section 112(r) of the Federal Act or Chapter 1200-03-32;

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subpart (i) of part 2 of subparagraph (c) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

(i) All non-major sources including those subject to Section 112 of the Federal Act or Chapter ~~1200-03-11~~ 0400-30-38 or Chapter 1200-03-31 and section 111 of the Federal Act or Chapter 1200-03-16. If the Administrator promulgates future regulations which prohibit the exemption of a non-major source from the requirements of this paragraph ~~1200-03-09-.02(11)~~, such source will be so permitted by the Technical Secretary. Upon the Administrator's written notification to the Technical Secretary that such sources must be permitted according to the provisions of this paragraph ~~1200-03-09-.02(11)~~, the Technical Secretary shall notify the sources that the applications are due within 180 days of his written notice. The Technical Secretary shall have up to 90 days to accomplish the notification commencing upon his notification from the Administrator.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Section A of subitem IV of item (I) of subpart (ii) of part 5 of subparagraph (f) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

A. A federally enforceable emissions cap assumed to avoid classification as a modification under any provision of Title I of the federal Act. Further, federally enforceable emission caps assumed to avoid classification as a

modification under Chapter ~~1200-03-11~~ 0400-30-38, Chapter 1200-30-16, Chapter 1200-03-31, paragraph (4) of Rule 1200-03-09-.01~~(4)~~ or paragraph (5) of Rule 1200-03-09-.01~~(5)~~ are included in the criteria of this section ~~1200-03-09-.02(11)(f)5.(ii)(I)IV. A~~.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subitem V of item (I) of subpart (ii) of part 5 of subparagraph (f) of paragraph (11) of Rule 1200-03-09-.02 Operating Permits is amended by deleting it in its entirety and substituting instead the following:

V. Are not modifications under Title I of the Federal Act or the federal regulations promulgated pursuant thereto. Further, the minor permit modification process may be used only for changes that are not modifications under Chapter ~~1200-03-11~~ 0400-30-38, Chapter 1200-03-31, Chapter 1200-03-16, paragraph (4) of Rule 1200-03- 09-.01~~(4)~~ or paragraph (5) of Rule 1200-03-09-.01~~(5)~~; and

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Paragraph (1) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

(1) The permit exemptions listed in paragraph (4) of this rule do not apply if an air contaminant source is subject to a standard or requirement contained in the following, except if the air contaminant source belongs to a source category listed in paragraph (5) of Rule 1200-03-09-.07, even if the source itself is not eligible for authorization, or except where specifically stated:

Chapter ~~1200-03-11 (Hazardous air contaminants)~~ 0400-30-38 (Emission Standards for Hazardous Air Pollutants);
Chapter 1200-03-18 (Volatile organic compounds);
Chapter 1200-03-19 (Emission standards and monitoring requirements for additional control areas);
Chapter 1200-03-22 (Lead emission standards);
Chapter 1200-03-27 (Nitrogen oxides); and
Paragraph (2) of Rule 1200-03-31-.05~~(2)~~ (~~Case-by-case~~ Case-by-case determinations of hazardous air pollutant requirements).

In addition, the exemption provided for the air contaminant sources in paragraph (4) of this rule does not exempt the sources from inclusion in determining if a major stationary source or major modification construction permit is required under paragraphs (4) and (5) of Rule 1200-03-09-.01.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 10 of subparagraph (a) of paragraph (2) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

10. "Hazardous air pollutant" means any air contaminant regulated in Chapter ~~1200-03-11~~ 0400-30-38, or listed in ~~Chapter~~ paragraph (6) of Rule 1200-03-31-.02~~(6)~~.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 9 of subparagraph (d) of paragraph (4) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

9. Any emission unit with the potential to emit radionuclides which will result in a dose to the most exposed member of the public of less than 0.1 millirem per year. Even though radionuclide air contaminant sources are regulated under Chapter ~~1200-03-11~~ 0400-30-38, this exemption is still valid except that recordkeeping and reporting requirements must be met.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 15 of subparagraph (a) of paragraph (5) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

15. "Hazardous air pollutant" means any air contaminant regulated in Chapter ~~1200-03-11,~~ 0400-30-38 or listed in ~~Chapter~~ paragraph (6) of Rule 1200-03-31-.02~~(6)~~.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 3 of subparagraph (c) of paragraph (5) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

3. Any emission unit or activity which is a subset of a process emission source, fuel burning installation, or incinerator, and which has a potential to emit less than 5 tons per year of a regulated air pollutant, by annual certification of compliance as required in item (11)(d)1(ii)(I) of Rule 1200-03-09-.02~~(11)(d)1.(ii)(I)~~, may, at the discretion of the Technical Secretary, be considered to meet the monitoring and related recordkeeping and reporting requirements of subpart (11)(e)1(iii) of Rule 1200-03-09-.02~~(11)(e)1.(iii)~~ and part (2)(b)1 of Rule 1200-03-10-.04~~(2)(b)1.~~, and the compliance requirements of subpart (11)(e)3(i) of Rule 1200-03-09-.02~~(11)(e)3.(i)~~ for that regulated air pollutant except where generally applicable requirements of the state implementation plan specifically impose monitoring and related record keeping and reporting requirements, or except where any applicable procedures and methods are required pursuant to ~~rule~~ Rule 1200-03-10-.04. This provision shall not relieve any emissions unit or activity from any applicable standard or requirement under Chapters ~~1200-03-11~~ 0400-30-38 and 1200-03-31, and subparagraph (1)(dd) of Rule 1200-03-02-.01~~(1)(dd)~~.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Part 28 of subparagraph (f) of paragraph (5) of Rule 1200-03-09-.04 Exemptions is amended by deleting it in its entirety and substituting instead the following:

28. Vacuum cleaning systems used exclusively for industrial, commercial, or residential housekeeping purposes, except those systems used to collect hazardous air contaminants regulated by Chapter ~~1200-03-11~~ 0400-30-38.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-11
Hazardous Air Contaminants

Repeal

Chapter 1200-03-11 Hazardous Air Contaminants is Repealed.

~~Chapter 1200-03-11~~
~~Hazardous Air Contaminants~~

~~Table of Contents~~

~~1200-03-11-.01 GENERAL PROVISIONS.~~

~~(1) List of Pollutants and Applicability~~

~~(a) Hazardous air contaminants are any air contaminants which may cause, or contribute to, an increase in serious irreversible or incapacitating reversible illness, and has been so designated by the Board. The Board shall, from time to time, after public hearing, designate additional hazardous air contaminants. The following are hereby designated hazardous air contaminants:~~

~~1. Asbestos~~

~~2. Beryllium~~

~~3. Mercury~~

~~4. Vinyl Chloride~~

~~5. Benzene~~

~~6. Radionuclides~~

~~7. Inorganic Arsenic~~

~~(b) The sources covered by emission standards in this chapter are still subject to all provisions in the other chapters of the Tennessee Air Pollution Control Regulations.~~

~~(c) Unless otherwise noted, references to paragraph or subdivisions of paragraphs in rules in this chapter are to paragraphs or subdivisions of paragraphs in that rule.~~

~~(2) Permit and Information Requirements~~

~~(a) Any person constructing or modifying an air contaminant source that is subject to an emission~~

standard in this chapter must obtain a construction permit as outlined in rule 1200-03-09-.01.

(b) Any person planning to construct or modify a source of hazardous air contaminants shall file with the Technical Secretary, following the time frame outlined in rule 1200-03-09-.01, sufficient information to allow evaluation of the air pollution potential of the source. This information shall be submitted on forms provided by the Technical Secretary and as a minimum shall include:

1. Name and address of owner or operator;

2. The location or proposed location of the source;

3. Nature, size, design, operating design capacity, and method of operation of the source;

4. Identification of the hazardous air contaminant;

5. Emission rate(s) of the hazardous air contaminant;

6. Period or periods of operation;

7. Composition of the hazardous air contaminant;

8. Temperature and moisture content of the air or gas stream in which the hazardous air contaminant is contained;

9. Characterization of the variability of hazardous air contaminant release with respect to rate, composition and physical characteristics;

10. Height, velocity, and direction of air or gas stream at the point where released to the atmosphere;

11. A description of the control equipment for each emission point.

(i) Primary control device(s) for each hazardous pollutant.

(ii) Secondary control device(s) for each hazardous pollutant.

(iii) Estimated control efficiency (percent) for each control device.

12. Identify each point of emission for each hazardous air contaminant.

13. Such other information as may be specifically requested by the Technical Secretary.

(c) The owner or operator of one or more sources of hazardous air contaminants shall, within 90 days after notification by the Technical Secretary, submit to the Technical Secretary the information specified in parts 1. through 13. of subparagraph (b) above.

(d) Any owner or operator of a source which has an initial startup after the effective date of a standard prescribed under this chapter shall furnish written notification to the Technical Secretary as follows:

1. A notification of the anticipated date of initial startup of the source not more than 60 days nor less than 30 prior to such date.

2. A notification of the actual date of initial startup of the source within 15 days after such date.

(e) Within ninety (90) days after the effective date of any emission standard in this chapter, the owner or operator of a source to which the standard applies in existence or under construction on the effective date of the standard shall submit the information specified in part 1. through 13. in subparagraph (b) above. Along with this package of information, the owner or operator shall submit a statement as to whether he can comply with the standards prescribed in this chapter

within ninety (90) days of the said effective date.

(f) Changes in the information provided under subparagraphs (b), (c), and/or (e) of this paragraph shall be provided by the source to the Technical Secretary within 30 days after such change, except that if changes will result from modification of the source, as defined in chapter 1200-03-02, then the provisions in subparagraphs (a) and (b) of this paragraph apply.

(g) The owner or operator of any air contaminant source not previously required to have a permit (operating and/or construction) by the provisions of chapter 1200-03-09 must do so within 90 days after one of the sources' emissions has been designated by the Board as a hazardous air contaminant.

(3) Definitions

(a) ''Alternative method'' means any method of sampling and analyzing for an air pollutant which is not a reference method but which has been demonstrated to the Technical Secretary's satisfaction to produce results adequate for the Technical Secretary's determination of compliance.

(b) ''Capital expenditure'' means an expenditure for a physical or operational change to a stationary source which exceeds the product of the applicable ''annual asset guideline repair allowance percentage'' specified in the latest edition of Internal Revenue Service (IRS) Publication 534 and the stationary source's basis, as defined by section 1012 of the Internal Revenue Code. However, the total expenditure for a physical or operational change to a stationary source must not be reduced by any ''excluded additions'' as defined for stationary sources constructed after December 31, 1981, in IRS Publication 534, as would be done for tax purposes. In addition, ''annual asset guideline repair allowance'' may be used even though it is excluded for tax purposes in IRS Publication 534.

(c) ''Commenced'' means, with respect to the definition of ''new source'' in subparagraph (cc) of rule 1200-03-02-.01, that an owner or operator has undertaken a continuous program of construction or modification or that an owner or operator has entered into a contractual obligation to undertake and complete, within a reasonable time, a continuous program of construction or modification.

(d) ''Compliance schedule'' means the date or dates by which a source or category of sources is required to comply with the standards of this chapter.

(e) ''Construction'' means fabrication, erection, or installation of an affected facility.

(f) ''Equivalent method'' means any method of sampling and analyzing for an air pollutant which has been demonstrated to the Technical Secretary's satisfaction to have a consistent and quantitatively known relationship to the reference method, under specified conditions.

(g) ''Existing source'' means any stationary source which is not a new source.

(h) ''Modification'' means any physical change in, or change in the method of operation of, a stationary source which increases the amount of any hazardous air pollutant emitted by such source or which results in the emission of any hazardous air pollutant not previously emitted, except that:

1. Routine maintenance, repair, and replacement shall not be considered physical changes, and

2. The following shall not be considered a change in the method of operation:

(i) An increase in the production rate, if such increase does not exceed the operating design capacity of the stationary source;

(ii) An increase in hours of operation.

(i) ''Monitoring system'' means any system, required under the monitoring paragraphs in applicable

rules, used to sample and condition (if applicable), to analyze, and to provide a record of emissions or process parameters.

(j) "Run" means the net period of time during which an emission sample is collected. Unless otherwise specified, a run may be either intermittent or continuous within the limits of good engineering practice.

(k) "Standard" means an emission standard including a design, equipment, work practice or operational standard for a hazardous air pollutant promulgated under this chapter.

(l) "New source" means any stationary source, the construction or modification of which is commenced after the effective date of the rule for hazardous air pollutants which will be applicable to such source.

(m) "Owner or operator" means any person who owns, leases, operates, controls, or supervises a stationary source.

(n) "Reference method" means any method of sampling and analyzing for an air pollutant. Any references to reference methods in this chapter shall be to those reference methods set forth in Subparagraph 1200-03-16-.01(5)(g) unless otherwise stated in this chapter.

(o) "Startup" means the setting in operation of a stationary source for any purpose.

(p) "Stationary source" means any building, structure, facility, or installation which emits or may emit any air pollutant which has been designated as hazardous by the Technical Secretary.

(q) "ASTM Method" ASTM in this chapter refers to the American Society for Testing Materials. Copies of methods are available for purchase by writing to ASTM, 1916 Race Street, Philadelphia, PA 19103 or by writing to the Tennessee Division of Air Pollution Control, 701 Broadway, 4th Floor Customs House, Nashville, TN 37219. Be sure to specify which method is desired.

(r) "in VOC service" means that the piece of equipment contains or contacts a process fluid that is at least 10 percent Volatile Organic Compound (VOC) by weight.

(s) Reserved.

(4) Modification

(a) Except as provided under subparagraph (d) of this paragraph, any physical or operational change to a stationary source which results in an increase in the rate of emission to the atmosphere of a hazardous pollutant to which a standard applies shall be considered a modification.

(b) Upon modification, an existing source shall become a new source for each hazardous pollutant for which the rate of emission to the atmosphere increases and to which a standard applies.

(c) Emission rate shall be expressed as kg/hr for any hazardous pollutant discharged into the atmosphere for which a standard is applicable. The Technical Secretary shall use the following to determine the emission rate:

1. Emission factors as specified in the background information document (BID) for the applicable standard, or in the latest issue of "Compilation of Air Pollutant Emission Factors," EPA Publication No. AP-42, or other emission factors determined by the Technical Secretary to be superior to AP-42 emission factors, in cases where use of emission factors demonstrates that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change.

2. Material balances, monitoring data, or manual emission tests in cases where use of emission factors, as referenced in subparagraph (c)(1) of this paragraph, does not demonstrate to the Technical Secretary's satisfaction that the emission rate will clearly increase or clearly not increase as a result of the physical or operational change, or

where it is demonstrated to the Technical Secretary's satisfaction that there are reasonable grounds to dispute the result obtained by the Technical Secretary using emission factors. When the emission rate is based on results from manual emission tests or monitoring data, the procedures specified in the *Federal Register*, Vol. 40, December 16, 1975, beginning on page 58420, shall be used to determine whether an increase in emission rate has occurred. Tests shall be conducted under such conditions as the Technical Secretary shall specify to the owner or operator. At least three test runs must be conducted before and at least three after the physical or operational change. All operating parameters which may affect emissions must be held constant to the maximum degree feasible for all test runs.

(d) The following shall not, by themselves, be considered modifications under this chapter:

1. Maintenance, repair, and replacement which the Technical Secretary determines to be routine for a source category.

2. An increase in production rate of a stationary source, if that increase can be accomplished without a capital expenditure on the stationary source.

3. An increase in the hours of operation.

4. Any conversion to coal by reason of any order under section 2(a) and (b) of the Energy Supply and Environmental Coordination Act of 1974 (or any superseding legislation) or by reason of a natural gas curtailment plan pursuant to an applicable federal statute.

5. The relocation or change in ownership of a stationary source.

(5) Monitoring Requirements

(a) Unless otherwise specified, this paragraph applies to each monitoring system required under each rule which requires monitoring.

(b) Each owner or operator shall maintain and operate each monitoring system as specified in the applicable rule and in a manner consistent with good air pollution control practice for minimizing emissions. Any unavoidable breakdown or malfunction of the monitoring system should be repaired or adjusted as soon as practicable after its occurrence. The Technical Secretary's determination of whether acceptable operating and maintenance procedures are being used will be based on information which may include, but not be limited to, review of operating and maintenance procedures, manufacturer recommendations and specifications, and inspection of the monitoring system.

(c) When required by the applicable rule, and at any other time the Technical Secretary may require, the owner or operator of a source being monitored shall conduct a performance evaluation of the monitoring system and furnish the Technical Secretary with a copy of a written report of the results within 60 days of the evaluation. Such a performance evaluation shall be conducted according to the applicable specifications and procedures described in the applicable rule. The owner or operator of the source shall furnish the Technical Secretary with written notification of the date of the performance evaluation at least 30 days before the evaluation is to begin.

(d) When the effluents from a single source, or from two or more sources subject to the same emission standards, are combined before being released to the atmosphere, the owner or operator shall install a monitoring system on each effluent or on the combined effluent. If two or more sources are not subject to the same emission standards, the owner or operator shall install a separate monitoring system on each effluent, unless otherwise specified. If the applicable standard is a mass emission standard and the effluent from one source is released to the atmosphere through more than one point, the owner or operator shall install a monitoring system at each emission point unless the installation of fewer systems is approved by the Technical Secretary.

(e) The owner or operator of each monitoring system shall reduce the monitoring data as specified in each applicable rule. Monitoring data recorded during periods of unavoidable monitoring system

breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in any data average.

(f) The owner or operator shall maintain records of monitoring data, monitoring system calibration checks, and the occurrence and duration of any period during which the monitoring system is malfunctioning or inoperative. These records shall be maintained at the source for a minimum of 2 years and made available, upon request, for inspection by the Technical Secretary.

(g) 1. Monitoring shall be conducted as set forth in this paragraph and the applicable rule unless the Technical Secretary:

(i) Specifies or approves the use of the specified monitoring requirements and procedures with minor changes in methodology; or

(ii) Approves the use of alternatives to any monitoring requirements or procedures.

2. If the Technical Secretary finds reasonable grounds to dispute the results obtained by an alternative monitoring method, the Technical Secretary may require the monitoring requirements and procedures specified in this chapter.

Authority: T.C.A. §§ 4-5-201, et seq.; 4-5-202; 68-25-105; and 68-201-101, et seq.

1200-03-11-.02 ASBESTOS.

The provisions of this rule are applicable to those sources specified in 1200-03-11-.02(2)(a) through (l), 1200-03-11-.02(5) and 1200-03-11-.02(6).

(1) Definitions.

All terms that are used in this rule and are not defined below are given the same meaning as provided in Chapter 1200-03-02 DEFINITIONS.

(a) "Active waste disposal site" means any disposal site other than an inactive site.

(b) "Adequately wet" means sufficiently mix or penetrate with liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material, then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.

(c) "Asbestos" means the asbestiform varieties of serpentinite (chrysotile), riebeckite (crocidolite), cummingtonite-grunerite, anthophyllite, and actinolite-tremolite.

(d) "Asbestos-containing material" (ACM) means asbestos or any asbestos containing material, which contains more than 1 percent asbestos as determined using Polarized Light Microscopy according to the method specified in Appendix A, Subpart F, 40 CFR, Part 763, Section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR.

(e) "Asbestos-containing waste materials" means mill tailings or any waste that contains commercial asbestos and is generated by a source subject to the provisions of this rule. This term includes filters from control devices, friable asbestos waste material, and bags or other similar packaging contaminated with commercial asbestos. As applied to demolition and renovation operations, this term also includes regulated asbestos-containing material waste and materials contaminated with asbestos including disposable equipment and clothing.

(f) "Asbestos mill" means any facility engaged in converting, or in any intermediate step in converting, asbestos ore into commercial asbestos. Outside storage of asbestos material is not considered a part of the asbestos mill.

(g) "Asbestos tailings" means any solid waste that contains asbestos and is a product of asbestos mining or milling operations.

(h) "Asbestos waste from control devices" means any waste material that contains asbestos and is collected by a pollution control device.

(i) "Category I nonfriable ACM" means asbestos-containing packings, gaskets, resilient floor covering, and asphalt roofing products, containing more than 1 percent asbestos as determined using polarized light microscopy according to the method specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR.

(j) "Category II nonfriable ACM" means any material, excluding Category I nonfriable ACM, containing more than 1 percent asbestos, as determined using polarized light microscopy according to the methods specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

(k) "Commercial asbestos" means any material containing asbestos that is extracted from ore and has value because of its asbestos content.

(l) "Cutting" means to penetrate with a sharp-edged instrument and includes sawing but does not include shearing, slicing, or punching.

(m) "Demolition" means the wrecking or taking out of any load-supporting structural member of a facility together with any related handling operations or the intentional burning of any facility.

(n) "Emergency renovation operation" means a renovation operation that was not planned but results from a sudden, unexpected event that, if not immediately attended to, presents a safety or public health hazard, is necessary to protect equipment from damage, or is necessary to avoid imposing an unreasonable financial burden. This term includes operations necessitated by nonroutine failures of equipment.

(o) "Fabricating" means any processing (e.g., cutting, sawing, drilling) of a manufactured product that contains commercial asbestos, with the exception of processing at temporary sites (field fabricating) for the construction or restoration of facilities. In the case of friction products, fabricating includes bonding, debonding, grinding, sawing, drilling, or other similar operations performed as part of fabricating.

(p) "Facility" means any institutional, commercial, public, industrial, or residential structure, installation, or building (including any structure, installation, or building containing condominiums or individual dwelling units operated as a residential cooperative, but excluding residential buildings having four or fewer dwelling units); any ship; and any active or inactive waste disposal site. For purposes of this definition, any building, structure, or installation that contains a loft used as a dwelling is not considered a residential structure, installation, or building. Any structure, installation or building that was previously subject to this rule is not excluded, regardless of its current use or function.

(q) "Facility component" means any part of a facility including equipment.

(r) "Friable asbestos material" means any material containing more than 1 percent asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. If the asbestos content is less than 10 percent as determined by a method other than point counting by polarized light microscopy (PLM), verify the asbestos content by point counting using PLM.

(s) "Fugitive source" means any source of emissions not controlled by an air pollution control device.

(t) "Glove bag" means a sealed compartment with attached inner gloves used for the handling of asbestos-containing materials. Properly installed and used, glove bags provide a small work area enclosure typically used for small scale asbestos stripping operations. Information on glove bag installation, equipment and supplies, and work practices is contained in the Occupational Safety and Health Administration's (OSHA's) final rule on occupational exposure to asbestos (Appendix

G to 29 CFR 1926.58, as contained in the 7-1-91 Edition of the CFR).

(u) "Grinding" means to reduce to powder or small fragments and includes mechanical chipping or drilling.

(v) "Inactive waste disposal site" means any disposal site or portion of it where additional asbestos-containing waste material has not been deposited within the past year.

(w) "In poor condition" means the binding of the material is losing its integrity as indicated by peeling, cracking, or crumbling of the material.

(x) "Installation" means any building or structure or any group of buildings or structures at a single demolition or renovation site that are under the control of the same owner or operator (or owner or operator under common control).

(y) "Leak-tight" means that solids or liquids cannot escape or spill out. It also means dust-tight.

(z) "Malfunction" means any sudden and unavoidable failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner so that emissions of asbestos are increased. Failures of equipment shall not be considered malfunctions if they are caused in any way by poor maintenance, careless operation, or any other preventable upset conditions, equipment breakdown, or process failure.

(aa) "Manufacturing" means the combining of commercial asbestos -- or, in the case of woven friction products, the combining of textiles containing commercial asbestos -- with any other material(s), including commercial asbestos, and the processing of this combination into a product. Chlorine production is considered a part of manufacturing.

(bb) "Natural barrier" means a natural object that effectively precludes or deters access. Natural barriers include physical obstacles such as cliffs, lakes or other large bodies of water, deep and wide ravines, and mountains. Remoteness by itself is not a natural barrier.

(cc) "Nonfriable asbestos material" means any material containing more than 1 percent asbestos by area as determined by the method specified in Appendix A, Subpart F, 40 CFR Part 763 section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure.

(dd) "Nonscheduled renovation operation" means a renovation operation necessitated by the routine failure of equipment, which is expected to occur within a given period based on past operating experience, but for which an exact date cannot be predicted.

(ee) "Owner or operator of a demolition or renovation activity" means any person who owns, leases, operates, controls, or supervises the facility being demolished or renovated or any person who owns, leases, operates, controls, or supervises the demolition or renovation operation, or both.

(ff) "Outside air" means the air outside buildings and structures, including, but not limited to, the air under a bridge or in an open air ferry dock.

(gg) "Particulate asbestos material" means finely divided particles of asbestos or material containing asbestos.

(hh) "Planned renovation operations" means a renovation operation, or a number of such operations, in which some RACM will be removed or stripped within a given period of time and that can be predicted. Individual nonscheduled operations are included if a number of such operations can be predicted to occur during a given period of time based on operating experience.

(ii) "Regulated asbestos-containing material (RACM)" means

1. Friable asbestos material,

2. Category I nonfriable ACM that has become friable,

3. Category I nonfriable ACM that will be or has been subjected to sanding, grinding, cutting, or abrading, or

4. Category II nonfriable ACM that has a high probability of becoming or has become crumbled, pulverized, or reduced to powder by the forces expected to act on the material in the course of the demolition or renovation operations regulated by this rule.

(jj) "Remove" means to take out RACM or facility components that contain or are covered with RACM from any facility.

(kk) "Renovation" means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.

(ll) "Resilient floor covering" means asbestos-containing floor tile, including asphalt and vinyl floor tile, and sheet vinyl floor covering containing more than 1 percent asbestos as determined using polarized light microscopy according to the method specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR.

(mm) "Roadways" means surfaces on which vehicles travel. This term includes public and private highways, roads, streets, parking areas, and driveways.

(nn) "Strip" means to take off RACM from any part of a facility or facility components.

(oo) "Structural member" means any load supporting member of a facility, such as beams and load supporting walls; or any nonload supporting member, such as ceilings and nonload-supporting walls.

(pp) "Visible emissions" means any emissions, which are visually detectable without the aid of instruments, coming from RACM or asbestos-containing waste material, or from any asbestos milling, manufacturing, or fabricating operation. This does not include condensed, uncombined water vapor.

(qq) "Waste generator" means any owner or operator of a source covered by this rule whose act or process produces asbestos-containing waste material.

(rr) "Waste shipment record" means the shipping document, required to be originated and signed by the waste generator, used to track and substantiate the disposition of asbestos-containing waste material.

(ss) "Working day" means Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

(2) Standard for various sources of asbestos.

(a) Standard for asbestos mills.

1. Each owner or operator of an asbestos mill shall either discharge no visible emissions to the outside air from that asbestos mill, including fugitive sources, or use the methods specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

2. Each owner or operator of an asbestos mill shall meet the following requirements:

(i) Monitor each potential source of asbestos emissions from any part of the mill facility, including air cleaning devices, process equipment, and buildings that house equipment for material processing and handling, at least once each day, during daylight hours, for visible emissions to the outside air during periods of operation. The monitoring shall be by visual observation of at least 15 seconds duration per source of emissions.

(ii) Inspect each air cleaning device at least once each week for proper operation and for changes that signal the potential for malfunction, including, to the maximum extent possible without dismantling other than opening the device, the presence of tears, holes, and abrasions in filter bags and for dust deposits on the clean side of bags. For air cleaning devices that cannot be inspected on a weekly basis according to this rule, submit to the Technical Secretary, and revise as necessary, a written maintenance plan to include, at a minimum, the following:

(I) Maintenance schedule.

(II) Recordkeeping plan.

(iii) Maintain records of the results of visible emissions monitoring and control device inspections using the forms shown in Figures 1 and 2 and include the following:

(I) Date and time of each inspection.

(II) Presence or absence of visible emissions.

(III) Condition of fabric filters, including presence of any tears, holes, and abrasions.

(IV) Presence of dust deposits on clean side of fabric filters.

(V) Brief description of corrective actions taken, including date and time.

(VI) Daily hours of operation for each control device.

(iv) Furnish upon request, and make available during normal business hours for inspection by the Technical Secretary, all records required under this paragraph.

(v) Retain a copy of all monitoring and inspection records for at least 2 years.

(vi) Submit quarterly a copy of the visible emission monitoring records to the Technical Secretary if visible emissions occurred during the report period. Quarterly reports shall be postmarked by the 30th day following the end of the calendar quarter.

(b) Standard for roadways. No person may construct or maintain a roadway with asbestos tailings or asbestos-containing waste material on that roadway, unless, for asbestos tailings,

1. It is a temporary roadway on an area of asbestos ore deposits (asbestos mine); or

2. It is a temporary roadway at an active asbestos mill site and is encapsulated with a resinous or bituminous binder. The encapsulated road surface must be maintained at a minimum frequency of once per year to prevent dust emissions; or

3. It is encapsulated in asphalt concrete meeting the specifications contained in Section 401 of Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects, FP-85, 1985, or their equivalent.

(c) Standard for manufacturing.

1. Applicability. This standard applies to the following manufacturing operations using commercial asbestos:

(i) The manufacture of cloth, cord, wicks, tubing, tape, twine, rope, thread, yarn, roving lap, or other textile materials.

(ii) The manufacture of cement products.

(iii) The manufacturing of fireproofing and insulating materials.

(iv) The manufacture of friction products.

(v) The manufacture of paper, millboard, and felt.

(vi) The manufacture of floor tile.

(vii) The manufacture of paints, coatings, caulks, adhesives, and sealants.

(viii) The manufacture of plastics and rubber materials.

(ix) The manufacture of chlorine utilizing asbestos diaphragm technology.

(x) The manufacture of shotgun shell wads.

(xi) The manufacture of asphalt concrete.

2. Standard. Each owner or operator of the manufacturing operations to which this Subparagraph (2)(c) applies shall either:

(i) Discharge no visible emissions to the outside air from these operations or from any building or structure in which they are conducted or from any other fugitive sources; or

(ii) Use the methods specified by 1200-03-11-.02(3) to clean emissions from these operations containing particulate asbestos material before they escape to, or are vented to, the outside air.

(iii) Monitor each potential source of asbestos emissions from any part of the manufacturing facility, including air cleaning devices, process equipment, and buildings housing material processing and handling equipment, at least once each day during daylight hours for visible emissions to the outside air during periods of operation. The monitoring shall be by visual observation of at least 15 seconds duration per source of emissions.

(iv) Inspect each air cleaning device at least once each week for proper operation and for changes that signal the potential for malfunctions, including, to the maximum extent possible without dismantling other than opening the device, the presence of tears, holes, and abrasions in filter bags and for dust deposits on the clean side of bags. For air cleaning devices that cannot be inspected on a weekly basis according to this rule, submit to the Technical Secretary, and revise as necessary, a written maintenance plan to include, at a minimum, the following:

(I) Maintenance schedule.

(II) Recordkeeping plan

(v) Maintain records of the results of visible emission monitoring and air cleaning device inspections using a format similar to that shown in Figures 1 and 2 and include the following:

(I) Date and time of each inspection.

(II) Presence or absence of visible emissions.

(III) Condition of fabric filters, including presence of any tears, holes, and abrasions.

(IV) Presence of dust deposits on clean side of fabric filters.

(V) Brief description of corrective actions taken, including date and time.

(VI) Daily hours of operation for each control device.

(vi) Furnish upon request, and make available during normal business hours for inspection by the Technical Secretary, all records required under this subparagraph (2)(c).

(vii) Retain a copy of all monitoring and inspection records for at least 2 years.

(viii) Submit quarterly a copy of the visible emission monitoring records to the Technical Secretary if visible emissions occurred during the report period. Quarterly reports shall be postmarked by the 30th day following the end of the calendar quarter.

(d) Standard for demolition and renovation.

1. Applicability. To determine which requirements of parts 1., 2., and 3. of this subparagraph apply to the owner or operator of a demolition or renovation activity and prior to the commencement of the demolition or renovation, thoroughly inspect the affected facility or part of the facility where the demolition or renovation operation will occur for the presence of asbestos, including Category I and Category II nonfriable ACM. The requirements of parts 2. and 3. of this subparagraph apply to each owner or operator of a demolition or renovation activity, including the removal of RACM as follows:

(i) Requirements of Parts 2. and 3. of this subparagraph apply, except as provided in Subpart 1.(iii) of this subparagraph, if the amount of RACM is

(I) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or

(II) At least 1 cubic meter (35 cubic feet) of facility components where the length or area could not be measured previously.

(ii) In a facility being demolished, only the notification requirements of subparts 2.(i), (ii), (iii)(I) and (IV), and (iv)(I) through (VII) and (iv)(IX) and (XVI) of this subparagraph apply, if the amount of RACM is

(I) Less than 80 linear meters (260 linear feet) on pipes and less than 15 square meters (160 square feet) on other facility components, and

(II) Less than one cubic meter (35 cubic feet) of facility components where the length or area could not be measured previously, or there is no asbestos.

(iii) If the facility is being demolished under an order of a State or local government agency, issued because the facility is structurally unsound and in danger of imminent collapse, only the requirements of subparts 2.(i), 2.(ii),2.(iii)(III), 2.(iv) (except 2.(iv)(VIII)), 2.(v), and 3.(iv) through 3.(ix) of this subparagraph apply.

(iv) In a facility being renovated, including any individual nonscheduled renovation operation, all the requirements of parts 2. and 3. of this subparagraph apply if the combined amount of RACM stripped, removed, dislodged, cut, drilled, or similarly disturbed is

(I) At least 80 linear meters (260 linear feet) on pipes or at least 15 square meters (160 square feet) on other facility components, or

(II) At least 1 cubic meter (35 cubic feet) off facility components where the length or area could not be measured previously.

(III) To determine whether subpart 1.(iv) of this subparagraph applies to planned renovation operations involving individual nonscheduled operations, predict the combined additive amount of RACM to be removed or stripped during a calendar year of January 1 through December 31.

(IV) To determine whether subpart 1.(iv) of this subparagraph applies to emergency renovation operations, estimate the combined amount of RACM to be removed or stripped as a result of the sudden, unexpected event that necessitated the renovation.

(v) Owners or operators of demolition and renovation operations are exempt from the requirements of subparagraphs 1200-03-11-.01(2)(a), 1200-03-11-.01(2)(b), and 1200-03-11-.01(2)(d).

2. Notification requirements. Each owner or operator of a demolition or renovation activity to which this subparagraph applies shall:

(i) Provide the Technical Secretary with written notice of intention to demolish or renovate. Delivery of the notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

(ii) Update notice, as necessary, including when the amount of asbestos affected changes by at least 20 percent.

(iii) Postmark or deliver the notice as follows:

(I) At least 10 working days before asbestos stripping or removal work or any other activity begins (such as site preparation that would break up, dislodge or similarly disturb asbestos material), if the operation is described in subparts 1(i) and (iv) (except 1(iv)(III) and 1(iv)(IV)) of this subparagraph. If the operation is as described in subpart 1.(ii) of this subparagraph, notification is required 10 working days before demolition begins.

(II) At least 10 working days before the end of the calendar year preceding the year for which notice is being given for renovations described in item 1.(iv)(III) of this subparagraph.

(III) As early as possible before, but not later than, the following working day if the operation is a demolition ordered according to subpart 1.(iii) of this subparagraph or, if the operation is a renovation described in item 1.(iv)(IV) of this subparagraph.

(IV) For asbestos stripping or removal work in a demolition or renovation operation, described in subparts 1.(i) and (iv) (except 1.(iv)(III) and 1.(iv)(IV)) of this subparagraph, and for a demolition described in subparts 1.(ii) of this subparagraph, that will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Technical Secretary as follows:

I. When the asbestos stripping or removal operation or demolition operation covered by this rule will begin after the date contained in the notice,

A. Notify Technical Secretary of the new start date by telephone as soon as possible before the original start date, and

B. Provide Technical Secretary a written notice of the new

start date as soon as possible before, and no later than, the original start date. Delivery of the updated notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

II. When the asbestos stripping or removal operation or demolition operation covered by this subparagraph will begin on a date earlier than the original start date,

A. Provide the Technical Secretary a written notice of the new start date at least 10 working days before asbestos stripping or removal work begins.

B. For demolitions covered by subpart 1.(ii) of this subparagraph, provide the Technical Secretary with written notice of a new start date at least 10 working days before commencement of demolition. Delivery of updated notice by U.S. Postal Service, commercial delivery service, or hand delivery is acceptable.

III. In no event shall an operation covered by this subparagraph begin on a date other than the date contained in the written notice of the new start date.

(iv) Include the following in the notice:

(I) An indication of whether the notice is the original or a revised notification.

(II) Name, address, and telephone number of both the facility owner and operator and the asbestos removal contractor owner or operator.

(III) Type of operation: demolition or renovation.

(IV) Indicate whether or not asbestos is present in the building.

(V) Location and address (including building number or name and floor or room number, if appropriate), street address, city, county, and state, of the facility being demolished or renovated. Description of the facility or affected part of the facility including the size (square meters [square feet] and number of floors), age, and present and prior use of the facility.

(VI) Procedure, including analytical methods, employed to detect the presence of RACM and Category I and Category II nonfriable ACM.

(VII) Estimate of the approximate amount of RACM to be removed from the facility in terms of length of pipe in linear meters (linear feet), surface area in square meters (square feet) on other facility components, or volume in cubic meters (cubic feet) if off the facility components. Also, estimate the approximate amount of Category I and Category II nonfriable ACM in the affected part of the facility that will not be removed during renovation or before demolition.

(VIII) Scheduled starting and completion dates of asbestos removal work (or any other activity, such as site preparation that would break up, dislodge, or similarly disturb asbestos material) in a demolition or renovation; planned renovation operations involving individual nonscheduled operations shall only include the beginning and ending dates of the report period as described in item 1.(iv)(III) of this subparagraph. Also report the day(s) of the week and work hours the project will take place.

(IX) Scheduled starting and completion dates of demolition or renovation.

(X) Description of planned demolition or renovation work to be performed and method(s) to be employed, including demolition or renovation techniques to be used and description of affected facility components.

(XI) Description of work practices and engineering controls to be used to comply with the requirements of this rule, including asbestos removal and waste handling emission control procedures.

(XII) Name, address, phone number and contact of the firm who will transport the asbestos material to the waste disposal site. If a second transporter is involved, also list this firm.

(XIII) Name and location of the waste disposal site where the asbestos-containing waste material will be deposited.

(XIV) For facilities described in subpart 1.(iii) of this subparagraph, the name, title, and authority of the State or local government representative who has ordered the demolition, the date that the order was issued, and the date on which the demolition was ordered to begin. A copy of the order shall be attached to the notification.

(XV) For emergency renovations described in item 1.(iv)(IV) of this subparagraph, the date and hour that the emergency occurred, a description of the sudden, unexpected event, and an explanation of how the event caused an unsafe condition, or would cause equipment damage or an unreasonable financial burden.

(XVI) Description of procedures to be followed in the event that unexpected RACM is found or Category II nonfriable ACM becomes crumbled, pulverized, or reduced to powder.

(XVII) A certification that only a person trained as required by subpart 3.(viii) of this subparagraph will supervise the stripping and removal described by this notification.

(XVIII) The signature of the Owner/Operator and the date certifying that the notification information is correct.

(v) The information required in subpart 2.(iv) of this subparagraph must be reported using the form shown in Figure 3.

3. Procedures for asbestos emission control. Each owner or operator of a demolition or renovation activity to whom this subparagraph applies, according to subpart 1. of this subparagraph, shall comply with the following procedures:

(i) Remove all RACM from a facility being demolished or renovated before any activity begins that would break up, dislodge, or similarly disturb the material or preclude access to the material for subsequent removal. RACM need not be removed before demolition if:

(I) It is Category I nonfriable ACM that is not in poor condition and is not friable.

(II) It is on a facility component that is encased in concrete or other similarly hard material and is adequately wet whenever exposed during demolition; or

(III) It was not accessible for testing and was, therefore, not discovered until after demolition began and, as a result of the demolition, the material cannot be safely removed. If not removed for safety reasons, the

exposed RACM and any asbestos-contaminated debris must be treated as asbestos-containing waste material and must be adequately wet at all times until disposed of.

(IV) They are Category II nonfriable ACM and the probability is low that the materials will become crumbled, pulverized, or reduced to powder during demolition.

(ii) When a facility component that contains, is covered with, or is coated with RACM is being taken out of the facility as a unit or in sections:

(I) Adequately wet all RACM exposed during cutting or disjoining operations; and

(II) Carefully lower each unit or section to the floor and to ground level, not dropping, throwing, sliding, or otherwise damaging or disturbing the RACM.

(iii) When RACM is stripped from a facility component while it remains in place in the facility, adequately wet the RACM during the stripping operation.

(I) In renovation operations, wetting is not required if:

I. The owner or operator has obtained prior written approval from the Technical Secretary after his consultation with the EPA Regional Administrator, based on a written application that wetting to comply with this subparagraph would unavoidably damage equipment or present a safety hazard; and

II. The owner or operator uses one of the following emission control methods:

A. A local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping and removal of the asbestos materials. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in 1200-03-11-.02(3).

B. A glove bag system designed and operated to contain the particulate asbestos material produced by the stripping of the asbestos materials.

C. Leak-tight wrapping to contain all RACM prior to dismantlement.

(II) In renovation operations where wetting would result in equipment damage or a safety hazard, and the methods allowed in item 3.(iii)(I) of this subparagraph cannot be used, another method may be used after obtaining written approval from the Technical Secretary after his consultation with the EPA Regional Administrator, based upon a determination that it is equivalent to wetting in controlling emissions or to the methods allowed in item 3.(iii)(I) of this subparagraph.

(III) A copy of the Technical Secretary's written approval shall be kept at the worksite and made available for inspection.

(iv) After a facility component covered, coated, or containing RACM has been taken out of the facility as a unit or in sections pursuant to subpart 3.(ii) of this subparagraph, it shall be stripped or contained in leak-tight wrapping, except as

described in subpart 3.(v) of this subparagraph. If stripped, either:

(I) Adequately wet the RACM during stripping; or

(II) Use a local exhaust ventilation and collection system designed and operated to capture the particulate asbestos material produced by the stripping. The system must exhibit no visible emissions to the outside air or be designed and operated in accordance with the requirements in 1200-03-11-.02(3).

(v) For large facility components such as reactor vessels, large tanks, and steam generators, but not beams (which must be handled in accordance with subpart 3.(ii), (iii), and (iv) of this subparagraph), the RACM is not required to be stripped if the following requirements are met:

(I) The component is removed, transported, stored, disposed of, or reused without disturbing or damaging the RACM.

(II) The component is encased in a leak-tight wrapping.

(III) The leak-tight wrapping is labeled according to 1200-03-11-.02(2)(k)4.(i)(I), (II), and (III) during all loading and unloading operations and during storage.

(vi) For all RACM, including material that has been removed or stripped:

(I) Adequately wet the material and ensure that it remains wet until collected and contained or treated in preparation for disposal in accordance with 1200-03-11-.02(2)(j); and

(II) Carefully lower the material to the ground and floor, not dropping, throwing, sliding, or otherwise damaging or disturbing the material.

(III) Transport the material to the ground via leak-tight chutes or containers if it has been removed or stripped more than 50 feet above ground level and was not removed as units or in sections.

(IV) RACM contained in leak-tight wrapping that has been removed in accordance with subpart 3.(iv) and 3.(iii)(I)II.C. of this subparagraph need not be wetted.

(vii) When the temperature at the point of wetting is below 0°C (32°F):

(I) The owner or operator need not comply with item 3.(ii)(I) and the wetting provisions of subpart 3.(iii) of this subparagraph.

(II) The owner or operator shall remove facility components containing, coated, or covered with RACM as units or in sections to the maximum extent possible.

(III) During periods when wetting operations are suspended due to freezing temperatures, the owner or operator must record the temperature in the area containing the facility components at the beginning, middle, and end of each workday and keep daily temperature records available for inspection by the Technical Secretary during normal business hours at the demolition or renovation site. The owner or operator shall retain the temperature records for at least 2 years.

(viii) No RACM shall be stripped, removed, or otherwise handled or disturbed at a facility regulated by this subparagraph unless at least one on-site representative, such as a foreman or management-level person or other authorized

representative, trained in the provisions of this regulation and the means of complying with them is present. Every 2 years, the trained on-site individual shall receive refresher training in the provisions of this regulation. The required training shall include as a minimum: applicability; notifications; material identification; control procedures for removals, including, at least, wetting, local exhaust ventilation, negative pressure enclosures, glove bag procedures, and High Efficiency Particulate Air (HEPA) filters; waste disposal work practices; reporting and recordkeeping; and asbestos hazards and worker protection. Evidence that the required training has been completed shall be posted and made available for inspection by the Technical Secretary at the demolition or renovation site.

(ix) For facilities described in subpart 1.(iii) of this subparagraph, adequately wet the portion of the facility that contains RACM during the wrecking operation.

(x) If a facility is demolished by intentional burning, all RACM including Category I and Category II nonfriable ACM must be removed in accordance with this rule before burning.

(e) Standard for spraying. The owner or operator of an operation in which asbestos-containing materials are spray applied shall comply with the following requirements:

1. For spray-on application on buildings, structures, pipes, and conduits, do not use material containing more than 1 percent asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, except as provided in part 3. of this subparagraph.

2. For spray-on application of materials that contain more than 1 percent asbestos as determined using method specified in Appendix A, Subpart F, 40 CFR Part 763, section 1, Polarized Light Microscopy, as contained in the 7-1-91 Edition of the CFR, on equipment and machinery, except as provided in part 3. of this subparagraph:

(i) Notify the Technical Secretary at least 20 days before beginning the spraying operation. Include the following information in the notice:

(I) Name and address of owner or operator.

(II) Location of spraying operation.

(III) Procedures to be followed to meet the requirements of this subparagraph.

(ii) Discharge no visible emissions to the outside air from spray-on application of the asbestos-containing material or use the methods specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

3. The requirements of subparts 1. and 2. of this subparagraph do not apply to the spray-on application of materials where the asbestos fibers in the materials are encapsulated with a bituminous or resinous binder during spraying and the materials are not friable after drying.

4. Owners or operators of sources subject to this subparagraph are exempt from the requirements of paragraph 1200-03-11-.01(2)(a) and (d).

(f) (Reserved)

(g) (Reserved)

(h) Standard for fabricating.

1. Applicability. This subparagraph applies to the following fabricating operations using commercial asbestos:

(i) The fabrication of cement building products.

(ii) The fabrication of friction products, except those operations that primarily install asbestos friction materials on motor vehicles.

(iii) The fabrication of cement or silicate board for ventilation hoods: ovens; electrical panels; laboratory furniture, bulkheads, partitions, and ceilings for marine construction; and flow control devices for the molten metal industry.

2. Standard. Each owner or operator of any of the fabricating operations to which this subparagraph applies shall either:

(i) Discharge no visible emissions to the outside air from any of the operations or from any building or structure in which they are conducted or from any other fugitive sources; or

(ii) Use the methods specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(iii) Monitor each potential source of asbestos emissions from any part of the fabricating facility, including air cleaning devices, process equipment, and buildings that house equipment for material processing and handling, at least once each day, during daylight hours, for visible emissions to the outside air during periods of operation. The monitoring shall be by visual observation of at least 15 seconds duration per source of emissions.

(iv) Inspect each air cleaning device at least once each week for proper operation and for changes that signal the potential for malfunctions, including, to the maximum extent possible without dismantling other than opening the device, the presence of tears, holes, and abrasions in filter bags and for dust deposits on the clean side of bags. For air cleaning devices that cannot be inspected on a weekly basis according to this rule, submit to the Technical Secretary, and revise as necessary, a written maintenance plan to include, at a minimum, the following:

(I) Maintenance schedule.

(II) Recordkeeping plan.

(v) Maintain records of the results of visible emission monitoring and air cleaning device inspections using the form(s) shown in Figures 1 and 2 and include the following:

(I) Date and time of each inspection.

(II) Presence or absence of visible emissions.

(III) Condition of fabric filters, including presence of any tears, holes, and abrasions.

(IV) Presence of dust deposits on clean side of fabric filters.

(V) Brief description of corrective actions taken, including date and time.

(VI) Daily hours of operation for each control device.

(vi) Furnish upon request and make available during normal business hours for inspection by the Technical Secretary, all records required under this

subparagraph.

(vii) Retain a copy of all monitoring and inspection records for at least 2 years.

(viii) Submit quarterly a copy of the visible emission monitoring records to the Technical Secretary if visible emissions occurred during the report period. Quarterly reports shall be postmarked by the 30th day following the end of the calendar quarter.

(i) Standard for insulating materials.

No owner or operator of a facility may install or reinstall on a facility component any insulating materials that contain commercial asbestos if the materials are either molded and friable or wet-applied and friable after drying. The provisions of this subparagraph do not apply to spray-applied insulating materials regulated under 1200-03-11-.02(2)(e).

(j) Standard for waste disposal for manufacturing, fabricating, demolition, renovation, and spraying operations.

Each owner or operator of any source covered under the provisions of 1200-03-11-.02(2)(c), 1200-03-11-.02(2)(d), 1200-03-11-.02(2)(e), and 1200-03-11-.02(2)(h) shall comply with the following provisions:

1. Discharge no visible emissions to the outside air during the collection, processing (including incineration), packaging, or transporting of any asbestos-containing waste material generated by the source, or use one of the emission control and waste treatment methods specified in subparts 1.(i) through (iv) of this subparagraph.

(i) Adequately wet asbestos-containing waste material as follows:

(I) Mix control device asbestos waste to form a slurry; adequately wet other asbestos-containing waste material; and

(II) Discharge no visible emissions to the outside air from collection, mixing, wetting, and handling operations, or use the methods specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air; and

(III) After wetting, seal all asbestos-containing waste material in leak-tight containers while wet; or, for materials that will not fit into containers without additional breaking, put materials into leak-tight wrapping; and

(IV) Label the containers or wrapped materials specified in item 1.(i)(III) of this subparagraph using warning labels specified by Occupational Safety and Health Standards of the Department of Labor, Occupational Safety and Health Administration (OSHA) under 29 CFR 1910.1001(j)(2) or 1926.58(k)(2)(iii), as contained in the 7-1-91 Edition of the CFR. The labels shall be printed in letters of sufficient size and contrast so as to be readily visible and legible.

(V) For asbestos-containing waste material to be transported off the facility site, label containers or wrapped materials with the name of the waste generator and the location at which the waste was generated.

(ii) Process asbestos-containing waste material into nonfriable forms as follows:

(I) Form all asbestos-containing waste material into nonfriable pellets or other shapes;

(II) Discharge no visible emissions to the outside air from collection and processing operations, including incineration, or use the method

specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(iii) For facilities demolished where the RACM is not removed prior to demolition according to 1200-03-11-.02(2)(d)3.(i)(I), (II), (III), and (IV) or for facilities demolished according to 1200-03-11-.02(2)(d)3.(ix), adequately wet asbestos-containing waste material at all times after demolition and keep wet during handling and loading for transport to disposal site. Asbestos-containing waste materials covered by this subparagraph do not have to be sealed in leak-tight containers or wrapping but may be transported and disposed of in bulk.

(iv) Use an alternative emission control and waste treatment method that has received prior approval by the Administrator of the EPA and the Technical Secretary according to the procedure described in 1200-03-11-.02(2)(k)3.(ii).

(v) As applied to demolition and renovation, the requirements of part 1. of this subparagraph do not apply to Category I nonfriable ACM waste and Category II nonfriable ACM waste that did not become crumbled, pulverized, or reduced to powder.

2. All asbestos-containing waste material shall be deposited as soon as is practical by the waste generator at:

(i) A waste disposal site operated in accordance with the provisions of 1200-03-11-.02(5), or

(ii) An EPA-approved site that converts RACM and asbestos-containing waste material into nonasbestos (asbestos-free) material according to the provisions of 1200-03-11-.02(6).

(iii) The requirements of part 2. of this subparagraph do not apply to Category I nonfriable ACM that is not RACM.

3. Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of waste so that the signs are visible. The markings must conform to the requirements of 1200-03-11-.02(2)(k)4.(i)(I), (II), and, (III).

4. For all asbestos-containing waste material transported off the facility site:

(i) Maintain waste shipment records, using the form shown in Figure 4, and include the following information:

(I) The name, address, and telephone number of the waste generator.

(II) The name and address of the local or State agency responsible for administering the asbestos NESHAP program.

(III) The approximate quantity in cubic meters (cubic yards).

(IV) The name and telephone number of the disposal site operator.

(V) The name and physical site location of the disposal site and the disposal facility permit number.

(VI) The date transported.

(VII) The name, address, and telephone number of the transporter(s).

(VIII) A certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified,

packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

(ii) Provide a copy of the waste shipment record, described in subpart 4.(i) of this subparagraph, to the disposal site owners or operators at the same time as the asbestos-containing waste material is delivered to the disposal site.

(iii) For waste shipments where a copy of the waste shipment record, signed by the owner or operator of the designated treatment or disposal site, is not received by the waste generator within 35 days of the date the waste was accepted by the initial transporter, contact the transporter and/or the owner or operator of the designated treatment or disposal site meeting the requirements of this rule to determine the status of the waste shipment.

(iv) Report in writing to the local or State office responsible for administering the asbestos NESHAP program for the waste generator if a copy of the waste shipment record, signed by the owner or operator of the designated waste treatment or disposal site, is not received by the waste generator within 45 days of the date the waste was accepted by the initial transporter. Include in the report the following information.

(I) A copy of the waste shipment record for which a confirmation of delivery was not received, and

(II) A cover letter signed by the waste generator explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts.

(v) Retain a copy of all waste shipment records, including a copy of the waste shipment record signed by the owner or operator of the designated waste disposal site, for at least 2 years.

5. Furnish upon request, and make available for inspection by the Technical Secretary, all records required under this subparagraph.

(k) Standard for waste disposal for asbestos mills.

Each owner or operator of any source covered under the provisions of 1200-03-11-.02(2)(a) shall:

1. Deposit all asbestos-containing waste material at a waste disposal site operated in accordance with the provisions of 1200-03-11-.02(5); and

2. Discharge no visible emissions to the outside air from the transfer of control device asbestos waste to the tailings conveyor, or use the methods specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air. Dispose of the asbestos waste from control devices in accordance with 1200-03-11-.02(2)(j)1. or part 3. of this subparagraph; and

3. Discharge no visible emissions to the outside air during the collection, processing, packaging, or on-site transporting of any asbestos-containing waste material, or use one of the disposal methods specified in subparts 3.(i) or (ii) of this subparagraph, as follows:

(i) Use a wetting agent as follows:

(I) Adequately mix all asbestos-containing waste material with a wetting agent recommended by the manufacturer of the agent to effectively wet dust and tailings, before depositing the material at a waste disposal site. Use the agent as recommended for the particular dust by the manufacturer of the agent.

(II) Discharge no visible emissions to the outside air from the wetting

operation or use the methods specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(III) Wetting may be suspended when the ambient temperature at the waste disposal site is less than -9.5°C (15°F), as determined by an appropriate measurement method with an accuracy of ± 1°C (± 2°F). During periods when wetting operations are suspended, the temperature must be recorded at least at hourly intervals, and records must be retained for at least 2 years in a form suitable for inspection.

(ii) Use an alternative emission control and waste treatment method that has received prior written approval by the Administrator of the EPA and the Technical Secretary. To obtain approval for an alternative method, a written application must be submitted to the Technical Secretary demonstrating that the following criteria are met:

(I) The alternative method will control asbestos emissions equivalent to currently required methods.

(II) The suitability of the alternative method for the intended application.

(III) The alternative method will not violate other regulations.

(IV) The alternative method will not result in increased water pollution, land pollution, or occupational hazards.

4. When waste is transported by vehicle to a disposal site:

(i) Mark vehicles used to transport asbestos-containing waste material during the loading and unloading of the waste so that the signs are visible. The markings must:

(I) Be displayed in such a manner and location that a person can easily read the legend.

(II) Conform to the requirements for 51 cm x 36 cm (20 in x 14 in) upright format signs specified in 29 CFR 1910.145(d)(4), as contained in the 7-1-91 Edition of the CFR, and this subparagraph; and

(III) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this subparagraph.

Legend

DANGER

ASBESTOS DUST HAZARD

CANCER AND LUNG DISEASE HAZARD

Authorized Personnel Only

Notation

1st Line: 2.5 cm (1 inch) Sans Serif, Gothic or Block
2nd and 3rd Lines: 1.9 cm (3/4 inch) Sans Serif, Gothic or Block
4th Line: 14 Point Gothic

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(ii) For off-site disposal, provide a copy of the waste shipment record, described in part 5.(i) of this subparagraph, to the disposal site owner or operator at the same time as the asbestos-containing waste material is delivered to the disposal site.

5. For all asbestos-containing waste material transported off the facility site:

(i) Maintain asbestos waste shipment records, using the form shown in Figure 4, and include the following information:

(I) The name, address, and telephone number of the waste generator.

(II) The name and address of the local or State agency responsible for administering the asbestos NESHAP program.

(III) The quantity of the asbestos-containing waste material in cubic meters (cubic yards).

(IV) The name and telephone number of the disposal site operator.

(V) The name and physical site location of the disposal site and the disposal facility permit number.

(VI) The date transported.

(VII) The name, address, and telephone number of the transporter(s).

(VIII) A certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.

(ii) For waste shipments where a copy of the waste shipment record, signed by the owner or operator of the designated disposal site, is not received by the waste generator within 35 days of the date the waste was accepted by the initial transporter, contact the transporter and/or the owner or operator of the designated disposal site to determine the status of the waste shipment.

(iii) Report in writing to the Technical Secretary if a copy of the waste shipment record, signed by the owner or operator of the designated waste disposal site is not received by the waste generator within 45 days of the date the waste was accepted by the initial transporter. Include in the report the following information:

(I) A copy of the waste shipment record for which a confirmation of delivery was not received, and

(II) A cover letter signed by the waste generator explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts.

(iv) Retain a copy of all waste shipment records, including a copy of the waste shipment record signed by the owner or operator of the designated waste disposal site, for at least 2 years.

6. Furnish upon request, and make available for inspection by the Technical Secretary, all records required under this subparagraph.

(l) Standard for inactive waste disposal sites for asbestos mills and manufacturing and fabricating operations.

Each owner or operator of any inactive waste disposal site that was operated by sources covered under 1200-03-11-.02(2)(a), 1200-03-11-.02(2)(c), or 1200-03-11-.02(2)(h) and received deposits

of asbestos-containing waste material generated by the sources, shall:

1. Comply with one of the following:

(i) Either discharge no visible emissions to the outside air from an inactive waste disposal site subject to this subparagraph; or

(ii) Cover the asbestos-containing waste material with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, and grow and maintain a cover of vegetation on the area adequate to prevent exposure of the asbestos-containing waste material. In desert areas where vegetation would be difficult to maintain, at least 8 additional centimeters (3 inches) of well-graded, nonasbestos crushed rock may be placed on top of the final cover instead of vegetation and maintained to prevent emissions; or

(iii) Cover the asbestos containing waste material with at least 60 centimeters (2 feet) of compacted nonasbestos-containing material, and maintain it to prevent exposure of the asbestos-containing waste; or

(iv) For inactive waste disposal sites for asbestos tailings, a resinous or petroleum-based dust suppression agent that effectively binds dust to control surface air emissions may be used instead of the methods in subparts 1.(i), (ii), and (iii) of this subparagraph. Use the agent in the manner and frequency recommended (for the particular asbestos tailings) by the manufacturer of the dust suppression agent to achieve and maintain dust control. Obtain prior written approval of the Technical Secretary to use other equally effective dust suppression agents. For purposes of this subparagraph, any used, spent, or other waste oil is not considered a dust suppression agent.

2. Unless a natural barrier adequately deters access by the general public, install and maintain warning signs and fencing as follows, or comply with subparts 1.(ii) or 1.(iii) of this subparagraph.

(i) Display warning signs at all entrances and at intervals of 100 m (328 feet) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material was deposited. The warning signs must:

(I) Be posted in such a manner and location that a person can easily read the legend; and

(II) Conform to the requirements for 51 cm x 36 cm (20" x 14") upright format signs specified in 29 CFR 1910.145(d) (as published in (7-1-91 Edition)) and this subparagraph; and

(III) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this subparagraph.

Legend	Notation
Asbestos Waste Disposal	2.5 cm (1 inch) Sans Serif, Gothic or Block
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block
Breathing Asbestos is Hazardous to your health	14 Point Gothic

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

(ii) Fence the perimeter of the site in a manner adequate to deter access by the general public.

(iii) When requesting a determination on whether a natural barrier adequately deters public access, supply information enabling the Technical Secretary to determine whether a fence or a natural barrier adequately deters access by the general public.

3. The owner or operator may use an alternative control method that has received prior approval of the Administrator of the EPA and the Technical Secretary rather than comply with the requirements of parts 1. or 2. of this subparagraph.

4. Notify the Technical Secretary in writing at least 45 days prior to excavating or otherwise disturbing any asbestos containing waste material that has been deposited at a waste disposal site under this subparagraph, and follow the procedures specified in the notification. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Technical Secretary at least 10 working days before the excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

(i) Scheduled starting and completion dates.

(ii) Reason for disturbing the waste.

(iii) Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Technical Secretary may require changes in the emission control procedures to be used.

(iv) Location of any temporary storage site and the final disposal site.

5. Within 60 days of a site becoming inactive and after the effective date of this rule, record, in accordance with State law, a notation on the deed to the facility property and on any other instrument that would normally be examined during a title search; this notation will in perpetuity notify any potential purchaser of the property that:

(i) The land has been used for the disposal of asbestos-containing waste material;

(ii) The survey plot and record of the location and quantity of asbestos-containing waste disposed of within the disposal site required in 1200-03-11-.02(5)(f) have been filed with the Technical Secretary; and

(iii) The site is subject to 40 CFR 61 Subpart M, as contained in the 7-1-91 Edition of the CFR.

(3) Air Cleaning

(a) The owner or operator who uses air cleaning, as specified in 1200-03-11-.02(2)(a)1., 1200-03-11-.02(2)(c)2.(ii), 1200-03-11-.02(2)(d)3.(iii)(I)IIA, 1200-03-11-.02(2)(d)3.(iv)(II), 1200-03-11-.02(2)(e)2.(ii), 1200-03-11-.02(2)(h)2.(ii), 1200-03-11-.02(2)(k)2., 1200-03-11-.02(2)(k)3.(i)(II), 1200-03-11-.02(2)(j)1.(i)(II), 1200-03-11-.02(2)(j)1.(ii)(II), and 1200-03-11-.02(6)(e) shall:

1. Use fabric filter collection devices, except as noted in subparagraph (b) of this paragraph, doing all of the following:

(i) Repealed.

(ii) Ensuring that the airflow permeability, as determined by ASTM Method D737-75, does not exceed 9 m3/min/m2 (30 ft3/min/ft2) for woven fabrics or 11 m3/min/m2 (35 ft3/min/ft2) for felted fabrics, except that 12 m3/min/m2 (40 ft3/min/ft2) for woven and 14 m3/min/m2 (45 ft3/min/ft2) for felted fabrics is allowed for filtering air from asbestos ore dryers; and

(iii) Ensuring that felted fabric weighs at least 475 grams per square meter (14 ounces per square yard) and is at least 1.6 millimeters (one-sixteenth inch) thick throughout; and

(iv) Avoiding the use of synthetic fabrics that contain fill yarn other than that which is spun.

2. Properly install, use, operate, and maintain all air-cleaning equipment authorized by this paragraph. Bypass devices may be used only during upset or emergency conditions and then only for so long as it takes to shut down the operation generating the particulate asbestos material.

3. For fabric filter collection devices installed after January 10, 1989, provide for easy inspection for faulty bags.

(b) There are the following exceptions to part (a)1:

1. After January 10, 1989, if the use of fabric creates a fire or explosion hazard, or the Technical Secretary determines that a fabric filter is not feasible, the Technical Secretary may authorize as a substitute the use of wet collectors designed to operate with a unit contacting energy of at least 9.95 kilopascals (40 inches water gage pressure).

2. Use a HEPA filter that is certified to be at least 99.97 percent efficient for 0.3 micron particles.

3. The Technical Secretary may authorize the use of filtering equipment other than described in parts (a)1. and (b)1. and 2. of this paragraph if the owner or operator demonstrates to the satisfaction of the Administrator of the EPA and the Technical Secretary that it is equivalent to the described equipment in filtering particulate asbestos material.

(4) Reporting.

(a) Any new source to which this paragraph applies (with the exception of sources subject to 1200-03-11-.02(2)(b), 1200-03-11-.02(2)(e), and 1200-03-11-.02(2)(i)), which has an initial startup date preceding the effective date of this revision, shall provide the following information to the Technical Secretary postmarked or delivered within 90 days of the effective date. In the case of a new source that does not have an initial startup date preceding the effective date, the information shall be provided, postmarked or delivered, within 90 days of the initial startup date. Any owner or operator of an existing source shall provide the following information to the Technical Secretary within 90 days of the effective date of this rule unless the owner or operator of the existing source has previously provided this information to the Technical Secretary. Any changes in the information provided by any existing source shall be provided to the Technical Secretary, postmarked or delivered, within 30 days after the change.

1. A description of the emission control equipment used for each process; and

2. If a fabric filter device is used to control emissions,

(i) The airflow permeability in m3/min/m2 (ft3/min/ft2) if the fabric filter device uses a woven fabric, and, if the fabric is synthetic, whether the fill yarn is spun or not spun; and

(ii) If the fabric filter device uses a felted fabric, the density in g/m2 (oz/yd2), the minimum thickness in millimeters (inches), and the airflow permeability in m3/min/m2 (ft3/min/ft2).

3. If a HEPA filter is used to control emissions, the certified efficiency.

4. For sources subject to 1200-03-11-.02(2)(k) and 1200-03-11-.02(2)(j):

(i) A brief description of each process that generates asbestos-containing waste material; and

(ii) The average volume of asbestos-containing waste material disposed of, measured in m3/day (yd3/day); and

(iii) The emission control methods used in all stages of waste disposal; and

(iv) The disposal, the name of the site operator, and the name and location of the disposal site.

5. For sources subject to 1200-03-11-.02(2)(l) and 1200-03-11-.02(5):

(i) A brief description of the site; and

(ii) The method or methods used to comply with the standard, or alternate procedures to be used.

(b) The information required by subparagraph (a) of this paragraph must accompany the information required by Appendix A to 40 CFR 61.1 (7-1-91 Edition). Active waste disposal sites subject to 1200-03-11-.02(5) shall also comply with this provision. Roadways, demolition and renovation, spraying, and insulating materials are exempted from the requirements of reporting the information required by Appendix A to 40 CFR 61.1 (7-1-91 Edition).

(5) Standard for active waste disposal sites.

Each owner or operator of an active waste disposal site that receives asbestos-containing waste material from a source covered under 1200-03-11-.02(2)(k), 1200-03-11-.02(2)(j), or 1200-03-11-.02(6) shall meet the requirements of this paragraph:

(a) Either there must be no visible emissions to the outside air from any active waste disposal site where asbestos-containing waste material has been deposited, or the requirements of subparagraph (c) or (d) of this paragraph must be met.

(b) Unless a natural barrier adequately deters access by the general public, either warning signs and fencing must be installed and maintained as follows, or the requirements of subparagraph (c), part 1. of this paragraph must be met.

1. Warning signs must be displayed at all entrances and at intervals of 100 m (328 feet) or less along the property line of the site or along the perimeter of the sections of the site where asbestos-containing waste material is deposited. The warning signs must:

(i) Be posted in such a manner and location that a person can easily read the legend; and

(ii) Conform to the requirements for 51 cm x 36 cm (20" x 14") upright format signs specified in 29 CFR 1910.145(d) (as published in (7-1-91 Edition)) and this subparagraph; and

(iii) Display the following legend in the lower panel with letter sizes and styles of a visibility at least equal to those specified in this subparagraph.

Legend	Notation
Asbestos Waste Disposal	2.5 cm (1 inch) Sans Serif, Station Gothic or Block
Do Not Create Dust	1.9 cm (3/4 inch) Sans Serif, Gothic or Block
Breathing Asbestos is	14 Point Gothic

Hazardous to your health

Spacing between any two lines must be at least equal to the height of the upper of the two lines.

2. The perimeter of the disposal site must be fenced in a manner adequate to deter access by the general public.

3. Upon request and supply of appropriate information, the Technical Secretary will determine whether a fence or natural barrier adequately deters access by the general public.

(c) Rather than meet the no visible emission requirement of subparagraph (a) of this paragraph, at the end of each operating day, or at least once every 24-hour period while the site is in continuous operation, the asbestos-containing waste material that has been deposited at the site during the operating day or previous 24-hour period shall:

1. Be covered with at least 15 centimeters (6 inches) of compacted nonasbestos-containing material, or

2. Be covered with a resinous or petroleum-based dust suppression agent that effectively binds dust and controls wind erosion. Such an agent shall be used in the manner and frequency recommended for the particular dust by the dust suppression agent manufacturer to achieve and maintain dust control. Other equally effective dust suppression agents may be used upon prior approval by the Technical Secretary. For purposes of this paragraph, any used, spent, or other waste oil is not considered a dust

(d) Rather than meet the no visible emission requirement of subparagraph (a) of this paragraph, use an alternative emissions control method that has received prior written approval by the Administrator of the EPA and the Technical Secretary according to the procedures described in 1200-03-11-.02(2)(k)3.(ii).

(e) For all asbestos-containing waste material received, the owner or operator of the active waste disposal site shall:

1. Maintain waste shipment records, using a form similar to that shown in Figure 4 following subparagraph (6)(h) of this rule, and include the following information:

(i) The name, address, and telephone number of the waste generator.

(ii) The name, address, and telephone number of the transporter(s).

(iii) The quantity of the asbestos-containing waste material in cubic meters (cubic yards).

(iv) The presence of improperly enclosed or uncovered waste, or any asbestos-containing waste material not sealed in leak-tight containers. Report in writing to the Technical Secretary by the following working day, the presence of a significant amount of improperly enclosed or uncovered waste. Submit a copy of the waste shipment record along with the report.

(v) The date of receipt.

2. As soon as possible and no longer than 30 days after receipt of the waste, send a copy of the signed waste shipment record to the waste generator.

3. Upon discovering a discrepancy between the quantity of waste designated on the waste shipment records and the quantity actually received, attempt to reconcile the discrepancy with the waste generator. If the discrepancy is not resolved within 15 days after receiving the waste, immediately report it in writing to the Technical Secretary. Describe the discrepancy and attempts to reconcile it, and submit a copy of the waste shipment record along with the report.

4. Retain a copy of all records and reports required by this subparagraph for at least 2 years.

(f) Maintain, until closure, records of the location, depth and area, and quantity in cubic meters (cubic yards) of asbestos-containing waste material within the disposal site on a map or diagram of the disposal area.

(g) Upon closure, comply with all the provisions of 1200-03-11-.02(2)(l).

(h) Submit to the Technical Secretary, upon closure of the facility, a copy of records of asbestos waste disposal locations and quantities.

(i) Furnish upon request, and make available during normal business hours for inspection by the Technical Secretary, all records required under this paragraph.

(j) Notify the Technical Secretary in writing at least 45 days prior to excavating or otherwise disturbing any asbestos-containing waste material that has been deposited at a waste disposal site and is covered. If the excavation will begin on a date other than the one contained in the original notice, notice of the new start date must be provided to the Technical Secretary at least 10 working days before excavation begins and in no event shall excavation begin earlier than the date specified in the original notification. Include the following information in the notice:

1. Scheduled starting and completion dates.

2. Reason for disturbing the waste.

3. Procedures to be used to control emissions during the excavation, storage, transport, and ultimate disposal of the excavated asbestos-containing waste material. If deemed necessary, the Technical Secretary may require changes in the emission control procedure to be used.

4. Location of any temporary storage site and the final disposal site.

(6) Standard for operations that convert asbestos-containing waste material into nonasbestos (asbestos-free) material.

Each owner or operator of an operation that converts RACM and asbestos-containing waste material into nonasbestos (asbestos-free) material shall:

(a) Obtain the prior written approval of the Administrator of the EPA and the Technical Secretary to construct the facility. To obtain approval, the owner or operator shall provide the Technical Secretary with the following information:

1. Application to construct pursuant to paragraph 1200-03-11-.01(2).

2. In addition to the information requirements of paragraph 1200-03-11-.01(2).

(i) Description of waste feed handling and temporary storage.

(ii) Description of process operating conditions.

(iii) Description of the handling and temporary storage of the end product.

(iv) Description of the protocol to be followed when analyzing output materials by transmission electron microscopy.

3. Performance test protocol, including provisions for obtaining information required under subparagraph (b) of this paragraph.

4. The Administrator of the EPA or the Technical Secretary may require that a

demonstration of the process be performed prior to approval of the application to construct.

(b) Conduct a start-up performance test. Test results shall include:

1. A detailed description of the types and quantities of nonasbestos material, RACM, and asbestos-containing waste material processed, e.g., asbestos cement products, friable asbestos insulation, plaster, wood, plastic, wire, etc. Test feed is to include the full range of materials that will be encountered in actual operation of the process.

2. Results of analyses, using polarized light microscopy, that document the asbestos content of the wastes processed.

3. Results of analyses, using transmission electron microscopy, that document that the output materials are free of asbestos. Samples for analysis are to be collected as 8-hour composite samples (one 200-gram (7-ounce) sample per hour), beginning with the initial introduction of RACM or asbestos-containing waste material and continuing until the end of the performance test.

4. A description of operating parameters, such as temperature and residence time, defining the full range over which the process is expected to operate to produce nonasbestos (asbestos-free) materials. Specify the limits for each operating parameter within which the process will produce nonasbestos (asbestos-free) materials.

5. The length of the test.

(c) During the initial 90 days of operation,

1. Continuously monitor and log the operating parameters identified during start-up performance tests that are intended to ensure the production of nonasbestos (asbestos-free) output material.

2. Monitor input materials to ensure that they are consistent with the test feed materials described during start-up performance tests in subparagraph (b)1. of this paragraph.

3. Collect and analyze samples, taken as 10-day composite samples (one 200-gram (7-ounce) sample collected every 8 hours of operation) of all output material for the presence of asbestos. Composite samples may be for fewer than 10 days. Transmission electron microscopy (TEM) shall be used to analyze the output material for the presence of asbestos. During the initial 90-day period, all output materials must be stored on-site until analysis shows the material to be asbestos-free or disposed of as asbestos-containing waste material according to 1200-03-11-.02(2)(j).

(d) After the initial 90 days of operation,

1. Continuously monitor and record the operating parameters identified during start-up performance testing and any subsequent performance testing. Any output produced during a period of deviation from the range of operating conditions established to ensure the production of nonasbestos (asbestos-free) output materials shall be:

(i) Disposed of as asbestos-containing waste material according to 1200-03-11-.02(2)(j), or

(ii) Recycled as waste feed during process operation within the established range of operating conditions, or

(iii) Stored temporarily on-site in a leak-tight container until analyzed for asbestos content. Any product material that is not asbestos-free shall be either disposed of as asbestos-containing waste material or recycled as waste feed to the process.

2. Collect and analyze monthly composite samples (one 200-gram (7-ounce) sample

collected every 8 hours of operation) of the output material. Transmission electron microscopy shall be used to analyze the output material for the presence of asbestos.

(e) Discharge no visible emissions to the outside air from any part of the operation, or use the methods specified by 1200-03-11-.02(3) to clean emissions containing particulate asbestos material before they escape to, or are vented to, the outside air.

(f) Maintain records on-site and include the following information:

1. Results of start-up performance testing and all subsequent performance testing, including operating parameters, feed characteristics, and analyses of output materials.

2. Results of the composite analyses required during the initial 90 days of operation under 1200-03-11-.02(6)(c).

3. Results of the monthly composite analyses required under 1200-03-11-.02(6)(d).

4. Results of continuous monitoring and logs of process operating parameters required under 1200-03-11-.02(6)(c) and (d).

5. The information on waste shipments received as required in 1200-03-11-.02(5)(e).

6. For output materials where no analyses were performed to determine the presence of asbestos, record the name and location of the purchaser or disposal site to which the output materials were sold or deposited, and the date of sale or disposal.

7. Retain records required by subparagraph (f) of this paragraph for at least 2 years.

(g) Submit the following reports to the Technical Secretary:

1. A report for each analysis of product composite samples performed during the initial 90 days of operation.

2. A quarterly report, including the following information concerning activities during each consecutive 3-month period:

(i) Results of analyses of monthly product composite samples.

(ii) A description of any deviation from the operating parameters established during performance testing, the duration of the deviation, and steps taken to correct the deviation.

(iii) Disposition of any product produced during a period of deviation, including whether it was recycled, disposed of as asbestos-containing waste material, or stored temporarily on-site until analyzed for asbestos content.

(iv) The information on waste disposal activities as required in 1200-03-11-.02(5)(f).

(h) Nonasbestos (asbestos-free) output material is not subject to any of the provisions of this rule. Output materials in which asbestos is detected, or output materials produced when the operating parameters deviated from those established during the start-up performance testing, unless shown by TEM analysis to be asbestos-free, shall be considered to be asbestos-containing waste and shall be handled and disposed of according to 1200-03-11-.02(2)(j) and 1200-03-11-.02(5) or reprocessed while all of the established operating parameters are being met.

FIGURE 1

RECORD OF VISIBLE EMISSION MONITORING

Date of Inspection	(Time of) Inspection	Air Cleaning Device or	Visible Emissions	Daily Operating Hours	Inspectors Initials

~~(mo/day/yr)~~	~~Also Indicate (a.m./p.m.)~~	~~Fugitive Source Designation or Number~~	~~Observed (Yes/No) Corrective Action Taken~~		

FIGURE 2

AIR CLEANING DEVICE INSPECTION CHECKLIST

1. Air cleaning device designation or number				
2. Dates of inspection				
3. Times of inspection				
4. Is air cleaning device operating properly				
5. Tears, holes or abrasions in fabric filter? (Yes / No)				
6. Dust on clean side of fabric filter? (Yes / No)				
7. Other signs of malfunctions or potential malfunctions?				
8. Describe other malfunctions or sings of potential malfunctions				
9. Describe corrective action(s) taken				
10. Date and time corrective action taken				
11. Inspected by: ___ (Print/Type Name) Title Signature Date ___ (Print/Type Name) Title Signature				

FIGURE 3
TENNESSEE DIVISION OF AIR POLLUTION CONTROL
NOTIFICATION OF ASBESTOS DEMOLITION OR RENOVATION

OPERATOR PROJECT #	POSTMARK	DATE RECEIVED	NOTIFICATION #
I. Type of Notification (O-Orig. R-Revised C-Cancelled)			
II. Facility Information (Identify Owner, Removal Contractor, Operator)			
Owner Name:			
Address:			
City: State: Zip:			
Contact: Telephone:			
Removal Contractor:			
Address:			
City: State: Zip:			
Contact: Telephone:			
Other Operator (If Different From Owner):			
Address:			
City: State: Zip:			
Contact: Telephone:			
III. Type of Operation (D-Demo. O-Ordered Demo. R-Renov. E-Emer. Renov.)			
IV. Is Asbestos Present ? (Yes/No)			
V. Facility Description (Include Building Name, Number and Floor or Room Number)			
Bldg. Name:			
Address:			
City: State: Zip:			
Site Location:			
Building Size: Total Sq. Ft. # of Floors: Age in Years:			
Present Use: Prior Use:			
VI. Procedure and Analytical Method Used to Detect the Presence of Asbestos Material			

VII. Approximate Amount of Asbestos Material In Work Area Including 1. Regulated ACM to be Removed 2. Category I ACM Not Removed 3. Category II ACM Not Removed	RACM Not To Be Removed	Nonfriable Asbestos Material				Units of Measurement
		Not to be removed		To be removed		
		Cat I	Cat II	Cat I	Cat II	Unit
Pipes						LnFt Ln m
Surface Area						SqFt Sq m
Vol RACM off Facility Components						CuFt Cu m

Unit
Pipes
Surface Area
Vol RACM Off Facility Components
VIII. Scheduled Dates Asbestos Removal Start: Complete:
Scheduled Dates of Preparation Start: Complete:
Days of Week:(circle) All Sun Mon Tue Wed Thu Fri Sat Hours of Day:
IX. Scheduled Dates Demo/Renovation Start: Complete:

Continued on Page Two

NOTIFICATION OF DEMOLITION OR RENOVATION (continued)

X. Description of Planned Demolition or Renovation Work, Method(s) to be Used:
XI. Description of Work Practices and Engineering Controls to be used to Prevent Emissions of Asbestos at the Demolition and Renovation Site:
XII. Waste Transporter #1
Name:
Address:
City: State: Zip:
Contact Person: Telephone:
Waste Transporter #2
Name:
Address:
City: State: Zip:
Contact Person: Telephone:
XIII. Waste Disposal Site
Name:
Location:
City: State: Zip:
Telephone:
XIV. If Demolition Ordered by a Government Agency, Please Identify Below:
Name: Title:
Authority:
Date of Order (MM/DD/YY): Date Ordered to Begin (MM/DD/YY):
XV. For Emergency Renovations
Date and Hour of Emergency (MM/DD/YY):
Description of the Sudden, Unexpected Event:
Explanation of How the Event Caused Unsafe Conditions or Would Cause Equipment Damage or an Unreasonable Financial Burden:
XVI. Description of Procedures to be Followed in the Event Asbestos is Found or Previously Nonfriable Asbestos Material Becomes Crumbled, Pulverized, or Reduced to Powder.
XVII. I Certify That an Individual Trained in the Provisions of This Regulation(40 CFR Part 61, Subpart M) Will be On-Site During the Demolition or Renovation and Evidence That Required Training has Been Accomplished by This Person Will be Available for Inspection During Normal Business Hours. (REQUIRED AFTER NOVEMBER 20, 1991) _____ _____ (Signature of Owner/Operator) (Date)
XVIII. I Certify That the Above Information is Correct. _____ _____ Signature of Owner/Operator) Date)

Submit Completed Form by U.S. Postal Service / Commercial Delivery Service or Hand Deliver to: Tennessee Air Pollution Control, 9th Floor L&C Annex, 401 Church St., Nashville, TN 37243-1531

FIGURE 4

WASTE SHIPMENT RECORD

GENERATOR		
1. Work site name and mailing address	Owner's name	Owner's telephone no.
2. Operator's name and address		Operator's telephone no.
3. Waste disposal site (WDS) name, mailing address, physical site location and disposal facility permit and number.	WDS phone no. Permit No.	
4. Name, and address of responsible agency		
5. Description of materials	6. Containers No. Type	7. Total quantity m3 (yd3)
8. Special handling instructions and additional information		
9. OPERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations. Printed/typed name & title / Signature / Month Day Year		
TRANSPORTER		
10. Transporter 1 (Acknowledgment of receipt of materials) Printed/typed name & title / Signature / Month Day Year Address and telephone no.		
11. Transporter 2 (Acknowledgment of receipt of materials) Printed/typed name & title / Signature / Month Day Year Address and telephone no.		
DISPOSAL SITE		
12. Discrepancy indication space		

13. Waste disposal site owner or operator: Certification of receipt of asbestos materials covered by this manifest except as noted in item

Printed/typed name & title | Signature | Month Day Year

Waste Generator Section (Items 1-9)

1. Enter the name of the facility at which asbestos waste is generated and the address where the facility is located. In the appropriate spaces, also enter the name of the owner of the facility and the owner's phone number.

2. If a demolition or renovation, enter the name and address of the company and authorized agent responsible for performing the asbestos removal. In the appropriate spaces, also enter the phone number of the operator.

3. Enter the name, address, and physical site location of the waste disposal site (WDS) that will be receiving the asbestos materials. In the appropriate spaces, also enter the phone number of the WDS. Enter "on-site" if the waste will be disposed of on the generator's property. Enter disposal facility permit number.

4. Provide the name and address of the local, State, or EPA Regional agency responsible for administering the asbestos NESHAP program.

5. Indicate the types of asbestos waste materials generated. If from a demolition or renovation, indicate the amount of asbestos that is

   Friable Asbestos Material
   Nonfriable Asbestos Material

6. Enter the number of containers used to transport the asbestos materials listed in item 4. Also enter one of the following container codes used in transporting each type of asbestos material (specify any other type of container used if not listed below):

   DM - Metal drums, barrels
   DP - Plastic drums, barrels
   BA - 6 mil plastic bags or wrapping

7. Enter the quantities of each type of asbestos material removed in units of cubic meters (cubic yards).

8. Use this space to indicate special transportation, treatment, storage or disposal of Bill of Lading information. If an alternate waste disposal site is designated, note it here. Emergency response telephone numbers or similar information may be included here.

9. The authorized agent of the waste generator must read and then sign and date this certification. The date is the date of receipt by transporter.

NOTE: The waste generator must retain a copy of this form.

Transporter Section (Items 10 & 11)

10. & 11. Enter name, address, and telephone number of each transporter used, if applicable. Print or type the full name and title of person accepting responsibility and acknowledging receipt of materials as listed on this waste shipment record for transport. Enter date of receipt and signature.

NOTE: The transporter must retain a copy of this form.

Disposal Site Section (Items 12 & 13)

12. The authorized representative of the WDS must note in this space any discrepancy between waste described on this manifest and waste actually received as well as any improperly enclosed or contained waste. Any rejected materials should be listed and destination of those materials provided. A site that converts asbestos-containing waste material to nonasbestos material is considered a WDS.

13. The signature (by hand) of the authorized WDS agent indicates acceptance and agreement with statements on this manifest except as noted in Item 12. The date is the date of signature and receipt of shipment.

NOTE: The WDS must retain a completed copy of this form. The WDS must also send a completed copy to the operator listed in item 2.

Authority: T.C.A. §§ 4-5-201, et seq.; 4-5-202, et. seq.; 68-201-101, et seq.; and 68-201-105.

1200-03-11-.03 BERYLLIUM.

(1) Applicability. The provisions of this rule are applicable to the following stationary sources.

(a) Extraction plants, ceramic plants, foundries, incinerators, and propellant plants which process beryllium ore, beryllium, beryllium oxide, beryllium alloys, or beryllium containing waste.

(b) Machine shops which process beryllium, beryllium oxides, or any alloy when such alloy contains more than five (5) percent beryllium by weight.

(2) Definitions. Terms used in this Rule not defined herein shall have the meaning given to them in chapter 1200-03-02.

(a) ''Beryllium'' means the element beryllium. Where weights or concentrations are specified, such weights or concentrations apply to beryllium only, excluding the weight or concentration of any associated elements.

(b) ''Extraction plant'' means a facility chemically processing beryllium ore to beryllium metal, alloy, or oxide, or performing any of the intermediate steps in these processes.

(c) ''Beryllium ore'' means any naturally occurring material mined or gathered for its beryllium content.

(d) ''Machine shop'' means a facility performing cutting, grinding, turning, honing, milling, deburring, lapping, electrochemical machining, etching, or other similar operations.

(e) ''Ceramic Plant'' means a manufacturing plant producing ceramic items.

(f) ''Foundry'' means a facility engaged in the melting or casting of beryllium metal or alloy.

(g) ''Beryllium containing waste'' means material contaminated with beryllium and/or beryllium compounds used or generated during any process or operation performed by a source subject to this rule.

(h) ''Incinerator'' means any furnace used in the process of burning waste for the primary purpose of reducing the volume of the waste by removing combustible matter.

(i) ''Propellant'' means a fuel and oxidizer physically or chemically combined which undergoes combustion to provide rocket propulsion.

(j) ''Beryllium alloy'' means any metal to which beryllium has been added in order to increase its beryllium content and which contains more than 0.1 percent beryllium by weight.

(k) ''Propellant plant'' means any facility engaged in the mixing, casting, or machining of propellants.

(l) ''Rocket motor test site'' means any building, structure, facility, or installation where the static test firing of a beryllium rocket motor and/or the disposal of beryllium propellant is conducted.

(m) ''Beryllium propellant'' means any propellant incorporating beryllium.

(3) Emission Standard for Beryllium

(a) Emissions to the atmosphere from stationary sources subject to the provisions of this Rule shall not exceed ten (10) grams of beryllium over a twenty-four (24) hour period.

(b) The burning of beryllium and/or beryllium containing waste, except propellants, is prohibited except in incinerators, emissions from which must comply with the standards.

(c) Emissions to the atmosphere from rocket motor test sites shall not cause time-weighted atmospheric concentrations of beryllium to exceed 75 microgram minutes per cubic meter of air within the limits of 10 to 60 minutes, accumulated during any 2 consecutive weeks, in any area in which an effect adverse to public health could occur.

(d) If combustion products from the firing of beryllium propellant are collected in a closed tank, emissions from such tank shall not exceed 2 grams per hour and a maximum of 10 grams per day.

(4) Stack Sampling:

(a) Each owner or operator required to comply with subparagraph (3)(a) of this rule shall test emissions from his source as follows:

1. Within ninety (90) days of February 9, 1977 in the case of an existing source or a new source which has initial startup date preceding February 9, 1977; or

2. Within ninety (90) days of startup in the case of a new source which does not have an initial startup date preceding February 9, 1977.

(b) The Technical Secretary shall be notified at least thirty (30) days prior to an emission test or air sampling test so that he at his option may observe the test.

(c) Samples shall be taken over such period or periods as are necessary to accurately determine the maximum emission which will occur in any twenty four (24) hour period. Where emissions depend upon the relative frequency of operation of different types of processes, operating hours, operating capacities, or other factors, the calculation of maximum twenty-four (24) hour period emissions will be based on that combination of factors which are likely to occur during the subject period and which results in the maximum emissions. No changes in the operation shall be made, which would potentially increase emissions above that determined by the most recent source test, until a new emission level has been estimated by calculation and the results reported to the Technical Secretary.

(d) Sources subject to subparagraph (3)(d) of this rule shall be continuously sampled, during release of combustion products from the tank, in such a manner that compliance with the standards can be determined.

(e) Ambient air concentrations shall be measured during and after firing of a rocket motor or propellant disposal and in such a manner that the effect of these emissions can be compared with the standard. Such sampling techniques shall be approved by the Technical Secretary.

(f) All samples shall be analyzed and beryllium emissions and/or other results determined within thirty (30) days after the source test and/or samples are taken. In the case of sampling during a rocket motor firing or propellant disposal this calculation must occur before any subsequent rocket motor firing or propellant disposal at the given site. All determinations shall be reported to the Technical Secretary by written notification before the close of the next business day following such determination.

(g) Records of emissions test result, air sampling test results, and other data needed to determine total emissions and/or integrated intermittent ambient concentrations shall be retained at the source and made available, for inspection by the Technical Secretary, for a minimum of two (2) years.

(h) Emission of beryllium shall be determined by the Reference Method, as specified in the *Federal Register*, Volume 38, Number 66, April 6, 1973, or other techniques approved by the Technical Secretary.

Authority: T.C.A. §§ 4-5-202 and 68-25-105.

1200-03-11-.04 MERCURY.

(1) Applicability. The provisions of this Rule are applicable to those air contaminant sources which process mercury ore to recover mercury, use mercury chlor-alkali cells to produce chlorine gas and alkali metal hydroxide, and incinerate or dry wastewater treatment plant sludge. Any facility subject to the provisions of 40 CFR 63, Subpart IIIII – National Emission Standards for Hazardous Air Pollutants: Mercury Emissions from Mercury Cell Chlor-Alkali Plants is not subject to this rule.

(2) Definitions: Terms used in this rule not defined herein shall have the meaning given to them in chapter 1200-03-02.

(a) "Mercury" means the element mercury, excluding any associated elements, and includes mercury in particulates, vapors, aerosols, and compounds.

(b) "Mercury ore" means a mineral mined specifically for its mercury content.

(c) "Mercury ore processing facility" means a facility processing mercury ore to obtain mercury.

(d) "Condenser stack gases" means the gaseous effluent evolved from the stack of processes utilizing heat to extract mercury metal from mercury ore.

(e) "Mercury chlor-alkali cell" means a device which is basically composed of an electrolyzer section and a denuder (decomposer) section and utilizes mercury to produce chlorine gas, hydrogen gas, and alkali metal hydroxide.

(f) "Mercury chlor-alkali electrolyzer" means a electrolytic device which is part of a mercury-chlor-alkali cell and utilizes a flowing mercury cathode to produce chlorine gas and alkali metal amalgam.

(g) "Denuder" means a horizontal or vertical container which is part of a mercury chlor-alkali cell in which water and alkali metal amalgam are converted to alkali metal hydroxide, mercury, and hydrogen gas in a short-circuited, electrolytic reaction.

(h) "Hydrogen gas stream" means a hydrogen stream formed in the chlor-alkali cell denuder.

(i) "End box" means a container(s) located on one or both ends of a mercury chlor-alkali electrolyzer which serves as a connection between the electrolyzer and denuder for rich and stripped amalgam.

(j) "End box ventilation system" means a ventilation system which collects mercury emissions from the end-boxes, the mercury pump sumps, and their water collection systems.

(k) "Cell room" means a structure(s) housing one or more mercury electrolytic chlor-alkali cells.

(l) "Sludge" means sludge produced by a treatment plant that processes municipal or industrial waste waters.

(m) "Sludge dryer" means a device used to reduce the moisture content of sludge by heating to temperatures above 65°C (ca. 150°F) directly with combustion gases.

(3) Emission Standards for Mercury

(a) Emissions to the atmosphere from mercury ore processing facilities and mercury cell chlor-alkali plants shall not exceed 2,300 grams of mercury per 24-hour period.

(b) Emissions to the atmosphere from sludge incineration plants, sludge drying plants, or a combination of these that process waste-water treatment plant sludges shall not exceed 3,200 grams of mercury per 24-hour period.

(4) Stack Sampling:

(a) Each owner or operator of a facility subject to an emission standard in paragraph (3) of this rule shall test emissions from his source as follows:

1. Within ninety (90) days of February 9, 1977, an existing source or a new source which has an initial startup date preceding February 9, 1977, or

2. Within ninety (90) days of startup in the case of a new source which did not have an initial startup date preceding February 9, 1977.

(b) The Technical Secretary shall be notified at least thirty (30) days prior to an emission test, so that he may at his option observe the test.

(c) Samples shall be taken over such period or periods as are necessary to accurately determine the maximum emissions which will occur in a twenty-four (24) hour period. No change in the operation shall be made, which would potentially increase emissions above that determined by the most recent source test, until the new emission level has been estimated by calculation and the results reported to the Technical Secretary.

(d) All samples shall be analyzed, and mercury emissions shall be determined within thirty (30) days after the source test. Each determination will be reported to the Technical Secretary by written notification by the close of the next business day following such determination.

(e) Records of emission test results and other data needed to determine total emissions shall be retained at the source and made available for inspection by the Technical Secretary for a minimum of two (2) years.

(f) Sources using mercury chlor-alkali cells may test cell room emissions by passing all cell room air in forced gas streams through a stack suitable for testing in accordance with the above subparagraphs or demonstrate compliance with subparagraph (g) of this paragraph assume ventilation emissions of 1,300 grams/day of mercury.

(g) An owner or operator may carry out approved designed, maintenance, and housekeeping practices. A list of approved design, maintenance, and housekeeping practices may be obtained from the Technical Secretary.

(h) Measurement of mercury.

Mercury shall be determined by the Reference Method as specified in Appendix B of the *Federal Register*, Volume 38, Number 66, April 6, 1973, or Volume 40, Number 199, October 14, 1975, or other techniques approved by the Technical Secretary.

(i) Emission monitoring.

Wastewater treatment plant sludge incinerator and drying plants. All such sources for which mercury emissions exceed 1,600 g/day, demonstrated by either method referenced above, shall monitor mercury emissions at intervals of at least once per year by use of Method 105 of Appendix B, *Federal Register*, Volume 40, Number 199, October 14, 1975.

(5) Sludge Sampling

(a) As an alternative to the stack sampling requirements of paragraph 1200-03-11-.04(4) compliance with paragraph (3) of this rule may be demonstrated by use of Method 105 of Appendix B of the *Federal Register*, Volume 49, Number 178, September 12, 1984, and the procedures specified in this section.

(b) The Technical Secretary shall be notified at least 30 days prior to a sludge sampling test, so that he may at his option observe the test.

(c) The sludge shall be sampled according to Method 105 - Determination of Mercury in Wastewater Treatment Plant Sewage Sludges. A total of three composite samples shall be obtained within an operating period of 24 hours. When the 24 hour operating period is not continuous, the total sampling period shall not exceed 72 hours after the first grab sample is obtained. Samples shall not be exposed to any condition that may result in mercury contamination or loss.

(d) The maximum 24-hour period sludge incineration or drying rate shall be determined by use of a flow rate measurement device that can measure the mass rate of the sludge charged to the incinerator or dryer with an accuracy of plus or minus 5 percent over its operating range. Other methods of measuring sludge mass charging rates may be used if they have received prior approval by the Technical Secretary.

(e) The mercury emissions shall be determined by use of the following equation:

$$EHg = \frac{MQFsm(avg)}{1000}$$

Where:

EHg = Mercury emissions, g/day.
M = Mercury concentration of sludge on a dry solids basis, ug/g.
Q = Sludge charging rate, kg/day.
Fsm = Weight fraction of solids in the collected sludge after mixing.

(f) No changes in the operation of a plant shall be made after a sludge test has been conducted which would potentially increase emissions above the level determined by the most recent sludge test until the new emission level has been estimated by calculation and the results reported to the Technical Secretary.

(g) All sludge samples shall be analyzed for mercury content within 30 days after the sludge sample is collected. Each determination shall be reported to the Technical Secretary by a registered letter dispatched before the close of the next business day following such determination.

(h) Records of sludge sampling, charging rates determination, and other data needed to determine mercury content of wastewater treatment plant sludges shall be retained at the source and made available, for inspection by the Technical Secretary, for a minimum of 2 years.

Authority: T.C.A. §§ 4-5-202, 68-25-105, and 68-201-105.

1200-03-11-.05 VINYL CHLORIDE.

(1) (a) This rule applies to plants which produce:

1. Ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene,

2. Vinyl chloride by any process, and/or

3. One or more polymers containing and fraction of polymerized vinyl chloride.

(b) This rule does not apply to equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity of no more than 0.19 m3 (50 gal).

(c) Parts of this rule other than paragraph (2), part (5)(b)1., subparagraphs (5)(c), (5)(d), and (5)(e), and paragraphs (8) through (12) do not apply to equipment used in research and development if the reactor used to polymerize the vinyl chloride processed in the equipment has a capacity of greater than 0.19 m3 (50 gal) and no more than 4.07 m3 (1100 gal).

(2) Definitions. Terms used in this rule not defined herein shall have the meaning given to them in chapter 1200-03-02.

(a) ''Ethylene dichloride plant'' includes any plant which produces ethylene dichloride by reaction of oxygen and hydrogen chloride with ethylene.

(b) ''Vinyl chloride plant'' includes any plant which produces, by any process, vinyl chloride as an intermediate or final product.

(c) ''Polyvinyl chloride plant'' includes any plant where vinyl chloride alone or in combination with other materials is polymerized.

(d) ''Slip gauge'' means a gauge which has a probe that moves through the gas/liquid interface in a storage or transfer vessel and indicates the level of vinyl chloride in the vessel by the physical state of the material the gauge discharges.

(e) ''Type of resin'' means the broad classification of resin referring to the basic manufacturing process for producing that resin, including, but not limited to, the suspension, dispersion, latex, bulk, and solution processes.

(f) ''Grade of resin'' means the subdivision of resin classification which describes it as a unique resin, i.e., the most exact description of a resin with no further subdivision.

(g) ''Dispersion resin'' means a resin manufactured in such a way as to form fluid dispersions when dispersed in a plasticizer or plasticizer/diluent mixtures.

(h) ''Latex resin'' means a resin which is produced by a polymerization process which initiates from free radical catalyst sites and is sold undried.

(i) ''Bulk resin'' means a resin which is produced by a polymerization process in which no water is used.

(j) ''Inprocess waste water'' means any water which, during manufacturing or processing, comes into direct contact with vinyl chloride or polyvinyl chloride or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product containing vinyl chloride or polyvinyl chloride but which has not been discharged to a wastewater treatment process or discharged untreated as wastewater. Gasholder seal water is not inprocess wastewater until it is removed from the gasholder.

(k) ''Wastewater treatment process'' includes any process which modifies characteristics such as BOD, COD, TSS and pH, usually for the purpose of meeting effluent guidelines and standards; it does not include any process the purpose of which is to remove vinyl chloride from water to meet requirements of this rule.

(l) ''In vinyl chloride service'' means that a piece of equipment either contains or contacts a liquid that is at least 10 percent vinyl chloride by weight or a gas that is at least 10 percent by volume vinyl chloride as determined according to the provisions of paragraph (8)(g) of this rule. The provisions of paragraph (8)(g) of this rule also specify how to determine that a piece of equipment is not in vinyl chloride service. For the purposes of this rule, this definition must be used in place of the definition of ''in VHAP service'' defined in subparagraph (k) of rule 1200-03-11-.06(2).

(m) ‘‘Standard operating procedure’’ means a formal written procedure officially adopted by the plant owner or operator and available on a routine basis to those persons responsible for carrying out the procedure.

(n) ‘‘Run’’ means the net period of time during which an emission sample is collected.

(o) ‘‘Ethylene dichloride purification’’ includes any part of the process of ethylene dichloride production which follows ethylene dichloride formation, excluding product storage following the final finishing column.

(p) ‘‘Vinyl chloride purification’’ includes any part of the process of vinyl chloride production which follows vinyl chloride formation.

(q) ‘‘Reactor’’ includes any vessel in which vinyl chloride is partially or totally polymerized into polyvinyl chloride.

(r) ‘‘Reactor opening loss’’ means the emissions of vinyl chloride occurring when a reactor is vented to the atmosphere for any purpose other than an emergency relief discharge as defined in subparagraph (6)(b) of this rule.

(s) ‘‘Stripper’’ includes any vessel in which residual vinyl chloride is removed from polyvinyl chloride resin, except bulk resin, in the slurry form by the use of heat and/or vacuum. In the case of bulk resin, stripper includes any vessel which is used to remove residual vinyl chloride from polyvinyl chloride resin immediately following the polymerization step in the plant process flow.

(t) ‘‘Standard temperature’’ means a temperature of 200°C (690°F).

(u) ‘‘Standard pressure’’ means a pressure of 760 mm of Hg (29.92 in. of Hg).

(v) ‘‘Relief valve’’ means each pressure relief device including pressure relief valves, rupture disks, and other pressure relief systems used to protect process components from overpressure conditions. ‘Relief valve’’ does not include polymerization shortstop systems, refrigerated water systems, or control valves or other devices used to control flow to an incinerator or other air pollution control device.

(w) ‘‘Leak’’ means any of several events that indicate interruption of confinement of vinyl chloride within process equipment. Leaks include events regulated under rule 1200-03-11-.06 such as:

1. An instrument reading of 10,000 ppm or greater measure according to Method 21 (as referenced in subparagraph 1200-03-16-.01(5)(g)).

2. Indications of liquid dripping;

3. A sensor detection of failure of a seal system, failure of a barrier fluid system, or both; and

4. Detectable emissions as indicated by an instrument reading of greater than 500 ppm above background for equipment designated for no detectable emissions measured according to Test Method 21 (part 21. of subparagraph 1200-03-16-.01(5)(g)). Leaks also include events regulated under paragraph (6)(c)8.(i) of this rule for detection of ambient concentrations in excess of background concentration. A relief valve discharge is not a leak.

(x) ‘‘Exhaust gas’’ means any offgas (the constituents of which may consist of any fluids, either as a liquid and/or gas) discharged directly or ultimately to the atmosphere that was initially contained in or was in direct contact with the equipment for which exhaust gas limits are prescribed in paragraph (3)(a) and (b); paragraph (4)(b); (5)(b)1., (b)2., (c), (d), and (e); paragraph (6)(c)1.(ii), (c)2., (c)5., (c)6.(ii), and (c)9.(ii) of rule 1200-03-11-.05.

(y) ''Relief valve discharge'' means any nonleak discharge through a relief valve. ''Relief valve discharge'' does not include discharges ducted to a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period), or equivalent as provided in paragraph (7) of this rule.

(z) ''3-hour period'' means any three consecutive 1-hour periods (each hour commencing on the hour).

(3) Emission standard for ethylene dichloride plants.

(a) An owner or operator of an ethylene dichloride plant shall comply with the requirements of this paragraph and paragraph (6) of this rule.

(b) Ethylene dichloride purification. The concentration of vinyl chloride in each exhaust gas stream from any equipment used in ethylene dichloride purification is not to exceed 10 ppm (average for 3-hour period), except as provided in paragraph (6)(b) of this rule. This requirement does not preclude combining of exhaust gas streams provided the combined steam is ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in paragraph (7) of this rule. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subpart (i) of paragraph (6)(c)6. of this rule before being opened.

(c) Oxychlorination reactor. Except as provided in paragraph (6)(b) of this rule, emissions of vinyl chloride to the atmosphere from each oxychlorination reactor are not to exceed 0.2 g/kg (0.0002 lb/lb) (average for 3-hour period) of the 100 percent ethylene dichloride product from the oxychlorination process.

(4) Emission standard for vinyl chloride plants.

(a) An owner or operator of a vinyl chloride plant shall comply with the requirements of this paragraph and paragraph (6) of this rule.

(b) Vinyl chloride formation and purification: The concentration of vinyl chloride in each exhaust gas stream from any equipment used in vinyl chloride formation and/or purification is not to exceed 10 ppm (average for 3-hour period), except as provided in paragraph (6)(b) of this rule. This requirement does not preclude combining of exhaust gas streams provided the combined stream is ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm, or equivalent as provided in paragraph (7) of this rule. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subpart (i) of paragraph (6)(c)6. of this rule before being opened.

(5) Emission standard for polyvinyl chloride plants.

(a) An owner or operator of a polyvinyl chloride plant shall comply with the requirements of this paragraph and paragraph (6) of this rule.

(b) Reactor. The following requirements apply to reactors:

1. The concentration of vinyl chloride in each exhaust gas stream from each reactor is not to exceed 10 ppm (average for 3-hour period), except as provided in part 2. of subparagraph (b) of this paragraph and paragraph (6)(b) of this rule.

2. The reactor opening loss from each reactor is not to exceed 0.02 g vinyl chloride/kg (0.00002 lb vinyl chloride/lb) of polyvinyl chloride product, except as provided in subparts (i) and (ii) of part (g)1. of this paragraph, with the product determined on a dry solids basis. This requirement does not apply to prepolymerization reactors in the bulk process. This requirement does apply to postpolymerization reactors in the bulk process, where the product means the gross product of prepolymerization and postpolymerization.

3. Manual vent valve discharge. Except for an emergency manual vent valve discharge, there is to be no discharge to the atmosphere from any manual vent valve on a polyvinyl chloride reactor in vinyl chloride service (as defined in paragraph (2)(l) of this rule). An emergency manual vent valve discharge means a discharge to the atmosphere which could not have been avoided by taking measures to prevent the discharge. Within 10 days of any discharge to the atmosphere from any manual vent valve, the owner or operator of the source from which the discharge occurs shall submit to the Technical Secretary a report in writing containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss (the calculation of the vinyl chloride loss), the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

(c) Stripper. The concentration of vinyl chloride in each exhaust gas stream from each stripper is not to exceed 10 ppm (average for 3-hour period), except as provided in paragraph (6)(b) of this rule. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subpart (i) of paragraph (6)(c)6. of this rule before being opened.

(d) Mixing, weighing, and holding containers. The concentration of vinyl chloride in each exhaust gas stream from each mixing, weighing, or holding container in vinyl chloride service which precedes the stripper (or the reactor if the plant has no stripper) in the plant process flow is not to exceed 10 ppm (average for 3- hour period), except as provided in paragraph (6)(b) of this rule. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirement in subpart (i) of paragraph (6)(c)6. of this rule before being opened.

(e) Monomer recovery system. The concentration of vinyl chloride in each exhaust gas stream from each monomer recovery system is not to exceed 10 ppm (average for 3-hour period), except as provided in paragraph (6)(b) of this rule. This requirement does not apply to equipment that has been opened, is out of operation, and met the requirements in subpart (i) of paragraph (6)(c)6. of this rule before being opened.

(f) Sources following the stripper(s): The following requirements apply to emissions of vinyl chloride to the atmosphere from the combination of all sources following the stripper(s) (or the reactor(s) if the plant has no stripper(s)) in the plant process flow including but not limited to, centrifuges, concentrators, blend tanks, filters, dryers, conveyor air discharges, baggers, storage containers, and inprocess waste water, except as provided in subparagraph (g) of this paragraph:

1. In polyvinyl chloride plants using stripping technology to control vinyl chloride emissions, the weighted average residual vinyl chloride concentration in all grades of polyvinyl chloride resin processed through the stripping operation on each calendar day, measured immediately after the stripping operation is completed, may not exceed:

   (i) 2000 ppm for polyvinyl chloride dispersion resins, excluding latex resins;

   (ii) 400 ppm for all other polyvinyl chloride resins, including latex resins, averaged separately for each type of resin; or

2. In polyvinyl chloride plants controlling vinyl chloride emissions with technology other than stripping or in addition to stripping, emissions of vinyl chloride to the atmosphere may not exceed:

   (i) 2 g/kg (0.002 lb/lb) product from the stripper(s) (or reactor(s) if the plant has no stripper(s)) for dispersion polyvinyl chloride resins, excluding latex resins, with the product determined on a dry solids basis;

(ii) 0.4 g/kg (0.0004 lb/lb) product from the stripper(s) (or reactor(s) if the plant has no stripper(s)) for all other polyvinyl chloride resins, including latex resins, with the product determined on a dry solids basis.

3. The provisions of subparagraph (f) of this paragraph apply at all times including when off specification or other types of resins are made.

(g) Reactor used as stripper. When a nonbulk resin reactor is used as a stripper this subparagraph may be applied in lieu of part 2. of subparagraph (b) and part 1. of subparagraph (f) of paragraph (5) of this rule:

1. The weighted average emissions of vinyl chloride from reactor opening loss and all sources following the reactor used as a stripper from all grades of polyvinyl chloride resin stripped in the reactor on each calendar day may not exceed:

(i) 2.02 g/kg (0.00202 lb/lb) of polyvinyl chloride product for dispersion polyvinyl chloride resins, excluding latex resins, with the product determined on a dry solids basis.

(ii) 0.42 g/kg (0.00042 lb/lb) of polyvinyl chloride product for all other polyvinyl chloride resins, including latex resins, with the product determined on a dry solids basis.

(6) Emission standard for ethylene dichloride, vinyl chloride and polyvinyl chloride plants.

(a) An owner or operator of an ethylene dichloride, vinyl chloride, and/or polyvinyl chloride plant shall comply with the requirements of this paragraph.

(b) Relief valve discharge. Except for an emergency relief discharge, there is to be no discharge to the atmosphere from any relief valve on any equipment in vinyl chloride service. An emergency relief discharge means a discharge which could not have been avoided by taking measures to prevent the discharge. Within 10 days of any relief valve discharge, the owner or operator of the source from which the relief valve discharge occurs shall submit to the Technical Secretary a report in writing containing information on the source, nature and cause of the discharge, the date and time of the discharge, the approximate total vinyl chloride loss during the discharge, the method used for determining the vinyl chloride loss (the calculation of the vinyl chloride loss), the action that was taken to prevent the discharge, and measures adopted to prevent future discharges.

(c) Fugitive emission sources:

1. Loading and unloading lines: Vinyl chloride emissions from loading and unloading lines in vinyl chloride service which are opened to the atmosphere after each loading or unloading operation are to be minimized as follows:

(i) After each loading or unloading operation and before opening a loading or unloading line to the atmosphere, the quantity of vinyl chloride in all parts of each loading or unloading line that are to be opened to the atmosphere is to be reduced so that the parts combined contain no greater than 0.0038 m3 (0.13 ft3) of vinyl chloride, at standard temperature and pressure; and

(ii) Any vinyl chloride removed from a loading or unloading line in accordance with subpart (i) of subparagraph (c)1. of this paragraph is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period), or equivalent as provided in paragraph (7) of this rule.

2. Slip gauges. During loading or unloading operations, the vinyl chloride emissions from each slip gauge in vinyl chloride service are to be minimized by ducting any vinyl chloride discharged from the slip gauge through a control system from which the

concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period), or equivalent as provided in paragraph (7) of this rule.

3. Leakage from pump, compressor, and agitator seals:

(i) Rotating pumps. Vinyl chloride emissions from seals on all rotating pumps in vinyl chloride service are to be minimized by installing sealless pumps, pumps with double mechanical seals or equivalent as provided in paragraph (7) of this rule. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in paragraph (7) of this rule. Compliance with the provisions of rule 1200-03-11-.06 demonstrates compliance with the provisions of this subparagraph.

(ii) Reciprocating pumps. Vinyl chloride emissions from seals on all reciprocating pumps in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in paragraph (7) of this rule. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the pump; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in paragraph (7) of this rule. Compliance with the provisions of rule 1200-03-11-.06 demonstrates compliance with the provisions of this subparagraph.

(iii) Rotating compressor. Vinyl chloride emissions from seals on all rotating compressors in vinyl chloride service are to be minimized by installing compressors with double mechanical seals, or equivalent as provided in paragraph (7) of this rule. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in paragraph (7) of this rule. Compliance with the provisions of Rule 1200-03-11-.06 demonstrates compliance with the provisions of this subparagraph.

(iv) Reciprocating compressors. Vinyl chloride emissions from seals on all reciprocating compressors in vinyl chloride service are to be minimized by installing double outboard seals, or equivalent as provided in paragraph (7) of this rule. If double outboard seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the compressor; by ducting any vinyl chloride between the two seals through a control system from which concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in paragraph (7) of this rule. Compliance with the provisions of rule 1200-03-11-.06 demonstrates compliance with the provisions of this subparagraph.

(v) Agitator. Vinyl chloride emissions from seals on all agitators in vinyl chloride service are to be minimized by installing agitators with double mechanical seals, or equivalent as provided in paragraph (7) of this rule. If double mechanical seals are used, vinyl chloride emissions from the seals are to be minimized by maintaining the pressure between the two seals so that any leak that occurs is into the agitated vessel; by ducting any vinyl chloride between the two seals through a control system from which the concentration of vinyl

chloride in the exhaust gases does not exceed 10 ppm; or equivalent as provided in paragraph (7) of this rule.

4. Leaks from relief valves. Vinyl chloride emissions due to leaks from each relief valve on equipment in vinyl chloride service shall comply with the standards found in subparagraph 1200-03-11-.06(3)(d).

5. Manual venting of gases. Except as provided in part (5)(b)3. of this rule, all gases which are manually vented from equipment in vinyl chloride service are to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period); or equivalent as provided in paragraph (7) of this rule.

6. Opening of equipment. Vinyl chloride emissions from opening of equipment (including prepolymerization reactors used in the manufacture of bulk resins and loading or unloading lines that are not opened to the atmosphere after each loading or unloading operation) are to be minimized as follows:

(i) Before opening any equipment for any reason, the quantity of vinyl chloride which is contained therein is to be reduced to an amount which occupies a volume of no more than 2.0 percent of the equipment's containment volume or 0.0950 cubic meters (25 gallons), whichever is larger, at standard temperature and pressure.

(ii) Any vinyl chloride removed from the equipment in accordance with subpart (c)6.(i) of this paragraph is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period); or equivalent as provided in paragraph (7) of this rule.

7. Samples. Unused portions of samples containing at least 10 percent by weight vinyl chloride are to be returned to the process or destroyed in a control device from which concentration of vinyl chloride in the exhaust gas does not exceed 10 ppm (average for 3-hour period) or equivalent as provided in paragraph (7) of this rule. Sampling techniques are to be such that sample containers in vinyl chloride service are purged into a closed process system. Compliance with the provisions of rule 1200-03-11-.06 demonstrates compliance with the provisions of this subparagraph.

8. Leak detection and elimination. Vinyl chloride emissions due to leaks from equipment in vinyl chloride service are to be minimized as follows:

(i) A reliable and accurate vinyl chloride monitoring system shall be operated for detection of major leaks and identification of the general area of the plant where a leak is located. A vinyl chloride monitoring system means a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromatography or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride, with infrared spectrophotometry, flame ion detection, or an equivalent or alternative method. The vinyl chloride monitoring system shall be operated according to a program developed by the plant owner or operator. The owner or operator shall submit a description of the program to the Technical Secretary within 45 days of November 6, 1988.

Approval of a program will be granted by the Technical Secretary provided he finds:

(I) The location and number of points to be monitored and the frequency of monitoring provided for in the program are acceptable when they are compared with the number of pieces of equipment in vinyl chloride service and size and physical layout of the plant.

(II) It contains a definition of leak which is acceptable when compared with the background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system. Measurements of background concentrations of vinyl chloride in the areas of the plant to be monitored by the vinyl chloride monitoring system are to be included with the description of the program. The definition of leak for a given plant may vary among the different areas within the plant and is also to change over time as background concentrations in the plant are reduced.

(III) It contains an acceptable plan of action to be taken when a leak is detected.

(IV) It provides for an acceptable calibration and maintenance schedule for the vinyl chloride monitoring system and portable hydrocarbon detector. For the vinyl chloride monitoring system, a daily span check is to be conducted with a concentration of vinyl chloride equal to the concentration defined as a leak according to item (c)8.(i)(II) of this paragraph. The calibration is to be done with either:

I. A calibration gas mixture prepared from the gases specified in sections 5.2.1. and 5.2.2. of Test Method 106 and in accordance with section 7.1 of Test Method 106 (as specified in the *Federal Register*, Volume 41, Number 205, of October 21, 1976, beginning on page 46569 as Method 106, as amended in the *Federal Register*, Volume 41, Number 234, Friday, December 3, 1976, and the *Federal Register*, Volume 42, Number 109, of June 7, 1977), or

II. A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than +5 percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration, and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of Test Method 106. The requirements in section 5.2.3.1. and 5.2.3.2. of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed.

(ii) For each process unit subject to this rule a formal leak detection and repair program shall be implemented consistent with rule 1200-03-11-.06, except as provided in subpart (iii) of subparagraph (c)8. of this paragraph. This program is to be implemented within 90 days of November 6, 1988. Except as provided in item (V) of subparagraph (c)8.(ii) of this paragraph, an owner or operator shall be exempt from rule 1200-03-11-.06(3)(a)4., (3)(g)1., 2., and 3., and paragraph (7) and from paragraph (8) of this rule for any process unit in which the percentage of leaking valves is demonstrated to less than 2.0 percent, as determined in accordance with the following:

(I) A performance test as specified in item (II) of subparagraph (c)8.(ii) of this paragraph shall be conducted initially within 90 days of the effective date of these regulations, annually, and at times requested by the Technical Secretary.

(II) For each performance test, a minimum of 200 or 90 percent, whichever is less, of the total valves in VOC service (as defined in subparagraph 1200-03-11-.01(3)(r)) within the process unit shall be randomly selected and monitored within 1 week by the methods specified in part 1200-03-11-.06(6)(b)1. If an instrument reading of 10,000 ppm or greater is measured, a leak is detected. The leak percentage shall be determined by dividing the number of valves in VOC service for which leaks are detected by the number of tested valves in VOC service.

(III) If a leak is detected, it shall be repaired in accordance with 1200-03-11-.06(3)(g)4. and 5.

(IV) The results of the performance test shall be submitted in writing to the Technical Secretary in the first quarterly report following the performance test as part of the reporting requirements of paragraph 1200-03-11-.05(11).

(V) Any process unit in which the percentage of leaking valves is found to be greater than 2.0 percent according to the performance test prescribed in item (II) of subpart (6)(c)8.(ii) of this rule must comply with all provisions of rule 1200-03-11-.06 within 90 days.

(iii) Open-ended valves or lines located on multiple service process lines which operate in vinyl chloride service less than 10 percent of the time are exempt from the requirements of subparagraph 1200-03-11-.06(3)(f), provided the open-ended valves or lines are addressed in the monitoring system required by subpart (i) of subparagraph (c)8. of this paragraph. The Technical Secretary may apply this exemption to other existing open-ended valves or lines that are demonstrated to require significant retrofit cost to comply with the requirements of subparagraph 1200-03-11-.06(3)(e).

9. Inprocess wastewater: Vinyl chloride emissions to the atmosphere from inprocess wastewater are to be reduced as follows:

(i) The concentration of vinyl chloride in each inprocess wastewater stream containing greater than 10 ppm vinyl chloride measured immediately as it leaves a piece of equipment and before being mixed with any other inprocess wastewater stream is to be reduced to no more than 10 ppm by weight before being mixed with any other inprocess wastewater stream which contains less than 10 ppm vinyl chloride; before being exposed to the atmosphere, before being discharged to a wastewater treatment process; or before being discharged untreated as a wastewater. This paragraph does apply to water which is used to displace vinyl chloride from equipment before it is opened to the atmosphere in accordance with part (5)(b)2. or part (6)(c)6. of this rule, but does not apply to water which is used to wash out equipment after the equipment has already been opened to the atmosphere in accordance with part (5)(b)2. or (6)(c)6. of this rule.

(ii) Any vinyl chloride removed from the inprocess wastewater in accordance with subpart (i) of subparagraph (c)9. of this paragraph is to be ducted through a control system from which the concentration of vinyl chloride in the exhaust gases does not exceed 10 ppm (average for 3-hour period); or equivalent as provided in paragraph (7) of this rule.

(d) The requirements in parts 1., 2., 5., 6., 7., and 8. of subparagraph (c) of this paragraph are to be incorporated into a standard operating procedure, and made available upon request for inspection by the Technical Secretary. The standard operating procedure is to include provisions for measuring the vinyl chloride in equipment 4.75 m3 (1,250 gal) in volume for which an emission limit is prescribed in subpart (i) of paragraph (6)(c)6. of this rule after

opening the equipment and using Test Method 106 (as referenced in subitem (c)8.(i)(IV)I. of this paragraph), a portable hydrocarbon detector, or an alternative method. The method of measurement is to meet the requirements in item (I) or (II) of 1200-03-11-.05(8)(g)5.(i).

(7) Equivalent equipment and procedures. Upon written application from an owner or operator, the Technical Secretary may approve use of equipment or procedures which have been demonstrated to his satisfaction to be equivalent in terms of reducing vinyl chloride emissions to the atmosphere to those prescribed for compliance with a specific subparagraph of this rule.

(8) Emission Tests

(a) The owner or operator of a source to which this rule applies shall test emissions from the source,

1. Within 90 days of November 6, 1988 in the case of an existing source or a new source which has an initial startup date preceding November 6, 1988, or

2. Within 90 days of startup in the case of a new source, initial startup of which occurs after November 6, 1988.

(b) The owner or operator shall provide the Technical Secretary at least 30 days prior notice of an emission test to afford the Technical Secretary the opportunity to have an observer present during the test.

(c) Any emission test is to be conducted while the equipment being tested is operating at the maximum production rate at which the equipment will be operated and under other relevant conditions as may be specified by the Technical Secretary based on representative performance of the source.

(d) Reserved

(e) When at all possible, each sample is to be analyzed within 24 hours, but in no case in excess of 72 hours of sample collection. Vinyl chloride emissions are to be determined within 30 days after the emission test. The owner or operator shall report the determinations to the Technical Secretary by a registered letter dispatched before the close of the next business day following the determination.

(f) The owner or operator shall retain at the plant and make available, upon request, for inspection by the Technical Secretary, for a minimum of 3 years, records of emission test results and other data needed to determine emissions.

(g) Unless otherwise specified, the owner or operator shall use the Test Methods in this subparagraph for each test as required by parts (g)1, (g)2, (g)3, (g)4, and (g)5 of this paragraph unless an equivalent method or an alternative method has been approved by the Technical Secretary. If the Technical Secretary finds reasonable grounds to dispute the results obtained by an equivalent or alternative method, he may require the use of a reference method. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the Technical Secretary may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn.

1. Test Method 106 (as specified in the Federal Register, Volume 41, Number 205, of October 21, 1976, beginning on page 46569 as Method 106, as amended in the Federal Register, Volume 41, Number 234, Friday, December 3, 1976, and the Federal Register, Volume 42, Number 109, of June 7, 1977), is to be used to determine the vinyl chloride emissions from any source for which an emission limit is prescribed in subparagraph (3)(b) or (3)(c), subparagraph (4)(b), or part (5)(b)1 or (5)(b) 2 or subparagraph (c), (d) or (e) of paragraph (5), or to which fugitive emissions are required to be ducted in subparts (c)1(ii), parts (c)2 and (c)5, subpart (c)6(ii), or subpart (c)9(ii) of paragraph (6) of this rule.

(i) For each run, one sample is to be collected. The sampling site is to be at least two stack or duct diameters downstream and one half diameter upstream from any flow disturbance such as a bend, expansion, contraction, or visible flame. For a rectangular cross section an equivalent diameter is to be determined from the following equation:

$$\text{equivalent diameter} = \frac{2\,(\text{length})\,(\text{width})}{\text{length} + \text{width}}$$

The sampling point in the duct is to be at the centroid of the cross section. The sample is to be extracted at a rate proportional to the gas velocity at the sampling point. The sample is to contain a minimum volume of 50 liters corrected to standard conditions and is to be taken over a period as close to 1 hour as practicable.

(ii) Each emission test is to consist of three runs. For the purpose of determining emissions, the average of results of all runs is to apply. The average is to be computed on a time-weighted basis.

(iii) For gas streams containing more than 10 percent oxygen concentration of vinyl chloride as determined by Test Method 106 (as referenced in part (8)(g)1 of this rule) is to be corrected to 10 percent oxygen (dry basis) for determination of emissions by using the following equation:

$$\text{Cb (corrected)} = \frac{\text{Cb } 10.9}{20.9 - \text{percent } O_2}$$

where:

Cb (corrected) = The concentration of vinyl chloride in the exhaust gases, corrected to 10.0 percent oxygen.

Cb = The concentration of vinyl chloride as measured by Test Method 106 as referenced in part (8)(g)1 of this rule.

20.9 = Percent oxygen in the ambient air at standard conditions.

10.9 = Percent oxygen in the ambient air at standard conditions, minus the 10.0 percent oxygen to which the correction is being made.

Percent O_2 = Percent oxygen in the exhaust gas as measured by the Reference Method in part 1200-03-16-.01 (5)(g)3.

(iv) For those emission sources where the emission limit is prescribed in terms of mass rather than concentration, mass emissions in kg/100 kg are to be determined by using the following equation:

$$CBx = \frac{(Cb\ (2.60)\ Q\ 10^{-6})\ 100}{Z}$$

where:

CBx = kg vinyl chloride/100 kg product.

Cb = The concentration of vinyl chloride as measured by Test Method 106.

2.60 = Density of vinyl chloride at one atmosphere and 20°C in

kg/m^3.

Q = Volumetric flow rate in m^3/hr as determined by the reference method in part 1200-03-16-.01 (5)(g)2.

10^{-6} = Conversion factor for ppm.

Z = Production rate (kg/hr).

2. Test Method 107 or Method 106 (as specified in the Federal Register, Volume 41, Number 205, of October 21, 1976, beginning on page 46569, as amended in the Federal Register, Volume 41, Number 234, Friday, December 3, 1976, and the Federal Register, Volume 42, Number 109, of June 7, 1977) is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream for which an emission limit is prescribed in subpart (6)(c)9(i) of this rule.

3. When a stripping operation is used to attain the emission limits in subparagraph (5)(f) and (g) of this rule, emissions are to be determined using Test Method 107 as follows:

(i) The number of strippers (or reactors used as strippers) and samples and the types and grades of resin to be sampled are to be determined by the Technical Secretary for each individual plant at the time of the test based on the plant's operation.

(ii) Each sample is to be taken immediately following the stripping operation.

(iii) The corresponding quantity of material processed by each stripper (or reactor used as a stripper) is to be determined on a dry solids basis and by a method submitted to and approved by the Technical Secretary.

(iv) At the prior request of the Technical Secretary, the owner or operator shall provide duplicates of the samples required in subpart (g)3 (i) of this paragraph.

4. Where control technology other than or in addition to a stripping operation is used to attain the emission limit in subparagraph (5)(f) of this rule, emissions are to be determined as follows:

(i) Test Method 106 (as referenced in part (8)(g) 1 above), is to be used to determine the atmospheric emissions from all of the process equipment simultaneously. The requirements of part 1 of subparagraph (g) of this paragraph are to be met.

(ii) Test Method 107 (as referenced in part (8)(g) 2 above), is to be used to determine the concentration of vinyl chloride in each inprocess wastewater stream subject to the emission limit prescribed in subparagraph (5)(f) of this rule. The mass of vinyl chloride in kg/100 kg product in each inprocess wastewater stream is to be determined by using the following equation:

$$CBX = \frac{(Cd\ R\ 10^{-6})\ (100)}{Z}$$

where:

CBx = kg vinyl chloride/100 kg product.

Cd = the concentration of vinyl chloride as measured by Test Method 107.

R = water flow rate in 1/hr, determined in accordance with a method which has been submitted to and approved by the

Technical Secretary.

10^{-6} = conversion factor for ppm.

Z = production rate (kg/hr), determined in accordance with a method which has been submitted and approved by the Technical Secretary.

5. The reactor opening loss for which an emission limit is prescribed in part 2 of paragraph (5)(b) of this rule is to be determined. The number of reactors for which the determination is to be made is to be specified by the Technical Secretary for each individual plant at the time of the determination based on the plant's operation.

(i) Except as provided in subpart (ii) of subparagraph (g)5. of this paragraph, the reactor opening loss is to be determined using the following equation:

$$C = \frac{W\,(2.60)\,(10^{-6})\,(Cb)}{YZ}$$

where:

C = kg vinyl chloride emissions/kg product.

W = capacity of the reactor in m^3.

2.60 = density of vinyl chloride at one atmosphere and 20°C in kg/m^3.

Cb = ppm by volume vinyl chloride as determined by Test Method 106 or a portable hydrocarbon detector which measures hydrocarbons with a sensitivity of at least 10 ppm.

Y = number of batches since the reactor was last opened to the atmosphere.

Z = Average kg of polyvinyl chloride produced per batch in the number of batches since the reactor was last opened to the atmosphere.

(I) If Test Method 106 is used to determine the concentrations of vinyl chloride (Cb), the sample is to be withdrawn at a constant rate with a probe of sufficient length to reach the vessel bottom from the manhole. Samples are to be taken for 5 minutes within 6 inches of the vessel bottom, 5 minutes near the vessel center, and 5 minutes near the vessel top.

(II) If a portable hydrocarbon detector is used to determine the concentration of vinyl chloride (Cb), a probe of sufficient length to reach the vessel bottom from the manhole is to be used to make the measurements. One measurement will be made within 6 inches of the vessel bottom, one near the vessel center, and one near the vessel top. Measurements are to be made at each location until the reading is stabilized. All hydrocarbons measured are to be assumed to be vinyl chloride.

(III) The production rate of polyvinyl chloride (Z) is to be determined by a method submitted to and approved by the Technical Secretary.

(ii) A calculation based on the number of evacuations, the vacuum involved, and the volume of gas in the reactor is hereby approved by the Technical Secretary as an alternative method for determining reactor opening loss for

postpolymerization reactors in the manufacture of bulk resins. Calculation methods based on techniques other than repeated evacuation of the reactor may be approved by the Technical Secretary for determining reactor opening loss for postpolymerization reactors in the manufacture of bulk resins.

6. For a reactor that is used as a stripper, the emissions of vinyl chloride from reactor opening loss and all sources following the reactor used as a stripper for which an emission limit is prescribed in subparagraph (5)(g) of this rule are to be determined. The number of reactors for which the determination is to be made is to be specified by the Technical Secretary for each individual plan at the time of the determination based on the plant's operation.

(i) For each batch stripped in the reactor, the following measurements are to be made:

(I) The concentration (ppm) of vinyl chloride in resin after stripping, measured according to part (g)3 of this paragraph;

(II) The reactor vacuum (mm Hg) at end of strip from plant instrument; and

(III) The reactor temperature (°C) at end of strip from plant instrument.

(ii) For each batch stripped in the reactor, the following information is to be determined.

(I) The vapor pressure (mm Hg) of water in the reactor at end of strip from the following table:

Reactor temperature (°C)	H_2O vapor pressure (mm Hg)	Reactor temperature (°C)	H_2O vapor pressure (mm Hg)	Reactor temperature (°C)	H_2O pressure
40	55.3	62	163.8	84	416.8
41	58.3	63	171.4	85	433.6
42	61.5	64	179.3	86	450.9
43	64.8	65	187.5	87	468.7
44	68.3	66	196.1	88	487.1
45	71.9	67	205.0	89	506.1
46	75.6	68	214.2	90	525.8
47	79.6	69	223.7	91	546.0
48	83.7	70	233.7	92	567.0
49	88.0	71	243.9	93	588.6
50	92.5	72	254.6	94	610.9
51	97.2	73	265.7	95	633.9
52	102.1	74	277.2	96	657.6
53	107.2	75	289.1	97	682.1
54	112.5	76	301.4	98	707.3
55	118.0	77	314.1	99	733.2
56	123.8	78	327.3	100	760.0
57	129.8	79	341.0		
58	136.1	80	355.1		
59	142.6	81	369.7		
60	149.4	82	384.9		
61	156.4	83	400.6		

(II) The partial pressure (mm Hg) of vinyl chloride in reactor at end of strip from the following equation:

PPVC = 760 -- RV – VPW

where:

PPVC = partial pressure of vinyl chloride, in mm Hg.

760 = atmospheric pressure at 0°C, in mm Hg.

RV = absolute value of reactor vacuum, in mm Hg.

VPW = vapor pressure of water, in mm Hg.

(III) The reactor vapor space volume (m^3) at end of strip from the following equation:

$$RVSV = \frac{RC - WV - PVCW}{1,400}$$

where:

RVSV = reactor vapor space volume, in m^3.

RC = reactor capacity, in m^3.

WV = volume of water in reactor from recipe, in m^3.

PVCW = dry weight of polyvinyl chloride in reactor from recipe, in kg.

1,400 = typical density of polyvinyl chloride, in kg/m^3.

(iii) For each batch stripped in the reactor, the combined reactor opening loss and emissions from all sources following the reactor used as a stripper is to be determined using the following equation:

$$C = \frac{(PPMVC)(10^{-3}) + (PPVC)(RVSV)(1,002)}{(PVCW)(273 + RT)}$$

where:

C = g vinyl chloride/kg polyvinyl chloride product.

PPMVC = concentration of vinyl chloride in resin after stripping, in ppm.

10^{-3} = conversion factor for ppm.

PPVC = partial pressure of vinyl chloride determined according to item (g)6 (ii)(II) of this paragraph in mm Hg.

RVSV = reactor vapor space volume determined according to item (g)6 (ii)(III) of this paragraph in m^3

1,002 = ideal gas constant in g - K/mm Hg - m^3 for vinyl chloride.

PVCW = dry weight of polyvinyl chloride in reactor from recipe, in kg.

273 = conversion factor for C to K.

RT = reactor temperature, in C.

(h) Measurement of Vinyl Chloride

1. Each piece of equipment within a process unit that can responsibly contain equipment in vinyl chloride service is presumed to be in vinyl chloride service unless an owner or operator demonstrates that the piece of equipment is not in vinyl chloride service. For a piece of equipment to be considered not in vinyl chloride service, it must be determined that the percent vinyl chloride content can be reasonably expected not to exceed 10 percent by weight for liquid streams or contained liquid volumes and 10 percent by volume for gas streams or contained gas volumes, which also includes gas volumes above liquid streams or contained liquid volumes. For purposes of determining the percent vinyl chloride content of the process fluid that is contained in or contacts equipment, procedures that conform to the methods described in ASTM Method D 2267 shall be used. (Note: All references to ASTM in this rule refers to the American Society for Testing Materials. Copies of methods are available for purchase by writing to ASTM, 1916 Race Street, Philadelphia, PA 19103 or by writing to the Tennessee Division of Air Pollution Control, 701 Broadway, 4th Floor, Customs House, Nashville, TN 37219. Be sure and specify which method is desired).

2. (i) An owner or operator may use engineering judgment rather than the procedures in part (h)1 of this paragraph to demonstrate that the percent vinyl chloride content does not exceed 10 percent by weight for liquid streams and 10 percent by volume for gas streams, provided that the engineering judgment demonstrates that the vinyl chloride content clearly does not exceed 10 percent. When an owner or operator and the Technical Secretary do not agree on whether a piece of equipment is not in vinyl chloride service, however, the procedures in part (h)1 of this paragraph shall be used to resolve the disagreement.

(ii) If an owner or operator determines that a piece of equipment is in vinyl chloride service, the determination can be revised only after following the procedures in part (h)1 of this paragraph.

3. Samples used in determining the percent vinyl chloride content shall be representative of the process fluid that is contained in or contacts the equipment.

(9) Emission monitoring

(a) A vinyl chloride monitoring system is to be used to monitor on a continuous basis the emissions from the sources for which emission limits are prescribed in subparagraphs (3)(b), (3)(c), and (4)(b), part (5)(b)1, subparagraphs (5)(c), and (5)(d), and (5)(e) of this rule, and for any control system to which reactor emissions are required to be ducted in subpart (6)(c)1(ii), parts (6)(c)2 and (6)(c)5, and subparts (6)(c)6(ii) and (6)(c)9(ii) of this rule.

(b) The vinyl chloride monitoring system(s) used to meet the requirement in subparagraph (a) of this paragraph is to be a device which obtains air samples from one or more points on a continuous sequential basis and analyzes the samples with gas chromotography, or, if the owner or operator assumes that all hydrocarbons measured are vinyl chloride with infrared spectrophotometry, flame ion detection, or an equivalent or alternative method. The vinyl chloride monitoring system used to meet the requirements in subpart (6)(c)8(i) of this rule may be used to meet the requirements of this paragraph.

(c) A daily span check is to be conducted for each vinyl chloride monitoring system used. For all of the emission sources listed in subparagraph (a) of this paragraph, except the one for which an emission limit is prescribed in subparagraph (3)(c) of this rule, the daily span check is to be conducted with a concentration of vinyl chloride equal to 10 ppm. For the emission source for which an emission limit is prescribed in subparagraph (3)(c) of this rule the daily span check is to be conducted with a concentration of vinyl chloride which is determined to be equivalent to the emission limit for that source based on the emission test required by paragraph (8) of this rule. The calibration is to be done with either:

1. A calibration gas mixture prepared from the gases specified in sections 5.2.1 and 5.2.3 of Test Method 106 and in accordance with section 7.1 of Test Method 106 (Method 106 as referenced in part (8)(g)1 of this rule), or

2. A calibration gas cylinder standard containing the appropriate concentration of vinyl chloride. The gas composition of the calibration gas cylinder standard is to have been certified by the manufacturer. The manufacturer must have recommended a maximum shelf life for each cylinder so that the concentration does not change greater than +5 percent from the certified value. The date of gas cylinder preparation, certified vinyl chloride concentration and recommended maximum shelf life must have been affixed to the cylinder before shipment from the manufacturer to the buyer. If a gas chromatograph is used as the vinyl chloride monitoring system, these gas mixtures may be directly used to prepare a chromatograph calibration curve as described in section 7.3 of Test Method 106. The requirements in sections 5.2.3.1 and 5.2.3.2 of Test Method 106 for certification of cylinder standards and for establishment and verification of calibration standards are to be followed. Test Method 106 (as referenced in part (8)(g)1 of this rule).

(d) When exhaust gas(es), having emission limits that are subject to the requirement of subparagraph (a) of this paragraph, are emitted to the atmosphere without passing through the control system and required vinyl chloride monitoring system, the vinyl chloride content of the emission shall be calculated (in units of each applicable emission limit) by best practical engineering judgment based on the discharge duration and known VC concentrations in the affected equipment as determined in accordance with Test Method 106 or other acceptable method.

(e) For each 3-hour period, the vinyl chloride content of emissions subject to the requirements of subparagraphs (a) and (d) of this paragraph shall be averaged (weighted according to the proportion of time that emissions were continuously monitored and that emissions bypassed the continuous monitor) for purposes of reporting excess emissions under part 1200-03-11-.05 (11)(c)1.

(f) For each vinyl chloride emission to the atmosphere determined in accordance with subparagraph (e) of this paragraph to be in excess of the applicable emission limits, the owner or operator shall record the identify of the source(s), the date, time, and duration of the excess emission, the cause of the excess emission, and the approximate total vinyl chloride loss during the excess emission, and the method used for determining the vinyl chloride loss. This information shall be retained and made available for inspection by the Technical Secretary as required by subparagraph (12)(a) of this rule.

(10) Initial Report

(a) An owner or operator of any source to which this rule applies shall submit a statement in writing notifying the Technical Secretary that the equipment and procedural specifications in parts 1, 2, 3, 4, 5, 6, 7, and 8 of subparagraph (6)(c) of this rule are being implemented.

(b) 1. In the case of an existing source or a new source which has an initial startup date preceding the effective date, the statement is to be submitted within 90 days of November 6, 1988.

2. In the case of a new source which did not have an initial startup date preceding the effective date, the statement is to be submitted within 90 days of the initial startup date.

(c) The statement is to contain the following information:

1. A list of the equipment installed for compliance.

2. A description of the physical and functional characteristics of each piece of equipment.

3. A description of the methods which have been incorporated into the standard operating procedures for measuring or calculating the emissions for which emission limits are prescribed in subparts (6)(c)1(i) and (6)(c)6(i) of this rule.

4. A statement that each piece of equipment is installed and that each piece of equipment and each procedure is being used.

(11) Reporting

(a) 1. The owner or operator of any source to which this rule applies shall submit to the Technical Secretary on March 15, June 15, September 15, and December 15 of each year a report in writing containing the information required by this paragraph. The first report is to be submitted following the first full 3-month reporting period after the initial report is submitted.

2. In the case of an existing source, the approved reporting schedule shall be used. In addition, quarterly reports shall be submitted exactly 3 months following the current reporting dates.

(b) 1. In the case of an existing source or a new source which has an initial startup date preceding the effective date, the first report is to be submitted within 180 days of November 6, 1988.

2. In the case of a new source which did not have an initial startup date preceding the effective date, the first report is to be submitted within 180 days of the initial startup date.

(c) Unless otherwise specified, the owner or operator shall use the test method in subparagraph (8)(g) of this rule to conduct emission tests as required by parts (c)2 and (c)3 of this paragraph, unless an equivalent or alternative method has been approved by the Technical Secretary. If the Technical Secretary finds reasonable grounds to dispute the results obtained by an equivalent or alternative method, he may require the use of a reference method. If the results of the reference and equivalent or alternative methods do not agree, the results obtained by the reference method prevail, and the Technical Secretary may notify the owner or operator that approval of the method previously considered to be equivalent or alternative is withdrawn.

1. The owner or operator shall include in the report a record of the vinyl chloride content of emissions for each 3-hour period during which average emissions are in excess of the emission limits in 1200-03-11-.05-(3)(a), (b), or (c), 1200-03-11-.05-(4)(a) or (b), 1200-03-11-.05-(5)(a), (b), (c), (d), or (e), or during which average emissions are in excess of the emission limits specified in part (5)(b)2 of this rule or to which fugitive emissions are required to be ducted in subparts (c)1(ii), parts (c)2, (c)5, subpart (c)6(ii), or subpart (c)9(ii) of paragraph (6) of this rule. The number of 3-hour periods for which average emissions were determined during the reporting period shall be reported. If emissions in excess of the emission limits are not detected, the report shall contain a statement that no excess emissions have been detected. The emissions are to be determined in accordance with subparagraph (9)(e) of this rule.

2. In polyvinyl chloride plants for which a stripping operation is used to attain the emission level prescribed in subparagraph (5)(f) of this rule, the owner or operator shall include in the report a record of the vinyl chloride content in the polyvinyl chloride resin.

(i) If batch stripping is used, one representative sample of polyvinyl chloride resin is to be taken from each batch of each grade of resin immediately following the completion of the stripping operation, and identified by resin type and grade and the date and time the batch is completed. The corresponding quantity of material processed in each stripper batch is to be recorded and identified by resin type and grade and the date and time the batch is completed.

(ii) If continuous stripping is used, one representative sample of polyvinyl chloride resin is to be taken for each grade of resin processed or at intervals of 8 hours for each grade of resin which is being processed, whichever is more frequent. The sample is to be taken as the resin flows out of the stripper and identified by resin type and grade and the date and time the sample was taken. The corresponding quantity of material processed by each stripper over the time period represented by the sample during the eight hour period, is to be recorded and identified by resin type and grade and the date and time it represents.

(iii) The vinyl chloride content in each sample is to be determined by Test Method 107 as prescribed in part (8)(g)3 of this rule.

(iv) Reserved

(v) The report to the Technical Secretary by the owner or operator is to include a record of any 24-hour average resin vinyl chloride concentration, as determined in this paragraph, in excess of the limits prescribed in subparagraph (5)(f) of this rule. The vinyl chloride content found in each sample required by subparts (i) and (ii) of subparagraph (c)2. of this paragraph shall be averaged separately for each type of resin, over each calendar day and weighted according to the quantity of each grade of resin processed by the stripper(s) that calendar day, according to the following equation:

$$AT = \sum_{i=1}^{n} \frac{PGiMGi}{QT} = \frac{PGiMGi + MG2 + \ldots PGnMGn}{QT}$$

Where:

A = 24-hour average concentration of type T resin in ppm (dry weight basis).

Q = Total production of type T resin over the 24-hour period, in kg.

T = Type of resin.

M = Concentration of vinyl chloride in one sample of grade Gi resin in ppm.

P = Production of grade Gi resin represented by the sample, in kg.

Gi = Grade of resin: e.g., G1, G2, G3.

n = Total number of grades of resin produced during the 24 hour period.

The number of 24-hour average concentrations for each resin type determined during the reporting period shall be reported. If no 24-hour average resin vinyl chloride concentrations in excess of the limits prescribed in subparagraph (5)(f) of this rule are measured, the report shall state that no excess resin vinyl chloride concentrations were measured.

(vi) The owner or operator shall retain at the source and make available for inspection by the Technical Secretary for a minimum of 3 years records of all data needed to furnish the information required by subparagraph (c)2. (v) of this paragraph. The records are to contain the following information:

(I) The vinyl chloride content found in all the samples required in subparts (c)2.(i) and (c)2.(ii) of this paragraph identified by the resin type and grade and the time and date of the sample, and

(II) The corresponding quantity of polyvinyl chloride resin processed by the stripper(s), identified by the resin type and grade and the time and date it represents.

3. The owner or operator shall include in the report a record of any emissions from each reactor opening in excess of the emission limits prescribed in part (5)(b)2 of this rule. Emissions are to be determined in accordance with part (8)(g)5 of this rule, except that emissions for each reactor are to be determined. The number of reactor openings during

the reporting period shall be reported. If emissions in excess of the emission limits are not detected, the report shall include a statement that excess emissions have not been detected.

4. In polyvinyl chloride plants for which stripping in the reactor is used to attain the emission level prescribed in subparagraph (5)(g) of this rule, the owner or operator shall include in the report a record of the vinyl chloride emissions from reactor opening loss and all sources following the reactor used as a stripper.

(i) One representative sample of polyvinyl chloride resin is to be taken from each batch of each grade of resin immediately following the completion of the stripping operation, and identified by resin type and grade and the date and time the batch is completed. The corresponding quantity of material processed in each stripper batch is to be recorded and identified by resin type and grade and the date and time the batch is completed.

(ii) The vinyl chloride content in each sample is to be determined by Test Method 107 (as specified in the Federal Register, Volume 41, Number 205, of October 21, 1976, beginning on page 46569, as amended in the Federal Register, Volume 41, Number 234, Friday, December 3, 1976, and the Federal Register, Volume 42, Number 109, of June 7, l977) as prescribed in part (8)(g)3 of this rule.

(iii) The combined emissions from reactor opening loss and all sources following the reactor used as a stripper are to be determined for each batch stripped in a reactor according to the procedure prescribed in part (8)(g)6 of this rule.

(iv) The report to the Technical Secretary by the owner or operator is to include a record of any 24-hour average combined reactor opening loss and emissions from all sources following the reactor used as a stripper as determined in this paragraph, in excess of the limits prescribed in paragraph (5)(g). The combined reactor opening loss and emissions from all sources following the reactor used as a stripper associated with each batch are to be averaged separately for each type of resin, over each calendar day and weighted according to the quantity of each grade of resin stripped in reactors that calendar day as follows:

For each type of resin (suspension, dispersion, latex, bulk, other), the following calculation is to be performed:

$$AT = \sum_{i=1}^{n} \frac{PGiMGi}{QT} = \frac{PGiCGi + PG2CG2 + \ldots + PGnCGn}{QT}$$

Where:

A = 24-hour average combined reactor opening loss and emissions from all sources following the reactor used as a stripper, in g vinyl chloride/kg product (dry weight basis).

Q = Total production of resin in batches for which stripping is completed during the 24-hour period, in kg.

T = Type of resin.

C = Average combined reactor opening loss and emissions from all sources following the reactor used as a stripper of all batches of grade Gi resin for which stripping is completed during the 24-hour period, in g vinyl chloride/kg product (dry weight basis) (determined according to procedure prescribed in part 6. (8)(g)6 of this rule.

P = Production of grade Gi resin in the batches for which C is determined, in kg.

Gi = Grade of resin, e.g., G1, G2, and G3.

n = Total number of grades of resin in batches for which stripping is completed during the 14-hour period.

The number of 24-hour average emissions determined during the reporting period shall be reported. If no 24-hour average combined reactor opening loss and emissions from all sources following the reactor used a stripper in excess of the limits prescribed in subparagraph (5)(g) are determined, the report shall state that no excess vinyl chloride emissions were determined.

(12) Record Keeping

(a) The owner or operator of any source to which this rule applies shall retain the following information at the source and make it available for inspection to the Technical Secretary for a minimum of 3 years:

1. A record of the leaks detected by the vinyl chloride monitoring system as required by part (6)(c)8 of this rule, including the concentrations of vinyl chloride as measured, analyzed, and recorded by the vinyl chloride detector, the location of each measurement, and the date and approximate time of each measurement.

2. A record of the leaks detected during routine monitoring with the portable hydrocarbon detector and the action taken to repair the leaks, as required by part (6)(c)8 of this rule, including a brief statement explaining the location and cause of each leak detected with the portable hydrocarbon detector, the date and time of the leak, and any action taken to eliminate that leak.

3. A record of emissions measured in accordance with paragraph (9) of this rule.

4. A daily operating record for each polyvinyl chloride reactor, including pressures and temperatures.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11-.06 Equipment Leakes (Fugitive Emission Sources)

(1) Applicability

(a) The provisions of this rule apply to each of the following sources that are intended to operate in volatile hazardous air pollutant (VHAP) service: pumps, compressors, pressure relief devices, sampling connection systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems required by this rule.

(b) The provisions of this rule apply to the sources listed in subparagraph (a) of this paragraph after the date of promulgation of a specific rule in this chapter.

(c) While the provisions of this rule are effective, a source to which this rule applies that is also subject to the provisions of chapter 16 only will be required to comply with the provisions of this rule.

(2) Definitions

Terms used in this rule not defined herein or in paragraph .01 (3) of this chapter shall have the meaning given to them in chapter 1200-03-2.

(a) "Closed-vent system" means a system that is not open to atmosphere and that is composed of

piping, connections, and, if necessary, flow-inducing devices that transport gas or vapor from a piece or pieces of equipment to a control device.

(b) ''Connector'' means, flanged, screwed, welded, or other joined fittings used to connect two pipe lines or a pipe line and a piece of equipment. For the purpose of reporting and recordkeeping, connector means flanged fittings that are not covered by insulation or other materials that prevent location of the fittings.

(c) ''Control device'' means an enclosed combustion device, vapor recovery system, or flare.

(d) ''Double block and bleed system'' means two block valves connected in series with a bleed valve or line that can vent the line between the two block valves.

(e) ''Equipment'' means each pump, compressor, pressure relief device, sampling connection system, open-ended valve or line, valve, flange or other connector, product accumulator vessel in VHAP service, and any control devices or systems required by this rule.

(f) ''First attempt at repair'' means to take rapid action for the purpose of stopping or reducing leakage of organic material to atmosphere using best practices.

(g) ''In gas/vapor service'' means that a piece of equipment contains process fluid that is in the gaseous state at operating conditions.

(h) ''In liquid service'' means that a piece of equipment is not in gas/vapor service.

(i) ''In situ sampling systems'' means nonextractive samplers or in-line samplers.

(j) ''In vacuum service'' means that equipment is operating at an internal pressure which is at least 5 kilopascals (kPa) below ambient pressure.

(k) ''In VHAP service'' means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent by weight a volatile hazardous air pollutant (VHAP) as determined according to the provisions of subparagraph (6)(d) of this rule. The provisions of subparagraph (6)(d) of this rule also specify how to determine that a piece of equipment is not in VHAP service.

(l) ''In VOC service'' means, for the purposes of this rule, that (a) the piece of equipment contains or contacts a process fluid that is at least 10 percent VOC by weight and (b) the piece of equipment is not in heavy liquid service (as defined in paragraph 1200-03-16-.43 (2)).

(m) ''Open-ended valve or line'' means any valve, except pressure relief valves, having one side of the valve seat in contact with process fluid and one side open to atmosphere, either directly or through open piping.

(n) ''Pressure release'' means the emission of materials resulting from the system pressure being greater than the set pressure of the pressure relief device.

(o) ''Process unit'' means equipment assembled to produce a VHAP or its derivatives as intermediates or final products, or equipment assembled to use a VHAP in the production of a product. A process unit can operate independently if supplied with sufficient feed or raw materials and sufficient product storage facilities.

(p) ''Process unit shutdown'' means a work practice or operational procedure that stops production from a process unit or part of a process unit. An unscheduled work practice or operational procedure that stops production from a process unit or part of a process unit for less than 24 hours is not a process unit shutdown. The use of spare equipment and technically feasible bypassing of equipment without stopping production are not process unit shutdowns.

(q) ''Product accumulator vessel'' means any distillate receiver, bottoms receiver, surge control vessel, or product separator in VHAP service that is vented to atmosphere either directly or through a vacuum-producing system. A product accumulator vessel is in VHAP service if the liquid or the vapor in the vessel is at least 10 percent by weight VHAP.

(r) ''Repaired'' means that equipment is adjusted, or otherwise altered, to eliminate a leak as indicated by one of the following: an instrument reading of 10,000 ppm or greater, indication of liquids dripping, or indication by a sensor that a seal or barrier fluid system has failed.

(s) ''Semiannual'' means a 6-month period; the first semiannual period concludes on the last day of the last month during the 180 days following initial startup for new sources; and the first semiannual period concludes on the last day of the last full month during the 180 days after the effective date of a specific rule that references this rule for existing sources.

(t) ''Sensor'' means a device that measures a physical quantity or the change in a physical quantity, such as temperature, pressure, flow rate, pH, or liquid level.

(u) ''Volatile hazardous air pollutant'' or ''VHAP'' means a substance regulated under this chapter for which a standard for equipment leaks of the substance has been proposed and promulgated. Benzene is a VHAP. Vinyl chloride is a VHAP.

(3) Standards for Volatile Hazardous Air Pollutants

(a) General

1. Each owner or operator subject to the provisions of this rule shall demonstrate compliance with the requirements of paragraph (3) for each new and existing source, except as provided in paragraphs (4) and (5).

2. Compliance with this rule will be determined by review of records, review of performance test results, and inspection using the methods and procedures specified in paragraph (6).

3. (i) An owner or operator may request a determination of alternative means of emission limitation to the requirements of subparagraphs (3)(b), (3)(c), (3)(e), (3)(f), (3)(g), (3)(h), (3)(i), and (3)(k) as provided in paragraph (5).

(ii) If the Technical Secretary makes a determination that a means of emission limitation is at least a permissible alternative to the requirements of subparagraphs (3)(b), (3)(c), (3)(e), (3)(f), (3)(g), (3)(h), (3)(i), and (3)(k), an owner or operator shall comply with the requirements of that determination.

4. Each piece of equipment to which this rule applies shall be marked in such a manner that it can be distinguished readily from other pieces of equipment.

5. Equipment that is in vacuum service is excluded from the requirements of subparagraphs (3)(b) to (3)(k) if it is identified as required in part (7)(e)5.

(b) Pumps

1. (i) Each pump shall be monitored monthly to detect leaks by the methods specified in subparagraph (6)(b), except as provided in part (3)(a)3 and parts 4, 5, and 6 of this subparagraph.

(ii) Each pump shall be checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

2. (i) If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

(ii) If there are indications of liquids dripping from the pump seal, a leak is detected.

3. (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subparagraph (3)(j).

(ii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

4. Each pump equipped with a dual mechanical seal system that includes a barrier fluid system is exempt from the requirements of part 1, provided the following requirements are met:

(i) Each dual mechanical seal system is:

(I) Operated with the barrier fluid at a pressure that is at all times greater than the pump stuffing box pressure; or

(II) Equipped with a barrier fluid degassing reservoir that is connected by a closed vent system to a control device that complies with the requirements of subparagraph (3) (k) or;

(III) Equipped with a system that purges the barrier fluid into a process stream with zero VHAP emissions to atmosphere.

(ii) The barrier fluid is not in VHAP service and, if the pump is covered by standards under chapter 16, is not in VOC service.

(iii) Each barrier fluid system is equipped with a sensor that will detect failure of the seal system, the barrier fluid system, or both.

(iv) Each pump is checked by visual inspection each calendar week for indications of liquids dripping from the pump seal.

(v) (I) Each sensor as described in subpart (3)(b)4 (iii) is checked daily or is equipped with an audible alarm, and

(II) The owner or operator determines, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

(vi) (I) If there are indications of liquids dripping from the pump seal or the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined in item (3)(b)4. (v)(II), a leak is detected.

(II) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subparagraph (3) (j).

(III) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

5. Any pump that is designated, as described in part (7)(e)2, for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of parts (3)(b) 1, (3)(b) 3, and (3)(b) 4 if the pump;

(i) Has no externally actuated shaft penetrating the pump housing,

(ii) Is demonstrated to be operating with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the method specified in subparagraph (6)(c) and;

(iii) Is tested for compliance with subpart (3)(b)5. (ii) initially upon designation, annually, and at other times requested by the Technical Secretary.

6. If any pump is equipped with a closed-vent system capable of capturing and transporting

any leakage from the seal or seals to a control device that complies with the requirements of subparagraph (3) (k) it is exempt from the requirements of parts 1 through 5.

7. Any pump that is located within the boundary of an unmanned plant site is exempt from the weekly visual inspection requirement of subparts (3)(b) 1(ii) and (3)(b) 4(iv), and the daily requirements of item (3)(b) 4(v)(I), provided that each pump is visually inspected as often as practicable and at least monthly.

(c) Compressors

1. Each compressor shall be equipped with a seal system that includes a barrier fluid system and that prevents leakage of process fluid to atmosphere, except as provided in part (3) (a)3 and parts 8 and 9 of this subparagraph.

2. Each compressor seal system as required in part 1 shall be:

(i) Operated with the barrier fluid at a pressure that is greater than the compressor stuffing box pressure; or

(ii) Equipped with a barrier fluid system that is connected by a closed-vent system to a control device that complies with the requirements of subparagraph (3) (k); or

(iii) Equipped with a system that purges the barrier fluid into a process stream with zero VHAP emissions to atmosphere.

3. The barrier fluid shall not be in VHAP service and, if the compressor is covered by standards under chapter 16 shall not be in VOC service.

4. Each barrier fluid system as described in parts 1 through 3 of this subparagraph shall be equipped with a sensor that will detect failure of the seal system, barrier fluid system, or both.

5. (i) Each sensor as required in part 4 of this section shall be checked daily or shall be equipped with an audible alarm unless the compressor is located within the boundary of an unmanned plant site.

(ii) The owner or operator shall determine, based on design considerations and operating experience, a criterion that indicates failure of the seal system, the barrier fluid system, or both.

6. If the sensor indicates failure of the seal system, the barrier fluid system, or both based on the criterion determined under subpart (3)(c) 5(ii), a leak is detected.

7. (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subparagraph (3) (j).

(ii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

8. A compressor is exempt from the requirements of parts 1 and 2 of this subparagraph if it is equipped with a closed vent system capable of capturing and transporting any leakage from the seal to a control device that complies with the requirements of subparagraph (3) (k), except as provided in part 9 of this subparagraph.

9. Any compressor that is designated, as described in part (7)(e)2, for no detectable emission as indicated by an instrument reading of less than 500 ppm above background is exempt from the requirements of parts 1 through 8 of this subparagraph if the compressor:

(i) Is demonstrated to be operating with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the method specified in subparagraph (6)(c); and

(ii) Is tested for compliance with subpart (3)(c)9. (i) initially upon designation, annually, and at other times requested by the Technical Secretary.

(d) Pressure relief devices in gas/vapor service

1. Except during pressure releases, each pressure relief device in gas/vapor service shall be operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the method specified in subparagraph (6)(c).

2. (i) After each pressure release, the pressure relief device shall be returned to a condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as soon as practicable, but no later than 5 calendar days after each pressure release except as provided in subpart (3) (j).

(ii) No later than 5 calendar days after the pressure release, the pressure relief device shall be monitored to confirm the condition of no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, as measured by the method specified in subparagraph (6)(c).

3. Any pressure relief device that is equipped with a closed-vent system capable of capturing and transporting leakage from the pressure relief device to a control device as described in subparagraph (3) (k) is exempt from the requirements of parts 1 and 2 of this subparagraph.

(e) Sampling connecting systems

1. Each sampling connection system shall be equipped with a closed purge system or closed vent system except as provided in part (3) (a)3.

2. Each closed purge system or closed vent system as required in part 1 of this subparagraph shall:

(i) Return the purged process fluid directly to the process line with zero VHAP emissions to atmosphere; or

(ii) Collect and recycle the purged process fluid with zero VHAP emissions to atmosphere; or

(iii) Be designed and operated to capture and transport all the purged process fluid to a control device that complies with the requirements of subparagraph (3) (k).

3. In situ sampling systems are exempt from the requirements of parts 1 and 2 of this subparagraph.

(f) Open-ended valves or lines

1. (i) Each open-ended valve or line shall be equipped with a cap, blind flange, plug, or a second valve, except as provided in part (3) (a)3.

(ii) The cap, blind flange, plug, or second valve shall seal the open end at all times except during operations requiring process fluid flow through the open-ended valve or line.

2. Each open-ended valve or line equipped with a second valve shall be operated in a manner such that the valve on the process fluid end is closed before the second valve is closed.

3. When a double block and bleed system is being used, the bleed valve or line may remain open during operations that require venting the line between the block valves but shall comply with part 1 of this subparagraph at all other times.

(g) Valves

1. Each valve shall be monitored monthly to detect leaks by the method specified in subparagraph (6)(b) and shall comply with parts 2 through 5 of this subparagraph, except as provided in parts 6, 7, and 8 of this subparagraph, and subparagraphs (4)(a) or (4)(b), and part (3) (a)3.

2. If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

3. (i) Any valve for which a leak is not detected for 2 successive months may be monitored the first month of every quarter, beginning with the next quarter, until a leak is detected.

(ii) If a leak is detected, the valve shall be monitored monthly until a leak is not detected for 2 successive months.

4. (i) When a leak is detected, it shall be repaired as soon as practicable, but no later than 15 calendar days after the leak is detected, except as provided in subparagraph (3) (j).

(ii) A first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

5. First attempts at repair include, but are not limited to, the following best practices where practicable:

(i) Tightening of bonnet bolts;

(ii) Replacement of bonnet bolts;

(iii) Tightening of packing gland nuts; and

(iv) Injection of lubricant into lubricated packing.

6. Any valve that is designated, as described in part (7)(e)2, for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, is exempt from the requirements of part (3)(g) 1 if the valve:

(i) Has no external actuating mechanism in contact with the process fluid;

(ii) Is operated with emissions less than 500 ppm above background, as measured by the method specified in subparagraph (6)(e); and

(iii) Is tested for compliance with subpart (3)(g)6 (ii) initially upon designation, annually, and at other times requested by the Technical Secretary.

7. Any valve that is designated, as described in part (7)(f)1, as an unsafe-to-monitor valve is exempt from the requirements of part (3)(g) 1 if:

(i) The owner or operator of the valve demonstrates that the valve is unsafe to monitor because monitoring personnel would be exposed to an immediate danger as a consequence of complying with part (3)(g) 1; and

(ii) The owner or operator of the valve has a written plan that requires monitoring of the valve as frequent as practicable during safe-to-monitor times.

8. Any valve that is designated, as described in part (7)(f)2, as a difficult-to-monitor valve is exempt from the requirements of part (3)(g) 1 if:

(i) The owner or operator of the valve demonstrates that the valve cannot be monitored without elevating the monitoring personnel more than 2 meters above a support surface;

(ii) The process unit within which the valve is located is an existing process unit; and

(iii) The owner or operator of the valve follows a written plan that requires monitoring of the valve at least once per calendar year.

(h) Pressure relief devices in liquid service and flanges and other connectors.

1. Pressure relief devices in liquid service and flanges and other connectors shall be monitored within 5 days by the method specified in subparagraph (6)(b) if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method except as provided in part (3) (a)3.

2. If an instrument reading of 10,000 ppm or greater is measured, a leak is detected.

3. (i) When a leak is detected, it shall be repaired as soon as practicable, but not later than 15 calendar days after it is detected, except as provided in subparagraph (3) (j).

(ii) The first attempt at repair shall be made no later than 5 calendar days after each leak is detected.

4. First attempts at repair include, but are not limited to, the best practices described under part (3) (g)5.

(i) Product accumulator vessels

Each product accumulator vessel shall be equipped with a closed-vent system capable of capturing and transporting any leakage from the vessel to a control device as described in subparagraph (3) (k) except as provided in part (3) (a)3.

(j) Delay of repair

1. Delay of repair of equipment for which leaks have been detected will be allowed if the repair is technically infeasible without a process unit shutdown. Repair of this equipment shall occur before the end of the next process unit shutdown.

2. Delay of repair of equipment for which leaks have been detected will be allowed for equipment that is isolated from the process and does not remain in VHAP service.

3. Delay of repair for valves will be allowed if:

(i) The owner or operator demonstrates that emissions of purged material resulting from immediate repair are greater than the fugitive emissions likely to result from delay of repair, and

(ii) When repair procedures are effected, the purged material is collected and destroyed or recovered in a control device complying with subparagraph (3) (k).

4. Delay of repair for pumps will be allowed if:

(i) Repair requires the use of a dual mechanical seal system that includes a barrier fluid system, and

(ii) Repair is completed as soon as practicable, but not later than 6 months after the

leak was detected.

5. Delay of repair beyond a process unit shutdown will be allowed for a valve if valve assembly replacement is necessary during the process unit shutdown, valve assembly supplies have been depleted, and valve assembly supplies had been sufficiently stocked before the supplies were depleted. Delay or repair beyond the next process unit shutdown will not be allowed unless the next process unit shutdown occurs sooner than 6 months after the first process unit shutdown.

(k) Closed-vent systems and control devices

1. Owners or operators of closed vent systems and control devices used to comply with provisions of this rule shall comply with the provisions of this subparagraph except as provided in part (3) (a)3.

2. Vapor recovery systems (for example, condensers and adsorbers) shall be designed and operated to recover the organic vapors vented to them with an efficiency of 95 percent or greater.

3. Enclosed combustion devices shall be designed and operated to reduce the VHAP emissions vented to them with an efficiency of 95 percent or greater or to provide a minimum residence time of 0.50 seconds at a minimum temperature of 760ºC.

4. (i) Flares used to comply with this rule shall comply with the requirements of 1200-03-16-.01 (11).

(ii) Flares shall be operated with a flame present at all times, as determined by the methods specified in subparagraph (6)(e) of this rule.

(iii) Flares shall be used only with the net heating value of the gas being combusted being 11.2 MJ/scm (300 Btu/scf) or greater if the flare is steam-assisted or air-assisted; or with the net heating value of the gas being combusted being 7.45 MJ/scm (200 Btu/scf) or greater if the flare is nonassisted. The net heating value of the gas being combusted shall be determined by the method specified in subparagraph (6)(e) of this rule.

(iv) Steam-assisted and nonassisted flares shall be designed for and operated with an exit velocity, as determined by the method specified in part (6)(e)4 of this rule, less than 18.3 m/sec (60 ft/sec).

(v) Air-assisted flares shall be designed and operated with an exit velocity less than the velocity, Vmax, as determined by the method specified in part (6)(e)5 of this rule.

(vi) Flares used to comply with this subpart shall be steam-assisted, air-assisted, or nonassisted.

5. Owners or operators of control devices that are used to comply with the provisions of this rule shall monitor these control devices to ensure that they are operated and maintained in conformance with their design.

6. (i) Closed-vent systems shall be designed for and operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background and by visual inspections, as determined by the methods specified in subparagraph (6)(c) of this rule.

(ii) Closed-vent systems shall be monitored to determine compliance with subparagraph (3)(k) initially, annually, and at other times requested by the Technical Secretary.

(iii) Leaks, as indicated by an instrument reading greater than 500 ppm and visual

inspections, shall be repaired as soon as practicable, but not later than 15 calendar days after the leak is detected.

(iv) A first attempt at repair shall be made no later than 5 calendar days after the leak is detected.

7. Closed-vent systems and control devices used to comply with provisions of this rule shall be operated at all times when emissions may be vented to them.

(4) Alternative standards for valves in VHAP service

(a) Allowable percentages of valves leaking

1. An owner or operator may elect to have all valves within a process unit comply with an allowable percentage of valves leaking of equal to or less than 2.0 percent.

2. The following requirements shall be met if an owner or operator decides to comply with an allowable percentage of valves leaking:

(i) An owner or operator must notify the Technical Secretary that the owner or operator has elected to have all valves within a process unit to comply with the allowable percentage of valves leaking before implementing this alternative standard, as specified in subparagraph (8)(d).

(ii) A performance test as specified in part (4)(a) 3 shall be conducted initially upon designation, annually, and at other times requested by the Technical Secretary.

(iii) If a valve leak is detected, it shall be repaired in accordance with parts (3)(g)4 and (3)(g) 5.

3. Performance tests shall be conducted in the following manner:

(i) All valves in VHAP service within the process unit shall be monitored within 1 week by the methods specified in subparagraph (6)(b).

(ii) If an instrument reading of 10,000 ppm or greater is measured a leak is detected.

(iii) The leak percentage shall be determined by dividing the number of valves in VHAP service for which leaks are detected by the number of valves in VHAP service within the process unit.

4. Owner or operators who elect to have all valves comply with this alternative standard shall not have a process unit with a leak percentage greater than 2.0 percent.

5. If an owner or operator decides no longer to comply with subparagraph (4)(a), the owner or operator must notify the Technical Secretary in writing that the work practice standard described in parts (3)(g)1 through (3)(g) 5 will be followed.

(b) Skip period leak detection and repair

1. (i) An owner or operator may elect for all valves within a process unit to comply with one of the alternative work practices specified in subparts (4)(b) 2(ii) and (4)(b)2. (iii) of this subparagraph.

(ii) An owner or operator must notify the Technical Secretary before implementing one of the alternative work practices, as specified in subparagraph (8)(d).

2. (i) An owner or operator shall comply initially with the requirements for valves, as described in subparagraph (3)(g).

(ii) After 2 consecutive quarterly leak detection periods with the percentage of valves

leaking equal to or less than 2.0, an owner or operator may begin to skip 1 of the quarterly leak detection periods for the valves in VHAP service.

(iii) After 5 consecutive quarterly leak detection periods with the percentage of valves leaking equal to or less than 2.0, an owner or operator may begin to skip 3 of the quarterly leak detection periods for the valves in VHAP service.

(iv) If the percentage of valves leaking is greater than 2.0, the owner or operator shall comply with the requirements as described in subparagraph (3)(g) but may again elect to use this subparagraph.

(5) Alternative means of emission limitation

(a) Permission to use an alternative means of emission limitation shall be governed by the following procedures:

(b) Where the standard is an equipment, design, or operational requirement:

1. Each owner or operator applying for permission shall be responsible for collecting and verifying test data for an alternative means of emission limitation.

2. The Technical Secretary will compare test data for the means of emission limitation to test data for the equipment, design, and operational requirements.

3. The Technical Secretary may condition the permission on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the equipment, design, and operational requirements.

(c) Where the standard is a work practice:

1. Each owner or operator applying for permission shall be responsible for collecting and verifying test data for an alternative means of emission limitation.

2. For each source for which permission is requested, the emission reduction achieved by the required work practices shall be demonstrated for a minimum period of 12 months.

3. For each source for which permission is requested, the emission reduction achieved by the alternative means of emission limitation shall be demonstrated.

4. Each owner or operator applying for permission shall commit in writing each source to work practices that provide for emission reductions equal to or greater than the emission reductions achieved by the required work practices.

5. The Technical Secretary will compare the demonstrated emission reduction for the alternative means of emission limitation to the demonstrated emission reduction of the required work practices and will consider the commitment in part (5)(c)4.

6. The Technical Secretary may condition the permission on requirements that may be necessary to assure operation and maintenance to achieve the same emission reduction as the required work practices of this rule.

(d) An owner or operator may offer a unique approach to demonstrate the alternative means of emission limitation.

(e) 1. Manufacturers of equipment used to control equipment leaks of a VHAP may apply to the Technical Secretary for permission for an alternative means of emission limitation that achieves a reduction in emissions of the VHAP achieved by the equipment, design, and operational requirements of this rule.

2. The Technical Secretary will grant permission according to the provisions of subparagraphs (5)(b), (5)(c) and (5)(d).

(6) Test methods and procedures

(a) Each owner or operator subject to the provisions of this rule shall comply with the test methods and procedures requirements provided in this paragraph.

(b) Monitoring, as required in paragraphs (3), (4), and (5), shall comply with the following requirements:

1. Monitoring shall comply with Reference Method 21 as specified in part 1200-03-16-.01-(5)(g)21.

2. The detection instrument shall meet the performance criteria of Reference Method 21 (as referenced in 1200-03-16-.01 (5)(g)).

3. The instrument shall be calibrated before use each day of its use by the procedures specified in Reference Method 21.

4. Calibration gases shall be:

(i) Zero air (less than 10 ppm of hydrocarbon in air); and

(ii) A mixture of methane or n-hexane and air at a concentration of approximately, but less than, 10,000 ppm methane or n-hexane.

5. The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.

(c) When equipment is tested for compliance with no detectable emissions, as required in parts (3)(b)5, (3)(c)9, (3)(g)6, (3)(k)6, and subparagraph (3)(d), the test shall comply with the following requirements:

1. The requirements of parts (6) (b)1 through (6) (b)4 shall apply.

2. The background level shall be determined, as set forth in Reference Method 21.

3. The instrument probe shall be traversed around all potential leak interfaces as close to the interface as possible as described in Reference Method 21.

4. The arithmetic difference between the maximum concentration indicated by the instrument and the background level is compared with 500 ppm for determining compliance.

(d) 1. Each piece of equipment within a process unit that can conceivably contain equipment in VHAP service is presumed to be in VHAP service unless an owner or operator demonstrates that the piece of equipment is not in VHAP service. For a piece of equipment to be considered not in VHAP service, it must be determined that the percent VHAP content can be reasonably expected never to exceed 10 percent by weight. For purposes of determining the percent VHAP content of the process fluid that is contained in or contacts equipment, procedures that conform to the methods described in ASTM Method D-2267 shall be used. (Note: All references to ASTM in this rule refers to the American Society for Testing Materials. Copies of methods are available for purchase by writing to ASTM, 1916 Race Street, Philadelphia, PA 19103 or by writing to the Tennessee Division of Air Pollution Control, 701 Broadway, 4th Floor Customs House, Nashville, TN 37219. Be sure and specify which method is desired).

2. (i) An owner or operator may use engineering judgment rather than the procedures in part (6)(d)1 to demonstrate that the percent VHAP content does not exceed 10 percent by weight. When an owner or operator and the Technical Secretary do not agree on whether a piece of equipment is not in VHAP service, however, the procedures in part (6)(d) 1 shall be used to resolve the disagreement.

(ii) If an owner or operator determines that a piece of equipment is in VHAP service, the determination can be revised only after following the procedures in part (6)(d)1.

3. Samples used in determining the percent VHAP content shall be representative of the process fluid that is contained in or contacts the equipment or the gas being combusted in the flare.

(e) 1. Reference Method 22 (as specified in part 1200-03-16-.01 (5)(g)22) shall be used to determine compliance of flares with the visible emission provisions of this rule.

2. The presence of a flare pilot flame shall be monitored using a thermocouple or any other equivalent device to detect the presence of a flame.

3. The net heating value of the gas being combusted in a flare shall be calculated using the following equation:

$$HT = K \left(\sum_{i=1}^{n} CiHi \right)$$

Where:

HT = Net heating value of the sample, MJ/ scm: where the net enthalpy per mole of offgas is based on combustion at 25°C and 760 mm Hg, but the standard temperature for determining the volume corresponding to one mole is 20°C.

K = Constant, 1.74 x 10-7 (1/ppm) (g mole/ scm) (MJ/kcal) where standard temperature for (g mole/scm) is 20°C.

Ci = Concentration of sample component i in ppm, as measured by Reference Method 18 as specified in 1200-03-16-.01 (5)(g)18 and ASTM D2504-67.

Hi = Net heat of combustion of sample component i, kcal/g mole. The heats of combustion may be determined using ASTM D2382-76 if published values are not available or cannot be calculated.

4. The actual exit velocity of a flare shall be determined by dividing the volumetric flowrate (in units of standard temperature and pressure), as determined by Reference Method 2, or 2A, as specified in part 1200-03-16-.01(5)(g)2, as appropriate, by the unobstructed (free) cross section area of the flare tip.

5. The maximum permitted velocity, Vmax for air-assisted flares shall be determined by the following equation:

Vmax = 8.76 $ 0.7084 (HT)

Where:

Vmax = Maximum permitted velocity, m/sec
8.706 = Constant.
0.7084 = Constant.
HT = The net heating value as determined in part (6)(e)3.

(7) Recordkeeping requirements

(a) 1. Each owner or operator subject to the provisions of this rule shall comply with the recordkeeping requirements of this paragraph.

2. An owner or operator of more than one process unit subject to the provisions of this rule may comply with the recordkeeping requirements for these process units in one recordkeeping system if the system identifies each record by each process unit.

(b) When each leak is detected as specified in subparagraphs (3)(b), (3)(c), (3)(g), and (3)(h), the following requirements apply:

1. A weatherproof and readily visible identification, marked with the equipment identification number, shall be attached to the leaking equipment.

2. The identification on a valve may be removed after it has been monitored for 2 successive months as specified in part (3)(g)3 and no leak has been detected during those 2 months.

3. The identification on equipment, except on a valve, may be removed after it has been repaired.

(c) When each leak is detected as specified in subparagraphs (3)(b), (3)(c), (3)(g), and (3)(h), the following information shall be recorded in a log and shall be kept for 2 years in a readily accessible location:

1. The instrument and operator identification numbers and the equipment identification number.

2. The date the leak was detected and the dates of each attempt to repair the leak.

3. Repair methods applied in each attempt to repair the leak.

4. ''Above 10,000'' if the maximum instrument reading measured by the methods specified in subparagraph (6)(a) after each repair attempt is equal to or greater than 10,000 ppm.

5. ''Repair delayed'' and the reason for the delay if a leak is not repaired within 15 calendar days after discovery of the leak.

6. The signature of the owner or operator (or designate) whose decision it was that repair could not be effected without a process shutdown.

7. The expected date of successful repair of the leak if a leak is not repaired within 15 calendar days.

8. Dates of process unit shutdowns that occur while the equipment is unrepaired.

9. The date of successful repair of the leak.

(d) The following information pertaining to the design requirements for closed-vent systems and control devices described in subparagraph (3)(k) shall be recorded and kept in a readily accessible location:

1. Detailed schematics, design specifications, and piping and instrumentation diagrams.

2. The dates and descriptions of any changes in the design specifications.

3. A description of the parameter or parameters monitored, as required in part (3)(k)5, to ensure that control devices are operated and maintained in conformance with their design and an explanation of why that parameter (or parameters) was selected for the monitoring.

4. Periods when the closed vent systems and control devices required in subparagraph (3)(b), (3)(c), (3)(d), (3)(e), and (3)(i) are not operated as designed, including periods when a flare pilot light does not have a flame.

5. Dates of start-ups and shutdowns of the closed vent systems and control devices required in subparagraphs (3)(b), (3)(c), (3)(d), (3)(e), and (3)(i).

(e) The following information pertaining to all equipment subject to the requirements in paragraph (3) shall be recorded in a log that is kept in a readily accessible location:

1. A list of identification numbers for equipment (except welded fittings) subject to the requirements of this rule.

2. (i) A list of identification numbers for equipment that the owner or operator elects to designate for no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background, under the provisions of parts (3)(b)5, (3)(c)9, and (3)(g)6.

(ii) The designation of this equipment as subject to the requirements of parts (3)(b)5, (3)(c)9, and (3)(g)6 shall be signed by the owner or operator.

3. A list of equipment identification numbers for pressure relief devices required to comply with part (3)(d)1.

4. (i) The dates of each compliance test required in parts (3)(b)5, (3)(c)9, (3(g)6, and subparagraph (3)(d).

(ii) The background level measured during each compliance test.

(iii) The maximum instrument reading measured at the equipment during each compliance test.

5. A list of identification numbers for equipment in vacuum service.

(f) The following information pertaining to all valves subject to the requirements of parts (3)(g)7 and (3)(g) 8 of this rule, shall be recorded in a log that is kept in a readily accessible location:

1. A list of identification numbers for valves that are designated as unsafe to monitor, an explanation for each valve stating why the valve is unsafe to monitor, and the plan for monitoring each valve.

2. A list of identification numbers for valves that are designated as difficult to monitor, an explanation for each valve stating why the valve is difficult to monitor, and the planned schedule for monitoring each valve.

(g) The following information shall be recorded for valves complying with subparagraph (4)(b):

1. A schedule of monitoring.

2. The percent of valves found leaking during each monitoring period.

(h) The following information shall be recorded in a log that is kept in a readily accessible location:

1. Design criterion required in subparts (3)(b)4(v) and (3)(c)5(ii) and an explanation of the design criterion; and

2. Any changes to this criterion and the reasons for the changes.

(i) The following information shall be recorded in a log that is kept in a readily accessible location for use in determining exemptions as provided in the applicability section of this rule and other specific rules:

1. An analysis demonstrating the design capacity of the process unit, and

2. An analysis demonstrating that equipment is not in VHAP service.

(j) Information and data used to demonstrate that a piece of equipment is not in VHAP service shall be recorded in a log that is kept in a readily accessible location.

(8) Reporting requirements

(a) 1. An owner or operator of any piece of equipment to which this rule applies shall submit a statement in writing notifying the Technical Secretary that the requirements of paragraphs (3), (6), (7), and (8) are being implemented.

2. In the case of an existing source or a new source which has an initial startup date preceding November 6, 1988, the statement is to be submitted within 90 days of November 6, 1988.

3. In the case of new sources which did not have an initial startup date preceding November 6, 1988, the statement shall be submitted with the application for approval of construction, as described in paragraph (2) of rule 1200-03-11-.01.

4. The statement is to contain the following information for each source:

(i) Equipment identification number and process unit identification.

(ii) Type of equipment (for example, a pump or pipeline valve).

(iii) Percent by weight VHAP in the fluid at the equipment.

(iv) Process fluid state at the equipment (gas/vapor or liquid).

(v) Method of compliance with the standard (for example, 'monthly leak detection and repair'' or ''equipped with dual mechanical seals').

(b) A report shall be submitted to the Technical Secretary semiannually starting 6 months after the initial report required in subparagraph (8)(a), that includes the following information:

1. Process unit identification.

2. For each month during the semiannual reporting period.

(i) Number of valves for which leaks were detected as described in part (3)(g)2 or subparagraph (4)(b).

(ii) Number of valves for which leaks were not repaired as required in part (3)(g)4.

(iii) Number of pumps for which leaks were detected as described in part (3)(b)2 and subpart (3)(b)4(vi).

(iv) Number of pumps for which leaks were not repaired as required in part (3)(b)3 and subpart (3)(b)4(vi).

(v) Number of compressors for which leaks were detected as described in part (3)(c)6.

(vi) Number of compressors for which leaks were not repaired as required in part (3)(c)7.

(vii) The facts that explain any delay of repairs and, where appropriate, why a process unit shutdown was technically infeasible.

3. Dates of process unit shutdowns which occurred within the semiannual reporting period.

4. Revisions to items reported according to subparagraph (8)(a) if changes have occurred since the initial report or subsequent revisions to the initial report.

5. The results of all performance tests to determine compliance with parts (3)(b)5, (3)(c)9, (3)(d)1, (3)(g)6, (3)(k)6 and subparagraphs (4)(a) and (4)(b) conducted within the semiannual reporting period.

(c) In the first report submitted as required in subparagraph (8)(a), the report shall include a reporting schedule stating the months that semiannual reports shall be submitted. Subsequent reports shall be submitted according to that schedule, unless a revised schedule has been submitted in a previous semiannual report.

(d) An owner or operator electing to comply with the provisions of subparagraph (4)(a) and (4)(b) shall notify the Technical Secretary of the alternative standard selected 90 days before implementing either of the provisions.

(e) An application for approval of construction or modification will not be required if –

1. The new source complies with the standard, paragraph (3).

2. The new source is not part of the construction of a process unit; and

3. In the next semiannual report required by subparagraph (8)(b) the information in part (8)(a)4 is reported.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11-.07 Equipment Leaks (fugitive Emission Sources) of Benzene

(1) Applicability

(a) The provisions of this rule apply to each of the following sources that are intended to operate in benzene service: pumps, compressors, pressure relief devices, sampling connections, systems, open-ended valves or lines, valves, flanges and other connectors, product accumulator vessels, and control devices or systems required by this rule.

(b) The provisions of this rule do not apply to sources located in coke by-product plants.

(c) 1. If an owner or operator applies for one of the exemptions in this paragraph, then the owner or operator shall maintain records as required in subparagraph 1200-03-11-.06 (7)(i).

2. Any equipment in benzene services that is located at a plant site designed to produce or use less than 1,000 megagrams of benzene per year is exempt from the requirements of paragraph (3) of this rule.

3. Any process unit (as defined in 1200-03-11-.06(2)) that has no equipment in benzene service is exempt from the requirements of paragraph (3) of this rule.

(d) While the provisions of this rule are effective, a source to which this rule applies that is also subject to the provisions of Chapter 16 only will be required to comply with the provisions of this rule.

(2) Definitions

(a) ''In benzene service'' means that a piece of equipment either contains or contacts a fluid (liquid or gas) that is at least 10 percent benzene by weight as determined according to the provisions of 1200-03-11-.06(6)(d). The provisions of 1200-03-11-.06(6)(d) also specify how to determine that a piece of equipment is not in benzene service.

(b) ''Semiannual'' means a 6-month period; the first semiannual period concludes on the last day of

the last month during the 180 days following initial startup for new sources; and the first semiannual period concludes on the last day of the last full month during the 180 days after this rule becomes effective for existing sources.

(3) Standards for Equipment Leaks (Fugitive Emission Sources) of Benzene

(a) Each owner or operator subject to the provisions of this rule shall comply with the requirements of rule 1200-03-11-.06.

(b) An owner or operator may elect to comply with the requirements of 1200-03-11-.06(4)(a) and 1200-03-11-.06(4)(b).

(c) An owner or operator may apply to the Technical Secretary for a determination of an alternative means of emission limitation that achieves a reduction in emissions of benzene at least equivalent to the reduction in emissions of benzene achieved by the controls required in this rule. In doing so, the owner or operator shall comply with requirements of 1200-03-11-.06(5).

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11-.08 Emission Standads for Emissions of Radionuclides Other than Radon from Department of Energy Facilities

(1) Adopted herein by reference are the Federal regulations 40 CFR 61 Subpart H as published in the December 15, 1989 edition of the Federal Register: (See paragraph (6) of this rule for text).

(2) Agreements regarding waivers, compliance reports, testing, and monitoring between the Department of Energy and the Environmental Protection Agency will be recognized by the Tennessee Division of Air Pollution Control providing these agreements are current, valid, and supported by appropriate documentation.

(3) With respect to certain terms used in the text of Subpart H presented verbatim in Paragraph 6) below, those terms have the meanings as follows:

(a) In § 61.93(b), § 61.93(b)(2)(ii), § 61.93(b)(3)(iv), § 61.93(b)(4)(i), and § 61.93(b)(5)(vi) "EPA" means "the Technical Secretary and EPA."

(b) In § 61.93(b)(2)(iii) "the Administrator" means "the Technical Secretary and the Administrator of EPA", and "EPA" means "the Technical Secretary and EPA."

(c) In § 61.94(a) "EPA headquarters, and the appropriate regional office" means "the Technical Secretary, EPA headquarters, and the appropriate regional office."

(d) In § 61.94(b)(8), and § 61.94(d) "EPA" means "the Technical Secretary."

(e) In § 61.94(c) "the Administrator" means "the Technical Secretary."

(f) In § 61.95 "the Administrator" means "the Technical Secretary."

(g) In § 61.96(b) "EPA" means "the Technical Secretary and EPA."

(4) Until such time that EPA grants delegation of authority to the State of Tennessee to implement and enforce the radionuclide NESHAP, the EPA shall be the implementing agency for the radionuclide NESHAP (such a delegation will be published in the Federal Register by EPA.) Copies of all requests made to EPA by DOE for an alternative monitoring or sampling method pursuant to § 61.93(b), § 61.93(b)(2)(ii), § 61.93(b)(2)(iii), § 61.93(b)(3)(iv), § 61.93(b)(4)(i), § 61.93(b)(5)(vi), and § 61.96(b) shall be provided to the Technical Secretary concurrently with submittal to EPA. Additionally, DOE must immediately submit to the Technical Secretary copies of all EPA's responses to DOE's requests.

(5) Until such time that EPA grants delegation of authority to the State of Tennessee to implement and enforce the radionuclide NESHAP, the EPA shall be the implementing agency for the radionuclide NESHAP (such a delegation will be published in the Federal Register.) Copies of all applications to

construct or modify pursuant to § 61.96 shall be submitted to the Technical Secretary concurrently with submittal to EPA. DOE must also submit copies of all EPA's responses to DOE's applications to the Technical Secretary."

(6) CFR PART 61 Subpart H National Emission Standards for Emissions of Radionuclides Other Than Radon From Department of Energy Facilities.

SOURCE: 54 FR 51695, Dec. 15, 1989, unless otherwise noted.

§ 61.90 Designation of facilities.

The provisions of this subpart apply to operations at any facility owned or operated by the Department of Energy that emits any radionuclide other than radon-222 and radon-220 into the air, except that this subpart does not apply to disposal at facilities subject to 40 CFR part 191, subpart B or 40 CFR part 192.

§ 61.91 Definitions.

As used in this subpart, all terms not defined here have the meaning given them in the Clean Air Act or 40 CFR part 61, subpart A. The following terms shall have the following specific meanings:

(a) Effective dose equivalent means the sum of the products of absorbed dose and appropriate factors to account for differences in biological effectiveness due to the quality of radiation and its distribution in the body of reference man. The unit of the effective dose equivalent is the rem. For purposes of this subpart, doses caused by radon-222 and its respective decay products formed after the radon is released from the facility are not included. The method for calculating effective dose equivalent and the definition of reference man are outlined in the International Commission on Radiological Protection's Publication No. 26.

(b) Facility means all buildings, structures and operations on one contiguous site.

(c) Radionuclide means a type of atom which spontaneously undergoes radioactive decay.

(d) Residence means any home, house, apartment building, or other place of dwelling which is occupied during any portion of the relevant year.

§ 61.92 Standard.

Emissions of radionuclides to the ambient air from Department of Energy facilities shall not exceed those amounts that would cause any member of the public to receive in any year an effective dose equivalent of 10 mrem/yr.

§ 61.93 Emission monitoring and test procedures.

(a) To determine compliance with the standard, radionuclide emissions shall be determined and effective dose equivalent values to members of the public calculated using EPA approved sampling procedures, computer models CAP-88 or AIRDOS-PC, or other procedures for which EPA has granted prior approval. DOE facilities for which the maximally exposed individual lives within 3 kilometers of all sources of emissions in the facility, may use EPA's COMPLY model and associated procedures for determining dose for purposes of compliance.

(b) Radionuclide emission rates from point sources (stacks or vents) shall be measured in accordance with the following requirements or other procedures for which EPA has granted prior approval:

(1) Effluent flow rate measurements shall be made using the following methods:

(i) Reference Method 2 of appendix A to part 60 shall be used to determine velocity and volumetric flow rates for stacks and large vents.

(ii) Reference Method 2A of appendix A to part 60 shall be used to measure flow rates through pipes and small vents.

(iii) The frequency of the flow rate measurements shall depend upon the variability of the effluent flow rate. For variable flow rates, continuous or frequent flow rate measurements shall be made. For relatively constant flow rates only periodic measurements are necessary.

(2) Radionuclides shall be directly monitored or extracted, collected and measured using the following methods:

(i) Reference Method 1 of appendix A part 60 shall be used to select monitoring or sampling sites.

(ii) The effluent stream shall be directly monitored continuously with an in-line detector or representative samples of the effluent stream shall be withdrawn continuously from the sampling site following the guidance presented in ANSI N13.1-1969 "Guide to Sampling Airborne Radioactive Materials in Nuclear Facilities" (including the guidance presented in appendix A of ANSI N13.1) (incorporated by reference see §61.18). The requirements for continuous sampling are applicable to batch processes when the unit is in operation. Periodic sampling (grab samples) may be used only with EPA's prior approval. Such approval may be granted in cases where continuous sampling is not practical and radionuclide emission rates are relatively constant. In such cases, grab samples shall be collected with sufficient frequency so as to provide a representative sample of the emissions.

(iii) Radionuclides shall be collected and measured using procedures based on the principles of measurement described in appendix B, Method 114. Use of methods based on principles of measurement different from those described in appendix B, Method 114 must have prior approval from the Administrator. EPA reserves the right to approve measurement procedures.

(iv) A quality assurance program shall be conducted that meets the performance requirements described in appendix B, Method 114.

(3) When it is impractical to measure the effluent flow rate at an existing source in accordance with the requirements of paragraph (b)(1) of this section or to monitor or sample an effluent stream at an existing source in accordance with the site selection and sample extraction requirements of paragraph (b)(2) of this section, the facility owner or operator may use alternative effluent flow rate measurement procedures or site selection and sample extraction procedures provided that:

(i) It can be shown that the requirements of paragraph (b)(1) or (2) of this section are impractical for the effluent stream.

(ii) The alternative procedure will not significantly underestimate the emissions.

(iii) The alternative procedure is fully documented.

(iv) The owner or operator has received prior approval from EPA.

(4) (i) Radionuclide emission measurements in conformance with the requirements of paragraph (b) of this section shall be made at all release points which have a potential to discharge radionuclides into the air in quantities which could cause an effective dose Radionuclide emission measurements in conformance with the requirements of equivalent in excess of 1% of the standard. All radionuclides which could contribute greater than 10% of the potential effective dose equivalent for a release point shall be measured. With prior EPA approval, DOE may determine these emissions through alternative procedures. For other release points which have a potential to release radionuclides into the air, periodic confirmatory measurements shall be made to verify the low emissions.

(ii) To determine whether a release point is subject to the emission measurement requirements of paragraph (b) of this section, it is necessary to evaluate the potential for radionuclide emissions for that release point. In evaluating the potential of a release point to discharge radionuclides into the air for the purposes of this section, the estimated radionuclide release rates shall be based on the discharge of the effluent stream that would result if all pollution control equipment did not exist, but the facilities operations were otherwise normal.

(5) Environmental measurements of radionuclide air concentrations at critical receptor locations may be used as an alternative to air dispersion calculations in demonstrating compliance with the standard if the owner or operator meets the following criteria:

(i) The air at the point of measurement shall be continuously sampled for collection of radionuclides.

(ii) Those radionuclides released from the facility, which are the major contributors to the effective dose equivalent must be collected and measured as part of the environmental measurement program.

(iii) Radionuclide concentrations which would cause an effective dose equivalent of 10% of the standard shall be readily detectable and distinguishable from background.

(iv) Net measured radionuclide concentrations shall be compared to the concentration levels in Table 2 of appendix E to determine compliance with the standard. In the case of multiple radionuclides being released from a facility, compliance shall be demonstrated if the value for all radionuclides is less than the concentration level in Table 2, and the sum of the fractions that result when each measured concentration value is divided by the value in Table 2 for each radionuclide is less than 1.

(v) A quality assurance program shall be conducted that meets the performance requirements described in appendix B, Method 114.

(vi) Use of environmental measurements to demonstrate compliance with the standard is subject to prior approval of EPA. Applications for approval shall include a detailed description of the sampling and analytical methodology and show how the above criteria will be met.

§ 61.94 Compliance and reporting.

(a) Compliance with this standard shall be determined by calculating the highest effective dose equivalent to any member of the public at any offsite point where there is a residence, school, business or office. The owners or operators of each facility shall submit an annual report to both EPA headquarters and the appropriate regional office by June 30 which includes the results of the monitoring as recorded in DOE's Effluent Information System and the dose calculations required by § 61.93(a) for the previous calendar year.

(b) In addition to the requirements of paragraph (a) of this section, an annual report shall include the following information:

(1) A description of the handling and processing that the radioactive materials undergo at the facility.

(2) A list of the stacks or vents or other points where radioactive materials are released to the atmosphere.

(3) A description of the effluent controls that are used on each stack, vent, or other release point and an estimate of the efficiency of each control device.

(4) Distances from the points of release to the nearest residence, school, business or office

and the nearest farms producing vegetables, milk, and meat.

(5) The values used for all other user-supplied input parameters for the computer models (e.g., meteorological data) and the source of these data.

(6) The name and location of the facility.

(7) A list of the radioactive materials used at the facility.

(8) A brief description of all construction and modifications which were completed in the calendar year for which the report is prepared, but for which the requirement to apply for approval to construct or modify was waived under § 61.96 and associated documentation developed by DOE to support the waiver. EPA reserves the right to require that DOE send to EPA all the information that normally would be required in an application to construct or modify, following receipt of the description and supporting documentation.

(9) Each report shall be signed and dated by a corporate officer or public official in charge of the facility and contain the following declaration immediately above the signature line: "I certify under penalty of law that I have personally examined and am familiar with the information submitted herein and based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment. See, 18 U.S.C. 1001."

(c) If the facility is not in compliance with the emission limits of § 61.92 in the calendar year covered by the report, then the facility must commence reporting to the Administrator on a monthly basis the information listed in paragraph (b) of this section, for the preceding month. These reports will start the month immediately following the submittal of the annual report for the year in noncompliance and will be due 30 days following the end of each month. This increased level of reporting will continue until the Administrator has determined that the monthly reports are no longer necessary. In addition to all the information required in paragraph (b) of this section, monthly reports shall also include the following information:

(1) All controls or other changes in operation of the facility that will be or are being installed to bring the facility into compliance.

(2) If the facility is under a judicial or administrative enforcement decree, the report will describe the facilities performance under the terms of the decree.

(d) In those instances where the information requested is classified, such information will be made available to EPA separate from the report and will be handled and controlled according to applicable security and classification regulations and requirements.

§ 61.95 Recordkeeping requirements.

All facilities must maintain records documenting the source of input parameters including the results of all measurements upon which they are based, the calculations and/or analytical methods used to derive values for input parameters, and the procedure used to determine effective dose equivalent. This documentation should be sufficient to allow an independent auditor to verify the accuracy of the determination made concerning the facility's compliance with the standard. These records must be kept at the site of the facility for at least five years and, upon request, be made available for inspection by the Administrator, or his authorized representative.

§ 61.96 Applications to construct or modify.

(a) In addition to any activity that is defined as construction under 40 CFR part 61, subpart A, any fabrication, erection or installation of a new building or structure within a facility that emits radionuclides is also defined as new construction for purposes of 40 CFR part 61, subpart A.

(b) An application for approval under § 61.07 or notification of startup under § 61.09 does not need to be filed for any new construction of or modification within an existing facility if the effective dose

equivalent, caused by all emissions from the new construction or modification, is less than 1% of the standard prescribed in § 61.92. For purposes of this paragraph the effective dose equivalent shall be calculated using the source term derived using appendix D as input to the dispersion and other computer models described in § 61.93. DOE may, with prior approval from EPA, use another procedure for estimating the source term for use in this paragraph. A facility is eligible for this exemption only if, based on its last annual report, the facility is in compliance with this subpart.

(c) Conditions to approvals granted under § 61.08 will not contain requirements for post approval reporting on operating conditions beyond those specified in § 61.94.

§ 61.97 Exemption from the reporting and testing requirements of 40 CFR 61.10.

All facilities designated under this subpart are exempt from the reporting requirements of 40 CFR 61.10.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11-.09 Inorganic Arsenic Emissions from Glass Manufacturing Plants

(1) Applicability and designation of source

(a) The source to which this rule applies is each glass melting furnace that uses commercial arsenic as a raw material. This rule does not apply to pot furnaces.

(b) Rebricking is not considered construction or modification.

(2) Definition

(a) ''Arsenic-containing glass type'' means any glass that is distinguished from other glass solely by the weight percent of arsenic added as a raw material and by the weight percent of arsenic in the glass produced. Any two or more glasses that have the same weight percent of arsenic in the raw materials as well as in the glass produced shall be considered to belong to one arsenic-containing glass type without regard to the recipe used or any other characteristics of the glass or the method of production.

(b) ''By-pass the control device'' means to operate the glass-melting furnace without operating the control device to which that furnace's emissions are directed routinely.

(c) ''Commercial arsenic'' means any form of arsenic that is produced by extraction from any arsenic-containing substance and is intended for sale or for intentional use in a manufacturing process. Arsenic that is a naturally occurring trace constituent of another substance is not considered ''commercial arsenic''.

(d) ''Cullet'' means waste glass recycled to a glass melting furnace.

(e) ''Glass melting furnace'' means a unit comprising a refractory vessel in which raw materials are charged, melted at high temperature, refined, and conditioned to produce molten glass. The unit includes foundations, superstructure and retaining walls, raw material charger systems, heat exchangers, melter cooling system, exhaust system, refractory brick work, fuel supply and electrical boosting equipment, integral control systems and instrumentation, and appendages for conditioning and distributing molten glass to forming apparatuses. The forming apparatuses, including the float bath used in flat glass manufacturing are not considered part of the glass melting furnace.

(f) ''Glass produced'' means the glass pulled from the glass melting furnace.

(g) ''Inorganic arsenic'' means the oxides and other noncarbon compounds of the element arsenic included in particulate matter, vapors, and aerosols.

(h) ''Malfunction'' means any sudden failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner so that emissions of arsenic are

increased.

(i) ''Pot furnace'' means a glass melting furnace that contains one or more refractory vessels in which glass is melted by indirect heating. The openings of the vessels are in the outside wall of the furnace and are covered with refractory stoppers during melting.

(j) ''Rebricking'' means cold replacement of damaged or worn refractory parts of the glass melting furnace. Rebricking includes replacement of the refractories comprising the bottom, sidewalls, or roof of the melting vessel; replacement of refractory work in the heat exchanger; and replacement of refractory portions of the glass conditioning and distribution system.

(k) ''Shutdown'' means the cessation of operation of an affected source for any purpose.

(l) ''Theoretical arsenic emissions factor'' means the amount of inorganic arsenic expressed in grams per kilogram of glass produced, as determined based on a material balance.

(m) ''Uncontrolled total arsenic emissions'' means the total inorganic arsenic in the glass melting furnace exhaust gas preceding any add- on emission control device.

(3) Emission Limits

(a) The owner or operator of an existing glass melting furnace subject to the provisions of this rule shall comply with either part 1 or part 2 of this subparagraph; except as provided in subparagraph (c) of this paragraph.

1. Uncontrolled total arsenic emissions from the glass melting furnace shall be less than 2.5 Mg per year, or

2. Total arsenic emissions from the glass melting furnace shall be conveyed to a control device and reduced by at least 85 percent.

(b) The owner or operator of a new or modified glass melting furnace subject to the provisions of this rule shall comply with either part 1 or part 2 of this subparagraph; except as provided in subparagraph (c) of this paragraph.

1. Uncontrolled total arsenic emissions from the glass melting furnace shall be less than 0.4 Mg per year, or

2. Total arsenic emissions from the glass melting furnace shall be conveyed to a control device and reduced by at least 85 percent.

(c) An owner or operator of a source subject to the requirements of this paragraph may, after approval by the Technical Secretary, bypass the control device to which arsenic emissions from the furnace are directed for a limited period of time for designated purposes such as maintenance of the control device, as specified in paragraph (6)(e).

(d) At all times, including periods of startup, shutdown, and malfunction, the owner or operator of a glass melting furnace subject to the provisions of this rule shall operate and maintain the furnace and associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions of inorganic arsenic to the atmosphere to the maximum extent practicable. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Technical Secretary, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, inspection of the source, and review of other records.

(4) Emission monitoring

(a) An owner or operator of a glass melting furnace subject to the emission limits in part (3)(a)2 or part (3)(b)2 shall:

1. Install, calibrate, maintain, and operate a continuous monitoring system for the

measurement of the opacity of emissions discharged into the atmosphere from the control device; and

2. Install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the temperature of the gas entering the control device.

(b) All continuous monitoring systems and monitoring devices shall be installed and operational prior to performance of an emission test required by paragraph (5)(a). Verification of operational status shall, at a minimum, consist of an evaluation of the monitoring system in accordance with the requirements and procedures contained in Performance Specification 1, as specified in rule 1200-03-16-.01(8)(a).

(c) During the emission test requested in paragraph (5)(a) each owner or operator subject to subparagraph (a) of this paragraph shall:

1. Conduct continuous opacity monitoring from the beginning of the first test run until the completion of the third test run. Process and control equipment shall be operated in a manner that will minimize opacity of emissions, subject to the Technical Secretary's approval.

2. Calculate 6-minute opacity averages from 24 or more data points equally spaced over each 6-minute period during the test runs.

3. Determine, based on the 6-minute opacity averages, the opacity value corresponding to the 97.5 percent upper confidence level of a normal or lognormal (whichever the owner or operator determines is more representative) distribution of the average opacity values.

4. Conduct continuous monitoring of the temperature of the gas entering the control device from the beginning of the first test run until completion of the third test run.

5. Calculate 15-minute averages of the temperature of the gas entering the control device during each test run.

(d) An owner or operator may redetermine the values described in subparagraph (c) of this paragraph during any emission test that demonstrates compliance with the emission limits in part (3)(a)2 or part (3)(b)2.

(e) The requirements of 1200-03-16-.01(8)(d) and (f) shall apply to an owner or operator subject to subparagraph (a) of this paragraph.

(f) Except for system breakdowns, repairs, calibration checks, and zero and span adjustments, required under 1200-03-16-.01(8)(d), all continuous monitoring systems shall be in continuous operation and shall meet minimum frequency of operation requirements by completing a minimum of one cycle of sampling and analyzing for each successive 10-second period and one cycle of data recording for each successive 6-minute period.

(g) An owner or operator subject to subparagraph (a) of this paragraph shall:

1. Reduce all opacity data to 6-minute averages. Six-minute averages shall be calculated from 24 or more data points equally spaced over each 6-minute period. Data recorded during periods of monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages calculated under this paragraph, and

2. Calculate 15-minute averages of the temperature of the gas entering the control device for each 15-minute operating period.

(h) After receipt and consideration of written application, the Technical Secretary may approve alternative monitoring systems for the measurement of one or more process or operating parameters that is or are demonstrated to enable accurate and representative monitoring of a properly operating control device. Upon approval of an alternative monitoring system for an

affected source, the Technical Secretary will specify requirements to replace the requirements of subparagraphs (a) through (g) of this paragraph for that system.

(5) Test methods and procedures

(a) To demonstrate compliance with paragraph (3), the owner or operator shall conduct emission tests, reduce test data, and follow the procedures specified in this paragraph unless the Technical Secretary:

1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology;

2. Approves the use of an equivalent method;

3. Approves the use of an alternative method the results of which he has determined to be adequate for indicating whether a specific source is in compliance.

(b) The owner or operator shall conduct emission tests required by this paragraph:

1. No later than 90 days after November 6, 1988 for a source that has an initial startup date preceding the effective date; or

2. No later than 90 days after startup for a source that has an initial startup date after November 6, 1988.

3. At such other times as may be required by the Technical Secretary.

4. While the source is operating under such conditions as the Technical Secretary may specify, based on representative performance of the source.

(c) To demonstrate compliance with part 1 of subparagraph (3)(a) when less than 8.0 Mg per year of elemental arsenic is added to any existing glass melting furnace, or to demonstrate compliance with part 1 of subparagraph (3)(b) when less than 1.0 Mg per year of elemental arsenic is added to any new or modified glass melting furnace, an owner or operator shall:

1. Derive a theoretical uncontrolled arsenic emission factor (T), in grams of elemental arsenic per kilogram of glass produced, based on material balance calculations for each arsenic containing glass type (i), produced during the 12 month period, as follows:

Ti = (Abi x Wbi) + (Aci x Wci) – Agi

Where:

Ti = the theoretical uncontrolled arsenic emission factor (g/kg) for each glass type (i).

Abi = fraction by weight of elemental arsenic in the fresh batch for each glass type (i).

Wbi = weight (g) of fresh batch melted per kg of glass produced for each glass type (i).

Aci = fraction by weight of elemental arsenic in cullet for each glass type (i).

Wci = weight (g) of cullet melted per kg of glass produced for each glass type (i).

Agi = weight (g) of elemental arsenic per kg glass produced for each glass type (i).

2. Estimate theoretical uncontrolled arsenic emissions for the 12-month period for each

arsenic-containing glass type as follows:

$$Yi = \frac{(Ti \times Gi)}{106}$$

Where:

Yi = the theoretical uncontrolled arsenic emission estimate for the 12-month period for each glass type (Mg/year).

Ti = the theoretical uncontrolled arsenic emission factor for each type of glass (i) produced during the 12-month period as calculated in subparagraph (c)(1) of this paragraph (g/kg).

Gi = the quantity (kg) of each arsenic-containing glass type (i) produced during the 12-month period.

3. Estimate the total theoretical uncontrolled arsenic emissions for the 12-month period by finding the sum of the values calculated for Yi in part 2 of subparagraph (c) of this paragraph.

4. If the value determined in part (c)3 of this paragraph is equal to or greater than the applicable limit in part (3)(a)1 or part (3)(b)1, conduct the emission testing and calculations described in parts 1 through 5 of subparagraph (d), of this paragraph. If the value is less than the applicable limit, the source is incompliance and no emission testing or additional calculations are required.

(d) To demonstrate compliance with part (3)(a)1 when 8.0 Mg per year or more of elemental arsenic are added to any existing glass melting furnace, or to demonstrate compliance with part (3)(b)1 when 1.0 Mg per year or more of elemental arsenic is added to any new or modified glass melting furnace, an owner or operator shall:

1. Estimate the theoretical uncontrolled arsenic emissions for each glass type for the 12-month period by performing the calculations described in parts 1 and 2 of subparagraph (c), of this paragraph.

2. Conduct emission testing to determine the actual uncontrolled arsenic emission rate during production of the arsenic containing glass type with the highest theoretical uncontrolled arsenic emissions as calculated in part (d)1 of this paragraph. The owner or operator shall use the following test methods and procedures:

(i) Use Method 108, as specified in the Federal Register, Vol. 51, No. 149, August 4, 1986 beginning on page 28035, for determining the arsenic emission rate (g/h). The emission rate shall equal the arithmetic mean of the results of three 60-minute test runs.

(ii) Use the following methods referenced in 1200-03-16-.01(5)(g):

(I) Method 1 for sample and velocity traverse.

(II) Method 2 for velocity and volumetric flowrate.

(III) Method 3 for gas analysis.

(IV) For sources equipped with positive pressure fabric filters, use Section 4 of Method 5D as specified in 1200-03-16-.01(5)(g)5(iv) to determine a suitable sampling location and procedure.

3. Determine the actual uncontrolled arsenic emission factor (Ra) in grams of elemental arsenic per kilogram of glass produced, as follows:

Ra = Ea P

Where:

Ra = the actual uncontrolled arsenic emission factor (g/kg).

Ea = the actual uncontrolled arsenic emission rate (g/h) from part (d)2 of this paragraph.

P = the rate of glass production (kg/h), determined by dividing the weight (kg) of glass pulled from the furnace during the emission test by the number of hours (h) taken to perform the test under part (d)2 of this paragraph.

4. Calculate a correction factor to relate the theoretical and the actual uncontrolled arsenic emission factors as follows:

F = Ra Ti

Where:

F = the correction factor.

Ra = the actual uncontrolled arsenic emission factor (g/kg) determined in part (d)3 of this paragraph.

Ti = the theoretical uncontrolled arsenic emission factor (g/kg) determined in part (c)1 of this paragraph for the same glass type for which Ra was determined.

5. Determine the uncontrolled arsenic emission rate for the 12 month period, as follows:

$$U = \sum_{i=1}^{n} \frac{(Ti \times F \times Gi)}{106}$$

Where:

U = the uncontrolled arsenic emission rate for the 12 month period (Mg/year).

Ti = the theoretical uncontrolled arsenic emission factor for each arsenic-containing glass type (i) produced during the 12 month period, as calculated in part (c)1 of this paragraph (g/kg).

F = the correction factor calculated in part (d)4 of this paragraph.

Gi = the quantity (kg) of each arsenic-containing glass type (i) produced during the 12 month period.

n = the number of arsenic-containing glass types produced during the 12-month period.

6. If the value determined in part (d)5 of this paragraph is less than the applicable limit in part (3)(a)1 or part (3)(b)1, the source is in compliance.

(e) To demonstrate compliance with part (3)(a)2 or part (3)(b)2, an owner or operator shall:

1. Conduct emission testing to determine the percent reduction of inorganic arsenic emissions being achieved by the control device, using the following test methods and procedures:

(i) Use Method 108, as specified in the Federal Register, Vol. 51 No. 149, August 4,

1986, beginning on page 28035, to determine the concentration of arsenic in the gas streams entering and exiting the control device. Conduct three 60 minute test runs, each consisting of simultaneous testing of the inlet and outlet gas streams. The gas streams shall contain all the gas exhausted from the glass melting furnace.

(ii) Use the following methods reference in 1200-03-16-.01(5)(g):

(I) Method 1 for sample and velocity traverses.

(II) Method 2 for velocity and volumetric flowrate.

(III) Method 3 for gas analysis.

(IV) For sources equipped with positive pressure fabric filters, use Section 4 of Method 5D as specified in 1200-03-16-.01(5)(g)5(iv) to determine a suitable sampling location and procedure.

2. Calculate the percent emission reduction for each run as follows:

$$D = \frac{(Cb - Ca)}{Cb} \times 100$$

Where:

D = the percent emission reduction.

Cb = the arsenic concentration of the stack gas entering the control device, as measured by Method 108.

Ca = the arsenic concentration of the stack gas exiting the control device, as measured by Method 108.

3. Determine the average percent reduction of arsenic by calculating the arithmetic mean of the results for the three runs. If it is at least 85 percent, the source is in compliance.

(6) Reporting and recordkeeping requirements

(a) Each owner or operator of a source subject to the requirements of paragraph (3) shall maintain at the source for a period of at least 2 years and make available to the Technical Secretary upon request a file of the following records:

1. All measurements, including continuous monitoring for measurement of opacity, and temperature of gas entering a control device;

2. Records of emission test data and all calculations used to produce the required reports of emission estimates to demonstrate compliance with paragraph (3);

3. All continuous monitoring system performance evaluations, including calibration checks and adjustments;

4. The occurrence and duration of all start-ups, shutdowns, and malfunctions of the furnace;

5. All malfunctions of the air pollution control system;

6. All periods during which any continuous monitoring system or monitoring device is inoperative;

7. All records of maintenance and repairs for each air pollution control system, continuous monitoring system, or monitoring device.

(b) Each owner or operator who is given approval by the Technical Secretary to bypass a control device under subparagraph (c) of this paragraph shall maintain at the source for a period of at least 2 years and make available to the Technical Secretary upon request a file of the following records:

1. The dates the control device is bypassed; and

2. Steps taken to minimize arsenic emissions during the period the control device was bypassed.

(c) Each owner or operator of a source subject to the emission limit in part (3)(a)1 or part (3)(b)1 shall determine and record at the end of every 6 months the uncontrolled arsenic emission rate for the preceding and forthcoming 12-month periods. The determinations shall:

1. Be made by following the procedures in parts 1, 2 and 3 of subparagraph (5)(c); or in part (5)(d)5, whichever is applicable; and

2. Take into account changes in production rates, types of glass produced, and other factors that would affect the uncontrolled arsenic emission rate.

(d) Each owner or operator of a source subject to the provisions of this rule shall:

1. Provide the Technical Secretary 30 days prior notice of any emission test required in paragraph (5) to afford the opportunity to have an observer present; and

2. Submit to the Technical Secretary a written report of the results of the emission test and associated calculations required in subparagraph (5)(d) or (e), or as applicable, within 60 days after conducting the test.

3. Submit to the Technical Secretary a written report of the arsenic emission estimates calculated under subparagraph (5)(c):

(i) Within 45 days after November 6, 1988 for a source that has an initial startup date preceding the effective date; or

(ii) Within 45 days after startup for a source that has an initial startup date after November 6, 1988.

4. Submit to the Technical Secretary a written report of the uncontrolled arsenic emission rates determined in accordance with subparagraph (c) of this paragraph, if:

(i) The emission rate for the preceding 12-month period (or preceding 6-month period for the first 6-month determination) exceeded the applicable limit in part (3)(a)1 or part (3)(b)1.

(ii) The emission rate for the forthcoming 12-month period will exceed the applicable limit in part (3)(a)1 or part (3)(b)1. In this case, the owner or operator shall also notify the Technical Secretary of the anticipated date of the emission test to demonstrate compliance with the applicable limit in part (3)(a)1 or part (3)(b)1.

5. Ensure that the reports required in part (d)4 of this paragraph are postmarked by the tenth day following the end of the 6- month reporting period.

(e) To obtain approval to bypass a control device, as provided in subparagraph (3)(c), an owner or operator of a source subject to this rule may make written application to the Technical Secretary. Each application for such a waiver shall be submitted to the Technical Secretary no later than 60 days before the bypass period would begin and shall include:

1. Name and address of the owner or operator;

2. Location of the source;

3. A brief description of the nature, size, design, and method of operation of the source;

4. The reason it is necessary to bypass the control device;

5. The length of time it will be necessary to bypass the control device;

6. Steps that will be taken to minimize arsenic emissions during the period the control device will be bypassed;

7. The quantity of emissions that would be released while the control device is bypassed if no steps were taken to minimize emissions;

8. The expected reduction in emissions during the bypass period due to the steps taken to minimize emissions during this period; and

9. The type of glass to be produced during the bypass period, and, if applicable, an explanation of why non-arsenic or lower-arsenic-containing glass cannot be melted in the furnace during the bypass period.

(f) Each owner or operator required to install and operate a continuous opacity monitoring system under paragraph (4) shall:

1. Submit a written report to the Technical Secretary of the results of the continuous monitoring system evaluation required under subparagraph (4)(b) within 60 days after conducting the evaluation.

2. Submit a written report to the Technical Secretary every 6 months if excess opacity occurred during the preceding 6-month period. For purposes of this paragraph, an occurrence of excess opacity is any 6-minute period during which the average opacity, as measured by the continuous monitoring system, exceeds the opacity level determined under part 3 of subparagraph (4)(c) or the opacity level redetermined under subparagraph (4)(d).

3. Ensure that any semiannual report of excess opacity required by part (f)2 of this paragraph is postmarked by the thirtieth day following the end of the 6-month period and includes the following information.

(i) The magnitude of excess opacity, any conversion factor(s) used, and the date and time of commencement and completion of each occurrence of excess opacity.

(ii) Specific identification of each occurrence of excess opacity that occurs during start-ups, shutdowns, and malfunctions of the source.

(iii) The date and time identifying each period during which the continuous monitoring system was inoperative, except for zero and span checks, and the nature of the system repairs or adjustments.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11-.10 Inorganic Arsenic Emissions from Primary Copper Smelters

(1) Applicability and designation of source

(a) The provisions of this rule are applicable to each copper converter at any new or existing primary copper smelter, except as noted in subparagraph (3)(a) of this rule.

(2) Definitions

(a) "Blowing" means the injection of air or oxygen-enriched air into a molten converter bath.

(b) ''Charging'' means the addition of a molten or solid material to a copper converter.

(c) ''Control device'' means the air pollution control equipment used to collect particulate matter emissions.

(d) ''Converter arsenic charging rate'' means the hourly rate at which arsenic is charged to the copper converters in the copper converter department based on the arsenic content of the copper matte and of any lead matte that is charged to the copper converters.

(e) ''Copper converter'' means any vessel in which copper matte is charged and is oxidized to copper.

(f) ''Copper converter department'' means all copper converters at a primary copper smelter.

(g) ''Copper matte'' means any molten solution of copper and iron sulfides produced by smelting copper sulfide ore concentrates or calcines.

(h) ''Holding of a copper converter'' means suspending blowing operations while maintaining in a heated state the molten bath in the copper converter.

(i) ''Inorganic arsenic'' means the oxides and other noncarbon compounds of the element arsenic included in particulate matter, vapors, and aerosols.

(j) ''Lead matte'' means any molten solution of copper and other metal sulfides produced by reduction of sinter product from the oxidation of lead sulfide ore concentrates.

(k) ''Malfunction'' means any sudden failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner so that emissions of inorganic arsenic are increased.

(l) ''Opacity'' means the degree to which emissions reduce the transmission of light.

(m) ''Particulate matter'' means any finely divided solid or liquid material, other than uncombined water, as measured by the specified reference method.

(n) ''Pouring'' means the removal of blister copper from the copper converter bath.

(o) ''Primary copper smelter'' means any installation or intermediate process engaged in the production of copper from copper-bearing materials through the use of pyrometallurgical techniques.

(p) ''Primary emission control system'' means the hoods, ducts, and control devices used to capture, convey, and collect process emissions.

(q) ''Process emissions'' means inorganic arsenic emissions from copper converters that are captured directly at the source of generation.

(r) ''Secondary emissions'' means inorganic arsenic emissions that escape capture by a primary emission control system.

(s) ''Secondary hood system'' means the equipment (including hoods, ducts, fans, and dampers) used to capture and transport secondary inorganic arsenic emissions.

(t) ''Shutdown'' means the cessation of operation of a stationary source for any reason.

(u) ''Skimming'' means the removal of slag from the molten converter bath.

(3) Standard for new and existing sources

(a) The provisions of subparagraphs (b) through (f) of this paragraph do not apply to any copper

converter at a facility where the total arsenic charging rate for the copper converter department averaged over a 1-year period is less than 75 kg/h, as determined under subparagraph (5)(f) of this rule.

(b) The owner or operator of each copper converter subject to the provisions of this rule shall reduce inorganic arsenic emissions to the atmosphere by meeting the following design, equipment, work practice, and operational requirements:

1. Install, operate, and maintain a secondary hood system on each copper converter. Each secondary hood system shall consist of a hood enclosure, air curtain fan(s), exhaust system fan(s), and ductwork that conveys the captured emissions to a control device, and shall meet the following specifications:

(i) The configuration and dimensions of the hood enclosure shall be such that the copper converter mouth, charging ladles, skimming ladles, and any other material transfer vessels used will be housed within the confines or influence of the hood enclosure during each mode of copper converter operation.

(ii) The back of the hood enclosure shall be fully enclosed and sealed against the primary hood. Portions of the side walls in contact with the copper converter shall be sealed against the converter.

(iii) Openings in the top and front of the hood enclosure to allow for the entry and egress of ladles and crane apparatus shall be minimized to the fullest extent practicable.

(iv) The hood enclosure shall be fabricated in such a manner and of materials of sufficient strength to withstand incidental contact with ladles and crane apparatus with no significant damage.

(v) One side-wall of the hood enclosure shall be equipped with a horizontal-slotted plenum along the top, and the opposite side wall shall be equipped with an exhaust hood. The horizontal-slotted plenum shall be designed to allow the distance from the base to the top of the horizontal slot to be adjustable up to a dimension of 76 mm.

(vi) The horizontal-slotted plenum shall be connected to a fan. When activated, the fan shall push air through the horizontal slot, producing a horizontal air curtain above the copper converter that is directed to the exhaust hood. The fan power output installed shall be sufficient to overcome static pressure losses through the ductwork upstream of the horizontal slotted plenum and across the plenum, and to deliver at least 22,370 watts (30 air horsepower) at the horizontal slotted plenum discharge.

(vii) The exhaust hood shall be sized to completely intercept the airstream from the horizontal-slotted plenum combined with the additional airflow resulting from entrainment of the surrounding air. The exhaust hood shall be connected to a fan. When activated, the fan shall pull the combined airstream into the exhaust hood.

(viii) The entire secondary hood system shall be equipped with dampers and instrumentation, as appropriate, so that the desired air curtain and exhaust flow are maintained during each mode of copper converter operation.

2. Optimize the capture of secondary inorganic arsenic emissions by operating the copper converter and secondary hood system at all times as follows:

(i) Copper converter

(I) Increase the air curtain and exhaust flow rates to their optimum conditions prior to raising the primary hood and rolling the copper

converter out for charging, skimming, or pouring.

(II) Once rolled out, prior to the commencement of skimming or pouring, hold the copper converter in an idle position until fuming from the molten bath has been minimized.

(III) During skimming, raise the receiving ladle off the ground and position the ladle as close to the copper converter mouth as possible to minimize the drop distance between the converter mouth and the receiving ladle.

(IV) Control the rate of flow into the receiving ladle to the extent practicable to minimize fuming.

(V) Upon the completion of each charge, withdraw the charging ladle or vessel used from the confines of the secondary hood in a slow, deliberate manner.

(VI) During charging, skimming, or pouring, ensure that the crane block does not disturb the air flow between the horizontal-slotted plenum and the exhaust hood.

(ii) Secondary hood system.

(I) Operate the secondary hood system under conditions that will result in the maximum capture of inorganic arsenic emissions.

(II) Within 30 days after November 6, 1988, or within 30 days after the initial operation of each secondary hood system, whichever comes later, provide to the Technical Secretary a list of operating conditions for the secondary hood system that will result in the maximum capture of inorganic arsenic emissions. This list shall specify the operating parameters for the following:

I. The dimensions of the horizontal slot.

II. The velocity of air through the horizontal slot during each mode of converter operation.

III. The distance from the horizontal slot to the exhaust hood.

IV. The face velocity at the opening of the exhaust hood during each mode of converter operation.

(III) Operate the secondary hood system under the conditions listed in item (b)2.(ii) (II) of this paragraph, unless otherwise specified by the Technical Secretary.

(IV) Notify the Technical Secretary in writing within 30 days if there is any change in the operating conditions submitted pursuant to the requirements in item (b)2(ii)(II) of this paragraph that will result in any reduction in the maximum capture of inorganic arsenic emissions.

3. Comply with the following inspection and maintenance requirements after installing the secondary hood system required in subparagraph (b)1 of this paragraph:

(i) At least once every month, visually inspect the components of the secondary hood system that are exposed to potential damage from crane and ladle operation, including the hood enclosure, side and back-wall hood seals, and the horizontal slot.

(ii) Replace or repair any defective or damaged components of the secondary hood

system within 30 days after discovering the defective or damaged components.

(c) No owner or operator of a copper converter subject to the provisions of this rule shall cause or allow to be discharged into the atmosphere any copper converter secondary emissions that exit from a control device and contain particulate matter in excess of 11.6 milligrams per dry standard cubic meter.

(d) The owner or operator of a copper converter subject to the provisions of this rule shall submit a description of a plan for control of inorganic arsenic emissions from the copper converter and associated air pollution control equipment. For existing facilities this plan shall be submitted within 90 days after November 6, 1988. New facilities must submit a completed construction permit application. Approval of a plan for existing sources shall be granted by the Technical Secretary provided he finds that:

1. It includes a systematic procedure for identifying malfunctions and for reporting them immediately to smelter supervisory personnel.

2. It specifies the procedures that will be followed to ensure that equipment or process breakdowns due entirely or in part to poor maintenance or other preventable conditions do not occur.

3. It specifies the measures that will be taken to ensure compliance with subparagraph (b)2 of this paragraph.

(e) The owner or operator shall implement the plan required under subparagraph (d) of this paragraph unless otherwise specified by the Technical Secretary.

(f) At all times, including periods of startup, shutdown, and malfunction, the owner or operator of a copper converter subject to the provisions of this rule shall operate and maintain the converter and associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions of inorganic arsenic to the atmosphere to the maximum extent practicable. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Technical Secretary, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, inspection of the source, and review of other records.

(4) Compliance Provisions.

(a) The owner or operator of each copper converter to which subparagraph (3)(b) through (f) apply shall demonstrate compliance with the requirements of part (3)(b)1 as follows:

1. The owner or operator of each existing copper converter shall install a secondary hood system to meet the requirements of part (3)(b)1, no later than 90 days after November 6, 1988.

2. The owner or operator of each new copper converter shall install a secondary hood system to meet the requirements of part (3)(b)1, prior to the initial startup of the converter, except that if startup occurs prior to the effective date, the owner or operator shall meet the requirements of part (3)(b)1 on November 6, 1988.

(5) Test Methods and Procedures.

(a) To determine compliance with subparagraph (3)(c), the owner or operator shall conduct emission tests and reduce the test data in accordance with the test methods and procedures contained in this paragraph unless the Technical Secretary:

1. Specifies or approves, in specific cases, the use of a reference method with minor changes in methodology,

2. Approves the use of an equivalent method,

3. Approves the use of an alternative method, the results of which he has determined to be adequate for indicating whether a specific source is in compliance.

(b) The owner or operator shall conduct the emission tests required in subparagraph (a) of this paragraph:

1. After achieving the optimum operating conditions submitted under item (3)(b)2(ii)(II) for the equipment required in part (3)(b)1, but no later than 90 days after November 6, 1988 in the case of an existing copper converter or a copper converter that has an initial startup date preceding November 6, 1988.

2. After achieving the optimum operating conditions submitted under item (3)(b)2(ii)(II) for the equipment required in part (3)(b)1, but no later than 90 days after startup in the case of a new copper converter, initial startup of which occurs after November 6, 1988.

3. At such other times as may be required by the Technical Secretary.

(c) The owner or operator shall conduct each emission test under representative operating conditions and at sample locations subject to the Technical Secretary's approval, and shall make available to the Technical Secretary such records as may be necessary to determine the conditions of the emission test.

(d) For the purpose of determining compliance with subparagraph (3)(c), the owner or operator shall use reference methods in subparagraph 1200-03-16-.01(5)(g), as follows:

1. Method 5 for the measurement of particulate matter,

2. Method 1 for sample and velocity traverses,

3. Method 2 for velocity and volumetric flow rate,

4. Method 3 for gas analysis, and

5. Method 4 for stack gas moisture.

(e) For Method 5, the sampling time for each run shall be at least 60 minutes and the minimum sampling volume shall be 0.85 dscm (30 dscf) except that smaller times or volumes when necessitated by process variables or other factors may be approved by the Technical Secretary.

(f) For the purpose of determining applicability under subparagraph (3)(a), the owner or operator shall determine the converter arsenic charging rate as follows:

1. Collect daily grab samples of copper matte and any lead matte charged to the copper converters.

2. Each calendar month, from the daily grab samples collected under subparagraph (f)1 of this paragraph, put together a composite copper matte sample and a composite lead matte sample. Analyze the composite samples individually using Method 108A as specified in the Federal Register, Vol. 51, No. 149, August 4, 1986, beginning on page 28040, to determine the weight percent of inorganic arsenic contained in each sample.

3. Calculate the converter arsenic charging rate once per month using the following equation:

$$Rc = \sum_{i=1}^{n} \frac{Ac\ Wci + A1\ Wli}{100\ Hc}$$

Where:

Rc is the converter arsenic charging rate (kg/h).

Ac — is the monthly average weight percent of arsenic in the copper matte charged during the month (%) as determined under subparagraph (f)2 of this paragraph.

A1 — is the monthly average weight percent of arsenic in the lead matte charged during the month (%) as determined under subparagraph (f)2 of this paragraph.

Wci — is the total weight of copper matte charged to a copper converter during the month (kg).

Wli — is the total weight of lead matte charged to a copper converter during the month (kg).

Hc — is the total number of hours the copper converter department was in operation during the month (h).

n — is the number of copper converters in operation during the month.

4. Determine an annual arsenic charging rate for the copper converter department once per month by computing the arithmetic average of the 12 monthly converter arsenic charging rate values (Rc) for the preceding 12-month period.

(g) An owner or operator may petition the Technical Secretary for a modified sampling and analysis schedule if analyses performed for the first 12 month period after November 6, 1988 show the source to be considerably below the applicability limit prescribed in subparagraph (3)(a) of this rule.

(6) Monitoring Requirements.

(a) Each owner or operator of a source that is subject to the emission limit specified in subparagraph (3)(c) of this rule shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of the opacity of emissions discharged from the control device according to the following procedures:

1. Ensure that each system is installed and operational no later than 90 days after November 6, 1988 for a source that has initial startup date preceding November 6, 1988; and no later than 90 days after startup for other sources. Verification of the operational status shall, as a minimum, consist of an evaluation of the monitoring system in accordance with the requirements and procedures as specified in 1200-03-16-.01(8)(a).

2. Except for system breakdowns, repairs, calibration checks, and zero span adjustments, ensure that each continuous monitoring system is in continuous operation and meets frequency of operation requirements by completing a minimum of one cycle of sampling and analysis for each successive 10-second period and one cycle of data recording for each successive 6-minute period. Each data point shall represent the opacity measured for one cycle of sampling and analysis and shall be expressed as percent opacity.

(b) Except as required in subparagraph (c) of this paragraph, calculate 1-hour opacity averages from 360 or more consecutive data points equally spaced over each one-hour period. Data recorded during periods of monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this subparagraph.

(c) No later than 60 days after each continuous opacity monitoring system required in subparagraph (a) of this paragraph becomes operational, the owner or operator shall establish a reference opacity level for each monitored emission stream according to the following procedures:

1. Conduct continuous opacity monitoring over a preplanned period of not less than 36 hours during which the processes and emission control equipment upstream of the monitoring system are operating under representative operating conditions subject to the Technical Secretary's approval.

2. Calculate 6-minute averages of the opacity readings using 36 or more consecutive data points equally spaced over each 6-minute period.

3. Calculate 1-hour average opacity values using 10 successive 6-minute average opacity values (i.e., calculate a new 1-hour average opacity value every 6 minutes). Determine the highest 1-hour average opacity value observed during the 36-hour preplanned test period.

4. Calculate the reference opacity level by adding 5 percent opacity to the highest 1-hour average opacity calculated in subpart (c)3 of this paragraph.

(d) The owner or operator may redetermine the reference opacity level according to the provisions of subparagraphs (c)1 through (c)4 of this paragraph for the copper converter secondary emission stream at the time of each emission test that demonstrates compliance with the emission limit required in subparagraph (3)(c) of this rule.

(e) With a minimum of 30 days prior notice, the Technical Secretary may require the owner or operator to redetermine the reference opacity level for any monitored emission stream.

(f) Each owner or operator who is required to install the equipment specified in part (3)(b)1 for the capture of secondary copper converter emissions shall install, calibrate, maintain, and operate a continuous monitoring device on each secondary hood system for the measurement of the air flow through the horizontal slotted plenum and through the exhaust hood. Each device shall be installed and operational no later than 90 days after November 6, 1988 for a source that has an initial startup preceding November 6, 1988; and no later than 90 days after startup for other sources.

(g) Each owner or operator subject to the requirements in subparagraph (f) of this paragraph shall establish for each secondary hood system reference air flow rates for the horizontal slotted plenum and exhaust hood for each mode of converter operation. The reference flow rates shall be established when the equipment is operating under the optimum operating conditions required in subpart (3)(b)2(ii).

(h) Each owner or operator shall install the continuous monitoring systems and monitoring devices required in subparagraphs (a) and (f) of this paragraph in such a manner that representative measurements of emissions and process parameters are obtained.

(7) Recordkeeping Requirements

(a) Each owner or operator subject to the requirements of part (3)(b)1 shall maintain at the source for a period of at least 2 years records of the visual inspections, maintenance, and repairs performed on each secondary hood system as required in part (3)(b)3.

(b) Each owner or operator subject to the provisions of subparagraph (3)(c) shall maintain at the source for a period of at least 2 years and make available to the Technical Secretary upon request a file of the following records:

1. All measurements, including continuous monitoring for measurement of opacity;

2. Records of emission test data and all calculations used to produce the required reports of emission estimates to demonstrate compliance with subparagraph (3)(c);

3. All continuous monitoring system performance evaluations, including calibration checks and adjustments;

4. The occurrence and duration of all start-ups, shutdowns, and malfunctions of the copper converters;

5. All malfunctions of the air pollution control system;

6. All periods during which any continuous monitoring system or device is inoperative;

7. All maintenance and repairs performed on each air pollution control system, continuous monitoring system, or monitoring device;

8. All records of 1-hour average opacity levels for each separate control device; and

9. For each secondary hood system:

(i) The reference flow rates for the horizontal-slotted plenum and exhaust hood for each converter operating mode established under subparagraph (6)(g);

(ii) The actual flow rates; and

(iii) A daily log of the start time and duration of each converter operating mode.

(c) Each owner or operator subject to the provisions of this rule shall maintain at the source for a period of at least 2 years and make available to the Technical Secretary upon request the following records:

1. For each copper converter, a daily record of the amount of copper matte and lead matte charged to the copper converter and the total hours of operation.

2. For each copper converter department, a monthly record of the weight percent of arsenic contained in the copper matte and lead matte as determined under subparagraph (5)(f).

3. For each copper converter department, the monthly calculations of the average annual arsenic charging rate for the preceding 12-month period as determined under subparagraph (5)(f).

(8) Reporting Requirements.

(a) Each owner or operator subject to the provisions of subparagraph (3)(c) shall:

1. Provide the Technical Secretary 30 days prior notice of the emission test required in subparagraph (5)(a) to afford the Technical Secretary the opportunity to have an observer present; and

2. Submit to the Technical Secretary a written report of the results of the emission test required in subparagraph (5)(a) within 60 days after conducting the test.

(b) Each owner or operator subject to the provisions of subparagraph (6)(a) shall provide the Technical Secretary at least 30 days prior notice of each reference opacity level determination required in subparagraph (6)(c) to afford the Technical Secretary the opportunity to have an observer present.

(c) Each owner or operator subject to the provisions of subparagraph (6)(a) shall submit to the Technical Secretary:

1. Within 60 days after conducting the evaluation required in part (6)(a)1, a written report of the continuous monitoring system evaluation;

2. Within 30 days after establishing the reference opacity level required in subparagraph (6)(c), a written report of the reference opacity level. The report shall also include the opacity data used and the calculations performed to determine the reference opacity level, and sufficient documentation to show that process and emission control equipment were operating normally during the reference opacity level determination; and

3. A written report each quarter of each occurrence of excess opacity during the quarter. For the purposes of this paragraph, an occurrence of excess opacity is any 1-hour period during which the average opacity, as measured by the continuous monitoring system, exceeds the reference opacity level established under subparagraph (6)(c).

(d) The owner or operator subject to the provisions of subparagraph (6)(g) shall submit to the Technical Secretary:

1. A written report of the reference air flow rate within 30 days after establishing the reference air flow rates required in subparagraph (6)(g);

2. A written report each quarter of all air flow rates monitored during the preceding 3-month period that are less than 80 percent of the corresponding reference flow rate established for each converter operating mode; and

3. A written report each quarter of any changes in the operating conditions of the emission capture system, emission control device, or the building housing the converters that might increase fugitive emissions.

(e) All quarterly reports shall be postmarked by the 30th day following the end of each 3-month period and shall include the following information:

1. The magnitude of each occurrence of excess opacity, any conversion factor(s) used, and the dates and times of commencement and completion of each occurrence of excess opacity, the cause of each exceedance of the reference opacity level, and the measures taken to minimize emissions.

2. The magnitude of each occurrence of reduced flow rate and the date and time of commencement and completion of each occurrence of reduced flow rate, the cause of the reduced flow rate, and the associated converter operating mode.

3. Specific identification of each occurrence of excess opacity or reduced flow rate that occurs during startups, shutdowns, and malfunctions of the source.

4. The date and time identifying each period during which the continuous monitoring system or monitoring device was inoperative, except for zero and span checks, and the nature of the system repairs or adjustments.

5. Specific identification of each change in operating conditions of the emission capture system or control device, or in the condition of the building housing the converters.

(f) Each owner or operator of a source subject to the provisions of this rule shall submit annually a written report to the Technical Secretary that includes the monthly computations of the average annual converter arsenic charging rate as calculated under part (5)(f)4. The annual report shall be postmarked by the 30th day following the end of each calendar year.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11-.11 Inorganic Arsenic Emissions from Arsenic Trioxide and Metallic Arsenic Production Facilities

(1) Applicability and Designation of Sources

(a) The provisions of this rule are applicable to each metallic arsenic production plant and to each arsenic trioxide plant that processes low-grade arsenic bearing materials by a roasting condensation process.

(2) Definitions

(a) ''Arsenic kitchen'' means a baffled brick chamber where inorganic arsenic vapors are cooled, condensed, and removed in a solid form.

(b) ''Control device'' means the air pollution control equipment used to collect particulate matter emissions.

(c) ''Curtail'' means to cease operations to the extent technically feasible to reduce emissions.

(d) ''Inorganic arsenic'' means the oxides and other noncarbon compounds of the element arsenic included in particulate matter, vapors, and aerosols.

(e) ''Malfunction'' means any sudden failure of air pollution control equipment or process equipment or of a process to operate in a normal or usual manner so that emissions of inorganic arsenic are increased.

(f) ''Opacity'' means the degree to which emissions reduce the transmission of light.

(g) ''Primary emission control system'' means the hoods, enclosures, ducts, and control devices used to capture, convey, and remove particulate matter from exhaust gases which are captured directly at the source of generation.

(h) ''Process emissions'' means inorganic arsenic emissions that are captured and collected in a primary emission control system.

(i) ''Roasting'' means the use of a furnace to heat arsenic plant feed material for the purpose of eliminating a significant portion of the volatile materials contained in the feed.

(j) ''Secondary emissions'' means inorganic arsenic emissions that escape capture by a primary emission control system.

(k) ''Shutdown'' means the cessation of operation of a stationary source for any purpose.

(3) Standard for New and Existing Sources

(a) Within 30 days after November 6, 1988, the owner or operator of each source to which this rule applies shall identify and submit to the Technical Secretary a list of potential sources (equipment and operations) of inorganic arsenic emissions.

(b) The owner or operator shall submit a description of an inspection, maintenance, and housekeeping plan for control of inorganic arsenic emissions from the potential sources identified under subparagraph (a) of this paragraph. This plan shall be submitted within 90 days after November 6, 1988. Approval of the plan will be granted by the Technical Secretary provided he finds that:

1. It achieves the following objectives in a manner that does not cause adverse impacts in other environmental media:

(i) Clean up and proper disposal, wet down, or chemical stabilization to the extent practicable (considering access and safety) of any dry, dusty material having an inorganic arsenic content greater than 2 percent that accumulates on any surface within the plant boundaries outside of a dust tight enclosure.

(ii) Immediate clean up and proper disposal, wet down, or chemical stabilization of spills of all dry, dusty material having an inorganic arsenic content greater than 2 percent.

(iii) Minimization of emissions of inorganic arsenic to the atmosphere during removal of inorganic arsenic from the arsenic kitchen and from flue pulling operations by properly handling, wetting down, or chemically stabilizing all dusts and materials handled in these operations.

2. It includes an inspection program that requires all process, conveying, and air pollution control equipment to be inspected at least once per shift to ensure that the equipment is being properly operated and maintained. The program will specify the evaluation criteria and will use a standardized checklist, which will be included as part of the plan required in subparagraph (b) of this paragraph, to document the inspection, maintenance, and housekeeping status of the equipment and that the objectives of subparagraph (b)1 of this paragraph are being achieved.

3. It includes a systematic procedure for identifying malfunctions and for reporting them immediately to supervisory personnel.

4. It specifies the procedures that will be followed to ensure that equipment or process malfunctions due entirely or in part to poor maintenance or other preventable conditions do not occur.

5. It includes a program for curtailing all operations necessary to minimize any increase in emissions of inorganic arsenic to the atmosphere resulting from a malfunction. The program will describe:

(i) The specific steps that will be taken to curtail each operation as soon as technically feasible after the malfunction is discovered.

(ii) The minimum time required to curtail each operation.

(iii) The procedures that will be used to ensure that the curtailment continues until after the malfunction is corrected.

(c) The owner or operator shall implement the plan required in subparagraph (b) of this paragraph until otherwise specified by the Technical Secretary.

(d) At all times, including periods of startup, shutdown, and malfunction, the owner or operator of each source to which this rule applies shall operate and maintain the source including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions of inorganic arsenic to the atmosphere to the maximum extent practicable. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Technical Secretary, which may include, but is not limited to, monitoring results, review of operating and maintenance procedures, inspection of the source, and review of other records.

(4) Emission Monitoring

(a) The owner or operator of each source subject to the provisions of this rule shall install, calibrate, maintain, and operate a continuous monitoring system for the measurement of the opacity of each arsenic trioxide and metallic arsenic process emission stream that exits from a control device.

(b) The owner or operator shall install, operate, and maintain each continuous monitoring system for the measurement of opacity required in subparagraph (a) of this paragraph according to the following procedures:

1. Ensure that each system is installed and operational no later than 90 days after November 6, 1988 for an existing source or a new source that has an initial startup date preceding November 6, 1988. For a new source whose initial startup occurs after the November 6, 1988, ensure that the system is installed and operational no later than 90 days after startup. Verification of the operations status shall, as a minimum, consist of an evaluation of the monitoring system in accordance with the requirements and procedures as specified in 1200-03-16-.01(8)(a).

2. Except for zero and span drift adjustments required under 1200-03-16-.01(8)(d), and system breakdowns, repairs, and calibration checks ensure that each continuous monitoring system is in continuous operation and meets frequency of operation requirements by completing a minimum of one cycle of sampling and analysis for each successive 10-second period and one cycle of data recording for each successive 6-minute period. Each data point shall represent the opacity measured for one cycle of sampling and analysis and shall be expressed as percent opacity.

(c) The owner or operator shall calculate 6-minute opacity averages from 36 or more consecutive data points equally spaced over each 6-minute period. Data recorded during periods of

monitoring system breakdowns, repairs, calibration checks, and zero and span adjustments shall not be included in the data averages computed under this subparagraph.

(d) No later than 60 days after each continuous opacity monitoring system required in subparagraph (a) of this paragraph becomes operational, the owner or operator shall establish a reference opacity level for each monitored emission stream according to the following procedures:

1. Conduct continuous opacity monitoring over a preplanned period of not less than 36 hours during which the processes and emission control equipment upstream of the monitoring system are operating in a manner that will minimize opacity under representative operating conditions subject to the Technical Secretary's approval.

2. Calculate 6-minute averages of the opacity readings using 36 or more consecutive data points equally spaced over each 6-minute period.

3. Establish the reference opacity level by determining the highest 6-minute average opacity calculated under subparagraph (d)2 of this paragraph.

(e) With a minimum of 30 days prior notice, the Technical Secretary may require an owner or operator to redetermine the reference opacity level for any monitored emission stream.

(f) Each owner or operator shall install all continuous monitoring systems or monitoring devices required in subparagraph (a) of this paragraph in such a manner that representative measurements of emissions or process parameters are obtained.

(5) Ambient Air Monitoring for Inorganic Arsenic

(a) The owner or operator of each source to which this rule applies shall operate a continuous monitoring system for the measurement of inorganic arsenic concentrations in the ambient air.

(b) The ambient air monitors shall be located at sites to detect maximum concentrations of inorganic arsenic in the ambient air in accordance with a plan approved by the Technical Secretary that shall include the sampling and analytical method used.

(c) The owner or operator shall submit a written plan describing, and explaining the basis for, the design and adequacy of the monitoring network, sampling and analytical procedures, and quality assurance within 45 days after November 6, 1988.

(d) Each monitor shall be operated continuously except for a reasonable time allowance for instrument maintenance and calibration, for changing filters, or for replacement of equipment needing major repair.

(e) Filters shall be changed daily and shall be analyzed and concentrations calculated within 30 days after filters are collected.

(f) The Technical Secretary at any time may require changes in, or expansion of, the sampling program, including sampling and analytical protocols and network design.

(6) Record Keeping Requirements

(a) Each owner or operator of a source subject to the provisions of this rule shall maintain at the source for a period of at least 2 years the following records: All measurements, including continuous monitoring for measurement of opacity; all continuous monitoring system performance evaluations, including calibration checks and adjustments; all periods during which the continuous monitoring system or monitoring device is inoperative; and all maintenance and repairs made to the continuous monitoring system or monitoring device.

(b) Each owner or operator shall maintain at the source for a period of at least 2 years a log for each plant department in which the operating status of process, conveying, and emission control equipment is described for each shift. For malfunctions and upsets, the following information shall be recorded in the log:

1. The time of discovery.

2. A description of the malfunction or upset.

3. The time corrective action was initiated.

4. A description of corrective action taken.

5. The time corrective action was completed.

6. A description of steps taken to reduce emissions of inorganic arsenic to the atmosphere between the time of discovery and the time corrective action was taken.

(c) Each owner or operator subject to the provisions of this rule shall maintain for a period of at least 2 years records of 6-minute average opacity levels for each separate control device.

(d) Each owner or operator subject to the provisions of paragraph (7) shall maintain for a period of at least 2 years records of ambient inorganic arsenic concentrations at all sampling sites and other data needed to determine such concentrations.

(7) Reporting Requirements

(a) Each owner or operator subject to the provisions of subparagraph (4)(a) shall provide the Technical Secretary at least 30 days prior notice of each reference opacity level determination required in subparagraph (4)(a) to afford the Technical Secretary the opportunity to have an observer present.

(b) Each owner or operator subject to the provisions of subparagraph (4)(a) shall submit to the Technical Secretary:

1. Within 60 days of conducting the evaluation required in part 1 of subparagraph (4)(b), a written report of the continuous monitoring system evaluation;

2. Within 30 days of establishing the reference opacity level required in subparagraph (4)(d), a written report of the reference opacity level. The report shall also include the opacity data used and the calculations performed to determine the reference opacity level, and sufficient documentation to show that process and emission control equipment were operating normally during the reference opacity level determination; and

3. A written report each quarter of each occurrence of excess opacity during the quarter. For the purposes of this paragraph, an occurrence of excess opacity is any 6-minute period during which the average opacity, as measured by the continuous monitoring system, exceeds the reference opacity level established under subparagraph (4)(d).

(c) All quarterly reports of excess opacity shall be postmarked by the 30th day following the end of each quarter and shall include the following information:

1. The magnitude of excess opacity, any conversion factor(s) used, and the dates and times of commencement and completion of each occurrence of excess opacity, the cause of each exceedance of the reference opacity level, and the measures taken to minimize emissions.

2. Specific identification of each period of excess opacity that occurred during startups, shutdowns, and malfunctions of the source.

3. The date and time identifying each period during which the continuous monitoring system or monitoring device was inoperative, except for zero and span checks, and the nature of the system repairs or adjustments.

(d) Each owner or operator subject to this rule shall submit a written report semiannually to the

Technical Secretary that describes the status and results, for the reporting period, of any pilot plant studies on alternative arsenic trioxide production processes. Conclusions and recommendations of the studies shall also be reported.

(e) All semiannual progress reports required in subparagraph (d) of this paragraph shall be postmarked by the 30th day following the end of each 6-month period.

(f) Each owner or operator of a source to which this rule applies shall submit a written report each quarter to the Technical Secretary that includes the following information:

1. All ambient inorganic arsenic concentrations measured at all monitoring sites in accordance with paragraph (5) of this rule.

2. A description of any modifications to the sampling network, during the reporting period, including any major maintenance, site changes, calibrations, and quality assurance information including sampling and analytical precision and accuracy estimates.

(g) All quarterly reports required in subparagraph (f) of this paragraph shall be postmarked by the 30th day following the end of each quarter.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11 .12 through 1200-03-11 .16 Reserved

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

1200-03-11-.17 National Emission Standards for Radon Emissions From Department of Energy Facilities.

(1) Adopted herein by reference are the Federal regulations 40 CFR 61 Subpart Q as published in the December 15, 1989 edition of the Federal Register: (See Paragraph (3) of this Rule for text).

(2) Agreements regarding waivers, compliance reports, testing, and monitoring between the Department of Energy and the Environmental Protection Agency will be recognized by the Tennessee Division of Air Pollution Control providing these agreements are current, valid, and supported by appropriate documentation.

(3) 40 CFR PART 61-subpart Q-National Emission Standards for Radon Emissions From Department of Energy Facilities

SOURCE: 54 FR 51701, Dec. 15, 1989, unless otherwise noted.

§ 61.190 Designation of facilities.

The provisions of this subpart apply to the design and operation of all storage and disposal facilities for radium-containing material (i.e., byproduct material as defined under section 11.e(2) of the Atomic Energy Act of 1954 (as amended)) that are owned or operated by the Department of Energy that emit radon-222 into air, including these facilities: The Feed Materials Production Center, Fernald, Ohio; the Niagara Falls Storage Site, Lewiston, New York; the Weldon Spring Site, Weldon Spring, Missouri; the Middlesex Sampling Plant, Middlesex, New Jersey; the Monticello Uranium Mill Tailings Pile, Monticello, Utah. This subpart does not apply to facilities listed in, or designated by the Secretary of Energy under title I of the Uranium Mill Tailings Control Act of 1978.

§ 61.191 Definitions.

(a) As used in this subpart, all terms not defined here have the meaning given them in the Clean Air Act or subpart A of part 61. The following terms shall have the following specific meanings:

(b) Facility means all buildings, structures and operations on one contiguous site.

(c) Source means any building, structure, pile, impoundment or area used for interim storage or disposal that is or contains waste material containing radium in sufficient concentration to emit

~~radon-222 in excess of this standard prior to remedial action.~~

~~§ 61.192 Standard.~~

~~No source at a Department of Energy facility shall emit more than 20 pCi/ m^2-s of radon-222 as an average for the entire source, into the air. This requirement will be part of any Federal Facilities Agreement reached between Environmental Protection Agency and Department of Energy.~~

~~§ 61.193 Exemption from the reporting and testing requirements of 40 CFR 61.10.~~

~~All facilities designated under this subpart are exempt from the reporting requirements of 40 CFR 61.10.~~

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-16
New Source Performance Standards

Amendment

Subparagraph (a) of paragraph (11) of Rule 1200-03-16-.01 General Provisions is amended by deleting in its entirety and substituting instead the following:

(a) Introduction

This paragraph contains requirements for control devices used to comply with applicable rules of ~~chapters 11 and 16~~ Chapter 0400-30-38 and this chapter. The requirements are placed here for administrative convenience and only apply to facilities covered by rules referring to this paragraph.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-20
Limits on Emissions Due to Malfunctions, Startups, and Shutdowns

Amendment

Paragraph (1) of Rule 1200-03-20-.03 Notice Required When Malfunction Occurs is amended by deleting it in its entirety and substituting instead the following:

(1) When any air contaminant source malfunctions in such a manner as to cause the emission of air contaminants in excess of the applicable emission standards contained in Division 1200-03 or any permit issued thereto, or of sufficient duration to cause damage to property or public health, the owner or operator of the air contaminant source shall promptly notify the Technical Secretary of such malfunction and provide a statement giving all pertinent facts, including the estimated duration of the malfunction**.** Violations of the visible emission standard (excluding visible emissions caused by hazardous air pollutants named in Chapter ~~1200-03-11~~ 0400-30-38) which occur for less than 20 minutes in one day (midnight to midnight) need not be reported. Prompt notification will be within 24 hours of the malfunction and shall be provided by telephone to the Division's Nashville office. The Technical Secretary shall be notified when the malfunction has been corrected. In attainment and unclassified areas if emissions other than from sources designated as significantly impacting on a nonattainment area in excess of the standards will not and do not occur over more than a 24-hour period (or will not recur over more than a 24-hour period) and no damage to property and or public health is anticipated, notification is not required. Any malfunction that creates an imminent hazard to health must be reported by telephone immediately to the Division's Nashville office and to the State Civil Defense.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-21
General Alternate Emission Standards

Amendment

Subparagraph (d) of paragraph (2) of Rule 1200-03-21-.01 General Alternate Emission Standard is amended by deleting it in its entirety and substituting instead the following:

(d) The pollutants involved in the alternate emission standard must be comparable emissions, and no interpollutant trades are allowed. Air contaminant sources subject to the standards in Chapter ~~1200-3-11~~ 0400-30-38 cannot apply the alternate emission standard to hazardous air contaminants. Air contaminant sources subject to emission standards in Chapter 1200-03-16, or ~~Rule 1200-3-9-.01(4)~~ paragraph (4) of Rule 1200-03-09-.01 or subparagraph (5)(b) of Rule 1200-03-09-.01~~(5)(b)~~ cannot use an alternate emission standard, except for reductions in actual emissions below the level required in these rules. Such reduction may be used as credit for existing source. However, all applicable standards and requirements established under ~~Rule 1200-3-9-.01(4)~~ paragraph (4) of Rule 1200-03-09-.01, under Chapters ~~1200-3-11 and 1200-3-16~~ 0400-30-38 and 1200-03-16, and according to a lowest-achievement-emission-rate (LAER) determination under ~~Rule 200-3-9-.01(5)~~ paragraph (5) of Rule 1200-03-09-.01 must be complied with and are not superseded or replaced by the alternate emission standard.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-26
Administrative Fees Schedule

Amendments

Part 1 of subparagraph (i) of paragraph (2) of Rule 1200-03-26-.02 Construction and Annual Fees is amended by deleting it in its entirety and substituting instead the following:

1. Each pollutant regulated under ~~chapter 1200-03-11 HAZARDOUS AIR CONTAMINANTS~~ Chapter 0400-30-38 Emission Standards for Hazardous Air Pollutants (Excluding Transitory Asbestos from construction, demolition, and renovation).

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Subparts (i) and (ii) of part 1 of subparagraph (i) of paragraph (3) of Rule 1200-03-26-.02 Construction and Annual Fees are amended by deleting them in their entirety and substituting instead the following:

(i) Sources that are subject to federally promulgated hazardous air pollutant standards that can be imposed under ~~Chapter 1200-03-11, Chapter 1200-03-31, or~~ Chapter 0400-30-38 or Chapter 1200-03-31 will place such regulated emissions in the specific hazardous air pollutant under regulation. If the pollutant is also in the family of volatile organic compounds or the family of particulates, the pollutant shall not be placed in that respective family category.

(ii) A miscellaneous category of hazardous air pollutants shall be used for hazardous air pollutants listed at part (2)(i)12. of this rule that do not have an allowable emission standard under ~~Chapter 1200-03-11, Chapter 1200- 03-31, or~~ Chapter 0400-30-38 or Chapter 1200-03-31. A pollutant placed in this category shall not be subject to being placed in any other category such as volatile organic compounds or particulates.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

Chapter 1200-03-31
Case by Case Determinations of Hazardous Air Pollutant Control Requirements

Amendments

Chapter 1200-03-31 Case by Case Determinations of Hazardous Air Pollutant Control Requirements is amended by deleted in its entirety and substituting instead the following:

Chapter 1200-03-31
~~Case by Case~~ Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements

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1200-3-31-.01 ~~General Provisions [Reserved]~~ Reserved

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.02~~ 1200-03-31-.02 Definitions - The following definitions are applicable to this ~~Chapter~~ chapter:

(1) "Major Source" means any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year of any combination of hazardous air pollutants. In addition, the provisions of subpart ~~1200-3-9-.02~~ (11)(b)14(i) of Rule 1200-03-09-.02 are recognized as to the grouping or aggregation of emissions for the purpose of calculating emission potential as it relates to the applicability thresholds of this definition. Additionally, electric utility steam generating units will not be regulated as major sources until the United States Environmental Protection Agency decides that they should be so regulated pursuant to Section 112(n) of the federal Clean Air Act.

(2) "Area Source" means any stationary source of hazardous air pollutants that is not a major source. Mobile sources such as vehicles, trains, planes, ships, et cetera are not area sources.

(3) "New Source" means a stationary source that emits hazardous air pollutants as they are defined in this paragraph and is constructed or reconstructed on or after the date that the United States Environmental Protection Agency approves the major source operating permit program submitted by the State of Tennessee in accordance with Section 502(d) of the federal Clean Air Act.

(4) "Stationary Source" shall have the meaning given to it in subparagraph ~~1200-3-2-.01~~ (1)(ddd) of Rule 1200-03-02-.01.

(5) "Existing Source" is any stationary source that emits hazardous air pollutants as they are defined in ~~this~~ paragraph (6) of this rule and is not a new source.

(6) "Hazardous Air Pollutant" - means any of the following air contaminants:

CAS No.	Chemical name

75070	Acetaldehyde
60355	Acetamide
75058	Acetonitrile
98862	Acetophenone
53963	2-Acetylaminofluorene
107028	Acrolein
79061	Acrylamide
79107	Acrylic acid
107131	Acrylonitrile
107051	Allyl chloride
92671	4-Aminobiphenyl
62533	Aniline
90040	o-Anisidine
1332214	Asbestos
71432	Benzene (including benzene from gasoline)
92875	Benzidine
98077	Benzotrichloride
100447	Benzyl chloride
92524	Biphenyl
117817	Bis(2-ethylhexyl)phthalate(DEHP)
542881	Bis(chloromethyl) ether
75252	Bromoform
106990	1,3-Butadiene
156627	Calcium cyanamide
133062	Captan
63252	Carbaryl
75150	Carbon disulfide
56235	Carbon tetrachloride
463581	Carbonyl sulfide
120809	Catechol
133904	Chloramben
57749	Chlordane
7782505	Chlorine
79118	Chloroacetic acid
532274	2-Chloroacetophenone
108907	Chlorobenzene
510156	Chlorobenzilate
67663	Chloroform
107302	Chloromethyl methyl ether
126998	Chloroprene
1319773	Cresols/Cresylic acid (isomers and mixture)
95487	o-Cresol
108394	m-Cresol
106445	p-Cresol
98828	Cumene
94757	2,4-D, salts and esters
3547044	DDE
334883	Diazomethane
132649	Dibenzofurans
96128	1,2-Dibromo-3-chloropropane
84742	Dibutylphthalate
106467	1,4-Dichlorobenzene(p)
91941	3,3-Dichloro benzidene
111444	Dichloroethyl ether (Bis(2-chloroethyl)ether)
542756	1,3-Dichloropropene
62737	Dichlorvos
111422	Diethanolamine
121697	N,N-Diethyl aniline (N,N-Dimethylaniline)
64675	Diethyl sulfate
119904	3,3-Dimethoxybenzidine

60117	Dimethyl aminoazobenzene
119937	3,3'-Dimethyl benzidine
79447	Dimethyl carbamoyl chloride
68122	Dimethyl formamide
57147	1,1-Dimethyl hydrazine
131113	Dimethyl phthalate
77781	Dimethyl sulfate
534521	4,6-Dinitro-o-cresol, and salts
51285	2,4-Dinitrophenol
121142	2,4-Dinitrotoluene
123911	1,4-Dioxane (1,4-Diethyleneoxide)
122667	1,2-Diphenylhydrazine
106898	Epichlorohydrin (1-Chloro-2,3-epoxypropane)
106887	1,2-Epoxybutane
140885	Ethyl acrylate
100414	Ethyl benzene
51796	Ethyl carbamate (Urethane)
75003	Ethyl Chloride (Chloroethane)
106934	Ethylene dibromide (Dibromoethane)
107062	Ethylene dichloride (1,2-Dichlorethane)
107211	Ethylene glycol
151564	Ethylene imine (Aziridine)
75218	Ethylene oxide
96457	Ethylene thiourea
75343	Ethylidene dichloride (1,1-Dichloroethane)
50000	Formaldehyde
76448	Heptachlor
118741	Hexachlorobenzene
87683	Hexachlorobutadiene
77474	Hexachlorocyclopentadiene
67721	Hexachloroethane
822060	Hexamethylene-1,6-diisocyanate
680319	Hexamethylphosphoramide
110543	Hexane
302012	Hydrazine
7647010	Hydrochloric acid
7664393	Hydrogen fluoride (Hydrofluoric acid)
123319	Hydroquinone
78591	Isophorone
58899	Lindane (all isomers)
108316	Maleic anhydride
67561	Methanol
72435	Methoxychlor
74839	Methyl bromide (Bromomethane)
74873	Methyl chloride (Chloromethane)
71556	Methyl chloroform (1,1,1-Trichloroethane)
60344	Methyl hydrazine
74884	Methyl iodide (Iodomethane)
108101	Methyl isobutyl ketone (Hexone)
624839	Methyl isocyanate
80626	Methyl methacrylate
1634044	Methyl tert butyl ether
101144	4,4-Methylene bis(2-chloronaniline)
75092	Methylene chloride (Dichloromethane)
101688	Methylene diphenyl diisocyanate (MDI)
101779	4,4'-Methylenedianiline
91203	Naphthalene
98953	Nitrobenzene
92933	4-Nitrobiphenyl
100027	4-Nitrophenol
79469	2-Nitropropane

684935	N-Nitroso-N-methylurea
62759	N-Nitrosodimethylamine
59892	N-Nitrosomorpholine
56382	Parathion
82688	Pentachloronitrobenzene (Quintobenzene)
87865	Pentachlorophenol
108952	Phenol
106503	p-Phenylenediamine
75445	Phosgene
7803512	Phosphine
7723140	Phosphorus
85449	Phthalic anhydride
1336363	Polychlorinated biphenyls (Arochlors)
1120714	1,3-Propane sultone
57578	beta-Propiolactone
123386	Propionaldehyde
114261	Propoxur (Baygon)
78875	Propylene dichloride (1,2-Dichloropropane)
75569	Propylene oxide
75558	1,2-Propylenimine (2-Methyl aziridine)
91225	Quinoline
106514	Quinone
100425	Styrene
96093	Styrene oxide
1746016	2,3,7,8-Tetrachlorodibenzo-p-dioxin
79345	1,1,2,2-Tetrachloroethane
127184	Tetrachoroethylene (Perchloroethylene)
7550450	Titanium tetrachloride
108883	Toluene
95807	2,4-Toluene diamine
584849	2,4-Toluene diisocyanate
95534	o-Toluidine
8001352	Toxaphene (chlorinated camphene)
120821	1,2,4-Trichlorobenzene
79005	1,1,2-Trichloroethane
79016	Trichloroethylene
95954	2,4,5-Trichlorophenol
88062	2,4,6-Trichlorophenol
121448	Triethylamine
1582098	Trifluralin
540841	2,2,4-Trimethylpentane
108054	Vinyl acetate
593602	Vinyl bromide
75014	Vinyl chloride
75354	Vinylidene chloride (1,1-Dichloroethylene)
1330207	Xylenes (isomers and mixture)
95476	o-Xylenes
108383	m-Xylenes
106423	p-Xylenes
0	Antimony Compounds
0	Arsenic Compounds (inorganic including arsine)
0	Beryllium Compounds
0	Cadmium Compounds
0	Chromium Compounds
0	Cobalt Compounds
0	Coke Oven Emissions
0	Cyanide compounds[1]
0	Glycol ethers[2, 6]

[1] X'CN where X = H' or any other group where a formal dissociation may occur. For example KCN or $Ca(CN)_2$

[2] Include mono- and di-ethers of ethylene glycol, diethylene glycol, and triethylene glycol R-$(OCH_2CH_2)_n$- OR'.

0 Lead Compounds
0 Manganese Compounds
0 Mercury Compounds
0 Fine mineral fibers[3]
0 Nickel Compounds
0 Polycyclic Organic Matter[4]
0 Radionuclides (including radon)[5]
0 Selenium Compounds

(7) "Federal Clean Air Act" means the federal statutes found at 42 U.S.C. 7401 et seq. as amended by Public Law No. 101-549 (November 15, 1990).

(8) "MACT" means maximum achievable control technology. It is a ~~case-by-case~~ case-by-case determination of what constitutes a maximum achievable reduction of hazardous air pollutants considering the costs of achieving the emission reduction and any non-air quality health and environmental impacts and energy requirements. MACT may include but is not limited to: control equipment, work practice standards, emission standards, process modifications or raw materials substitution and/or reformulation.

(9) "GACT" means generally available control technology. It is a ~~case-by-case~~ case-by-case determination of what constitutes reasonable and proper control for hazardous air pollutants from area sources. GACT may include, but is not limited to: control equipment, work practice standards, emission standards, process modification or raw materials substitution and/or reformulation.

(10) Reserved.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.03~~ 1200-03-31-.03 Intent of the Board

For ~~Case-by-Case~~ Case-by-Case Determinations of Hazardous Air Pollutant Control Requirements:

(1) The role of the United States Environmental Protection Agency is recognized by the Board as being essential in the setting of ~~case-by-case~~ case-by-case determinations of hazardous air pollutant control requirements. The federal Agency is in the unique position to conduct research and compile national data bases as to the source by source control levels that are being achieved or proposed in the regulation of hazardous air pollutants. As the State of Tennessee does not fully possess these abilities, the Technical Secretary shall ~~avail himself of~~ utilize the federal Agency's resources prior to setting a ~~case-by-case~~ case-by-case hazardous air pollutant requirement. In addition, the Technical Secretary shall recognize any federal law, federal regulation, or lawfully promulgated policy of the United States Environmental Protection Agency pertaining to ~~case-by-case~~ case-by-case determinations of hazardous air pollutant requirements as the minimum acceptable criteria prior to the setting of a ~~case-by-case~~ case-by-case hazardous air pollutant requirement under the provisions of this rule.

Where:
n = 1, 2, or 3:
R = alkyl C7 or less; or
R = phenyl or alkyl substituted phenyl;
R' = H or alkyl C7 or less; or
OR' consisting of carboxylic acid ester, sulfate, phosphate, nitrate, or sulfonate.

This action deletes each individual compound in a group called the surfactant alcohol ethoxylates and their derivatives (SAED) from the glycol ethers category in the list of hazardous air pollutants (HAP) established by section 112(b)(1) of the Clean Air Act (CAA).

[3] Includes mineral fiber 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 than one benzene ring, and which have a boiling point greater than or equal to 100^0 C.

[5] a type of atom which spontaneously undergoes radioactive decay.

[6] The substance ethylene glycol monobutyl ether (EGBE, 2-Butoxyethanol) (Chemical Abstract Service (CAS) Number 111-76-2) is deleted from the list of hazardous air pollutants established by 42 U.S.C. 7412(b)(1).

(2) The Technical Secretary may consider other applicable criteria in the absence of any data or requirement of the United States Environmental Protection Agency. In such case, the Technical Secretary shall rely upon generally accepted engineering principles and any unique aspects of a source category as a whole that would be a prohibitory factor in the imposition of a requirement for industries in that source category.

(3) To the extent possible, it is the Board's intent to impose MACT and GACT limitations equivalent to that required by the United States Environmental Protection Agency at the time of the ~~case by case~~ case-by-case determination. Should there be a prudent reason to be more stringent than the federal equivalent the Technical Secretary may issue a more stringent MACT or GACT requirement. In exercise of the authority to issue a more stringent requirement, the Technical Secretary shall issue a determination specifying the rationale employed in the setting of a more stringent requirement. The determination shall accompany the permit in which the ~~case by case~~ case-by-case determination is declared. As the declaration of a ~~case by case~~ case-by-case requirement will be specified on a permit, disputes regarding the imposition of MACT or GACT are to be resolved in the manner prescribed by ~~rule 1200-3-9-.05~~ Rule 1200-03-09-.05. If GACT is done on a permit by rule basis, the Board will view the public hearing process as the permittee's opportunity to object to the requirements of GACT. However, the permittee may appeal the applicability of GACT to their operations as to commenced date or emission/production magnitude applicability thresholds present at their source.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.04~~ 1200-03-31-.04 Standard for Existing Sources

(1) Major sources will be issued an operating permit pursuant to the provisions of paragraph ~~1200-3-9-.02~~ (11) of Rule 1200-03-09-.02 listing their current hazardous air pollutant emission rate on a ~~pollutant-by-pollutant~~ pollutant-by-pollutant basis. These "hollow permits" will remain in effect until one or more of the following activities occur:

(a) When the United States Environmental Protection Agency promulgates MACT for a source specific category pursuant to Sections 112(d) or (h) of the federal Clean Air Act, the Technical Secretary shall specify MACT for all existing major sources in that category as a revision to their "hollow permit". Upon written notification from the Technical Secretary, the source shall have 180 days to prepare their application for a MACT permit revision and submit it to the Technical Secretary. The Technical Secretary shall process the application by issuing a permit within 9 months of receipt of a complete application. MACT revisions to hollow permits shall be issued within 18 months of promulgation. A compliance schedule to attain MACT by a date certain shall be made part of the permit. The length of the schedule to attain compliance shall be determined by the complexities of coming into compliance and the Board's intent to be equivalent to the federal MACT. The Technical Secretary shall provide that the source's compliance schedule is at least as long as the federal rules allow. In most areas, this should not exceed three years. The Technical Secretary is authorized to grant up to a one-year extension to comply as long as it does not conflict with the federal requirements and there is sufficient justification to grant the additional time.

(b) If the United States Environmental Protection Agency fails to meet the Federal Clean Air Act schedules prescribed in Section 112(e)(1) and/or (3) for timely promulgation of MACT requirements thereby invoking the "MACT hammer" provisions at Section 112(j) of the federal Clean Air Act, the Technical Secretary shall specify MACT for all sources in the source category in question as a permit revision to their "hollow permit". Sources subject to the missed MACT standard shall file a complete MACT permit revision application with the Technical Secretary no later than 18 months after the federally missed deadline for the source category. The Technical Secretary shall process the MACT permit revision application by issuing a permit within 18 months of his receipt of a complete application.

(2) Area sources that are not exempt from the requirement to obtain a permit pursuant to ~~rule 1200-3-9-.04~~ Rule 1200-03-09-.04 will be issued an operating permit specifying GACT with an appropriate compliance schedule to achieve that requirement by a date certain within 18 months of the United States Environmental Protection Agency's promulgation of a source specific GACT standard if they are in that source specific category. The date to achieve compliance shall be no less than that allowed by the federal rule which promulgated GACT for that source category. If a source is not exempted from the requirement to obtain a permit pursuant to ~~rule 1200-3-9-.04~~ Rule 0400-30-09-.04, it shall be the duty of such area

source owner or operator to register their annual emissions of hazardous air pollutants with the Technical Secretary utilizing the forms prescribed by the Technical Secretary. In the interest of efficiency, the Technical Secretary may bring proposed regulations to the Board that would permit area sources by rule on a source category specific basis. It is the intent of the Board that such rule would be effective within 18 months of the federal GACT promulgation. The rule will also provide that compliance with GACT shall be attained no later than that specified by the equivalent federal rule.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.05~~ 1200-03-31-.05 ~~Standard~~ Standards for New Sources

(1) Major sources shall utilize MACT as prescribed by the Technical Secretary upon start up regardless of whether or not the United States Environmental Protection Agency has established MACT under Section 112(d) or (h) of the Federal Clean Air Act. MACT shall be prescribed on the source's construction permit and transferred to the source's operating permit upon ~~start up~~ startup of the facility.

(2) Area sources that are not exempt from the requirement to obtain a permit in accordance with ~~rule 1200-3-9-.04~~ Rule 1200-03-09-.04 shall utilize GACT as prescribed by the Technical Secretary upon start up if the United States Environmental Protection Agency has established GACT under Section 112(d)(5). GACT shall be prescribed on the source's construction permit and transferred to the source's operating permit upon ~~start up~~ startup of the facility.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.06~~ 1200-03-31-.06 Opportunity for Early Reductions Schedule

(1) The owner or operator of an existing source of hazardous air pollutants may be issued an operating permit allowing ~~6~~ six additional years to comply with a future MACT commencing on the compliance date of that MACT limit if each of the following criteria are satisfied:

(a) The source will utilize control and/or work practices that will result in a 90 per centum or more reduction in emissions of hazardous air pollutants (95 per centum in the case of hazardous air pollutants which are particulates).

1. The reduction shall be determined with respect to verifiable and actual emissions in a base year not earlier than calendar year 1987.

2. If there is evidence that emissions in the base year 1987, or any subsequent base year are artificially or substantially greater than emissions in other years prior to the implementation of the early emission reductions, the Technical Secretary shall require the use of an arithmetic average of the years commencing upon the suspect year and ending upon the period of time when the person seeking the early reductions schedule files their plan for the purpose of determining base year emission levels.

3. The Technical Secretary may allow a source to use 1985 or 1986 emission data for the purpose of determining base year emissions if the source has submitted such data to ~~him~~ the Technical Secretary in a form that can be used to make the baseline calculations and further that such information was in ~~his~~ the Technical Secretary's possession prior to November 15, 1990.

(2) The early emission reduction must occur prior to the federal proposal of a source category specific MACT standard to which the source will be subject. Federal proposal will be considered effective when the United States Environmental Protection Agency publishes the standard in the Federal Register. The reduction need not actually occur prior to the federal proposal if the source owner or operator has committed to an enforceable schedule that extends no further than January 1, 1994.

(3) A major source operating permit must be issued to the source owner or operator pursuant to the provisions of paragraph ~~1200-3-9-.02~~ (11) of Rule 1200-03-09-.02 detailing the schedule to attain the early emission reductions and the enforceable emission limit that is to be attained. For the purposes of this ~~subparagraph~~ paragraph, the Technical Secretary shall issue the permit within ~~9~~ nine months of a complete application.

(4) The early reductions of less toxic hazardous air pollutants shall not be credited toward the reduction of highly toxic hazardous air pollutants (such as, but not limited to chlorinated dioxins and furans) that pose high risks of adverse public health effects associated with exposure to small quantities of such highly toxic hazardous air pollutants. The Technical Secretary shall use the relative risks of chlorinated dioxins and furans as a qualitative benchmark in determining whether or not a hazardous air pollutant is highly toxic.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.07~~ 1200-03-31-.07 Residual Risk and Revisions to MACT

(1) MACT standards are subject to revision if the United States Environmental Protection Agency determines that the existing MACT standards are insufficient to protect the public pursuant to the residual risk provisions of Section 112(f) of the federal Clean Air Act. Upon such finding, the Technical Secretary shall modify previously set MACT limitations in that source category to conform to the federally promulgated revised MACT standards within 18 months of such federal promulgation. ~~Said~~ The modification will be a permit revision to the source's operating permit consistent with the provisions of paragraph ~~1200-3-9-.02~~ (11) of Rule 1200-03-09-.02. The Technical Secretary shall prescribe a compliance schedule on the permit amendment that will specify an expeditious date to attain compliance with the revised MACT standards. The length of the schedule will be determined by the complexities of coming into compliance and the Board's desire to be equivalent to any federally revised MACT requirements.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.08~~ 1200-03-31-.08 through ~~1200-31-1-.12~~ 1200-03-31-.12 Reserved

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

~~1200-3-31-.13 National Perchloroethylene Air Emission Standards for Dry Cleaning Facilities~~ 1200-03-31-.13 Reserved

~~(1) Applicability~~

~~(a) The provisions of this rule apply to the owner or operator of each dry cleaning facility that uses perchloroethylene.~~

~~(b) Each dry cleaning system that commences construction or reconstruction on or after December 9, 1991, shall be in compliance with the provisions of this rule beginning on September 15, 1993 or immediately upon startup, whichever is later, except for dry cleaning systems complying with Section 112(i)(2) of the Clean Air Act as amended Nov. 15, 1990.~~

~~(c) Each dry cleaning system that commenced construction or reconstruction before December 9, 1991, and each new transfer machine system and its ancillary equipment that commenced construction or reconstruction on or after December 9, 1991, and before September 22, 1993, shall comply with subparagraphs 1200-3-31-.13 (3)c), (d), (i), (j), (k), (l), and (m), 1200-3-31-.13 (4)(d), and 1200-3-31-.13 (5)(a) (b), (d)1, (d)2, (d)3, (d)4, and (e) beginning on December 15, 1993, and shall comply with other provisions of this rule by September 15, 1996.~~

~~(d) Each existing dry-to-dry machine and its ancillary equipment located in a dry cleaning facility that includes only dry-to-dry machines and each existing transfer machine system and its ancillary equipment and each new transfer machine system and its ancillary equipment installed between December 9, 1991, and September 22, 1993, as well as each existing dry-to-dry machine and its ancillary equipment, located in a dry cleaning facility that includes both transfer machine system(s) and dry-to-dry machine(s) is exempt from 1200-3-31-.13(3), 1200-3-31-.13(4), and 1200-3-31-.13(5), except subparagraphs 1200-3-31-.13(3)(c), (d), (i), (j), (k), (l), and (m), 1200-3-31-.13(4)(d), and 1200-3-31-.13(5)(a) (b), (d)1, (d)2., (d)3., (d)4, and (e) if the total perchloroethylene consumption of the dry cleaning facility is less than 530 liters (140 gallons) per year. Consumption is determined according to 1200-3-31-.13(4)(d).~~

(e) Each existing transfer machine system and its ancillary equipment, and each new transfer machine system and its ancillary equipment installed between December 9, 1991, and September 22, 1993, located in a dry cleaning facility that includes only transfer machine system(s) is exempt from 1200-3-31-.13(3), 1200-3-31-.13 (4), and 1200-3-31-.13(5), except subparagraphs 1200-3-31-.13(3)(c), (d), (i), (j), (k), (l), and (m), 1200-3-31-.13(4)(d), and 1200-3-31-.13(5)(a) (b), (d)1, (d)2., (d)3., (d)4, and (e) if the perchloroethylene consumption of the dry cleaning facility is less than 760 liters (200 gallons) per year. Consumption is determined according to 1200-3-31-.13(4)(d).

(f) If the total yearly perchloroethylene consumption of a dry cleaning facility determined according to 1200-3-31-.13(4)(d) is initially less than the amounts specified in subparagraph (d) or (e) of this paragraph, but later exceeds those amounts, the existing dry cleaning system(s) and new transfer machine system(s) and its (their) ancillary equipment installed between December 9, 1991, and September 22, 1993, in the dry cleaning facility must comply with 1200-3-31-.13(3), 1200-3-31-.13(4), and 1200-3-31-.13(5) by 180 calendar days from the date that the facility determines it has exceeded the amounts specified, or by September 15, 1996, whichever is later.

(g) A dry cleaning facility is a major source if the facility emits or has the potential to emit more than 9.1 megagrams per year (10 tons per year) of perchloroethylene to the atmosphere. In lieu of measuring a facility's potential to emit perchloroethylene emissions or determining a facility's potential to emit perchloroethylene emissions, a dry cleaning facility is a major source if:

1. It includes only dry-to-dry machine(s) and has a total yearly perchloroethylene consumption greater than 8,000 liters (2,100 gallons) as determined according to 1200-3-31-.13(4)(d); or

2. It includes only transfer machine system(s) or both dry-to-dry machine(s) and transfer machine system(s) and has a total yearly perchloroethylene consumption greater than 6,800 liters (1,800 gallons) as determined according to 1200-3-31-.13(4)(d).

(h) A dry cleaning facility is an area source if it does not meet the conditions of Subparagraph (g) of this Paragraph.

(i) If the total yearly perchloroethylene consumption of a dry cleaning facility determined according to 1200-3-31-.13(4)(d) is initially less than the amounts specified in Subparagraph (g) of this Paragraph, but then exceeds those amounts, the dry cleaning facility becomes a major source and all dry cleaning systems located at that dry cleaning facility must comply with the appropriate requirements for major sources under 1200-3-31-.13(3), 1200-3-31-.13(4), and 1200-3-31-.13(5) by 180 calendar days from the date that the facility determines it has exceeded the amount specified, or by September 15, 1996, whichever is later.

(j) All coin-operated dry cleaning machines are exempt from the requirements of this Rule.

(2) Definitions

(a) "Administrator" means the Administrator of the United States Environmental Protection Agency.

(b) "Ancillary equipment" means the equipment used with a dry cleaning machine in a dry cleaning system including, but not limited to, emission control devices, pumps, filters, muck cookers, stills, solvent tanks, solvent containers, water separators, exhaust dampers, diverter valves, interconnecting piping, hoses, and ducts.

(c) "Articles" mean clothing, garments, textiles, fabrics, leather goods, and the like, that are dry cleaned.

(d) "Area source" means any perchloroethylene dry cleaning facility that meets the conditions of 1200-3-31-.13(1)(h).

(e) "Biweekly" means any 14-day period of time.

(f) "Carbon adsorber" means a bed of activated carbon into which an airÄperchloroethylene gas-vapor stream is routed and which adsorbs the perchloroethylene on the carbon.

(g) "Coin-operated dry cleaning machine" means a dry cleaning machine that is operated by the customer (that is, the customer places articles into the machine, turns the machine on, and removes articles from the machine).

(h) "Colorimetric detector tube" means a glass tube (sealed prior to use), containing material impregnated with a chemical that is sensitive to perchloroethylene and is designed to measure the concentration of perchloroethylene in air.

(i) "Construction", for purposes of this Rule, means the fabrication (onsite), erection, or installation of a dry cleaning system subject to this Rule.

(j) "Desorption" means regeneration of a carbon adsorber by removal of the perchloroethylene adsorbed on the carbon.

(k) "Diverter valve" means a flow control device that prevents room air from passing through a refrigerated condenser when the door of the dry cleaning machine is open.

(l) "Dry cleaning" means the process of cleaning articles using perchloroethylene.

(m) "Dry cleaning cycle" means the washing and drying of articles in a dry-to-dry machine or transfer machine system.

(n) "Dry cleaning facility" means an establishment with one or more dry cleaning systems.

(o) "Dry cleaning machine" means a dry-to-dry machine or each machine of a transfer machine system.

(p) "Dry cleaning machine drum" means the perforated container inside the dry cleaning machine that holds the articles during dry cleaning.

(q) "Dry cleaning system" means a dry-to-dry machine and its ancillary equipment or a transfer machine system and its ancillary equipment.

(r) "Dryer" means a machine used to remove perchloroethylene from articles by tumbling them in a heated air stream (see reclaimer).

(s) "Dry-to-dry machine" means a one-machine dry cleaning operation in which washing and drying are performed in the same machine.

(t) "Exhaust damper" means a flow control device that prevents the air-perchloroethylene gas-vapor stream from exiting the dry cleaning machine into a carbon adsorber before room air is drawn into the dry cleaning machine.

(u) "Existing" means commenced construction or reconstruction before December 9, 1991.

(v) "Filter" means a porous device through which perchloroethylene is passed to remove contaminants in suspension. Examples include, but are not limited to, lint filter (button trap), cartridge filter, tubular filter, regenerative filter, prefilter, polishing filter, and spin disc filter.

(w) "Heating coil" means the device used to heat the air stream circulated from the dry cleaning machine drum, after perchloroethylene has been condensed from the air stream and before the stream reenters the dry cleaning machine drum.

(x) "Major source" means any dry cleaning facility that meets the conditions of 1200-3-31-.13 1)(g).

(y) "Muck cooker" means a device for heating perchloroethylene-laden waste material to volatilize and recover perchloroethylene.

(z) "New" means commenced construction or reconstruction on or after December 9, 1991.

(aa) "Perceptible leaks" mean any perchloroethylene vapor or liquid leaks that are obvious from:

1. The odor of perchloroethylene;

2. Visual observation, such as pools or droplets of liquid; or

3. The detection of gas flow by passing the fingers over the surface of equipment.

(bb) "Perchloroethylene consumption" means the total volume of perchloroethylene purchased based upon purchase receipts or other reliable measures.

(cc) "Reclaimer" means a machine used to remove perchloroethylene from articles by tumbling them in a heated air stream (see dryer).

(dd) "Reconstruction", for purposes of this Rule, means replacement of a washer, dryer, or reclaimer; or replacement of any components of a dry cleaning system to such an extent that the fixed capital cost of the new components exceeds 50 percent of the fixed capital cost that would be required to construct a comparable new source.

(ee) "Refrigerated condenser" means a vapor recovery system into which an air-perchloroethylene gas vapor stream is routed and the perchloroethylene is condensed by cooling the gas vapor stream.

(ff) "Refrigerated condenser coil" means the coil containing the chilled liquid used to cool and condense the perchloroethylene.

(gg) "Responsible official" means one of the following:

1. For a corporation: A president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more dry cleaning facilities;

2. For a partnership: A general partner;

3. For a sole proprietorship: The owner; or

4. For a municipality, State, Federal, or other public agency: Either a principal executive officer or ranking official.

(hh) "Room enclosure" means a stationary structure that encloses a transfer machine system, and is vented to a carbon adsorber or an equivalent control device during operation of the transfer machine system.

(ii) "Source", for purposes of this Rule, means each dry cleaning system.

(jj) "Still" means any device used to volatilize and recover perchloroethylene from contaminated perchloroethylene.

(kk) "Temperature sensor" means a thermometer or thermocouple used to measure temperature.

(ll) "Transfer machine system" means a multiple-machine dry cleaning operation in which washing and drying are performed in different machines. Examples include, but are not limited to:

1. A washer and dryer(s),

2. A washer and reclaimer(s), or

3. A dry-to-dry machine and reclaimer(s).

(mm) "Washer" means a machine used to clean articles by immersing them in perchloroethylene. This includes a dry-to-dry machine when used with a reclaimer.

(nn) "Water separator" means any device used to recover perchloroethylene from a water-perchloroethylene mixture.

(oo) "Year or Yearly" means any consecutive 12-month period of time.

(3) Standards.

(a) The owner or operator of each existing dry cleaning system and of each new transfer system and its ancillary equipment installed between December 9, 1991, and September 22, 1993," shall comply with either (a)1 or 2 of this Subparagraph and shall comply with (a)3 of this Subparagraph if applicable.

1. Route the air-perchloroethylene gas-vapor stream contained within each dry cleaning machine through a refrigerated condenser or an equivalent control device.

2. Route the air-perchloroethylene gas-vapor stream contained within each dry cleaning machine through a carbon adsorber installed on the dry cleaning machine prior to September 15, 1993.

3. Contain the dry cleaning machine inside a room enclosure if the dry cleaning machine is a transfer machine system located at a major source. Each room enclosure shall be:

(i) Constructed of materials impermeable to perchloroethylene; and

(ii) Designed and operated to maintain a negative pressure at each opening at all times that the machine is operating.

(b) The owner or operator of each new dry cleaning system and its ancillary equipment and each new transfer machine system and its ancillary equipment installed after September 22, 1993:

1. Shall route the air-perchloroethylene gas-vapor stream contained within each dry cleaning machine through a refrigerated condenser or an equivalent control device;

2. Shall eliminate any emission of perchloroethylene during the transfer of articles between the washer and dryer(s); and

3. Shall pass the air-perchloroethylene gas-vapor stream from inside the dry cleaning machine drum through a carbon adsorber or equivalent control device immediately before or as the door of the dry cleaning machine is opened if the dry cleaning machine is located at a major source.

(c) The owner or operator shall close the door of each dry cleaning machine immediately after transferring articles to or from the machine, and shall keep the door closed at all other times.

(d) The owner or operator of each dry cleaning system shall operate and maintain the system according to the manufacturers' specifications and recommendations.

(e) Each refrigerated condenser used for the purposes of complying with Subparagraph (a) or (b) of this Paragraph and installed on a dry-to-dry machine, dryer, or reclaimer:

1. Shall be operated to not vent or release the air-perchloroethylene gas-vapor stream contained within the dry cleaning machine to the atmosphere while the dry cleaning machine drum is rotating;

2. Shall be monitored according to 1200-3-31-.13(4)(a)1; and

3. Shall be operated with a diverter valve, which prevents air drawn into the dry cleaning machine when the door of the machine is open from passing through the refrigerated condenser.

(f) Each refrigerated condenser used for the purpose of complying with subparagraph (a) of this paragraph and installed on a washer:

1. Shall be operated to not vent the air-perchloroethylene gas-vapor contained within the washer to the atmosphere until the washer door is opened;

2. Shall be monitored according to 1200-3-31-.13(4)(a)2; and

3. Shall not use the same refrigerated condenser coil for the washer that is used by a dry-to-dry machine, dryer, or reclaimer.

(g) Each carbon adsorber used for the purposes of complying with Subparagraphs (a) or (b) of this paragraph:

1. Shall not be bypassed to vent or release any air-perchloroethylene gas-vapor stream to the atmosphere at any time; and

2. Shall be monitored according to the applicable requirements in 1200-3-31-.13 (4)(b) or (c).

(h) Each room enclosure used for the purposes of complying with Subparagraph (a)3 of this Paragraph:

1. Shall be operated to vent all air from the room enclosure through a carbon adsorber or an equivalent control device; and

2. Shall be equipped with a carbon adsorber that is not the same carbon adsorber used to comply with Subparagraph (a)2 or (b)3 of this Paragraph.

(i) The owner or operator of an affected facility shall drain all cartridge filters in their housing, or other sealed container, for a minimum of 24 hours, or shall treat such filters in an equivalent manner, before removal from the dry cleaning facility.

(j) The owner or operator of an affected facility shall store all perchloroethylene and wastes that contain perchloroethylene in solvent tanks or solvent containers with no perceptible leaks.

(k) The owner or operator of a dry cleaning system shall inspect the following components weekly for perceptible leaks while the dry cleaning system is operating:

1. Hose and pipe connections, fittings, couplings, and valves;

2. Door gaskets and seatings;

3. Filter gaskets and seatings;

4. Pumps;

5. Solvent tanks and containers;

6. Water separators;

7. Muck cookers;

8. Stills;

9. Exhaust dampers;

10. Diverter valves; and

11. Cartridge filter housings.

(l) The owner or operator of a dry cleaning facility with a total facility consumption below the applicable consumption levels of 1200-3-31-.13(1)(d) or (e) shall inspect the components listed in Subparagraph (k) of this Paragraph biweekly for perceptible leaks while the dry cleaning system is operating.

(m) The owner or operator of a dry cleaning system shall repair all perceptible leaks detected under Subparagraph (k) of this Paragraph within 24 hours. If repair parts must be ordered, either a written or verbal order for those parts shall be initiated within 2 working days of detecting such a leak. Such repair parts shall be installed within 5 working days after receipt.

(n) If parameter values monitored under Subparagraphs (e), (f), or (g) of this Paragraph do not meet the values specified in 1200-3-31-.13(4)(a), (b), or (c), adjustments or repairs shall be made to the dry cleaning system or control device to meet those values. If repair parts must be ordered, either a written or verbal order for such parts shall be initiated within 2 working days of detecting such a parameter value. Such repair parts shall be installed within 5 working days after receipt.

(4) Test methods and monitoring

(a) When a refrigerated condenser is used to comply with 1200-3-31-.13(3)(a)1 or (b)1:

1. The owner or operator shall measure the temperature of the air-perchloroethylene gas-vapor stream on the outlet side of the refrigerated condenser on a dry-to-dry machine, dryer, or reclaimer weekly with a temperature sensor to determine if it is equal to or less than 7.2 ºC (45 ºF). The temperature sensor shall be used according to the manufacturer's instructions and shall be designed to measure a temperature of 7.2 ºC (45 ºF) to an accuracy of ± 1.1 ºC (± 2 ºF).

2. The owner or operator shall calculate the difference between the temperature of the air-perchloroethylene gas-vapor stream entering the refrigerated condenser on a washer and the temperature of the air-perchloroethylene gas-vapor stream exiting the refrigerated condenser on the washer weekly to determine that the difference is greater than or equal to 11.1 ºC (20 ºF).

(i) Measurements of the inlet and outlet streams shall be made with a temperature sensor. Each temperature sensor shall be used according to the manufacturer's instructions, and designed to measure at least a temperature range from 0 ºC (32 ºF) to 48.9 ºC (120 ºF) to an accuracy of + 1.1 ºC (+ 2 ºF).

(ii) The difference between the inlet and outlet temperatures shall be calculated weekly from the measured values.

(b) When a carbon adsorber is used to comply with 1200-3-31-.13(3)(a)2 or exhaust is passed through a carbon adsorber immediately upon machine door opening to comply with 1200-3-31-.13(3)(b)3, the owner or operator shall measure the concentration of perchloroethylene in the exhaust of the carbon adsorber weekly with a colorimetric detector tube, while the dry cleaning machine is venting to that carbon adsorber at the end of the last dry cleaning cycle prior to desorption of that carbon adsorber to determine that the perchloroethylene concentration in the exhaust is equal to or less than 100 parts per million by volume. The owner or operator shall:

1. Use a colorimetric detector tube designed to measure a concentration of 100 parts per million by volume of perchloroethylene in air to an accuracy of ± 25 parts per million by volume; and

2. Use the colorimetric detector tube according to the manufacturer's instructions; and

3. Provide a sampling port for monitoring within the exhaust outlet of the carbon adsorber that is easily accessible and located at least 8 stack or duct diameters downstream from

any flow disturbance such as a bend, expansion, contraction, or outlet; downstream from no other inlet; and 2 stack or duct diameters upstream from any flow disturbance such as a bend, expansion, contraction, inlet, or outlet.

(c) If the air perchloroethylene gas vapor stream is passed through a carbon adsorber prior to machine door opening to comply with 1200-3-31-.13(3)(b)3, the owner or operator of an affected facility shall measure the concentration of perchloroethylene in the dry cleaning machine drum at the end of the dry cleaning cycle weekly with a colorimetric detector tube to determine that the perchloroethylene concentration is equal to or less than 300 parts per million by volume. The owner or operator shall:

1. Use a colorimetric detector tube designed to measure a concentration of 300 parts per million by volume of perchloroethylene in air to an accuracy of ± 75 parts per million by volume; and

2. Use the colorimetric detector tube according to the manufacturer's instructions; and

3. Conduct the weekly monitoring by inserting the colorimetric detector tube into the open space above the articles at the rear of the dry cleaning machine drum immediately upon opening the dry cleaning machine door.

(d) When calculating yearly perchloroethylene consumption for the purpose of demonstrating applicability according to 1200-3-31-.13(1), the owner or operator shall perform the following calculation on the first day of every month:

1. Sum the volume of all perchloroethylene purchases made in each of the previous 12 months, as recorded in the log described in 1200-3-31-.13(5)(d)1.

2. If no perchloroethylene purchases were made in a given month, then the perchloroethylene consumption for that month is zero gallons.

3. The total sum calculated in Subparagraph (d) of this Paragraph is the yearly perchloroethylene consumption at the facility.

(5) Recordkeeping and reporting requirements

(a) Each owner or operator of a dry cleaning facility shall notify the Technical Secretary in writing within 270 calendar days after September 23, 1993 (i.e., June 18, 1994) and provide the following information:

1. The name and address of the owner or operator;

2. The address (that is, physical location) of the dry cleaning facility;

3. A brief description of the type of each dry cleaning machine at the dry cleaning facility;

4. Documentation as described in 1200-3-31-.13(4)(d) of the yearly perchloroethylene consumption at the dry cleaning facility for the previous year to demonstrate applicability according to 1200-3-31-.13(1); or an estimation of perchloroethylene consumption for the previous year to estimate applicability with 1200-3-31-.13(1); and

5. A description of the type of control device(s) that will be used to achieve compliance with 1200-3-31-.13(3)(a) or (b) and whether the control device(s) is currently in use or will be purchased.

6. Documentation to demonstrate to the Administrator's satisfaction that each room enclosure used to meet the requirements of 1200-3-31-.13(3)(a)3 meets the requirements of 1200-3-31-.13(3)(a)3(i) and (ii).

(b) Each owner or operator of a dry cleaning facility shall submit to the Technical Secretary by registered mail on or before the 30th day following the compliance dates specified in 1200-3-31-

.13(1)(b) or (c) or June 18, 1994, whichever is later, a notification of compliance status providing the following information and signed by a responsible official who shall certify its accuracy:

1. The yearly perchloroethylene solvent consumption limit based upon the yearly solvent consumption calculated according to 1200-3-31-.13(4)(d);

2. Whether or not they are in compliance with each applicable requirement of 1200-3-31-.13(3); and

3. All information contained in the statement is accurate and true.

(c) Each owner or operator of an area source dry cleaning facility that exceeds the solvent consumption limit reported in Subparagraph (b) of this paragraph shall submit to the Technical Secretary on or before the dates specified in 1200-3-31-.13(1)(f) or (i), a notification of compliance status providing the following information and signed by a responsible official who shall certify its accuracy:

1. The new yearly perchloroethylene solvent consumption limit based upon the yearly solvent consumption calculated according to 1200-3-31-.13(4)(d);

2. Whether or not they are in compliance with each applicable requirement of 1200-3-31-.13(3); and

3. All information contained in the statement is accurate and true.

(d) Each owner or operator of a dry cleaning facility shall keep receipts of perchloroethylene purchases and a log of the following information and maintain such information on site and show it upon request for a period of 5 years:

1. The volume of perchloroethylene purchased each month by the dry cleaning facility as recorded from perchloroethylene purchases; if no perchloroethylene is purchased during a given month then the owner or operator would enter zero gallons into the log;

2. The calculation and result of the yearly perchloroethylene consumption determined on the first day of each month as specified in 1200-3-31-.13(4)(d);

3. The dates when the dry cleaning system components are inspected for perceptible leaks, as specified in 1200-3-31-.13(3)(k) or (l), and the name or location of dry cleaning system components where perceptible leaks are detected;

4. The dates of repair and records of written or verbal orders for repair parts to demonstrate compliance with 1200-3-31-.13(3)(m) and (n);

5. The date and temperature sensor monitoring results, as specified in 1200-3-31-.13(4) if a refrigerated condenser is used to comply with 1200-3-31-.13(3)(a) or (b); and

6. The date and colorimetric detector tube monitoring results, as specified in 1200-3-31-.13(4), if a carbon adsorber is used to comply with 1200-3-31-.13(3)(a)2 or (b)3.

(e) Each owner or operator of a dry cleaning facility shall retain onsite a copy of the design specifications and the operating manuals for each dry cleaning system and each emission control device located at the dry cleaning facility.

(6) Determination of equivalent emission control technology

(a) Any person requesting that the use of certain equipment or procedures be considered equivalent to the requirements under 1200-3-31-.13(3) shall collect, verify, and submit to the Technical Secretary and Administrator the following information to show that the alternative achieves equivalent emission reductions:

1. Diagrams, as appropriate, illustrating the emission control technology, its operation and integration into or function with dry-to-dry machine(s) or transfer machine system(s) and their ancillary equipment during each portion of the normal dry cleaning cycle;

2. Information quantifying vented perchloroethylene emissions from the dry-to-dry machine(s) or transfer machine system(s) during each portion of the dry cleaning cycle with and without the use of the candidate emission control technology;

3. Information on solvent mileage achieved with and without the candidate emission control technology. Solvent mileage is the average weight of articles cleaned per volume of perchloroethylene used. Solvent mileage data must be of continuous duration for at least 1 year under the conditions of a typical dry cleaning operation. This information on solvent mileage must be accompanied by information on the design, configuration, operation, and maintenance of the specific dry cleaning system from which the solvent mileage information was obtained;

4. Identification of maintenance requirements and parameters to monitor to ensure proper operation and maintenance of the candidate emission control technology;

5. Explanation of why this information is considered accurate and representative of both the short-term and the long-term performance of the candidate emission control technology on the specific dry cleaning system examined;

6. Explanation of why this information can or cannot be extrapolated to dry cleaning systems other than the specific system(s) examined; and

7. Information on the cross-media impacts (to water and solid waste) of the candidate emission control technology and demonstration that the cross-media impacts are less than or equal to the cross-media impacts of a refrigerated condenser.

(b) For the purpose of determining equivalency to control equipment required under 1200-3-31-.13(3), the Technical Secretary and the Administrator will evaluate the petition to determine whether equivalent control of perchloroethylene emissions has been adequately demonstrated.

(c) Where the Technical Secretary and the Administrator determine that certain equipment and procedures may be equivalent, the Administrator will publish a notice in the Federal Register proposing to consider this equipment or these procedures as equivalent. After notice and opportunity for public hearing, the Administrator will publish the final determination of equivalency in the Federal Register.

Authority: T.C.A. §§ 68-201-101 et seq. and 4-5-201 et seq.

* If a roll-call vote was necessary, the vote by the Agency on these rulemaking hearing rules was as follows:

Board Member	Aye	No	Abstain	Absent	Signature (if required)
Dr. Ronné Adkins Commissioner's Designee, Dept. of Environment and Conservation					
Dr. John Benitez Licensed Physician with experience in health effects of air pollutants					
Dr. Joshua Fu Involved with Institution of Higher Learning on air pollution evaluation and control					
Mike Haverstick Working in management in Private Manufacturing					
Dr. Shawn A. Hawkins Working in field related to Agriculture or Conservation					
Richard Holland Working for Industry with technical experience					
Caitlin Roberts Jennings Small Generator of Air Pollution representing Automotive Interests					
Dr. Chunrong Jia Environmental Interests					
Ken Moore Working in Municipal Government					
Stephen Moore Working for Industry with technical experience					
Amy Spann, PE Registered Professional Engineer					
Greer Tidwell, Jr. Conservation Interest					
Larry Waters County Mayor					
Jimmy West Commissioner's Designee, Dept. of Economic and Community Development					

I certify that this is an accurate and complete copy of rulemaking hearing rules, lawfully promulgated and adopted by the Air Pollution Control Board on 06/08/2022 and is in compliance with the provisions of T.C.A. § 4-5-222.

I further certify the following:

Notice of Rulemaking Hearing filed with the Department of State on: 10/20/2021

Rulemaking Hearing(s) Conducted on: (add more dates). 12/15/2021

Date: _____

Signature: _____

Name of Officer: Michelle W. Owenby

Title of Officer: Technical Secretary

Agency/Board/Commission: Air Pollution Control Board

Rule Chapter Number(s): 0400-30-38, 1200-03-02, 1200-03-04, 1200-03-05, 1200-03-09, 1200-03-11, 1200-03-16, 1200-03-20, 1200-03-21, 1200-03-26, and 1200-03-31

All rulemaking hearing rules provided for herein have been examined by the Attorney General and Reporter of the State of Tennessee and are approved as to legality pursuant to the provisions of the Administrative Procedures Act, Tennessee Code Annotated, Title 4, Chapter 5.

_____
Herbert H. Slatery III
Attorney General and Reporter

_____
Date

Department of State Use Only

Filed with the Department of State on: _____

Effective on: _____

_____
Tre Hargett
Secretary of State

Public Hearing Comments

One copy of a document that satisfies T.C.A. § 4-5-222 must accompany the filing.

1. Comment: The Division of Air Pollution Control (Division), on behalf of Air Pollution Control Board (Board), received a comment from the Tennessee Chamber of Commerce and Industry (Chamber). The comment stated that the Chamber understands that the purpose of the proposed amendment is to incorporate the National Emissions Standards for Hazardous Air Pollutants (NESHAP) by reference to create more efficiency for the Division since these requirements cannot be enforced unless they are adopted in the state regulations or referenced in permits. However, it was presented to the Board that the Board would still be required to adopt the standards each year and thus would have the opportunity to review and consider whether the exact federal standards are best for Tennessee or whether a variation (equally as stringent) is more appropriate. The Chamber asked for clarification on how the Division will ensure that any future amendment of the NESHAP standards will be subject to review and approval of the Board prior to adoption in Tennessee.

   Response: The Division intends to keep Chapter 0400-30-38 current with the comparable federal regulations by updating Chapter 0400-30-38 on an annual basis. Any future revision to Chapter 0400-30-38 would require a rulemaking hearing notice to be filed with the Office of the Secretary of State and a rulemaking hearing prior to consideration by the Board.

Regulatory Flexibility Addendum

Pursuant to T.C.A. §§ 4-5-401 through 4-5-404, prior to initiating the rule making process, all agencies shall conduct a review of whether a proposed rule or rule affects small business.

(1) The type or types of small business and an identification and estimate of the number of small businesses subject to the proposed rule that would bear the cost of, or directly benefit from the proposed rule.

Small businesses are already subject to the National Emissions Standards for Hazardous Air Pollutants (NESHAP) that the Board is incorporating by reference. It is estimated that less than 250 small businesses per year are subject to the current NESHAP and likewise subject to this rulemaking.

(2) The projected reporting, recordkeeping, and other administrative costs required for compliance with the proposed rule, including the type of professional skills necessary for preparation of the report or record.

This rulemaking does not add any additional reporting, recordkeeping, and other administrative costs. The NESHAP already require reporting and recordkeeping. There is some skill necessary for preparing reports and records. An employee at a small business with a degree in engineering or environmental studies would generally prepare the reports or records; however, a college degree is not necessary.

(3) A statement of the probable effect on impacted small businesses and consumers.

This rulemaking will not impose any additional requirements on small businesses currently subject to the NESHAP.

(4) A description of any less burdensome, less intrusive or less costly alternative methods of achieving the purpose and objectives of the proposed rule that may exist, and to what extent the alternative means might be less burdensome to small business.

The Division of Air Pollution Control on behalf of the Board evaluated how the other states in EPA Region IV were enforcing NESHAP. All states in EPA Region IV other than Tennessee have incorporated the NESHAP regulations by reference. Also, the EPA has recommended adoption by reference.

(5) A comparison of the proposed rule with any federal or state counterparts.

The other seven states in EPA Region IV have adopted NESHAP regulations by reference. This rulemaking will have no impact on attracting or detracting economic activity in Tennessee.

(6) Analysis of the effect of the possible exemption of small businesses from all or any part of the requirements contained in the proposed rule.

There is no exemption available for small businesses from the requirements of the NESHAP since these regulations are based on the type and amount of air pollutants emitted from a source. The only way for a small business to no longer be subject to the requirements of the NESHAP would be to eliminate the emission of air pollutants from the source.

Impact on Local Governments

Pursuant to T.C.A. §§ 4-5-220 and 4-5-228, “On any rule and regulation proposed to be promulgated, the proposing agency shall state in a simple declarative sentence, without additional comments on the merits for the policy of the rule or regulation, whether the rule or regulation may have a projected financial impact on local governments.” The statement shall describe the financial impact in terms of increase in expenditures or decrease in revenues.”

The Board does not believe this rulemaking will result in an increase in expenditures or decrease in revenues for local governments.

Additional Information Required by Joint Government Operations Committee

All agencies, upon filing a rule, must also submit the following pursuant to T.C.A. § 4-5-226(i)(1).

(A) A brief summary of the rule and a description of all relevant changes in previous regulations effectuated by such rule;

The proposed amendments to Chapter 0400-30-38 will incorporate by reference all National Emission Standards for Hazardous Air Pollutants (NESHAP) from 40 C.F.R. Parts 61 and 63. Currently, the requirements of a NESHAP must be placed in a permit before the State of Tennessee can enforce them. The Tennessee Air Pollution Control Board (Board) proposes to repeal all of Chapter 1200-03-11 and one rule in Chapter 1200-03-31, which currently reproduce some, but not all, of the NESHAP regulations. The proposed rule will incorporate by reference the federal NESHAP regulations and allow the Technical Secretary of the Board to enforce these federal regulations directly. In addition, current references in other rules to Chapter 1200-03-11 will be revised to reference to Chapter 0400-30-38.

(B) A citation to and brief description of any federal law or regulation or any state law or regulation mandating promulgation of such rule or establishing guidelines relevant thereto;

Pursuant to Clean Air Act section 112, Tennessee is required to enforce the NESHAP as part of its federally authorized air program and incorporating the NESHAP into Chapter 0400-30-38 will streamline permitting and compliance-related evaluations. According to Tennessee Code Annotated section 68-201-103 the intent an purpose of Tennessee Code Annotated Title 68, Chapter 201, Part 1 is to maintain purity of the air resources of the state consistent with the protection of normal health, general welfare, and physical property of the people, maximum employment and the full industrial development of the state and for the Board to do so through the prevention, abatement, and control of air pollution by all practical and economically feasible methods.

(C) Identification of persons, organizations, corporations or governmental entities most directly affected by this rule, and whether those persons, organizations, corporations or governmental entities urge adoption or rejection of this rule;

Persons, organizations, corporations, or governmental entities most directly affected by this rule are regulated facilities that are subject to the NESHAP. The Air Pollution Control Board has not received any indication from these persons that they object to this rulemaking. The U.S. Environmental Protection Agency is a proponent of this rulemaking.

(D) Identification of any opinions of the attorney general and reporter or any judicial ruling that directly relates to the rule or the necessity to promulgate the rule;

The Board is not aware any.

(E) An estimate of the probable increase or decrease in state and local government revenues and expenditures, if any, resulting from the promulgation of this rule, and assumptions and reasoning upon which the estimate is based. An agency shall not state that the fiscal impact is minimal if the fiscal impact is more than two percent (2%) of the agency's annual budget or five hundred thousand dollars ($500,000), whichever is less;

This rulemaking will not increase or decrease state or local government revenues and expenditures.

(F) Identification of the appropriate agency representative or representatives, possessing substantial knowledge and understanding of the rule;

Mark A. Reynolds
Division of Air Pollution Control
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 15th Floor
Nashville, Tennessee 37243
(615) 532-0559
mark.a.reynolds@tn.gov

(G) Identification of the appropriate agency representative or representatives who will explain the rule at a scheduled meeting of the committees;

Horace Tipton
Legislative Liaison
Office of General Counsel

(H) Office address, telephone number, and email address of the agency representative or representatives who will explain the rule at a scheduled meeting of the committees; and

Office of General Counsel
Tennessee Department of Environment and Conservation
William R. Snodgrass Tennessee Tower
312 Rosa L. Parks Avenue, 2nd Floor
Nashville, Tennessee 37243
(615) 253-5339
Horace.Tipton@tn.gov

(I) Any additional information relevant to the rule proposed for continuation that the committee requests.

(1) A description of the action proposed, the purpose of the action, the legal authority for the action and the plan for implementing the action.

The action proposed is to incorporate by reference all National Emission Standards for Hazardous Air Pollutants (NESHAP) from 40 CFR Parts 61 and 63. The proposed rule will incorporate by reference the NESHAP regulations and allow the Technical Secretary of the Board to enforce these federal regulations directly instead of including them in individual permits. The statutory authority for this rulemaking is Tennessee Code Annotated Title 68, Chapter 201, Part 1. The NESHAP regulations protect public health by limiting the emissions of air pollution. These rules effectuate the intent of Tennessee Code Annotated section 68-201-103 “to maintain purity of the air resources of the state consistent with the protection of normal health, general welfare and physical property of the people, maximum employment and the full industrial development of the state” and for the board to do so “through the prevention, abatement and control of air pollution by all practical and economically feasible methods.”

(2) A determination that the action is the least-cost method for achieving the stated purpose.

This rulemaking is believed to be the least-cost method for the State to enforce the NESHAP regulations. The Division of Air Pollution Control (Division) evaluated how the other states in EPA Region IV were enforcing the NESHAP regulations. The other seven states in EPA Region IV have incorporated the NESHAP regulations by reference. Also, the EPA has recommended adoption by reference.

(3) A comparison of the cost-benefit relation of the action to nonaction.

This rulemaking incorporates by reference all federal NESHAP and authorizes the Technical Secretary to enforce these regulations directly. There will be no additional costs associated with the proposed rule. Regulated facilities are already required to comply with the most current version of the NESHAP regardless of whether they are incorporated in a permit, because EPA has authority under Clean Air Act section 112 to enforce the federal NESHAP regulations in states. If the rules are not promulgated, the Technical Secretary will not be able to enforce the NESHAP directly in the event that a permit for a regulated source has not yet been issued or must be revised to incorporate the relevant NESHAP provisions. Based on this comparison, the benefits of moving forward with this rulemaking outweigh the costs.”

(4) A determination that the action represents the most efficient allocation of public and private resources.

This action represents the most efficient allocation of public and private resources. The NESHAP regulations help protect public health by limiting the emissions of air pollution. By making these changes, the Board will full incorporate the federal regulations so that they can be directly enforced by the Technical Secretary.

(5) A determination of the effect of the action on competition.

This rulemaking will not affect competition.

(6) A determination of the effect of the action on the cost of living in the geographical area in which the action would occur.

Cost of living in the geographical area in which the action would occur will not be affected.

(7) A determination of the effect of the action on employment in the geographical area in which the action would occur.

It is not anticipated that the action will affect employment.

(8) The source of revenue to be used for the action.

The action can be accommodated with existing resources.

(9) A conclusion as to the economic impact upon all persons substantially affected by the action, including an analysis containing a description as to which persons will bear the costs of the action and which persons will benefit directly and indirectly from the action.

There will be no additional costs associated with this rulemaking. Regulated facilities are already required to comply with the most current version of the NESHAP regulations regardless of whether they are incorporated in a permit, because EPA has authority under Clean Air Act section 112 to enforce the NESHAP regulations in states. However, this rule will allow the Technical Secretary to enforce the most current version of the federal requirements even if the provisions of the current version have not been incorporated into a permit.

TN SIP REVISION
MAINTENANCE PLAN UPDATE

for the

Bristol, Tennessee Lead (Pb) Area

Prepared by the
Tennessee Department of Environment and Conservation Air Division

April 12, 2022

DRAFT

SUMMARY

Through a cover letter dated July 10, 2015, the State of Tennessee submitted a redesignation request and maintenance plan for the portion of Sullivan County, Tennessee that was designated nonattainment for the 2008 lead national ambient air quality standards (NAAQS). This area is known as the Bristol Tennessee Area. On July 7, 2016, EPA approved this redesignation request and maintenance plan, and consequently redesignated the Bristol Tennessee area to attainment for the 2008 lead NAAQS. As discussed below, the State of Tennessee is submitting this SIP revision to request EPA approval of updates to the maintenance plan for the Bristol Tennessee Area to remove the lead monitoring requirements and related contingency measure triggers as stipulated in Requirement 4 of 4 in Chapter 3 and Requirement 2 of 4 in Chapter 6 of the original SIP revision.

Maintenance Plan Updates

As discussed above, Tennessee is submitting this SIP revision to revise requirement 4 of 4 in Chapter 3 of the original SIP revision which provided the maintenance plan for the Bristol Tennessee Area. Specifically, Chapter 3, Requirement 4 of 4 reads:

Chapter 3 - Requirement 4 of 4
A commitment that once redesignated, the state will continue to operate an appropriate monitoring network to verify the maintenance of the attainment status.

Demonstration
TDAPC commits to continue monitoring lead levels at this site as indicated in Figures 3-1, 3-2, and Table 1. 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. TDAPC will continue to quality assure the monitoring data to meet the requirements of 40 CFR Part 58 and all other federal requirements. TDAPC will enter all data into AQS on a timely basis in accordance with federal guidelines.

TDAPC is now requesting that this language be revised to read:

Requirement 4 of 4
A commitment that the state will operate an appropriate monitoring network to verify the maintenance of the attainment status.

Demonstration
TDAPC commits to resume monitoring if monitoring is required by the Pb monitoring 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. 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.

Tennessee is also submitting this SIP revision to revise requirement 2 of 4 in Chapter 6 of the original SIP revision which provided the maintenance plan for the Bristol Tennessee Area. Specifically, Chapter 6, Requirement 2 of 4 reads:

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.

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 µg/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.

TDAPC is now requesting that this language be revised to read:

Chapter 6 - Requirement 2 of 4
A commitment to expeditiously enact and implement additional contingency control measures in response to future violations of the ambient standard.

Demonstration
If a requirement for a monitor is triggered in the future based on Chapter 3, Requirement 4 of 4, 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 µg/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.

TECHNICAL SUPPORT FOR REQUEST SIP REVISION

Due to several changes that have happened in the Bristol Tennessee Area, the State of Tennessee does not believe that it is necessary to continue to conduct ambient air quality monitoring in this Area to demonstrate continued maintenance of the 2008 lead NAAQS. First, the lead source has shut down and the permit has been rescinded. Additionally, monitoring trends in the Area have confirmed that the area is continuing to demonstrate attainment of the NAAQS after the shutdown of the sources. Finally, there has been recent soil sampling at and around the site that demonstrates that there are not lead soil issues which could be disturbed and cause subsequent exceedances or violations of the 2008 lead NAAQS. Below, TDAPC hereby presents the area lead (Pb) monitoring trend, soil sampling and technical demonstration for this maintenance plan update.

Bristol Lead 10-Year Monitoring Data Analysis

The State began monitoring for lead at the Exide site (47-163-3004) on January 1, 2010, to verify NAAQS compliance as required by 40 CFR Part 58 Subpart G, Appendix D. The source-oriented sampling site is located at 364 Exide Drive, Bristol TN 37620. Lead sampling is conducted on a 1 in 6-day frequency using the federal equivalent method EQL-0512-201. On November 22, 2010, the Bristol Tennessee Area, surrounding the Exide facility, was designated nonattainment for the 2008 lead NAAQS based on the current 3-year design value exceeding the 0.15 microgram per cubic meter (µg/m^3) standard. The former lead source surrendered its air permits in November 2014 and no other lead source is in the area. On July 7, 2016, the Bristol Tennessee Area was redesignated to attainment for the 2008 lead NAAQS based on monitoring data at the Exide site. Since that time, the monitor has demonstrated attainment of the 2008 lead NAAQS. Lead data was acquired on 2/1/2022 from the EPA's Air Quality System (AQS) for the previous 10 calendar years. The lead design value data is provided below.

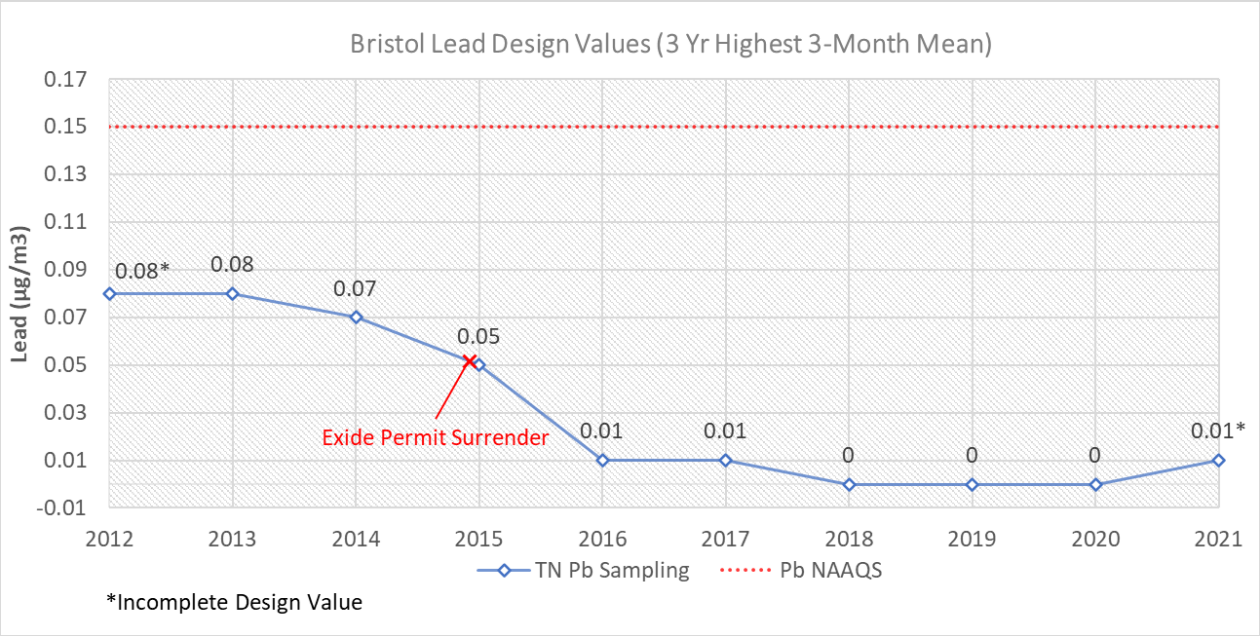


Figure 1: Lead 3-Yr Design Values for the Most Recent 10-yr Period

	3-Year Design Value (µg/m³)	3-Year DV Validity Indicator	3-Year Maximum Month
2012	0.08	N	6
2013	0.08	Y	6
2014	0.07	Y	2
2015	0.05	Y	1
2016	0.01	Y	1
2017	0.01	Y	1
2018	0.00	Y	1
2019	0.00	Y	1
2020	0.00	Y	1
2021	0.01	N	6

Table 1: Lead 3-Yr Design Values for the Most Recent 10-yr Period

Since the source shutdown and surrendered its air permits, 24-hr ambient concentrations of lead, as measured by the primary sampler, have averaged 0.006 µg/m³ with a maximum 24-hr value of 0.077 µg/m³ (4/30/2015). Three-year design values that do not include years of battery plant operation (2016-2021) have been at or near zero concentrations.

Soil Sampling

On November 16 and 17, 2020, a Limited Site Investigation that included soil sampling for lead, was conducted by Key Engineering Group and Strata Group, of Lexington, Kentucky. Sampling was conducted outside the former lead battery plant by taking a total of 18 soil samples from depths between 0 to 15.5 feet below ground. Soil samples were analyzed for lead using Method 6016D and sulfate using Method 9056A by Eurofins Test America of University Park, Illinois. The analysis concluded that the historical Exide operations did not result in a release to the

soils outside the building; lead levels were detected below the residential and industrial regional screening levels (RSLs).

Demonstration

The Area is currently well maintained with respect to the Lead NAAQS and the main and only lead (Pb) emitting source, the Exide Technologies, has ceased operations and permanently shut down in November 2014. Continued lead monitoring at this location is not necessary as there is no current existence of any lead emitting source in this maintenance area. Based on the last 6 years (2016-2021) of lead monitoring data analysis since the shutdown of the Exide facility, ambient lead concentrations were extremely low ranging between zero and 0.01 ug/m^3 and the latter is indicative of a natural background nature. Additionally, particulate soil deposits accumulated over the years were tested and addressed in a recent 2020 soil testing report as indicated above. This soil testing report (see attachment for Limited Site Investigation by KEY engineering group – separate file) was conducted in anticipation of selling the Exide property to a potential buyer. The highest reported lead level among the 14 test samples is 50 mg/kg, which is well below the EPA-recommended regional screening levels (RSL) of 400 mg/kg (Residential RSL) and 800 mg/kg (Industrial RSL).

Further, as mentioned above, TDAPC commits to resume monitoring if monitoring is required by the Pb monitoring 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.

DRAFT

KEY ENGINEERING GROUP LTD.
A Division of SET Environmental Inc.
735 North Water Street, Suite 510
Milwaukee, Wisconsin 53202
Phone (414) 224-8300
Fax (414) 224-8383

December 10, 2020

Mr. Frank Crivello
Phoenix Investors
401 East Kilbourn Avenue, Suite 201
Milwaukee, Wisconsin 53202

Via Email: frank@phoenixinvestors.com

Subject: *Limited Site Investigation*
Former Exide Technologies
364 Exide Drive
Bristol, Tennessee

KEY ENGINEERING GROUP, LTD.
File No. 2001-0212-0040

Dear Mr. Crivello:

Key Engineering Group, Ltd. (KEY) has prepared this report to present the results of a *Limited Site Investigation* completed at the former Exide Technologies (Exide) property located at 364 Exide Drive, in Bristol, Tennessee (Site) (Figure 1). The *Limited Site Investigation* was completed as part of the due diligence phase for a potential purchase of the property. The main concern of the Phase II was to determine if the subject site had been impacted significantly with lead due to the long-term use by Exide and whether those impacts could represent significant liability. A Baseline Environmental Assessment was not completed at this time due to time constraints. A Phase I Environmental Site Assessment was completed on December 10, 2020 that identified the follow recognized environmental condition (REC) related to the former Exide operations:

- Exide Technologies operated at the subject site from 1994 to 2013 for the manufacturing of batteries. Potential constituents of concern related to Exide based on a review of multiple files includes lead, sulfuric acid, arsenic, antimony, barium sulfate, sodium hydroxide, virgin and waste oil, and tetrachloroethylene were used in the manufacturing of batteries. The use of these products and waste management practice violations are considered a REC.

INVESTIGATION ACTIVITIES

A *Limited Site Investigation* was completed by KEY between November 16 and 17, 2020. The investigation was completed onsite and outside of the footprint of the building. Investigation activities were not completed inside the building since the power to the building was shut down by Exide, hence limiting access and visibility in the building. Below is a summary of the investigation activities and field procedures.

Investigation Activities

Between November 16 and 17, 2020, KEY provided oversight Strata Group, of Lexington, Kentucky to advance 15 soil borings (GP-1 through GP-15) using a direct push drill rig. Soil boring locations are presented on Figure 2. The boring locations were selected to evaluate the soil lead and sulfate quality across the Site. The investigation was limited to lead and sulfate since these are the primary constituents of concern at this time based on Exide's historical operations.

The borings were advanced to 5 feet below ground surface (bgs) with the exception of seven borings which were advanced to refusal. The borings were advanced using a Geoprobe Large Bore Soil Sampler. Soil samples were collected by driving a steel sampling rod (sampler) with acetate liners to the desired sampling depth using the hydraulic ram and hammer on the Geoprobe rig. Once the sampler reaches the desired depth, the sampler was opened by removing a stop pin in the sampler. The sampler was driven an additional 5 feet to push a soil sample into the sampler, preserving the sample in a 1-inch by 5-foot acetate liner inside the sampler. The acetate sleeves will allow continuous collection of soil samples from each boring. Boring logs are included in Attachment 1.

KEY described the soil properties and field screened each 2-foot soil interval for organic vapors using a photoionization detector (PID). KEY selected one to two soil samples per boring for laboratory analysis. The soil samples were collected from within the upper two feet below grade and the interval located directly above the soil-bedrock interface. Soil samples were analyzed for lead using Method 6010D and sulfate using Method 9056A by Eurofins TestAmerica (Eurofins) of University Park, Illinois. Soil analytical results are presented in Table 1. The soil laboratory report is presented in Attachment 2.

On November 17, 2020, KEY collected one water sample from the Storm Water Outfall located on the south of Exide Drive and one sediment sample from the just outside the Storm Water Outfall. The locations of the samples are presented on Figure 2. The water sample was submitted for laboratory analysis of lead using Method 6010D, sulfate using Method 9056A, and pH using Method SM4500 by Eurofins. The sediment sample was submitted for laboratory analysis of lead using Method 6010D and sulfate using Method 9056A. The sediment and water analytical results are presented in Tables 2 and 3, respectively. The sediment and water laboratory reports are presented in Attachments 2 and 3, respectively.

SOIL AND GROUNDWATER STANDARDS

Tennessee does not promulgate standards for any contaminant in any medium except tap water. For screening purposes, Tennessee uses regional screening values from the US Environmental Protection Agency (EPA). Tennessee screens for groundwater contamination by comparing concentrations to federal or state tap water maximum contaminant levels (MCLs).

INVESTIGATION FINDINGS AND CONCLUSIONS

Below is a summary of the geology, hydrogeology, field screening results, analytical results, findings, and conclusions.

Geology and Hydrogeology

The geology was generally described as yellowish brown or reddish brown silty clay. Red and gray mottling were also observed. Refusal was encountered at GP-1 at 15.5 feet, GP-4 at 10 feet, GP-5 at 9.5 feet, GP-7 at 12 feet, GP-9 at 1 foot, GP-11 at 7.5 feet, and GP-13 at 2.5 feet. Based on previous investigations, refusal was interpreted as bedrock. The field screening results ranged from 0 to 1.6 parts per million. These field screening results are at or below background levels. Groundwater was not encountered in the unconsolidated soils.

Soil, and Storm Water Outfall Investigation

Below is a summary of the analytical results, findings, and conclusions.

Soil Analytical Results

A total of 18 soil samples were analyzed for lead and sulfate from depths between 0 to 15.5 feet bgs. A summary of the soil analytical results is presented in Table 1. Sample locations are presented on Figure 2.

- Lead was detected between 8.9 mg/kg and 50 mg/kg. Lead was detected below the residential and industrial regional screening levels (RSLs) of 400 milligrams per kilogram (mg/kg) and 800 mg/kg in the samples. Based on the detected lead concentrations, it does appear that the Exide historical operations have not resulted in a release to the soils outside the building footprint.

- Sulfate concentrations were detected between 2.4 mg/kg to 75 mg/kg, with the exception of concentrations detected at 160 mg/kg (GP-4 from 0.5 to 2 feet), 250 mg/kg (GP-13 from 0 to 2 feet), and 350 mg/kg (GP-8 from 0.5 to 2 feet).

  There are no EPA RSLs for sulfate. However, a box plot can be used to evaluate the distribution of a dataset and determine if outliers exist. A sulfate box plot is presented as Figure 3. Based on the dataset, the upper and lower outlier limits were calculated at -73 mg/kg and 152 mg/kg. This would mean that the sulfate concentrations from GP-4, GP-13, and GP-8 are outliers.

Storm Water Outfall Analytical Results

A Storm Water Outfall is located south of Exide Drive. A water sample was collected for total lead, sulfate, and pH and a sediment sample was collected from just outside the Storm Water Outfall pipe for lead and sulfate. A summary of the sediment and water analytical results are presented in Tables 1 and 2, respectively. Sample locations are presented on Figure 2.

- In the water sample, total lead was reported below laboratory detection limits at <0.0027 milligrams per liter (mg/L). Sulfate was detected at 34 mg/L and pH was reported at 7.1. The source of the sulfate is likely not from a release of sulfuric acid since the pH is neutral.
- In the sediment sample, lead was detected below the residential and industrial RSLs at 32 mg/kg. Sulfate was detected at 20 mg/kg, which is within the upper and lower outlier limits discussed above.
- Based on these concentrations, it does not appear that lead or sulfuric acid have been discharged through this outfall.

FINDINGS, CONCLUSIONS & RECOMMENDATIONS

Based on the field observations and analytical results, the following conclusions and recommendations can be made.

- The geology is generally described as yellowish brown or reddish brown silty clay. Refusal was encountered between 1 and 15.5 feet bgs. Refusal was interpreted as bedrock based on previous investigations conducted at the Site.
- The field screening results are at or below background levels.
- Groundwater water not encountered in the unconsolidated soils.
- Lead was detected below the residential and industrial RSLs in the 18 soil samples collected onsite outside the footprint of the building. It does not appear that there has been a release of lead to subsurface soils from the historical Exide operations.
- Sulfate concentrations were detected at low levels, with the exception of three samples where the concentrations were calculated as potential outliers in the dataset. These outlier concentrations ranged from 160 mg/kg to 350 mg/kg at GP-4, GP-8, and GP-13. There are no EPA RSLs for sulfate. Further evaluation, including background sampling, may be warranted to determine if these data point locations may represent a potential release of sulfuric acid.
- The water and sediment analytical results from the Storm Water Outfall located south of Exide Drive are not indicative of release of lead or sulfuric acid from historical Exide operations.

Sincerely,

KEY ENGINEERING GROUP, LTD.

Toni Schoen

Toni Schoen
Senior Project Manager

Kenneth W. Wein, CHMM
Principal

Attachments

Table 1	Soil and Sediment Analytical Results
Table 2	Stormwater Outfall Analytical Results
Figure 1	Site Location Map
Figure 2	Soil Boring Locations and Groundwater Analytical (2013)
Figure 3	Soil Sulfate Box Plot
Attachment 1	Soil Boring Logs
Attachment 2	Soil and Sediment Laboratory Reports
Attachment 3	Stormwater Outfall Laboratory Report

Tables

Key Engineering Group, Ltd.

Table 1. Soil and Sediment Analytical Results

Former Exide Technologies, 364 Exide Drive, Bristol, Tennessee

Sample ID	Residential Regional Screening Level	Industrial Regional Screening Level	GP-1		GP-2	GP-4	GP-5		GP-6	GP-7		GP-8	GP-9	GP-10	GP-11	
Sample Depth (feet bgs)			0-2	14-15.5	0.5-2	0.5-2	0-2	8-9.5	0-2	0.5-2	10-12	0.5-2	0.5-1	0-2	0-2	6-7.5
Sample Date			11/16/20	11/16/20	11/16/20	11/16/20	11/16/20	11/16/20	11/16/20	11/16/20	11/16/20	11/16/20	11/16/20	11/17/20	11/17/20	11/17/20
Sample Type			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Analyses (mg/kg)																
Lead	400	800	25 F1	17	26	30	41	43	21	24	23	8.9	27	50	18	23
Sulfate	---	---	20	21	27	160	17	7.7	10	75	2.4 J	350	61	6.5	65	29

--- - no standard established

F1 - matrix spike and matrix spike duplicate recovery exceeds control limits

J - Result is less than the reporting limit but greater than or equal to the method detection limit and the concentration is an approximate value.

mg/kg - milligrams per kilogram

Table 1. Soil and Sediment Analytical Results

Former Exide Technologies, 364 Exide Drive, Bristol, Ten

Sample ID	Residential Regional Screening Level	Industrial Regional Screening Level	GP-12	GP-13	GP-14	GP-15	Storm Sewer Outfall
Sample Depth (feet bgs)			0-2	0-2	0-2	0-2	0-1
Sample Date			11/17/20	11/17/20	11/17/20	11/17/20	11/17/20
Sample Type			Soil	Soil	Soil	Soil	Sediment
Analyses (mg/kg)							
Lead	400	800	9.6	11	35	27	32
Sulfate	---	---	41	250	15	12	20

--- - no standard established

F1 - matrix spike and matrix spike duplicate recovery exceeds

J - Result is less than the reporting limit but greater than or eq

mg/kg - milligrams per kilogram

Table 2. Storm Sewer Outfall Water Analytical Results

Former Exide Technologies, 364 Exide Drive, Bristol, Tennessee

Sample ID	Maximum Contaminant Level	Storm Sewer Outfall
Analyses		
Lead (mg/L)	15,000	<0.0027
Sulfate (mg/L)	---	34
pH (SU)	---	7.1 HF

Values were compared to US Environmental Protection Agency Regional Screening Levels, November 2020

--- - no standard established

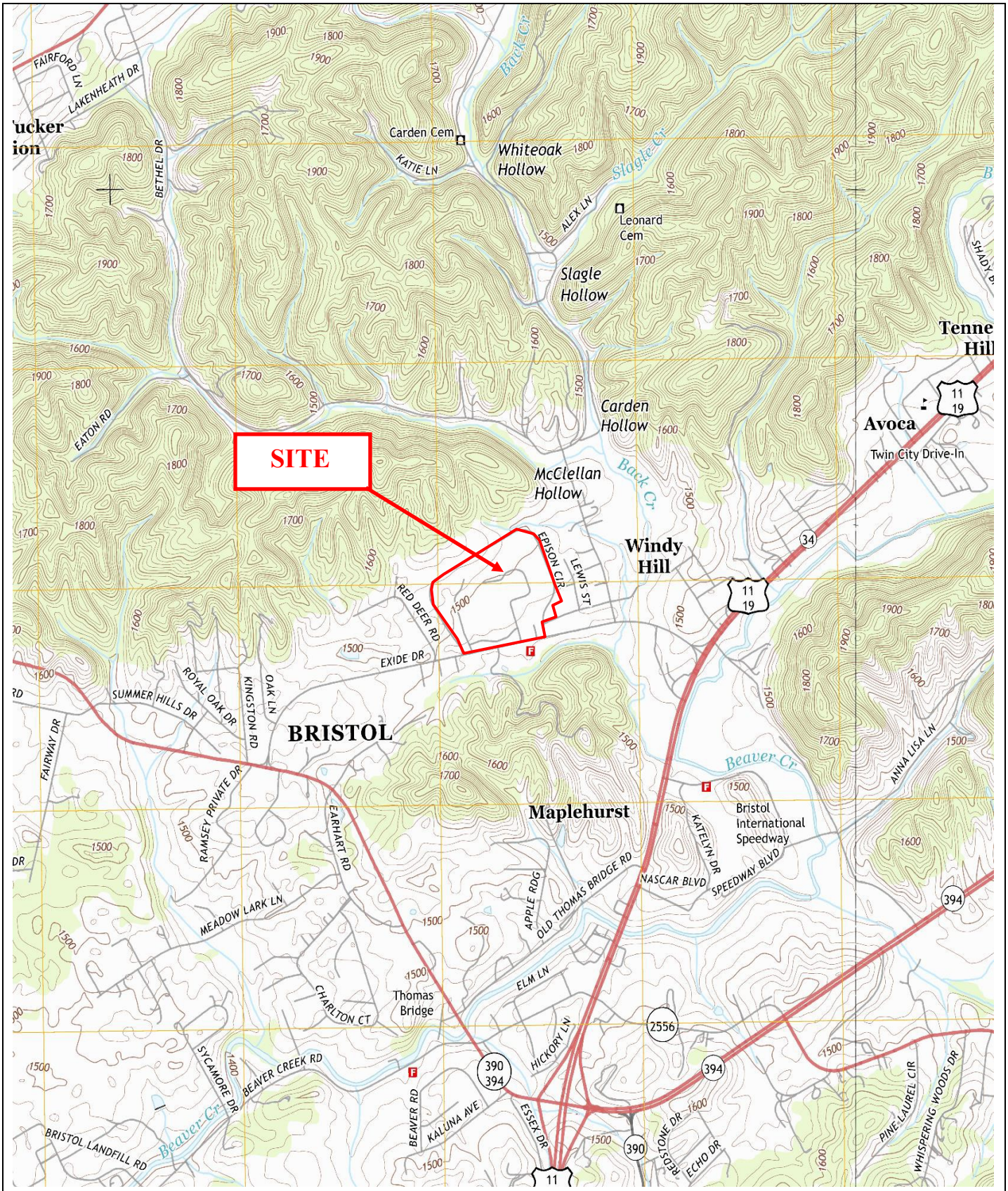
HF - field parameter with a holding time of 15 minutes.

mg/L - milligrams per liter

SU - standard unit

Figures

Key Engineering Group, Ltd.



Project:	2001-0212-0034
Map Source:	United States Geologic Survey
Map Date:	2013
Quadrangle Map:	Blountville, Tennessee

FIGURE 1
SITE LOCATION MAP
364 EXIDE DRIVE
BRISTOL, TENNESSEE

KEY ENGINEERING GROUP LTD.
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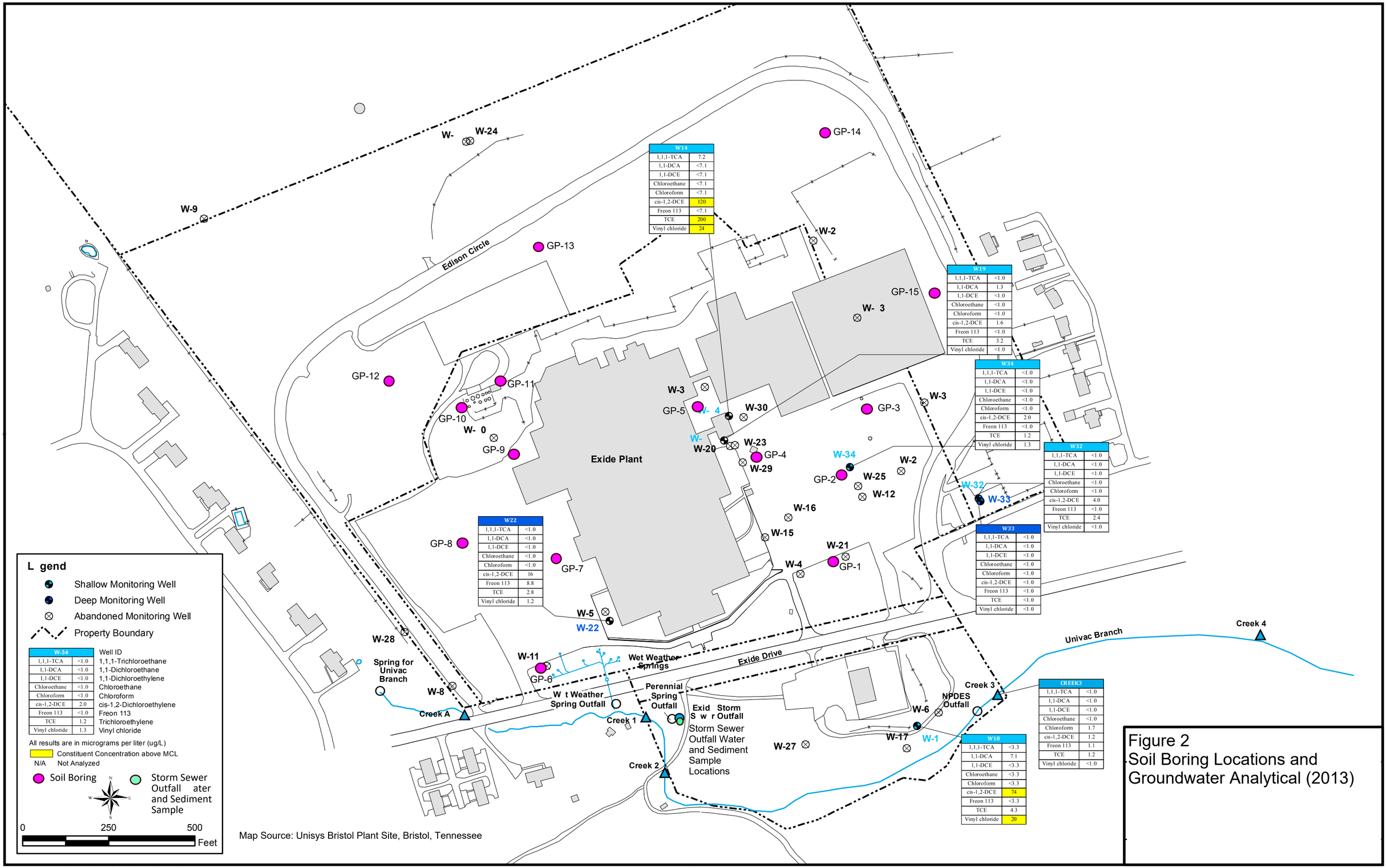

Figure 2
Soil Boring Locations and Groundwater Analytical (2013)

Sulfate Box Plot

			Sulfate	
GP-1	0-2	20	Minimum	0.51
GP-1	14-15.5	21	Quartile 1 (Q1)	12
GP-2	0.5-2	27	Median	24
GP-3	1-3	93	Quartile 3 (Q3)	68
GP-4	0.5-2	160	Maximum	350
GP-4	8-10	0.51		
GP-5	0-2	17	Mean	63
GP-5	8-9.5	7.7	Range	349
GP-6	0-2	10		
GP-7	0.5-2	75	IQR	56
GP-7	10-12	2.4	IQR x 1.5	84
GP-8	0.5-2	350	Outlier Lower Limit	-73
GP-9	0.5-1	61	Outlier Upper Limit	152
GP-10	0-2	6.5		
GP-11	0-2	65		
GP-11	6-7.5	29	Standard Deviation	91
GP-12	0-2	41	Confidence Level (95.0%)	40
GP-13	0-2	250	95% Upper Confidence Interval	103
GP-14	0-2	15	95% Lower Confidence Interval	23
GP-15	0-2	12		

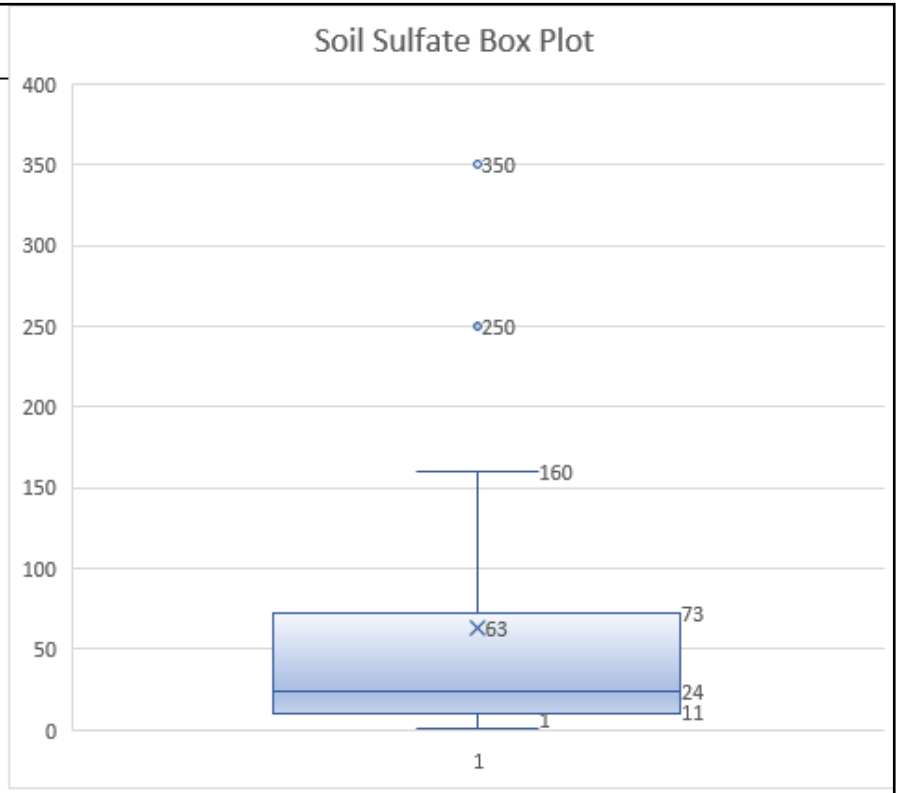

FIGURE 3
SOIL SUFLATE BOX PLOT
FORMER EXIDE TECHNOLOGIES
364 EXIDE DRIVE
BRISTOL, TENNESSEEE

KEY ENGINEERING GROUP LTD.
A Division of SET Environmental Inc.

Attachment 1

Key Engineering Group, Ltd.

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-1**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample Nu b r nd Typ	Sample L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Soil Prop rties Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
				TOPSOIL (CL) - Silty Clay, Brown, Moist										
			1	SILTY CLAY (CL) - Yellowish Brown, Minor Red and Black Mottling, Moist, Trace Fine Gravel				0.3						
1 GP	60/34		2											
			3					1.5						
			4											
			5					0.9						
			6											
				SILTY CLAY (CL) - Gray										
			7					0.7						
2 GP	60/42		8		CL									
				SILTY CLAY (CL) - Yellowish Brown, Minor Red and Black Mottling, Trace Fine Gravel, Moist										
			9					1.6						
			10											
			11					0.5						
			12											
3 GP	60/54		13					0.5						
			14											
			15					0.6						
4 GP	60/20													
				Boring refusal at 15.5 feet below ground surface.										

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-2**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
			0	ASPHALT - 4" Thickness	PA									
1 GP	60/34		1	SILTY CLAY (CL) - Yellowish Brown, Minor Red, Green, and Black Mottling, Moist, Trace Fine Gravel	CL			0.4						
			2											
			3					0.3						
			4					0.5						
			5	End of boring at 5 feet below ground surface.										
			6											
			7											
			8											
			9											
			10											
			11											
			12											
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-3**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
				CONCRETE - 4" Thickness	PA									
				BASE COURSE - 4" Thickness	GP									
			1	SILTY CLAY (CL) - Reddish Brown, Moist										
1 GP	60/34		2		CL			1.2						
			3											
			4					0.7						
			5	CLAYEY SILT (ML) - Gray, Trace Gravel	ML									
				End of boring at 5 feet below ground surface.										
			6											
			7											
			8											
			9											
			10											
			11											
			12											
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-4**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
				ASPHALT - 4" Thickness	PA									
			1	SILTY CLAY (CL) - Yellowish Brown, Red and Gray Mottling, Moist				0.5						
			2											
1 GP	60/40		3					0.6						
			4											
			5		CL			0.7						
			6											
			7					0.4						
2 GP	60/60		8											
			9					0.3						
			10											
				Boring refusal at 10 feet below ground surface.										
			11											
			12											
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature EMK	Firm Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-5**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample										Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
				CONCRETE - 3" Thickness	PA									
				SILTY CLAY (CL) - Reddish Brown, Moist				0.4						
1 GP	60/40		1					0.1						
			2					0.4						
			3					0.7						
			4					0.5						
			5		CL									
2 GP	60/60		6											
			7											
			8											
			9											
			10	Boring refusal at 9.5 feet below ground surface.										
			11											
			12											
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature EMK	Firm Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-6**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
1 GP	60/52		1	TOPSOIL (CL) - Silty Clay, Brown, Moist	CL			1.3						
			2	SILTY CLAY (CL) - Yellowish Brown, Red and Gray Mottling, Moist										
			3					0.4						
			4											
			5	CLAYEY SILT (ML) - Gray, Trace Sand	ML			0.4						
			6	End of boring at 5 feet below ground surface.										
			7											
			8											
			9											
			10											
			11											
			12											
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature EMK	Firm Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-7**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
				ASPHALT - 4" Thickness	PA									
			1	SILTY CLAY (CL) - Reddish Brown, Red and Gray Mottling, Moist, Some Coarse Sand to Coarse Gravel				0.3						
1 GP	60/14		2											
			3					0.1						
			4											
			5					0.1						
			6		CL									
2 GP	60/60		7					0						
			8											
			9					0						
			10											
3 GP	60/54		11					0						
			12											
				Boring refusal at 12 feet below ground surface.										
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-8**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
				ASPHALT - 4" Thickness	PA									
1 GP	60/60		1 2 3 4 5	SILTY CLAY (CL) - Reddish Brown, Moist, Some Coarse Sand to Coarse Gravel	CL			0.3 0.1 0.1						
			6 7 8 9 10 11 12 13 14 15	End of boring at 5 feet below ground surface.										

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature EMK	Firm Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-9**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/16/2020**	**11/16/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
1 GP	60/6		0	CONCRETE - 6" Thickness	PA			---						
				SILTY CLAY (CL) - Reddish Brown, Moist, Some Coarse Sand to Coarse Gravel	CL									
			1	Boring Refusal at 1 foot below ground surface.										
			2											
			3											
			4											
			5											
			6											
			7											
			8											
			9											
			10											
			11											
			12											
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-10**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/17/2020**	**11/17/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
1 GP	60/34		1 2 3 4 5	SILTY CLAY (CL) - Yellowish Brown, Red Mottling, Moist, Some Coarse Sand to Coarse Gravel	CL			0 0.2 0						
			6 7 8 9 10 11 12 13 14 15	End of boring at 5 feet below ground surface.										

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

OIL BORING LO g 1 of 1

Facility/Project Name:	Facility Street Addr ss:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-11**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/17/2020**	**11/17/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Wat r Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (stim ted: ☐) or Boring Location ☐		Loc l Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of S ction , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Prop rties					
Nu b r nd Typ	L ngth Att. & R cov r d (in)	Blow Counts	Depth in Feet (B low ground surf c)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Gr phic Log	W ll Di gr	ID (pp)	Co pr ssiv Str ngth	Moistur Cont nt	Liquid Li it	1 sticity Ind x	200	RQD/Co nts
			1	COARSE GRAVEL (GW) - 2 "	GW									
				SILTY CLAY (CL) - Yellowish Brown, Red Mottling, Moist, Trace Coarse Sand				0						
1 GP	60/22		2											
			3					0.4						
			4		CL									
			5					0						
2 GP	60/24		6											
			7					0.2						
			8	Boring refusal at 7.5 feet below ground surface.										
			9											
			10											
			11											
			12											
			13											
			14											
			15											

I hereby certify that the inform tion on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

SOIL BORING LOG

Facility/Project Name:	Facility Street Address:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-12**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/17/2020**	**11/17/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐		Local Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of Section , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID (ppm)	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/Comments
1 GP	60/50		1 2 3 4 5	SILTY CLAY (CL) - Reddish Brown, Red Mottling, Moist, Some Fine to Coarse Gravel	CL			0.4 0.6 0.5						
			6 7 8 9 10 11 12 13 14 15	End of boring at 5 feet below ground surface.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

SOIL BORING LOG

Facility/Project Name:	Facility Street Address:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-13**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/17/2020**	**11/17/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐		Local Grid Location
State Plane _____ N, _____ E S/C/N	Lat ° ' "	☐ N ☐ E
1/4 1/4 of Section , T N, R E/W	Long ° ' "	Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID (ppm)	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/Comments
1 GP	60/24		1 2	SILTY CLAY (CL) - Reddish Brown, Red Mottling, Moist, Some Fine to Coarse Gravel	CL			0.7						
			3 4 5 6 7 8 9 10 11 12 13 14 15	Boring refusal at 2.5 feet below ground surface.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

SOIL BORING LOG

Facility/Project Name:	Facility Street Address:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-14**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/17/2020**	**11/17/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐		Local Grid Location
State Plane _____ N, _____ E S/C/N 1/4 1/4 of Section , T N, R E/W	Lat ° ' " Long ° ' "	☐ N ☐ E Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID (ppm)	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/Comments
			0	TOPSOIL (CL) - Silty Clay, Brown, Moist										
			1	SILTY CLAY (CL) - Yellowish Brown, Moist				0.5						
1 GP	60/52		2		CL									
			3					0.9						
			4											
			5					1						
				End of boring at 5 feet below ground surface.										
			6											
			7											
			8											
			9											
			10											
			11											
			12											
			13											
			14											
			15											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature	Firm
EMK	Key Engineering Group, Ltd

SOIL BORING LOG

Facility/Project Name:	Facility Street Address:	Boring Name:
Exide Bristol, Tennessee	**364 Exide Drive, Bristol, Tennessee**	**GP-15**

Boring Drilled By: Name of crew chief (first, last) and Firm	Date Drilling Started	Date Drilling Completed	Drilling Method
First Name: Mark Last Name: Stafford Firm: Strata Group, LLC	**11/17/2020**	**11/17/2020**	**Direct Push**

Water Level Depth		Well Name	Final Static Water Level Feet MSL	Surface Elevation Feet MSL	Borehole Diameter

Local Grid Origin ☐ (estimated: ☐) or Boring Location ☐		Local Grid Location
State Plane _____ N, _____ E S/C/N	Lat ° ' "	☐ N ☐ E
1/4 1/4 of Section , T N, R E/W	Long ° ' "	Feet ☐ S Feet ☐ W

Abandonment Method	County:	Civil Town/City/or Village:
Bentonite	**Sullivan**	**Bristol**

Sample									Soil Properties					
Number and Type	Length Att. & Recovered (in)	Blow Counts	Depth in Feet (Below ground surface)	Soil/Rock Description And Geological Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID (ppm)	Compressive Strength	Moisture Content	Liquid Limit	Plasticity Index	P 200	RQD/Comments
1 GP	60/34		1 2 3 4 5	SILTY CLAY (CL) - Brown to Light Brown, Moist, Some Fine to Coarse Gravel	CL			0.3 0.5 0.8						
			6 7 8 9 10 11 12 13 14 15	End of boring at 5 feet below ground surface.										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature EMK	Firm Key Engineering Group, Ltd

Attachment 2

Key Engineering Group, Ltd.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-191255-1
Client Project/Site: Exide Bristol - 2001-0212-0040

For:
Key Engineering Group, Ltd.
735 North Water Street
Suite 510
Milwaukee, Wisconsin 53202

Attn: Toni Schoen

Authorized for release by:
11/25/2020 3:56:00 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

LINKS

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www.eurofinsus.com/tas

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 500-191255-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-191255-1

Comments
No additional comments.

Receipt
The samples were received on 11/18/2020 10:15 AM; the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5º C.

Metals
Method 6010D: The following sample was diluted due to the abundance of non-target analytes: GP-14 (0-2) (500-191255-19). Elevated reporting limits (RLs) are provided.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-1 (0-2) — Lab Sample ID: 500-191255-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	25	F1	0.58	0.27	mg/Kg	1	☼	6010D	Total/NA
Sulfate	20		2.3	1.1	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-1 (14-15.5) — Lab Sample ID: 500-191255-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	17		0.63	0.29	mg/Kg	1	☼	6010D	Total/NA
Sulfate	21		2.4	1.2	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-2 (0.5-2) — Lab Sample ID: 500-191255-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	26		0.58	0.27	mg/Kg	1	☼	6010D	Total/NA
Sulfate	27		2.4	1.1	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-3 (1-3) — Lab Sample ID: 500-191255-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	20		0.55	0.25	mg/Kg	1	☼	6010D	Total/NA
Sulfate	93		2.4	1.2	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-4 (0.5-2) — Lab Sample ID: 500-191255-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	30		0.53	0.25	mg/Kg	1	☼	6010D	Total/NA
Sulfate	160		12	5.5	mg/Kg	5	☼	9056A	Total/NA

Client Sample ID: GP-4 (8-10) — Lab Sample ID: 500-191255-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	22		0.62	0.29	mg/Kg	1	☼	6010D	Total/NA

Client Sample ID: GP-5 (0-2) — Lab Sample ID: 500-191255-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	41		0.66	0.30	mg/Kg	1	☼	6010D	Total/NA
Sulfate	17		2.6	1.2	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-5 (8-9.5) — Lab Sample ID: 500-191255-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	43		0.60	0.28	mg/Kg	1	☼	6010D	Total/NA
Sulfate	7.7		2.6	1.2	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-6 (0-2) — Lab Sample ID: 500-191255-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	21		0.59	0.27	mg/Kg	1	☼	6010D	Total/NA
Sulfate	10		2.4	1.2	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-7 (0.5-2) — Lab Sample ID: 500-191255-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	24		0.55	0.25	mg/Kg	1	☼	6010D	Total/NA
Sulfate	75		2.4	1.1	mg/Kg	1	☼	9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-7 (10-12) — Lab Sample ID: 500-191255-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	23		0.66	0.31	mg/Kg	1	☼	6010D	Total/NA
Sulfate	2.4	J	2.7	1.3	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-8 (0.5-2) — Lab Sample ID: 500-191255-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	8.9		0.50	0.23	mg/Kg	1	☼	6010D	Total/NA
Sulfate	350		11	5.3	mg/Kg	5	☼	9056A	Total/NA

Client Sample ID: GP-9 (0.5-1) — Lab Sample ID: 500-191255-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	27		0.50	0.23	mg/Kg	1	☼	6010D	Total/NA
Sulfate	61		2.2	1.1	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-10 (0-2) — Lab Sample ID: 500-191255-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	50		0.54	0.25	mg/Kg	1	☼	6010D	Total/NA
Sulfate	6.5		2.4	1.1	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-11 (0-2) — Lab Sample ID: 500-191255-15

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	18		0.53	0.25	mg/Kg	1	☼	6010D	Total/NA
Sulfate	65		2.2	1.0	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-11 (6-7.5) — Lab Sample ID: 500-191255-16

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	23		0.55	0.25	mg/Kg	1	☼	6010D	Total/NA
Sulfate	29		2.3	1.1	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-12 (0-2) — Lab Sample ID: 500-191255-17

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	9.6		0.54	0.25	mg/Kg	1	☼	6010D	Total/NA
Sulfate	41		2.2	1.0	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-13 (0-2) — Lab Sample ID: 500-191255-18

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	11		0.59	0.27	mg/Kg	1	☼	6010D	Total/NA
Sulfate	250		11	5.3	mg/Kg	5	☼	9056A	Total/NA

Client Sample ID: GP-14 (0-2) — Lab Sample ID: 500-191255-19

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	35		2.5	1.2	mg/Kg	5	☼	6010D	Total/NA
Sulfate	15		2.3	1.1	mg/Kg	1	☼	9056A	Total/NA

Client Sample ID: GP-15 (0-2) — Lab Sample ID: 500-191255-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	27		0.51	0.24	mg/Kg	1	☼	6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-15 (0-2) (Continued)

Lab Sample ID: 500-191255-20

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	12		2.2	1.1	mg/Kg	1	☼	9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	TAL CHI
9056A	Anions, Ion Chromatography	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI
300_Prep	Anions, Ion Chromatography, 10% Wt/Vol	MCAWW	TAL CHI
3050B	Preparation, Metals	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-191255-1	GP-1 (0-2)	Solid	11/16/20 12:00	11/18/20 10:15	
500-191255-2	GP-1 (14-15.5)	Solid	11/16/20 12:20	11/18/20 10:15	
500-191255-3	GP-2 (0.5-2)	Solid	11/16/20 13:00	11/18/20 10:15	
500-191255-4	GP-3 (1-3)	Solid	11/16/20 13:30	11/18/20 10:15	
500-191255-5	GP-4 (0.5-2)	Solid	11/16/20 14:20	11/18/20 10:15	
500-191255-6	GP-4 (8-10)	Solid	11/16/20 14:30	11/18/20 10:15	
500-191255-7	GP-5 (0-2)	Solid	11/16/20 15:00	11/18/20 10:15	
500-191255-8	GP-5 (8-9.5)	Solid	11/16/20 15:10	11/18/20 10:15	
500-191255-9	GP-6 (0-2)	Solid	11/16/20 15:30	11/18/20 10:15	
500-191255-10	GP-7 (0.5-2)	Solid	11/16/20 16:20	11/18/20 10:15	
500-191255-11	GP-7 (10-12)	Solid	11/16/20 16:30	11/18/20 10:15	
500-191255-12	GP-8 (0.5-2)	Solid	11/16/20 16:50	11/18/20 10:15	
500-191255-13	GP-9 (0.5-1)	Solid	11/16/20 17:10	11/18/20 10:15	
500-191255-14	GP-10 (0-2)	Solid	11/17/20 08:40	11/18/20 10:15	
500-191255-15	GP-11 (0-2)	Solid	11/17/20 09:00	11/18/20 10:15	
500-191255-16	GP-11 (6-7.5)	Solid	11/17/20 09:10	11/18/20 10:15	
500-191255-17	GP-12 (0-2)	Solid	11/17/20 10:20	11/18/20 10:15	
500-191255-18	GP-13 (0-2)	Solid	11/17/20 10:40	11/18/20 10:15	
500-191255-19	GP-14 (0-2)	Solid	11/17/20 11:00	11/18/20 10:15	
500-191255-20	GP-15 (0-2)	Solid	11/17/20 11:30	11/18/20 10:15	

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-1 (0-2)

Date Collected: 11/16/20 12:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-1

Matrix: Solid
Percent Solids: 82.3

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	25	F1	0.58	0.27	mg/Kg	☼	11/20/20 18:46	11/23/20 11:17	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	20		2.3	1.1	mg/Kg	☼	11/20/20 11:35	11/20/20 19:10	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-1 (14-15.5)

Date Collected: 11/16/20 12:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-2

Matrix: Solid
Percent Solids: 77.9

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	17		0.63	0.29	mg/Kg	☼	11/20/20 18:46	11/23/20 11:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	21		2.4	1.2	mg/Kg	☼	11/20/20 11:35	11/20/20 19:22	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-2 (0.5-2)

Date Collected: 11/16/20 13:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-3

Matrix: Solid
Percent Solids: 82.6

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	26		0.58	0.27	mg/Kg	☼	11/20/20 18:46	11/23/20 11:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	27		2.4	1.1	mg/Kg	☼	11/20/20 11:35	11/20/20 19:35	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-3 (1-3)

Date Collected: 11/16/20 13:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-4

Matrix: Solid
Percent Solids: 80.4

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	20		0.55	0.25	mg/Kg	☼	11/20/20 18:46	11/23/20 11:39	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	93		2.4	1.2	mg/Kg	☼	11/20/20 11:35	11/20/20 19:48	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-4 (0.5-2)

Date Collected: 11/16/20 14:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-5

Matrix: Solid
Percent Solids: 80.2

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	30		0.53	0.25	mg/Kg	☼	11/20/20 18:46	11/23/20 11:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	160		12	5.5	mg/Kg	☼	11/20/20 11:35	11/21/20 15:51	5

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-4 (8-10)

Date Collected: 11/16/20 14:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-6

Matrix: Solid
Percent Solids: 74.3

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	22		0.62	0.29	mg/Kg	☼	11/20/20 18:46	11/23/20 11:51	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<1.2		2.5	1.2	mg/Kg	☼	11/20/20 11:35	11/20/20 20:39	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-5 (0-2)

Date Collected: 11/16/20 15:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-7

Matrix: Solid
Percent Solids: 71.7

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	41		0.66	0.30	mg/Kg	☼	11/20/20 18:46	11/23/20 11:55	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	17		2.6	1.2	mg/Kg	☼	11/20/20 11:35	11/20/20 20:51	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-5 (8-9.5)

Date Collected: 11/16/20 15:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-8

Matrix: Solid
Percent Solids: 77.1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	43		0.60	0.28	mg/Kg	☼	11/20/20 18:46	11/23/20 11:58	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	7.7		2.6	1.2	mg/Kg	☼	11/20/20 11:35	11/20/20 21:04	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-6 (0-2)

Date Collected: 11/16/20 15:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-9

Matrix: Solid
Percent Solids: 81.6

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	21		0.59	0.27	mg/Kg	☼	11/20/20 18:46	11/23/20 12:01	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	10		2.4	1.2	mg/Kg	☼	11/23/20 14:10	11/23/20 22:10	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-7 (0.5-2)

Date Collected: 11/16/20 16:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-10

Matrix: Solid
Percent Solids: 82.1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	24		0.55	0.25	mg/Kg	☼	11/20/20 18:46	11/23/20 12:04	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	75		2.4	1.1	mg/Kg	☼	11/23/20 14:10	11/23/20 22:24	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-7 (10-12)

Date Collected: 11/16/20 16:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-11

Matrix: Solid
Percent Solids: 72.9

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	23		0.66	0.31	mg/Kg	☼	11/20/20 18:46	11/23/20 12:07	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	2.4	J	2.7	1.3	mg/Kg	☼	11/23/20 14:10	11/23/20 23:05	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-8 (0.5-2)

Date Collected: 11/16/20 16:50
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-12

Matrix: Solid
Percent Solids: 84.7

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	8.9		0.50	0.23	mg/Kg	☼	11/20/20 18:46	11/23/20 12:10	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	350		11	5.3	mg/Kg	☼	11/23/20 14:10	11/24/20 16:03	5

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-9 (0.5-1)

Date Collected: 11/16/20 17:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-13

Matrix: Solid
Percent Solids: 86.5

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	27		0.50	0.23	mg/Kg	☼	11/20/20 18:46	11/23/20 12:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	61		2.2	1.1	mg/Kg	☼	11/23/20 14:10	11/23/20 23:32	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-10 (0-2)

Date Collected: 11/17/20 08:40
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-14

Matrix: Solid
Percent Solids: 82.2

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	50		0.54	0.25	mg/Kg	☼	11/20/20 18:46	11/23/20 12:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	6.5		2.4	1.1	mg/Kg	☼	11/23/20 14:10	11/23/20 23:46	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-11 (0-2)

Date Collected: 11/17/20 09:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-15

Matrix: Solid
Percent Solids: 86.7

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	18		0.53	0.25	mg/Kg	☼	11/20/20 18:46	11/23/20 12:19	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	65		2.2	1.0	mg/Kg	☼	11/23/20 14:10	11/23/20 23:59	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-11 (6-7.5)

Date Collected: 11/17/20 09:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-16

Matrix: Solid
Percent Solids: 80.3

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	23		0.55	0.25	mg/Kg	☼	11/20/20 18:46	11/23/20 12:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	29		2.3	1.1	mg/Kg	☼	11/23/20 14:10	11/24/20 00:13	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-12 (0-2)

Date Collected: 11/17/20 10:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-17

Matrix: Solid
Percent Solids: 85.7

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	9.6		0.54	0.25	mg/Kg	☼	11/20/20 18:46	11/23/20 12:32	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	41		2.2	1.0	mg/Kg	☼	11/23/20 14:10	11/24/20 00:26	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-13 (0-2)

Date Collected: 11/17/20 10:40
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-18

Matrix: Solid
Percent Solids: 84.5

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	11		0.59	0.27	mg/Kg	☼	11/20/20 18:46	11/23/20 12:35	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	250		11	5.3	mg/Kg	☼	11/23/20 14:10	11/24/20 16:16	5

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-14 (0-2)

Date Collected: 11/17/20 11:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-19

Matrix: Solid
Percent Solids: 84.1

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	35		2.5	1.2	mg/Kg	☼	11/20/20 18:46	11/24/20 10:45	5

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	15		2.3	1.1	mg/Kg	☼	11/23/20 14:10	11/24/20 00:54	1

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-15 (0-2)

Date Collected: 11/17/20 11:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-20

Matrix: Solid
Percent Solids: 86.6

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	27		0.51	0.24	mg/Kg	☼	11/20/20 18:46	11/23/20 12:42	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	12		2.2	1.1	mg/Kg	☼	11/23/20 14:10	11/24/20 02:02	1

Definitions/Glossary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.

General Chemistry

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Client: Key Engineering Group, Ltd.
Job ID: 500-191255-1
Project/Site: Exide Bristol - 2001-0212-0040

Metals

Prep Batch: 573379

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-1	GP-1 (0-2)	Total/NA	Solid	3050B	
500-191255-2	GP-1 (14-15.5)	Total/NA	Solid	3050B	
500-191255-3	GP-2 (0.5-2)	Total/NA	Solid	3050B	
500-191255-4	GP-3 (1-3)	Total/NA	Solid	3050B	
500-191255-5	GP-4 (0.5-2)	Total/NA	Solid	3050B	
500-191255-6	GP-4 (8-10)	Total/NA	Solid	3050B	
500-191255-7	GP-5 (0-2)	Total/NA	Solid	3050B	
500-191255-8	GP-5 (8-9.5)	Total/NA	Solid	3050B	
500-191255-9	GP-6 (0-2)	Total/NA	Solid	3050B	
500-191255-10	GP-7 (0.5-2)	Total/NA	Solid	3050B	
500-191255-11	GP-7 (10-12)	Total/NA	Solid	3050B	
500-191255-12	GP-8 (0.5-2)	Total/NA	Solid	3050B	
500-191255-13	GP-9 (0.5-1)	Total/NA	Solid	3050B	
500-191255-14	GP-10 (0-2)	Total/NA	Solid	3050B	
500-191255-15	GP-11 (0-2)	Total/NA	Solid	3050B	
500-191255-16	GP-11 (6-7.5)	Total/NA	Solid	3050B	
500-191255-17	GP-12 (0-2)	Total/NA	Solid	3050B	
500-191255-18	GP-13 (0-2)	Total/NA	Solid	3050B	
500-191255-19	GP-14 (0-2)	Total/NA	Solid	3050B	
500-191255-20	GP-15 (0-2)	Total/NA	Solid	3050B	
MB 500-573379/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 500-573379/2-A	Lab Control Sample	Total/NA	Solid	3050B	
500-191255-1 MS	GP-1 (0-2)	Total/NA	Solid	3050B	
500-191255-1 MSD	GP-1 (0-2)	Total/NA	Solid	3050B	
500-191255-1 DU	GP-1 (0-2)	Total/NA	Solid	3050B	

Analysis Batch: 573639

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-1	GP-1 (0-2)	Total/NA	Solid	6010D	573379
500-191255-2	GP-1 (14-15.5)	Total/NA	Solid	6010D	573379
500-191255-3	GP-2 (0.5-2)	Total/NA	Solid	6010D	573379
500-191255-4	GP-3 (1-3)	Total/NA	Solid	6010D	573379
500-191255-5	GP-4 (0.5-2)	Total/NA	Solid	6010D	573379
500-191255-6	GP-4 (8-10)	Total/NA	Solid	6010D	573379
500-191255-7	GP-5 (0-2)	Total/NA	Solid	6010D	573379
500-191255-8	GP-5 (8-9.5)	Total/NA	Solid	6010D	573379
500-191255-9	GP-6 (0-2)	Total/NA	Solid	6010D	573379
500-191255-10	GP-7 (0.5-2)	Total/NA	Solid	6010D	573379
500-191255-11	GP-7 (10-12)	Total/NA	Solid	6010D	573379
500-191255-12	GP-8 (0.5-2)	Total/NA	Solid	6010D	573379
500-191255-13	GP-9 (0.5-1)	Total/NA	Solid	6010D	573379
500-191255-14	GP-10 (0-2)	Total/NA	Solid	6010D	573379
500-191255-15	GP-11 (0-2)	Total/NA	Solid	6010D	573379
500-191255-16	GP-11 (6-7.5)	Total/NA	Solid	6010D	573379
500-191255-17	GP-12 (0-2)	Total/NA	Solid	6010D	573379
500-191255-18	GP-13 (0-2)	Total/NA	Solid	6010D	573379
500-191255-20	GP-15 (0-2)	Total/NA	Solid	6010D	573379
MB 500-573379/1-A	Method Blank	Total/NA	Solid	6010D	573379
LCS 500-573379/2-A	Lab Control Sample	Total/NA	Solid	6010D	573379
500-191255-1 MS	GP-1 (0-2)	Total/NA	Solid	6010D	573379
500-191255-1 MSD	GP-1 (0-2)	Total/NA	Solid	6010D	573379

Metals (Continued)

Analysis Batch: 573639 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-1 DU	GP-1 (0-2)	Total/NA	Solid	6010D	573379

Analysis Batch: 573861

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-19	GP-14 (0-2)	Total/NA	Solid	6010D	573379

General Chemistry

Prep Batch: 573285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-1	GP-1 (0-2)	Total/NA	Solid	300_Prep	
500-191255-2	GP-1 (14-15.5)	Total/NA	Solid	300_Prep	
500-191255-3	GP-2 (0.5-2)	Total/NA	Solid	300_Prep	
500-191255-4	GP-3 (1-3)	Total/NA	Solid	300_Prep	
500-191255-5	GP-4 (0.5-2)	Total/NA	Solid	300_Prep	
500-191255-6	GP-4 (8-10)	Total/NA	Solid	300_Prep	
500-191255-7	GP-5 (0-2)	Total/NA	Solid	300_Prep	
500-191255-8	GP-5 (8-9.5)	Total/NA	Solid	300_Prep	
MB 500-573285/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 500-573285/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 573321

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-1	GP-1 (0-2)	Total/NA	Solid	Moisture	
500-191255-2	GP-1 (14-15.5)	Total/NA	Solid	Moisture	
500-191255-3	GP-2 (0.5-2)	Total/NA	Solid	Moisture	
500-191255-4	GP-3 (1-3)	Total/NA	Solid	Moisture	
500-191255-5	GP-4 (0.5-2)	Total/NA	Solid	Moisture	
500-191255-6	GP-4 (8-10)	Total/NA	Solid	Moisture	
500-191255-7	GP-5 (0-2)	Total/NA	Solid	Moisture	
500-191255-8	GP-5 (8-9.5)	Total/NA	Solid	Moisture	
500-191255-9	GP-6 (0-2)	Total/NA	Solid	Moisture	
500-191255-10	GP-7 (0.5-2)	Total/NA	Solid	Moisture	
500-191255-11	GP-7 (10-12)	Total/NA	Solid	Moisture	
500-191255-12	GP-8 (0.5-2)	Total/NA	Solid	Moisture	
500-191255-13	GP-9 (0.5-1)	Total/NA	Solid	Moisture	
500-191255-14	GP-10 (0-2)	Total/NA	Solid	Moisture	
500-191255-15	GP-11 (0-2)	Total/NA	Solid	Moisture	
500-191255-16	GP-11 (6-7.5)	Total/NA	Solid	Moisture	
500-191255-17	GP-12 (0-2)	Total/NA	Solid	Moisture	
500-191255-18	GP-13 (0-2)	Total/NA	Solid	Moisture	
500-191255-19	GP-14 (0-2)	Total/NA	Solid	Moisture	
500-191255-20	GP-15 (0-2)	Total/NA	Solid	Moisture	
500-191255-1 DU	GP-1 (0-2)	Total/NA	Solid	Moisture	

Analysis Batch: 573343

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-1	GP-1 (0-2)	Total/NA	Solid	9056A	573285
500-191255-2	GP-1 (14-15.5)	Total/NA	Solid	9056A	573285
500-191255-3	GP-2 (0.5-2)	Total/NA	Solid	9056A	573285
500-191255-4	GP-3 (1-3)	Total/NA	Solid	9056A	573285

General Chemistry (Continued)

Analysis Batch: 573343 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-6	GP-4 (8-10)	Total/NA	Solid	9056A	573285
500-191255-7	GP-5 (0-2)	Total/NA	Solid	9056A	573285
500-191255-8	GP-5 (8-9.5)	Total/NA	Solid	9056A	573285
MB 500-573285/1-A	Method Blank	Total/NA	Solid	9056A	573285
LCS 500-573285/2-A	Lab Control Sample	Total/NA	Solid	9056A	573285

Analysis Batch: 573419

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-5	GP-4 (0.5-2)	Total/NA	Solid	9056A	573285
MB 500-573285/1-A	Method Blank	Total/NA	Solid	9056A	573285
LCS 500-573285/2-A	Lab Control Sample	Total/NA	Solid	9056A	573285

Prep Batch: 573648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-9	GP-6 (0-2)	Total/NA	Solid	300_Prep	
500-191255-10	GP-7 (0.5-2)	Total/NA	Solid	300_Prep	
500-191255-11	GP-7 (10-12)	Total/NA	Solid	300_Prep	
500-191255-12	GP-8 (0.5-2)	Total/NA	Solid	300_Prep	
500-191255-13	GP-9 (0.5-1)	Total/NA	Solid	300_Prep	
500-191255-14	GP-10 (0-2)	Total/NA	Solid	300_Prep	
500-191255-15	GP-11 (0-2)	Total/NA	Solid	300_Prep	
500-191255-16	GP-11 (6-7.5)	Total/NA	Solid	300_Prep	
500-191255-17	GP-12 (0-2)	Total/NA	Solid	300_Prep	
500-191255-18	GP-13 (0-2)	Total/NA	Solid	300_Prep	
500-191255-19	GP-14 (0-2)	Total/NA	Solid	300_Prep	
500-191255-20	GP-15 (0-2)	Total/NA	Solid	300_Prep	
MB 500-573648/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 500-573648/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	
500-191255-19 MS	GP-14 (0-2)	Total/NA	Solid	300_Prep	
500-191255-19 MSD	GP-14 (0-2)	Total/NA	Solid	300_Prep	

Analysis Batch: 573666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-9	GP-6 (0-2)	Total/NA	Solid	9056A	573648
500-191255-10	GP-7 (0.5-2)	Total/NA	Solid	9056A	573648
500-191255-11	GP-7 (10-12)	Total/NA	Solid	9056A	573648
500-191255-13	GP-9 (0.5-1)	Total/NA	Solid	9056A	573648
500-191255-14	GP-10 (0-2)	Total/NA	Solid	9056A	573648
500-191255-15	GP-11 (0-2)	Total/NA	Solid	9056A	573648
500-191255-16	GP-11 (6-7.5)	Total/NA	Solid	9056A	573648
500-191255-17	GP-12 (0-2)	Total/NA	Solid	9056A	573648
500-191255-19	GP-14 (0-2)	Total/NA	Solid	9056A	573648
500-191255-20	GP-15 (0-2)	Total/NA	Solid	9056A	573648
MB 500-573648/1-A	Method Blank	Total/NA	Solid	9056A	573648
LCS 500-573648/2-A	Lab Control Sample	Total/NA	Solid	9056A	573648
500-191255-19 MS	GP-14 (0-2)	Total/NA	Solid	9056A	573648
500-191255-19 MSD	GP-14 (0-2)	Total/NA	Solid	9056A	573648

Analysis Batch: 573871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-12	GP-8 (0.5-2)	Total/NA	Solid	9056A	573648

General Chemistry (Continued)

Analysis Batch: 573871 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191255-18	GP-13 (0-2)	Total/NA	Solid	9056A	573648
MB 500-573648/1-A	Method Blank	Total/NA	Solid	9056A	573648
LCS 500-573648/2-A	Lab Control Sample	Total/NA	Solid	9056A	573648

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 500-573379/1-A
Matrix: Solid
Analysis Batch: 573639

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 573379

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.23		0.50	0.23	mg/Kg		11/20/20 18:46	11/23/20 11:00	1

Lab Sample ID: LCS 500-573379/2-A
Matrix: Solid
Analysis Batch: 573639

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 573379

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	10.0	9.08		mg/Kg		91	80 - 120

Lab Sample ID: 500-191255-1 MS
Matrix: Solid
Analysis Batch: 573639

Client Sample ID: GP-1 (0-2)
Prep Type: Total/NA
Prep Batch: 573379

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	25	F1	10.7	35.1		mg/Kg	☼	93	75 - 125

Lab Sample ID: 500-191255-1 MSD
Matrix: Solid
Analysis Batch: 573639

Client Sample ID: GP-1 (0-2)
Prep Type: Total/NA
Prep Batch: 573379

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	25	F1	10.8	33.1	F1	mg/Kg	☼	72	75 - 125	6	20

Lab Sample ID: 500-191255-1 DU
Matrix: Solid
Analysis Batch: 573639

Client Sample ID: GP-1 (0-2)
Prep Type: Total/NA
Prep Batch: 573379

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Lead	25	F1	24.6		mg/Kg	☼	3	20

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 500-573285/1-A
Matrix: Solid
Analysis Batch: 573343

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 573285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.95		2.0	0.95	mg/Kg		11/20/20 11:35	11/20/20 15:21	1

Lab Sample ID: MB 500-573285/1-A
Matrix: Solid
Analysis Batch: 573419

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 573285

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.95		2.0	0.95	mg/Kg		11/20/20 11:35	11/21/20 14:35	1

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 500-573285/2-A
Matrix: Solid
Analysis Batch: 573343

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 573285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	52.5		mg/Kg		105	80 - 120

Lab Sample ID: LCS 500-573285/2-A
Matrix: Solid
Analysis Batch: 573419

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 573285

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	53.5		mg/Kg		107	80 - 120

Lab Sample ID: MB 500-573648/1-A
Matrix: Solid
Analysis Batch: 573666

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 573648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.95		2.0	0.95	mg/Kg		11/23/20 14:10	11/23/20 21:30	1

Lab Sample ID: MB 500-573648/1-A
Matrix: Solid
Analysis Batch: 573871

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 573648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.95		2.0	0.95	mg/Kg		11/23/20 14:10	11/24/20 15:38	1

Lab Sample ID: LCS 500-573648/2-A
Matrix: Solid
Analysis Batch: 573666

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 573648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	52.7		mg/Kg		105	80 - 120

Lab Sample ID: LCS 500-573648/2-A
Matrix: Solid
Analysis Batch: 573871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 573648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	51.5		mg/Kg		103	80 - 120

Lab Sample ID: 500-191255-19 MS
Matrix: Solid
Analysis Batch: 573666

Client Sample ID: GP-14 (0-2)
Prep Type: Total/NA
Prep Batch: 573648

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	15		29.0	41.5		mg/Kg	☼	91	75 - 125

Lab Sample ID: 500-191255-19 MSD
Matrix: Solid
Analysis Batch: 573666

Client Sample ID: GP-14 (0-2)
Prep Type: Total/NA
Prep Batch: 573648

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Sulfate	15		29.0	40.5		mg/Kg	☼	88	75 - 125	2	20

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-1 (0-2)
Date Collected: 11/16/20 12:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-1 (0-2)
Date Collected: 11/16/20 12:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-1
Matrix: Solid
Percent Solids: 82.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:17	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573343	11/20/20 19:10	EAT	TAL CHI

Client Sample ID: GP-1 (14-15.5)
Date Collected: 11/16/20 12:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-1 (14-15.5)
Date Collected: 11/16/20 12:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-2
Matrix: Solid
Percent Solids: 77.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:32	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573343	11/20/20 19:22	EAT	TAL CHI

Client Sample ID: GP-2 (0.5-2)
Date Collected: 11/16/20 13:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-2 (0.5-2)
Date Collected: 11/16/20 13:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-3
Matrix: Solid
Percent Solids: 82.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:35	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573343	11/20/20 19:35	EAT	TAL CHI

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-3 (1-3)
Date Collected: 11/16/20 13:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-3 (1-3)
Date Collected: 11/16/20 13:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-4
Matrix: Solid
Percent Solids: 80.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:39	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573343	11/20/20 19:48	EAT	TAL CHI

Client Sample ID: GP-4 (0.5-2)
Date Collected: 11/16/20 14:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-4 (0.5-2)
Date Collected: 11/16/20 14:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-5
Matrix: Solid
Percent Solids: 80.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:42	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		5	573419	11/21/20 15:51	EAT	TAL CHI

Client Sample ID: GP-4 (8-10)
Date Collected: 11/16/20 14:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-4 (8-10)
Date Collected: 11/16/20 14:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-6
Matrix: Solid
Percent Solids: 74.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:51	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573343	11/20/20 20:39	EAT	TAL CHI

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-5 (0-2)
Date Collected: 11/16/20 15:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-5 (0-2)
Date Collected: 11/16/20 15:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-7
Matrix: Solid
Percent Solids: 71.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:55	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573343	11/20/20 20:51	EAT	TAL CHI

Client Sample ID: GP-5 (8-9.5)
Date Collected: 11/16/20 15:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-5 (8-9.5)
Date Collected: 11/16/20 15:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-8
Matrix: Solid
Percent Solids: 77.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 11:58	EEN	TAL CHI
Total/NA	Prep	300_Prep			573285	11/20/20 11:35	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573343	11/20/20 21:04	EAT	TAL CHI

Client Sample ID: GP-6 (0-2)
Date Collected: 11/16/20 15:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-6 (0-2)
Date Collected: 11/16/20 15:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-9
Matrix: Solid
Percent Solids: 81.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:01	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/23/20 22:10	EAT	TAL CHI

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-7 (0.5-2)
Date Collected: 11/16/20 16:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-7 (0.5-2)
Date Collected: 11/16/20 16:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-10
Matrix: Solid
Percent Solids: 82.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:04	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/23/20 22:24	EAT	TAL CHI

Client Sample ID: GP-7 (10-12)
Date Collected: 11/16/20 16:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-7 (10-12)
Date Collected: 11/16/20 16:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-11
Matrix: Solid
Percent Solids: 72.9

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:07	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/23/20 23:05	EAT	TAL CHI

Client Sample ID: GP-8 (0.5-2)
Date Collected: 11/16/20 16:50
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-8 (0.5-2)
Date Collected: 11/16/20 16:50
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-12
Matrix: Solid
Percent Solids: 84.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:10	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		5	573871	11/24/20 16:03	EAT	TAL CHI

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-9 (0.5-1)
Date Collected: 11/16/20 17:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-9 (0.5-1)
Date Collected: 11/16/20 17:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-13
Matrix: Solid
Percent Solids: 86.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:13	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/23/20 23:32	EAT	TAL CHI

Client Sample ID: GP-10 (0-2)
Date Collected: 11/17/20 08:40
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-10 (0-2)
Date Collected: 11/17/20 08:40
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-14
Matrix: Solid
Percent Solids: 82.2

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:16	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/23/20 23:46	EAT	TAL CHI

Client Sample ID: GP-11 (0-2)
Date Collected: 11/17/20 09:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-15
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-11 (0-2)
Date Collected: 11/17/20 09:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-15
Matrix: Solid
Percent Solids: 86.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:19	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/23/20 23:59	EAT	TAL CHI

Client Sample ID: GP-11 (6-7.5)
Date Collected: 11/17/20 09:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-16
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-11 (6-7.5)
Date Collected: 11/17/20 09:10
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-16
Matrix: Solid
Percent Solids: 80.3

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:29	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/24/20 00:13	EAT	TAL CHI

Client Sample ID: GP-12 (0-2)
Date Collected: 11/17/20 10:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-17
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-12 (0-2)
Date Collected: 11/17/20 10:20
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-17
Matrix: Solid
Percent Solids: 85.7

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:32	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/24/20 00:26	EAT	TAL CHI

Client Sample ID: GP-13 (0-2)
Date Collected: 11/17/20 10:40
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-18
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-13 (0-2)
Date Collected: 11/17/20 10:40
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-18
Matrix: Solid
Percent Solids: 84.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:35	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		5	573871	11/24/20 16:16	EAT	TAL CHI

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191255-1

Client Sample ID: GP-14 (0-2)
Date Collected: 11/17/20 11:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-19
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-14 (0-2)
Date Collected: 11/17/20 11:00
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-19
Matrix: Solid
Percent Solids: 84.1

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		5	573861	11/24/20 10:45	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/24/20 00:54	EAT	TAL CHI

Client Sample ID: GP-15 (0-2)
Date Collected: 11/17/20 11:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-20
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573321	11/20/20 13:43	LWN	TAL CHI

Client Sample ID: GP-15 (0-2)
Date Collected: 11/17/20 11:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191255-20
Matrix: Solid
Percent Solids: 86.6

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			573379	11/20/20 18:46	BDE	TAL CHI
Total/NA	Analysis	6010D		1	573639	11/23/20 12:42	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/24/20 02:02	EAT	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Key Engineering Group, Ltd.
Job ID: 500-191255-1
Project/Site: Exide Bristol - 2001-0212-0040

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-30-20 *
Georgia	State	N/A	04-30-20 *
Georgia (DW)	State	939	04-30-21
Hawaii	State	NA	04-30-20 *
Illinois	NELAP	IL00035	04-29-21
Indiana	State	C-IL-02	06-29-21
Iowa	State	082	05-01-20 *
Kentucky (UST)	State	AI # 108083	04-30-20 *
Kentucky (WW)	State	KY90023	12-31-20
Louisiana	NELAP	02046	06-30-21
Mississippi	State	NA	04-30-20 *
New York	NELAP	12019	04-01-21
North Carolina (WW/SW)	State	291	12-31-20
North Dakota	State	R-194	04-29-21
Oklahoma	State	8908	08-31-21
South Carolina	State	77001003	04-29-21
USDA	US Federal Programs	P330-18-00018	02-11-21
Wisconsin	State	999580010	08-31-21
Wyoming	State	8TMS-Q	04-30-20 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

eurofins | Environment Testing America

500-191255 COC

Client Information	Sampler: E. Kotlowski	Lab PM: Fredrick, Sandie	COC No: 500-87202-39248.1
Client Contact: Toni Schoen	Phone:	E-Mail: sandra.fredrick@eurofinset.com	Page: Page 1 of ~~1~~ 2
Company: Key Engineering Group, Ltd.		Analysis Requested	Job #: 500-191255
Address: 735 North Water Street Suite 510	Due Date Requested:		Preservation Codes:
City: Milwaukee	TAT Requested (days):		
State, Zip: WI, 53202			
Phone: 414-225-0591(Tel)	PO #: Purchase Order Requested 223767		
Email: tschoen@keyengineering.com	WO #:		
Project Name: Exide Bristol ~~1903-0824-0020~~ 2001-0212-0040	Project #: 50018288		
Site: 364 Exide Drive, Bristol, TN	SSOW#:		Other:

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA
M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010D, 9056A, Moisture	6010D - Lead	9056A - Sulfate	Total Number of containers	Special Instructions/Note:
					Preservation Code:			N	~~D~~ N	N		
1	GP-1(0-2)	11/16/20	1200	G	Solid			X	X	X		
2	GP-1(14-15.5)	↓	1220	↓	Solid			X	X	X		
3	GP-2(0.5-2)	↓	1300	↓	Solid			X	X	X		
4	GP-3(1-3)	↓	1330	↓	Solid			X	X	X		
5	GP-4(0.5-2)	↓	1420	↓	Solid			X	X	X		
6	GP-4(8-10)	↓	1430	↓	Solid			X	X	X		
7	GP-5(0-2)	↓	1500	↓	Solid			X	X	X		
8	GP-5(8-9.5)	↓	1510	↓	Solid			X	X	X		
9	GP-6(0-2)	↓	1530	↓	Solid			X	X	X		
10	GP-7(0.5-2)	↓	1620	↓	Solid			X	X	X		
11	GP-7(10-12)	↓	1630	↓	Solid			X	X	X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For ______ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
[signature]	11/17/2020 1600	Key	[signature]	11/18/20 1015	TA

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks: (2.1 7 2.5)

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

eurofins | Environment Testing America

Client Information	Sampler: E. Kotlowski	Lab PM: Fredrick, Sandie	Carrier Tracking No(s):	COC No: 500-87202-39248.2
Client Contact: Toni Schoen	Phone:	E-Mail: sandra.fredrick@eurofinset.com		Page: Page 2 of ~~2~~
Company: Key Engineering Group, Ltd.				Job #: 500-191255
Address: 735 North Water Street Suite 510	Due Date Requested:			
City: Milwaukee	TAT Requested (days):			
State, Zip: WI, 53202				
Phone: 414-225-0591(Tel)	PO #: Purchase Order Requested 223767			
Email: tschoen@keyengineering.com	WO #:			
Project Name: Exide Bristol ~~4000-0024-0020~~ 2001-0212-0040	Project #: 50018288			
Site: 364 Exide Drive, Bristol, TN	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

	Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010D, 9056A, Moisture	6010D - Lead	9056A - Sulfate	Total Number of containers	Special Instructions/Note:
				Preservation Code:				N	~~D~~ N	N		
12	GP-8(0.5-2)	11/16/20	1650	G	Solid			X	X	X		
13	GP-9(0.5-1)	11/16/20	1710		Solid			X	X	X		
14	GP-10(0-2)	11/17/20	0840		Solid			X	X	X		
15	GP-11(0-2)	↓	0900		Solid			X	X	X		
16	GP-11(6-7.5)		0910		Solid			X	X	X		
17	GP-12(0-2)		1020		Solid			X	X	X		
18	GP-13(0-2)		1040		Solid			X	X	X		
19	GP-14(0-2)		1100		Solid			X	X	X		
20	GP-15(0-2)	↓	1130	↓	Solid			X	X	X		
					~~Solid~~							
					~~Solid~~							

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 11/17/2020 1600	Company: Key	Received by:	Date/Time: 11-18-20 1015	Company: TA
Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

Fredrick, Sandie

From: Toni Schoen <tschoen@keyengineering.com>
Sent: Wednesday, November 18, 2020 6:04 PM
To: Kintz, Robin
Cc: Fredrick, Sandie
Subject: FW: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol
Attachments: COC 500-191261 (202011181118).pdf; COC 500-191260 (202011181113).pdf; COC 500-191255 (202011181126).pdf

Importance: High

EXTERNAL EMAIL*

Can the samples from these 3 COCs still be quick turned with data due Nov 25?

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Wednesday, November 18, 2020 8:48 AM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Hi Toni,
Fastest the lab can squeeze in right now for these is 5 day TAT. Cost x1.30

If arrival today, the due date would be next Wednesday the 25th COB.

Thanks,
Sandie

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660

E-mail: sandra.fredrick@eurofinset.com

www.EurofinsUS.com | www.TestAmericainc.com | Facebook | LinkedIn

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From: Toni Schoen <tschoen@keyengineering.com>
Sent: Wednesday, November 18, 2020 5:33 AM
To: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Cc: Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

EXTERNAL EMAIL*

We shipped ~23 lead and sulfate samples to University Park yesterday. Can you let me know the cost and availability for 3 day and 5 day TAT? When would results be received given the holiday.

Thank you.

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Tuesday, November 10, 2020 3:59 PM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Hobart, Paul <Paul.Hobart@Eurofinset.com>; Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Hi Toni,
Order is in for arrival to Evan by Friday at the hotel. (COC and order attached)

Happy Tuesday!
Sandie

Please note our adjusted hours for Thanksgiving »

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660
E-mail: sandra.fredrick@eurofinset.com

From: Toni Schoen <tschoen@keyengineering.com>
Sent: Tuesday, November 10, 2020 2:48 PM
To: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Hobart, Paul <Paul.Hobart@Eurofinset.com>; Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

EXTERNAL EMAIL*

Sandie:

Please ship containers:

- 30 soil lead and sulfate
- 12 water lead and sulfate
- 4 1L ambers, no preservative
- COCs and coolers

Hampton Inn
GUEST: Evan Kotlowski
3299 West State Street
Bristol, TN 37620

We need the containers there by the end of Friday **this week**.

Project No. 1903-0624-0020

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Tuesday, November 10, 2020 2:34 PM
To: Hobart, Paul <Paul.Hobart@Eurofinset.com>; Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Thanks Paul!

Hey Toni – let me know where, when and who to for containers if they are needed quickly.
Thanks and happy Tuesday!

Sandie

Please note our adjusted hours for Thanksgiving ››

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660
E-mail: sandra.fredrick@eurofinset.com

www.EurofinsUS.com | www.TestAmericainc.com | Facebook | LinkedIn

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From: Hobart, Paul <Paul.Hobart@Eurofinset.com>
Sent: Tuesday, November 10, 2020 2:30 PM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Subject: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Ms. Schoen:

Attached is the price quotation you requested for your Exide Bristol. We appreciate the opportunity to work with you on this project. Please do not hesitate to contact me if you have any questions or require additional information.

Thank you,

Paul Hobart
Manager of Client Relations Managers

Paul Hobart
Client Relations Manager

TestAmerica Laboratories, Inc.
Phone: 617-312-8660

E-mail: Paul.Hobart@Eurofinset.com
www.eurofinsus.com/env

Reference: [500-565099]
Attachments: 1

Please let us know if we met your expectations by rating the service you received from Eurofins TestAmerica on this project by visiting our website at: Project Feedback

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

500-191255 Wayb

Part # 1594[illegible] RIT2 EXP 06/21

eurofins | Environment Testing TestAmerica

ORIGIN ID:PHDA (930) 866-9677
GUEST: EVAN KOTLOWSKI
HAMPTON INN
3299 WEST STATE STREET
BRISTOL, TN 37620
UNITED STATES US

SHIP DATE: 11NOV20
ACTWGT: 10.00 LB
CAD: 0562071/CAFE3406

TO

EUROFINS TESTAMERICA CHICAGO
2417 BOND STREET
UNIVERSITY PARK IL 604843101
(708) 534-5200
REF: SSOO-87202
RMA:

FedEx Express

WED - 18 NOV 10:30A
PRIORITY OVERNIGHT

FedEx
TRK# 9345 4053 4425
0221

60484
IL-US ORD

NA JOTA

#5182540 11/17 56BJ5/BA89/8766

Login Sample Receipt Checklist

Client: Key Engineering Group, Ltd.

Job Number: 500-191255-1

Login Number: 191255
List Number: 1
Creator: James, Jeff A

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-191261-1
Client Project/Site: Exide Bristol - 2001-0212-0040

For:
Key Engineering Group, Ltd.
735 North Water Street
Suite 510
Milwaukee, Wisconsin 53202

Attn: Toni Schoen

Authorized for release by:
12/1/2020 1:58:17 PM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/tas

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 500-191261-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-191261-1

Comments
No additional comments.

Receipt
The sample was received on 11/18/2020 10:15 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5º C.

Metals
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Client Sample ID: Storm Sewer Outfall

Lab Sample ID: 500-191261-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	32		0.59	0.27	mg/Kg	1	☼	6010D	Total/NA
Sulfate	20		2.7	1.3	mg/Kg	1	☼	9056A	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	TAL CHI
9056A	Anions, Ion Chromatography	SW846	TAL CHI
Moisture	Percent Moisture	EPA	TAL CHI
300_Prep	Anions, Ion Chromatography, 10% Wt/Vol	MCAWW	TAL CHI
3050B	Preparation, Metals	SW846	TAL CHI

Protocol References:

EPA = US Environmental Protection Agency

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-191261-1	Storm Sewer Outfall	Solid	11/17/20 12:30	11/18/20 10:15	

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Client Sample ID: Storm Sewer Outfall

Date Collected: 11/17/20 12:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191261-1

Matrix: Solid
Percent Solids: 71.4

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	32		0.59	0.27	mg/Kg	☼	11/30/20 06:33	11/30/20 20:34	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	20		2.7	1.3	mg/Kg	☼	11/23/20 14:10	11/23/20 21:57	1

Definitions/Glossary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Metals

Prep Batch: 574410

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191261-1	Storm Sewer Outfall	Total/NA	Solid	3050B	
MB 500-574410/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 500-574410/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Analysis Batch: 574687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191261-1	Storm Sewer Outfall	Total/NA	Solid	6010D	574410
MB 500-574410/1-A	Method Blank	Total/NA	Solid	6010D	574410
LCS 500-574410/2-A	Lab Control Sample	Total/NA	Solid	6010D	574410

General Chemistry

Analysis Batch: 573073

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191261-1	Storm Sewer Outfall	Total/NA	Solid	Moisture	

Prep Batch: 573648

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191261-1	Storm Sewer Outfall	Total/NA	Solid	300_Prep	
MB 500-573648/1-A	Method Blank	Total/NA	Solid	300_Prep	
LCS 500-573648/2-A	Lab Control Sample	Total/NA	Solid	300_Prep	

Analysis Batch: 573666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191261-1	Storm Sewer Outfall	Total/NA	Solid	9056A	573648
MB 500-573648/1-A	Method Blank	Total/NA	Solid	9056A	573648
LCS 500-573648/2-A	Lab Control Sample	Total/NA	Solid	9056A	573648

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 500-574410/1-A
Matrix: Solid
Analysis Batch: 574687

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 574410

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.23		0.50	0.23	mg/Kg		11/30/20 06:33	11/30/20 19:09	1

Lab Sample ID: LCS 500-574410/2-A
Matrix: Solid
Analysis Batch: 574687

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 574410

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	10.0	9.64		mg/Kg		96	80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 500-573648/1-A
Matrix: Solid
Analysis Batch: 573666

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 573648

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.95		2.0	0.95	mg/Kg		11/23/20 14:10	11/23/20 21:30	1

Lab Sample ID: LCS 500-573648/2-A
Matrix: Solid
Analysis Batch: 573666

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 573648

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	50.0	52.7		mg/Kg		105	80 - 120

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191261-1

Client Sample ID: Storm Sewer Outfall
Date Collected: 11/17/20 12:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191261-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	Moisture		1	573073	11/19/20 11:02	LWN	TAL CHI

Client Sample ID: Storm Sewer Outfall
Date Collected: 11/17/20 12:30
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191261-1
Matrix: Solid
Percent Solids: 71.4

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			574410	11/30/20 06:33	LMN	TAL CHI
Total/NA	Analysis	6010D		1	574687	11/30/20 20:34	EEN	TAL CHI
Total/NA	Prep	300_Prep			573648	11/23/20 14:10	EAT	TAL CHI
Total/NA	Analysis	9056A		1	573666	11/23/20 21:57	EAT	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Key Engineering Group, Ltd.
Job ID: 500-191261-1
Project/Site: Exide Bristol - 2001-0212-0040

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-30-20 *
Georgia	State	N/A	04-30-20 *
Georgia (DW)	State	939	04-30-21
Hawaii	State	NA	04-30-20 *
Illinois	NELAP	IL00035	04-29-21
Indiana	State	C-IL-02	06-29-21
Iowa	State	082	05-01-20 *
Kentucky (UST)	State	AI # 108083	04-30-20 *
Kentucky (WW)	State	KY90023	12-31-20
Louisiana	NELAP	02046	06-30-21
Mississippi	State	NA	04-30-20 *
New York	NELAP	12019	04-01-21
North Carolina (WW/SW)	State	291	12-31-20
North Dakota	State	R-194	04-29-21
Oklahoma	State	8908	08-31-21
South Carolina	State	77001003	04-29-21
USDA	US Federal Programs	P330-18-00018	02-11-21
Wisconsin	State	999580010	08-31-21
Wyoming	State	8TMS-Q	04-30-20 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

eurofins | Environment Testing America

500-191261 COC

Client Information	Sampler: E. Kotlowski	Lab PM: Fredrick, Sandie	COC No: 500-87202-39248.3
Client Contact: Toni Schoen	Phone:	E-Mail: sandra.fredrick@eurofinset.com	Page: Page ~~3 of 3~~ 1 of 1
Company: Key Engineering Group, Ltd.		Analysis Requested	Job #: 500-191261
Address: 735 North Water Street Suite 510	Due Date Requested:		Preservation Codes:
City: Milwaukee	TAT Requested (days):		A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: WI, 53202			Other:
Phone: 414-225-0591(Tel)	PO #: Purchase Order Requested 223768		
Email: tschoen@keyengineering.com	WO #:		
Project Name: Exide Bristol ~~1903-0624-0020~~ 2001-0212-0040	Project #: 50018288		
Site: 364 Exide Drive, Bristol, TN	SSOW#:		

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	6010D, 9056A, Moisture	6010D - Lead	9056A - Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	~~D~~ N	N		
Sewer Outfall	11/17/20	1230	G	Solid			X	X	X		
				~~Solid~~							
				~~Solid~~							
				~~Solid~~							
				~~Solid~~							
				~~Solid~~							
				~~Solid~~							
				~~Solid~~							
				~~Water~~							
				~~Water~~							
				~~Water~~							

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment

Relinquished by:	Date/Time: 11/17/2020 1600	Company: Key	Received by:	Date/Time: 11-18-20 1015	Company: TM
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by	Date/Time.	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: (2.1-7.2.5)

Fredrick, Sandie

From: Toni Schoen <tschoen@keyengineering.com>
Sent: Wednesday, November 18, 2020 6:04 PM
To: Kintz, Robin
Cc: Fredrick, Sandie
Subject: FW: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol
Attachments: COC 500-191261 (202011181118).pdf; COC 500-191260 (202011181113).pdf; COC 500-191255 (202011181126).pdf

Importance: High

EXTERNAL EMAIL*

Can the samples from these 3 COCs still be quick turned with data due Nov 25?

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Wednesday, November 18, 2020 8:48 AM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Hi Toni,
Fastest the lab can squeeze in right now for these is 5 day TAT. Cost x1.30

If arrival today, the due date would be next Wednesday the 25th COB.

Thanks,
Sandie

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660

E-mail: sandra.fredrick@eurofinset.com

www.EurofinsUS.com | www.TestAmericainc.com | Facebook | LinkedIn

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From: Toni Schoen <tschoen@keyengineering.com>
Sent: Wednesday, November 18, 2020 5:33 AM
To: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Cc: Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

EXTERNAL EMAIL*

We shipped ~23 lead and sulfate samples to University Park yesterday. Can you let me know the cost and availability for 3 day and 5 day TAT? When would results be received given the holiday.

Thank you.

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Tuesday, November 10, 2020 3:59 PM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Hobart, Paul <Paul.Hobart@Eurofinset.com>; Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Hi Toni,
Order is in for arrival to Evan by Friday at the hotel. (COC and order attached)

Happy Tuesday!
Sandie

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660
E-mail: sandra.fredrick@eurofinset.com

From: Toni Schoen <tschoen@keyengineering.com>
Sent: Tuesday, November 10, 2020 2:48 PM
To: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Hobart, Paul <Paul.Hobart@Eurofinset.com>; Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

EXTERNAL EMAIL*

Sandie:

Please ship containers:

- 30 soil lead and sulfate
- 12 water lead and sulfate
- 4 1L ambers, no preservative
- COCs and coolers

Hampton Inn
GUEST: Evan Kotlowski
3299 West State Street
Bristol, TN 37620

We need the containers there by the end of Friday **this week**.

Project No. 1903-0624-0020

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Tuesday, November 10, 2020 2:34 PM
To: Hobart, Paul <Paul.Hobart@Eurofinset.com>; Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Thanks Paul!

Hey Toni – let me know where, when and who to for containers if they are needed quickly.
Thanks and happy Tuesday!

Sandie

Please note our adjusted hours for Thanksgiving ››

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660
E-mail: sandra.fredrick@eurofinset.com

www.EurofinsUS.com | www.TestAmericainc.com | Facebook | LinkedIn

---

From: Hobart, Paul <Paul.Hobart@Eurofinset.com>
Sent: Tuesday, November 10, 2020 2:30 PM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Subject: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Ms. Schoen:

Attached is the price quotation you requested for your Exide Bristol. We appreciate the opportunity to work with you on this project. Please do not hesitate to contact me if you have any questions or require additional information.

Thank you,

Paul Hobart
Manager of Client Relations Managers

Paul Hobart
Client Relations Manager

TestAmerica Laboratories, Inc.
Phone: 617-312-8660

E-mail: Paul.Hobart@Eurofinset.com
www.eurofinsus.com/env

Reference: [500-565099]
Attachments: 1

Please let us know if we met your expectations by rating the service you received from Eurofins TestAmerica on this project by visiting our website at: Project Feedback

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

500-191261 Wayb

Login Sample Receipt Checklist

Client: Key Engineering Group, Ltd.

Job Number: 500-191261-1

Login Number: 191261
List Number: 1
Creator: James, Jeff A

List Source: Eurofins TestAmerica, Chicago

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Attachment 3

Key Engineering Group, Ltd.

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Tel: (708)534-5200

Laboratory Job ID: 500-191260-1
Client Project/Site: Exide Bristol - 2001-0212-0040

For:
Key Engineering Group, Ltd.
735 North Water Street
Suite 510
Milwaukee, Wisconsin 53202

Attn: Toni Schoen

Authorized for release by:
11/30/2020 10:12:41 AM

Sandie Fredrick, Project Manager II
(920)261-1660
sandra.fredrick@eurofinset.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at:
www.eurofinsus.com/ats

The test results in this report meet all 2003 NELAC, 2009 TNI, and 2016 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Job ID: 500-191260-1

Laboratory: Eurofins TestAmerica, Chicago

Narrative

Job Narrative
500-191260-1

Comments
No additional comments.

Receipt
The sample was received on 11/18/2020 10:15 AM; the sample arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.5º C.

Metals
Method 6010D: The interference check standard solution (ICSA) associated with Analytical batch 500-573528 had results for Lead above the reporting limit (RL). Associated samples Storm Sewer Outfall (500-191260-1) were non-detects for Lead, therefore the data has been reported.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

General Chemistry
No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

Detection Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Client Sample ID: Storm Sewer Outfall

Lab Sample ID: 500-191260-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Sulfate	34		1.0	0.48	mg/L	5		9056A	Total/NA
pH	7.1	HF	0.2	0.2	SU	1		SM 4500 H+ B	Total/NA

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Method	Method Description	Protocol	Laboratory
6010D	Metals (ICP)	SW846	TAL CHI
9056A	Anions, Ion Chromatography	SW846	TAL CHI
SM 4500 H+ B	pH	SM	TAL CHI
3010A	Preparation, Total Metals	SW846	TAL CHI

Protocol References:

SM = "Standard Methods For The Examination Of Water And Wastewater"

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Sample Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
500-191260-1	Storm Sewer Outfall	Water	11/17/20 12:40	11/18/20 10:15	

Client Sample Results

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Client Sample ID: Storm Sewer Outfall

Lab Sample ID: 500-191260-1

Date Collected: 11/17/20 12:40
Date Received: 11/18/20 10:15

Matrix: Water

Method: 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.0027	^	0.0050	0.0027	mg/L		11/20/20 06:07	11/20/20 23:13	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	34		1.0	0.48	mg/L			11/24/20 19:52	5
pH	7.1	HF	0.2	0.2	SU			11/27/20 16:36	1

Definitions/Glossary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Qualifiers

Metals

Qualifier	Qualifier Description
^	ICV,CCV,ICB,CCB, ISA, ISB, CRI, CRA, DLCK or MRL standard: Instrument related QC is outside acceptance limits.

General Chemistry

Qualifier	Qualifier Description
HF	Field parameter with a holding time of 15 minutes. Test performed by laboratory at client's request.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

QC Association Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Metals

Prep Batch: 573196

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191260-1	Storm Sewer Outfall	Total/NA	Water	3010A	
MB 500-573196/1-A	Method Blank	Total/NA	Water	3010A	
LCS 500-573196/2-A	Lab Control Sample	Total/NA	Water	3010A	

Analysis Batch: 573528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191260-1	Storm Sewer Outfall	Total/NA	Water	6010D	573196
MB 500-573196/1-A	Method Blank	Total/NA	Water	6010D	573196
LCS 500-573196/2-A	Lab Control Sample	Total/NA	Water	6010D	573196

General Chemistry

Analysis Batch: 573871

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191260-1	Storm Sewer Outfall	Total/NA	Water	9056A	
MB 500-573871/7	Method Blank	Total/NA	Water	9056A	
LCS 500-573871/8	Lab Control Sample	Total/NA	Water	9056A	

Analysis Batch: 574466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
500-191260-1	Storm Sewer Outfall	Total/NA	Water	SM 4500 H+ B	
LCS 500-574466/2	Lab Control Sample	Total/NA	Water	SM 4500 H+ B	
LCSD 500-574466/3	Lab Control Sample Dup	Total/NA	Water	SM 4500 H+ B	
500-191260-1 DU	Storm Sewer Outfall	Total/NA	Water	SM 4500 H+ B	

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 500-573196/1-A
Matrix: Water
Analysis Batch: 573528

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 573196

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	<0.0027	^	0.0050	0.0027	mg/L		11/20/20 06:07	11/20/20 21:37	1

Lab Sample ID: LCS 500-573196/2-A
Matrix: Water
Analysis Batch: 573528

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 573196

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	0.100	0.0981	^	mg/L		98	80 - 120

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 500-573871/7
Matrix: Water
Analysis Batch: 573871

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Sulfate	<0.095		0.20	0.095	mg/L			11/24/20 16:29	1

Lab Sample ID: LCS 500-573871/8
Matrix: Water
Analysis Batch: 573871

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Sulfate	5.00	5.16		mg/L		103	80 - 120

Method: SM 4500 H+ B - pH

Lab Sample ID: 500-191260-1 DU
Matrix: Water
Analysis Batch: 574466

Client Sample ID: Storm Sewer Outfall
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	7.1	HF	7.1		SU		0.4	

Lab Chronicle

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Client Sample ID: Storm Sewer Outfall

Date Collected: 11/17/20 12:40
Date Received: 11/18/20 10:15

Lab Sample ID: 500-191260-1

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3010A			573196	11/20/20 06:07	LMN	TAL CHI
Total/NA	Analysis	6010D		1	573528	11/20/20 23:13	JJB	TAL CHI
Total/NA	Analysis	9056A		5	573871	11/24/20 19:52	EAT	TAL CHI
Total/NA	Analysis	SM 4500 H+ B		1	574466	11/27/20 16:36	SMO	TAL CHI

Laboratory References:

TAL CHI = Eurofins TestAmerica, Chicago, 2417 Bond Street, University Park, IL 60484, TEL (708)534-5200

Accreditation/Certification Summary

Client: Key Engineering Group, Ltd.
Project/Site: Exide Bristol - 2001-0212-0040

Job ID: 500-191260-1

Laboratory: Eurofins TestAmerica, Chicago

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2903	04-30-20 *
Georgia	State	N/A	04-30-20 *
Georgia (DW)	State	939	04-30-21
Hawaii	State	NA	04-30-20 *
Illinois	NELAP	IL00035	04-29-21
Indiana	State	C-IL-02	06-29-21
Iowa	State	082	05-01-20 *
Kentucky (UST)	State	AI # 108083	04-30-20 *
Kentucky (WW)	State	KY90023	12-31-20
Louisiana	NELAP	02046	06-30-21
Mississippi	State	NA	04-30-20 *
New York	NELAP	12019	04-01-21
North Carolina (WW/SW)	State	291	12-31-20
North Dakota	State	R-194	04-29-21
Oklahoma	State	8908	08-31-21
South Carolina	State	77001003	04-29-21
USDA	US Federal Programs	P330-18-00018	02-11-21
Wisconsin	State	999580010	08-31-21
Wyoming	State	8TMS-Q	04-30-20 *

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins TestAmerica, Chicago
2417 Bond Street
University Park, IL 60484
Phone (708) 534-5200 Fax (708) 534-5211

Chain of Custody Record

eurofins | Environment Testing America

500-191260 COC

Client Information	Sampler: E. Kotlowski	Lab PM: Fredrick, Sandie	Car	COC No: 500-87202-39248.5
Client Contact: Toni Schoen	Phone:	E-Mail: sandra.fredrick@eurofinset.com		Page: ~~Page 5 of 5~~ Page 1 of 1
Company: Key Engineering Group, Ltd.				Job #: 500-191260

Address: 735 North Water Street Suite 510	Due Date Requested:	Analysis Requested
City: Milwaukee	TAT Requested (days):	
State, Zip: WI, 53202		
Phone: 414-225-0591(Tel)	PO #: Purchase Order Requested 223766	
Email: tschoen@keyengineering.com	WO #:	
Project Name: Exide Bristol ~~1003-0624-0020~~ 2001-0212-0040	Project #: 50018288	
Site: 364 Exide Drive, Bristol, TN	SSOW#:	

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	~~6040B_3050A_Moisture~~ pH	6010D - Lead, Total	9056A - Sulfate	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N	D	N		
1 Sewer Outfall	11/17/20	1240	6	Water			X	X	X		
				~~Water~~							

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time: 11/17/2020 1600	Company: Key	Received by:	Date/Time: 11-18-20 1015	Company: FA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks: (2.1-T2.5)

Fredrick, Sandie

From: Toni Schoen <tschoen@keyengineering.com>
Sent: Wednesday, November 18, 2020 6:04 PM
To: Kintz, Robin
Cc: Fredrick, Sandie
Subject: FW: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol
Attachments: COC 500-191261 (202011181118).pdf; COC 500-191260 (202011181113).pdf; COC 500-191255 (202011181126).pdf

Importance: High

EXTERNAL EMAIL*

Can the samples from these 3 COCs still be quick turned with data due Nov 25?

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Wednesday, November 18, 2020 8:48 AM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Hi Toni,
Fastest the lab can squeeze in right now for these is 5 day TAT. Cost x1.30

If arrival today, the due date would be next Wednesday the 25th COB.

Thanks,
Sandie

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660

E-mail: sandra.fredrick@eurofinset.com

www.EurofinsUS.com | www.TestAmericainc.com | Facebook | LinkedIn

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From: Toni Schoen <tschoen@keyengineering.com>
Sent: Wednesday, November 18, 2020 5:33 AM
To: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Cc: Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

EXTERNAL EMAIL*

We shipped ~23 lead and sulfate samples to University Park yesterday. Can you let me know the cost and availability for 3 day and 5 day TAT? When would results be received given the holiday.

Thank you.

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Tuesday, November 10, 2020 3:59 PM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Hobart, Paul <Paul.Hobart@Eurofinset.com>; Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Hi Toni,
Order is in for arrival to Evan by Friday at the hotel. (COC and order attached)

Happy Tuesday!
Sandie

Please note our adjusted hours for Thanksgiving »

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660
E-mail: sandra.fredrick@eurofinset.com

From: Toni Schoen <tschoen@keyengineering.com>
Sent: Tuesday, November 10, 2020 2:48 PM
To: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Hobart, Paul <Paul.Hobart@Eurofinset.com>; Evan Kotlowski <ekotlowski@keyengineering.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

EXTERNAL EMAIL*

Sandie:

Please ship containers:

- 30 soil lead and sulfate
- 12 water lead and sulfate
- 4 1L ambers, no preservative
- COCs and coolers

Hampton Inn
GUEST: Evan Kotlowski
3299 West State Street
Bristol, TN 37620

We need the containers there by the end of Friday **this week**.

Project No. 1903-0624-0020

From: Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Sent: Tuesday, November 10, 2020 2:34 PM
To: Hobart, Paul <Paul.Hobart@Eurofinset.com>; Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>
Subject: RE: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Thanks Paul!

Hey Toni – let me know where, when and who to for containers if they are needed quickly.
Thanks and happy Tuesday!

Sandie

Please note our adjusted hours for Thanksgiving ››

Please let us know if we met your expectations by rating the service you received from TestAmerica on this project by visiting our website at: Project Feedback

We are thankful for your business and hope that you have a wonderful day!

Sandie Fredrick
Project Manager

Eurofins TestAmerica
2417 Bond Street
University Park, IL 60484 USA

Phone: 920-261-1660
E-mail: sandra.fredrick@eurofinset.com

www.EurofinsUS.com | www.TestAmericainc.com | Facebook | LinkedIn

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From: Hobart, Paul <Paul.Hobart@Eurofinset.com>
Sent: Tuesday, November 10, 2020 2:30 PM
To: Toni Schoen <tschoen@keyengineering.com>
Cc: Esselman, Bernie <Bernie.Esselman@Eurofinset.com>; Fredrick, Sandie <Sandra.Fredrick@Eurofinset.com>
Subject: Eurofins TestAmerica, Chicago - Quote #50018287 - Key Engineering Group, Ltd. - Exide Bristol

Ms. Schoen:

Attached is the price quotation you requested for your Exide Bristol. We appreciate the opportunity to work with you on this project. Please do not hesitate to contact me if you have any questions or require additional information.

Thank you,

Paul Hobart
Manager of Client Relations Managers

Paul Hobart
Client Relations Manager

TestAmerica Laboratories, Inc.
Phone: 617-312-8660

E-mail: Paul.Hobart@Eurofinset.com
www.eurofinsus.com/env

Reference: [500-565099]
Attachments: 1

Please let us know if we met your expectations by rating the service you received from Eurofins TestAmerica on this project by visiting our website at: Project Feedback

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

* WARNING - EXTERNAL: This email originated from outside of Eurofins TestAmerica. Do not click any links or open any attachments unless you trust the sender and know that the content is safe!

500-191260 Wayb

Login Sample Receipt Checklist

Client: Key Engineering Group, Ltd. Job Number: 500-191260-1

Login Number: 191260 **List Source: Eurofins TestAmerica, Chicago**
List Number: 1
Creator: James, Jeff A

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.5
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Summary of Board Orders 22-005 through 22-008: Certificate of Exemption (COE) Renewal

The Tennessee Air Quality Act (contained in Tennessee Code Annotated (TCA) §§ 68-201-115(a)) allows local governments to adopt regulations that are not less stringent than those of the State. Specifically, Tennessee Code Annotated §§ 68-201-115(a) states:

> "(a) Any municipality or county in this state may enact, by ordinance or resolution respectively, air pollution control regulations not less stringent than the standards adopted for the state pursuant to this part…"

Additionally, Tennessee Code Annotated §§ 68-201-115(b)(3) states:

> "(3) The certificate of exemption shall be granted if the board determines that:
> (A) The municipality or county has enacted provisions for the control of air pollution not less stringent than this part;
> (B) The enactments referenced in subdivision (b)(3)(A) are being, or will be, adequately enforced; and
> (C) The granting of the certificate will not interfere with the state's goal of maintaining the purity of the air resources of the state;"

These provisions in the Tennessee Code Annotated allow the Tennessee Air Pollution Control Board to grant a Certificate of Exemption (COE) to local jurisdictions for exemption from State supervision.

Therefore, these petitions with supporting information are being presented to allow entities an exemption from State supervision. These entities, referred to here as "Local Programs", are permitted through the Certificate of Exemption to conduct the regulatory requirements typically conducted by the State Air Pollution Control Division. The exemption can be for a duration up to two years (TCA §§ 68-201-115(c)(1)). Also Tennessee Code Annotated §§ 68-201-115(b)(6) limits the exemption to the language and areas of authority specifically stated in the exemption.

There are four "Local Programs" in Tennessee:

- Davidson County
- Hamilton County
- Knox County
- Shelby County

Each of the current Certificate of Exemption expires on June 30th, 2022. The new certificates, as proposed, are effective for the period July 1, 2022 through June 30, 2024. To renew the certificates, the Local Programs have petitioned the Technical Secretary, on behalf of the Air Board, for renewal of the existing certificates. Each of the Local Programs has completed a 'Petition' for renewal of the certificate for the Air

Board's consideration. Additionally, the Division requested additional information for the Board and the Division's review. This supplemental information is made available electronically in conjunction with the Board Packet for the June 8th, 2022 meeting of the Air Pollution Control Board. This information may be found at: Certificate of Exemption 2022 - June 8, 2022 (tn.gov).

The Technical Secretary is recommending renewal of each of the Certificates of Exemption as outlined in the respective Board Orders.

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
BUREAU OF ENVIRONMENT
DIVISION OF AIR POLLUTION CONTROL

IN THE MATTER OF:	**)**	
	)	
Metropolitan Government of	**)**	**Board Order No. 22-005**
Nashville and Davidson County, Tennessee	**)**	

CERTIFICATE OF EXEMPTION

BOARD ORDER

I.

Under the authority of Tennessee Code Annotated, section 68-201-115(a), a petition to renew the Davidson County Certificate of Exemption was filed on July 29, 2021, with the Tennessee Division of Air Pollution Control by the Metro Public Health Department for the City of Nashville, the County of Davidson and all included municipalities.

The terms in Tennessee Code Annotated section 68-201-115(b)(3) state that:

"(3) The certificate of exemption shall be granted if the board determines that:
(A) The municipality or county has enacted provisions for the control of air pollution not less stringent than this part;
(B) The enactments referenced in subdivision (b)(3)(A) are being, or will be, adequately enforced; and
(C) The granting of the certificate will not interfere with the state's goal of maintaining the purity of the air resources of the state;"

II.

In accordance with Tennessee Code Annotated section 68-201-115(b)(3), the Metro Public Health Department does enforce regulations and/or ordinances for the control of air pollution that are not less stringent than the State's. Therefore, the Air Pollution Control Board

of the State of Tennessee does hereby grant a Certificate of Exemption to Davidson County and all included municipalities for a two (2) year period. The certificate goes into effect on **July 1, 2022**, and expires on **June 30, 2024** as authorized by Tennessee Code Annotated section 68-201-115(c). During this period, Davidson County and all included municipalities shall be exempt from the provisions of the Tennessee Air Quality Act with respect to the power and authority to enforce the following as set forth in the ordinances, regulations or other rules where indicated below:

Ambient air quality standards;

Open burning regulations;

Visible emissions standards;

Non-process emission limitations;

Process emission limitations;

Fugitive dust regulations;

Permitting requirements:

Construction permits:
New source review (Growth Policy);
PSD authority; and
Minor source permits;

Operating Permits:
Initial and renewal; and
Federally enforceable;

Part 70 operating permits

Asbestos demolition and renovation projects

National Emission Standards for Hazardous Air Pollutants and Maximum Achievable Control Technology Standards, as set forth in TN Chapters 1200-3-11 & 31 (as adopted from 40 CFR Parts 61 and 63) and other standards and regulations for hazardous air pollutants (including authority to determine Maximum Achievable Control Technology Standards) and authority to incorporate them into permits to comply with all provisions

of Section 112 of the Federal Clean Air Act and enforcement of these standards and regulations;

Methods of sampling, testing and analysis;

Enforcement and Compliance provisions:

> Instituting, or causing to be instituted in a court of competent jurisdiction, legal proceedings to compel compliance with an order, final order, determination, rule, regulation, or ordinance of the local Board, the Director of the Metro Public Health Department of Nashville and Davidson County, or of any included governmental entity;
>
> Obtaining compliance with air pollution control rules and regulations by conference, conciliation, persuasion, issuance of formal notices of violation and prosecution thereof; including when appropriate, holding hearings and issuing orders to assess civil penalties for each violation where each day of violation is a separate offense, and providing hearings for administrative review through a local Board of civil penalties, orders and permits, and including, when appropriate, judicial proceedings or referral to the U.S. Environmental Protection Agency or district attorney general for prosecution;
>
> Determining that any order, final order, determination, rule, regulation or ordinance of the local Board, the Director of the Metro Public Health Department or Nashville and Davidson County, or of any included governmental entity has been violated, that such violation constitutes a public nuisance, and instituting legal proceedings to abate a public nuisance on behalf of a municipality or a county;

Control of emissions of particulate matter, including PM10 and PM2.5;

Control of emissions of carbon monoxide;

Control of emissions of the precursors of ozone, including volatile organic compounds and nitrogen oxides;

Control of emissions of sulfur oxides, emissions of sulfuric acid and sulfur trioxide (combined);

Control of emissions of lead;

Control of greenhouse gases;

Emergency episode regulations, including emergency stop orders;

New Source Performance Standards (NSPS) as set forth in TN Chapter 1200-3-16 and Emission Guidelines in 40 CFR Part 60, after adoption as local laws, as listed below:

General provisions;

Fossil fuel-fired steam generating units of more than 250 million Btu/hr heat input rate which commenced construction after August 17, 1971;

Electric utility steam generating units of more than 250 million Btu/hr heat input rate which commenced construction after September 18, 1978;

Industrial-Commercial-Institutional Steam Generating Units;

Incinerators;

Municipal Waste Combustors;

Hospital/Medical/Infectious Waste Incinerators;

Portland cement plants;

Nitric acid plants;

Sulfuric acid plants;

Asphalt concrete plants (hot mix asphalt facilities);

Petroleum refineries;

Storage vessels for petroleum liquids;

Secondary lead smelters;

Secondary brass and bronze ingot production plants;

Primary emissions from basic oxygen process furnaces for which construction is commenced after January 20, 1983;

Sewage treatment plants;

Primary copper smelters;

Primary zinc smelters;

Primary aluminum reduction plants;

Phosphate fertilizer industry for:

Wet process phosphoric acid plants;

Super phosphoric acid plants;

Diammonium phosphate plants;

Triple superphosphate plants;

Granular triple superphosphate storage facilities;

Coal preparation plants;

Ferroalloy production facilities;

Steel plants: Electric arc furnaces constructed after October 21, 1974 and on or before August 17, 1983;

Steel plants: Electric arc furnaces and argon-oxygen decarburization vessels constructed after August 7, 1983;

Kraft pulp mills;

Glass manufacturing plants;

Grain elevators;

Surface coating of metal furniture;

Stationary gas turbines;

Lime manufacturing plants;

Lead-acid battery manufacturing plants;

Metallic mineral processing plants;

Automobile and light-duty truck surface coating operations;

Phosphate rock plants;

Ammonium sulfate manufacture;

Graphic arts industry: publication rotogravure printing

Pressure sensitive tape & label surface coating operations;

Industrial surface coating: large appliances;

Metal coil surface coating;

Asphalt processing and asphalt roofing manufacture;

Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry;

Beverage can surface coating industry;

Bulk-gasoline terminals;

Rubber tire manufacturing industry;

VOC emissions from the polymer manufacturing industry;

Flexible vinyl & urethane coating and printing;

Equipment leaks of VOC in petroleum refineries;

Synthetic fiber production facilities;

VOC emissions from the synthetic organic chemical manufacturing industry (SOCMI) air oxidation unit processes;

Petroleum dry cleaners;

Equipment leaks of VOC from onshore: natural gas processing plants;

Onshore natural gas processing: SO2 emissions;

VOC emissions from the synthetic organic chemical manufacturing industry (SOCMI) distillation operations;

Non-metallic mineral processing plants;

Wool fiberglass insulation manufacturing plants;

VOC emissions from petroleum refinery wastewater systems;

VOC emissions from the synthetic organic chemical manufacturing industry (SOCMI) reactor processes;

Magnetic tape coating facilities;

Industrial surface coating: plastic parts for business machines;

Calciners and dryers in mineral industries;

Polymeric coating of supporting substrates facilities;

Municipal solid waste landfills;

Small municipal waste combustors;

Commercial and industrial solid waste incineration units for which construction is commenced after November 30, 1999, or for which modification or reconstruction is commenced on or after June 1, 2001;

Commercial and industrial solid waste incineration units that commenced construction on or before November 30, 1999;

Other solid waste incineration units;

Coal-fired electric steam generating units;

Stationary compression ignition internal combustion engines;

Stationary spark ignition internal combustion engines;

Stationary combustion turbines;

Administrative procedures, including emissions credit banking and emissions trading policy statements;

Monitoring, recording and reporting of source emissions;

Regulation of malfunctions, start-ups and shutdowns;

Alternate emissions limitations;

General policies or plans:

Ozone attainment and maintenance plans (SIP);

Program operating procedures;

Carbon monoxide maintenance plan (SIP);

Particulate matter control plan (PM2.5);

System of permits and/or certificates and emission fees including the Title V permit program;

Scheduling and collecting of fees for review of plans and specifications, issuance or renewal of permits or certificates (including Title V permit fees), inspection of air pollutant sources, including building demolition and renovation, and computer and research time;

Developing and recommending a comprehensive air pollution control program, reviewing such program, and recommending changes as may be deemed appropriate;

Requiring the furnishing of information from persons causing, or who may be about to cause air pollution;

Entering in or upon private or public property for the purpose of inspecting and investigating any air contaminant sources;

Receiving, budgeting, receipting for and administering such monies as are appropriated or granted for carrying out the program of the local Board;

Collecting and disseminating information relative to air pollution; encouraging voluntary cooperation in preserving and resorting a reasonable degree of air purity; and advising, consulting and cooperating with other agencies, persons or groups in matters pertaining to air pollution;

Handling correspondence, keeping records, preparing reports and performing such duties as are necessary or authorized;

Granting and denying petitions for variances after first submitting the variance to the Metropolitan Board of Health for approval;

Regulation of infectious waste incinerators;

Good engineering practice stack height requirements;

Light duty vehicle inspection and maintenance program;

Transportation conformity rule requirements; and

Confidentiality determinations.

III.

Approved by the following members of the Air Pollution Control Board of the State of Tennessee and entered on this 8th day of June, 2022.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Board Order 22_005 Davidson COE 2022 a.docx

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

CERTIFICATE OF EXEMPTION

By authority of Tennessee Code Annotated section 68-201-115,
the Tennessee Air Pollution Control Board Declares that

Metropolitan Nashville and Davidson County, Tennessee and all Included Municipalities

are
exempt from the provisions of the
Tennessee Air Quality Act as found in
Tennessee Code Annotated Title 68, Chapter 201,
subject to such limitations as established by the Board pursuant
to Board Order No. 22-005, passed
by the Board on this the 8th day of June 2022

Air Pollution Control Board Members of the State of Tennessee

_____ _____

_____ _____

_____ _____

_____ _____

_____

_____

_____

_____

_____

_____

Expiration Date: June 30, 2024

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
BUREAU OF ENVIRONMENT
DIVISION OF AIR POLLUTION CONTROL

IN THE MATTER OF:	**)**	
	)	
Hamilton County, Tennessee	**)**	
City of Chattanooga, Tennessee	**)**	
City of Collegedale, Tennessee	**)**	
City of East Ridge, Tennessee	**)**	
City of Lakesite, Tennessee	**)**	**Board Order No. 22-006**
Town of Lookout Mountain, Tennessee	**)**	
City of Red Bank, Tennessee	**)**	
City of Ridgeside, Tennessee	**)**	
Town of Signal Mountain, Tennessee	**)**	
City of Soddy-Daisy, Tennessee	**)**	
Town of Walden, Tennessee	**)**	

CERTIFICATE OF EXEMPTION

BOARD ORDER

I.

Under the authority of Tennessee Code Annotated section 68-201-115(a), a petition to renew the Hamilton County Certificate of Exemption was filed on July 20, 2021, with the Tennessee Division of Air Pollution Control by the Chattanooga-Hamilton County Air Pollution Control Bureau for the City of Chattanooga, the County of Hamilton and all included municipalities.

The terms in Tennessee Code Annotated section 68-201-115(b)(3) state that:

"(3) The certificate of exemption shall be granted if the board determines that:
(A) The municipality or county has enacted provisions for the control of air pollution not less stringent than this part;
(B) The enactments referenced in subdivision (b)(3)(A) are being, or will be, adequately enforced; and

(C) The granting of the certificate will not interfere with the state's goal of maintaining the purity of the air resources of the state;"

II.

In accordance with Tennessee Code Annotated section 68-201-115(b)(3), the Chattanooga-Hamilton County Air Pollution Control Bureau does enforce regulations and/or ordinances for the control of air pollution that are not less stringent than the State's. Therefore, the Air Pollution Control Board of the State of Tennessee does hereby grant a Certificate of Exemption to Hamilton County and all included municipalities for a two (2) year period. The certificate goes into effect on **July 1, 2022**, and expires on **June 30, 2024** as authorized by Tennessee Code Annotated section 68-201-115(c). During this period, Hamilton County and all included municipalities shall be exempt from the provisions of the Tennessee Air Quality Act with respect to the power and authority to enforce the following as set forth in the ordinances, regulations or other rules where indicated below:

1. Ambient air quality standards;
2. Open burning restrictions;
3. Visible emissions limitations;
4. Non-process emission limitations (fuel burning and incinerator);
5. Process emission including process gaseous emissions limitations;
6. Fugitive dust restrictions (Transportation and Material Handling in Open Air);
7. Permitting requirements, including definitions; amendments to permits; applications; permitting fees; emissions fees; testing; practical enforceability; monitoring; record keeping and reporting;
8. Construction permits:

    New Source Review - Growth Policy
    PSD Authority

Installation Permits

9. Certificates of Operation:

   Initial and Renewal
   Federally Enforceable

10. Part 70 Operating Permits

11. Asbestos Demolition and Renovation Project Permits

12. All National Emission Standards for Hazardous Air Pollutants, as set forth in 40 CFR Parts 61 and 63 and other standards and regulations for hazardous air pollutants (including authority to determine Maximum Achievable Control Technology Standards) and authority to incorporate them into permits to comply with all provisions of Section 112 of the Federal Clean Air Act and enforcement of these standards and regulations;

13. Methods of sampling; testing and analysis;

14. Enforcement and Compliance provisions including:

    Instituting, or causing to be instituted in a court of competent jurisdiction, legal proceedings to compel compliance with any order, final order, determination, rule, regulation or ordinance of the local Board, the director of the local Bureau, or of any included governmental entity, including instituting legal proceedings on behalf of any included municipality or county;

    Determining that any order, final order, determination, rule, regulation or ordinance of the local Board, the director of the local Bureau, or of any included governmental entity has been violated, that such violation constitutes a public nuisance, and abating such a public nuisance in the manner provided by the general law relating to the abatement of public nuisances, including instituting legal proceedings to abate a public nuisance on behalf of a municipality or a county;

    Obtaining compliance with air pollution control rules and regulations by conference, conciliation, persuasion, issuance of formal notices of violation and prosecution thereof; including, when appropriate, holding hearings and issuing orders to assess civil penalties for each violation where each day of violation is a separate offense, and including, when appropriate, judicial proceedings or referral to the U.S. Environmental Protection Agency or district attorney general for prosecution;

    Pursuing enforcement of any ordinance or regulations, or orders made by the director or the Board pursuant to the ordinance or regulations, by injunction to enjoin any violation of any requirement of the ordinance or regulations, including conditions of a permit or

certificate of operation, or other appropriate remedy, and the Board shall have power to institute and maintain in the name of the Board any and all enforcement proceedings.

15. Control of emissions of particulates including PM2.5 and PM10, carbon monoxide, sulfur dioxide, nitrogen oxides, volatile organic compounds, toxic air pollutants and gaseous emissions;

16. Control of emissions of the precursors to ozone including volatile organic compounds and nitrogen oxides;

17. Control of emissions of sulfur oxides, and emissions of sulfuric acid and sulfur trioxide (combined);

18. Control of emissions of lead;

19. Emergency episode regulations including emergency stop orders;

20. New Source Performance Standards (NSPS) set forth in 40 CFR Part 60, after adoption as local laws, listed below:

    General Provisions;

    Fossil-fuel fired steam generating units;

    Incinerators;

    Municipal waste combustors;

    Portland cement plants;

    Sulfuric acid plants;

    Nitric acid plants;

    Asphalt concrete plants (hot mix asphalt facilities);

    Petroleum-refineries; Storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after June 11, 1973, and prior to May 19, 1978;

    Electric utility steam generating units for which construction commenced after September 18, 1978;

    Storage vessels for petroleum liquids construction after May 18, 1978 and prior to July 23, 1984;

Volatile organic liquid storage vessels (including petroleum liquid storage vessels) constructed on or after July 23, 1984;

Secondary lead smelters;

Basic Oxygen Process Furnaces constructed after June 11, 1973, primary emissions;

Basic Oxygen Process Steelmaking Facilities constructed after January 20, 1983, secondary emissions;

Secondary brass and bronze ingot production plants;

Iron and steel plants;

Sewage treatment plants;

Phosphate fertilizer industry:

- Wet-process phosphoric acid plants,
- Super phosphoric acid plants,
- Diammonium phosphate plants,
- Triple superphosphate plants, and
- Triple superphosphate storage facilities;

Primary aluminum reduction plants;

Coal preparation plants;

Primary copper smelters;

Primary zinc smelters;

Primary lead smelters;

Steel plants: electric arc furnaces; Ferroalloy production;

Lime manufacturing plants;

Kraft pulp mills;

Grain elevators;

Stationary gas turbines;

Ammonium sulfate manufacture;

Glass manufacturing plants;

Automobile and light duty truck surface coating operations;

Asphalt processing and asphalt roofing manufacture;

Industrial surface coating: large appliances;

Surface coating of metal furniture;

Metal coil surface coating;

Graphic arts industry: publication rotogravure printing;

Beverage can surface coating industry;

Metallic mineral processing plants;

Pressure sensitive tape and label surface coating operations;

Magnetic tape coating facilities;

Equipment leaks of VOC in the synthetic organic chemical manufacturing industry;

Bulk gasoline terminals;

Synthetic fiber production facilities;

Volatile Organic Compound (VOC) Emissions from the polymer manufacturing industry;

Lead acid battery manufacturing plants;

Equipment leaks of VOC in petroleum refineries;

Flexible vinyl and urethane coating and printing;

Petroleum dry cleaners;

Phosphate rock plants;

Equipment leaks of VOC from onshore natural gas processing plants;

Electric arc furnaces constructed after October 21, 1974, and on or before August 17, 1983;

Electric arc furnaces and argon-oxygen decarburization vessels constructed after August 17, 1983;

Industrial surface coating: Plastic parts for business machines;

Industrial-Commercial-Institutional steam generating units;

Non-metallic mineral processing plants;

Onshore natural gas processing: SO2 emissions;

Wool fiberglass insulation manufacturing plants;

Polymeric coating of supporting substrates facilities;

Rubber tire manufacturing industry;

Calciners and Dryers in mineral industries;

New Residential Wood Heaters;

Municipal Solid Waste Landfills; and

Hospital/Medical/Infectious Waste Incinerators.

21. Administrative procedures including emissions credit banking and emissions trading policy statements;

22. Emissions limitations and monitoring requirements;

23. Regulation of malfunctions, start-ups, and shutdowns;

24. Alternate emissions limitations;

25. General policies or plans;

26. System of permits and/or certificates to include the Title V (Part 70) permit program;

27. Scheduling and collecting fees for review of plans and specifications, issuance or renewal of permits or certificates (including Part 70 emission fees), inspection of air pollutant sources, building demolition and renovation, and computer and research time;

28. Developing and recommending a comprehensive air pollution control program, reviewing such program, and recommending such changes as may be deemed appropriate;

29. Requiring the furnishing of information from persons causing, or who may be about to cause, air pollution;

30. Entering in or upon private or public property for the purpose of inspecting and investigating any air contaminant source;

31. Providing such technical, scientific and other services as may be necessary and charging fees for preparation, research, computer time and distribution;

32. Receiving, budgeting, receipting for and administering such moneys as are appropriated or granted for carrying out the program of the local Board;

33. Collecting and disseminating information relative to air pollution; encouraging voluntary cooperation in preserving and restoring a reasonable degree of air purity; and advising, consulting and cooperating with other agencies, persons or groups in matters pertaining to air pollution;

34. Handling correspondence, keeping records, preparing reports and performing such duties as are necessary or authorized;

35. Granting or denying petitions for variances after first submitting variances to be issued to the Tennessee Division of Air Pollution Control for review;

36. Regulation of infectious and medical waste incinerators;

37. Regulation of general engineering practice stack height requirements;

38. Abatement of air contaminants, water, steam, or a combination which reduce visibility across any road to cause a hazard;

39. Transportation conformity requirements;

40. Confidentiality determinations;

41. Regulation of odors related to emissions of air contaminants and regulation of nuisances related to emissions of air contaminants.

III.

Approved by the following members of the Air Pollution Control Board of the State of Tennessee and entered on this 8th day of June, 2022.

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

CERTIFICATE OF EXEMPTION

By authority of Tennessee Code Annotated section 68-201-115, the Tennessee Air Pollution Control Board Declares that

Chattanooga and Hamilton County, Tennessee and all Included Municipalities

are
exempt from the provisions of the
Tennessee Air Quality Act as found in
Tennessee Code Annotated Title 68, Chapter 201,
subject to such limitations as established by the Board pursuant to Board Order No. 22-006, passed by the Board on this the 8th day of June 2022

Air Pollution Control Board Members of the State of Tennessee

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Expiration Date: June 30, 2024

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
BUREAU OF ENVIRONMENT
DIVISION OF AIR POLLUTION CONTROL

IN THE MATTER OF:	**)**	
	)	
Knox County, Tennessee	**)**	**Board Order No. 22-007**
City of Knoxville, Tennessee	**)**	
And all included municipalities		

CERTIFICATE OF EXEMPTION

BOARD ORDER

I.

Under the authority of Tennessee Code Annotated section 68-201-115(a), a petition to renew the Knox County Certificate of Exemption was filed on August 2, 2021, with the Tennessee Division of Air Pollution Control by the Knox County Department of Air Quality Management for the City of Knoxville, the County of Knox and all included municipalities.

The terms in Tennessee Code Annotated section 68-201-115(b)(3) state that:

"(3) The certificate of exemption shall be granted if the board determines that:
(A) The municipality or county has enacted provisions for the control of air pollution not less stringent than this part;
(B) The enactments referenced in subdivision (b)(3)(A) are being, or will be, adequately enforced; and
(C) The granting of the certificate will not interfere with the state's goal of maintaining the purity of the air resources of the state;"

II.

In accordance with Tennessee Code Annotated section 68-201-115(b)(3), the Knox County Department of Air Quality Management does enforce regulations and/or ordinances for

the control of air pollution that are not less stringent than the State's. Therefore, the Air Pollution Control Board of the State of Tennessee does hereby grant a Certificate of Exemption to Knox County and all included municipalities for a two (2) year period. The certificate goes into effect on **July 1, 2022**, and expires on **June 30, 2024** as authorized by Tennessee Code Annotated section 68-201-115(c). During this period, Knox County and all included municipalities shall be exempt from the provisions of the Tennessee Air Quality Act with respect to the power and authority to enforce the following as set forth in the ordinances, regulations or other rules where indicated below:

1. Ambient air quality standards;
2. Open burning regulations;
3. Visible emission standards;
4. Non-process emission limitations;
5. Process emission limitations;
6. Fugitive dust regulations;
7. Permitting requirements:
    - A. Construction Permits:
        - (1) New Source Review (Growth Policy)
        - (2) PSD Authority
        - (3) Minor Source Permits
    - B. Operating Permits:
        - (1) Initial and Renewal
        - (2) Federally Enforceable
    - C. Part 70 Operating Permits
    - D. Asbestos Demolition and Renovation Projects
8. National Emission Standards for Hazardous Air Pollutants, and Maximum

Achievable Control Technology Standards, as set forth in TN Chapters 1200-3-11 & 31 (as adopted from 40 CFR Parts 61 and 63) and other standards and regulations for hazardous air pollutants (including authority to determine Maximum Achievable Control Technology Standards) and authority to incorporate them into permits to comply with all provisions of Section 112 of the Federal Clean Air Act and enforcement of these standards and regulations.

9. Methods of sampling; testing and analysis;

10. Enforcement and Compliance provisions;

- Instituting, or causing to be instituted in a court of competent jurisdiction, legal proceedings to compel compliance with any order, final order, determination, rule, regulation or ordinance of the local Board, the director of the Knox County Department of Air Quality Management, or of any included governmental entity;

- Obtaining compliance with air pollution control rules and regulations by conference, conciliation, persuasion, issuance of formal notices of violation and prosecution thereof; including when appropriate, holding hearings and issuing orders to assess civil penalties for each violation where each day of violation is a separate offense, and providing hearings for administrative review through a local Board of civil penalties, orders and permits, and including, when appropriate, judicial proceedings or referral to the U.S. Environmental Protection Agency or district attorney general for prosecution;

- Determining that any order, final order, determination, rule, regulation or ordinance of the local Board, the director of Knox County Department of Air Quality Management, or of any included governmental entity has been violated, that such violation constitutes a public nuisance, and instituting legal proceedings to abate a public nuisance on behalf of a municipality or a county;

11. Control of emissions of particulate matter including PM10, and PM2.5 and precursors;

12. Control of emissions of carbon monoxide;

13. Control of emissions of the precursors to ozone including volatile organic compounds and nitrogen oxides;

14. Control of emissions of sulfur oxides, emissions of sulfuric acid and sulfur trioxide (combined);

15. Control of emissions of lead;

16. Emergency episode regulations including emergency stop orders;

17. New Source Performance Standards (NSPS) as set forth in TN Chapter 1200-3-16 and Emission Guidelines in 40 CFR Part 60, after adoption as local laws, as listed below:

- General Provisions;
- Fossil fuel-fired steam generating units of more than 250 million Btu/hr heat input rate which commenced construction after August 17, 1971;
- Electric utility steam generating units of more than 250 million Btu/hr heat input rate which commenced construction after September 18, 1978;
- Incinerators;
- Municipal waste combustors;
- Portland cement plants;
- Sulfuric acid plants;
- Nitric acid plants;
- Asphalt concrete plants (hot mix asphalt facilities);
- Petroleum refineries;
- Storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after June 11, 1973 and prior to May 19, 1978;
- Storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after May 18, 1978 and prior to July 23, 1984;
- Volatile organic liquid storage vessels (including petroleum liquid storage vessels) constructed on or after July 23, 1984;
- Secondary lead smelters;
- Secondary brass and bronze ingot production plants;
- Primary emissions from basic oxygen process furnaces for which construction is commenced after June 11, 1973;
- Secondary emissions from basic oxygen process steelmaking facilities for which construction is commenced after January 20, 1983;

- Sewage treatment plants, incinerators;

- Phosphate fertilizer industry for:

    - Wet process phosphoric acid plants;
    - Super phosphoric acid plants;
    - Diammonium phosphate plants;
    - Triple superphosphate plants;
    - Granular triple superphosphate storage facilities;

- Primary aluminum reduction plants;

- Coal preparation plants;

- Iron and steel plant furnaces constructed after April 21, 1971;

- Primary copper smelters;

- Primary zinc smelters;

- Primary lead smelters;

- Steel plant electric arc furnaces constructed after October 21, 1974 and on or before August 17, 1983;

- Ferroalloy production;

- Lime Manufacturing plants;

- Kraft pulp mills;

- Grain elevators;

- Stationary gas turbines;

- Ammonium sulfate manufacture;

- Glass manufacturing plants;

- Automobile and Light-duty truck surface coating operations;

- Asphalt processing and asphalt roofing manufacture;

- Industrial surface coating: large appliances;

- Surface coating of metal furniture;
- Metal coil surface coating;
- Graphic arts industry: Publication Rotogravure Printing;
- Beverage can surface coating industry;
- Metallic mineral processing plants;
- Pressure sensitive tape & label surface coating operations;
- Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry;
- Bulk-gasoline terminals;
- Synthetic fiber production facilities;
- Lead-acid battery manufacturing plants;
- Equipment leaks of VOC in petroleum refineries;
- Flexible vinyl & urethane coating and printing;
- Petroleum dry cleaners;
- Phosphate rock plants;
- Equipment leaks of VOC from onshore: natural gas processing plants;
- Electric arc furnaces and argon-oxygen decarburization vessels constructed after August 17, 1983;
- Industrial Surface Coating: plastic parts for business machines;
- Industrial-commercial institutional steam generating units;
- Onshore natural gas processing: SO_2 emissions;
- Non-metallic mineral processing plants;
- Wool fiberglass insulation manufacturing plants;
- Rubber Tire Manufacturing Industry;

- Calciners and Dryers in Mineral Industries;

- Municipal Solid Waste Landfills (40 CFR 60, Subpart WWW);

- Hospital Medical Infectious Waste Incinerators;

- VOC emissions from the polymer manufacturing industry;

- VOC emissions from the synthetic organic chemical manufacturing industry (SOCMI) air oxidation unit processes;

- VOC emissions from the synthetic organic chemical manufacturing industry (SOCMI) distillation operations;

- VOC emissions from petroleum refinery wastewater systems;

- VOC emissions from the synthetic organic chemical manufacturing industry (SOCMI) reactor processes;

- Magnetic tape coating facilities;

- Polymeric coating of supporting substrates facilities;

- Other Solid Waste Incineration Units;

- Commercial and industrial solid waste incineration units for which construction is commenced after November 30, 1999, or for which modification or reconstruction is commenced on or after June 1, 2001;

- Stationary Compression Ignition Internal Combustion Engines;

- Stationary Spark Ignition Internal Combustion Engines;

- Stationary Combustion Turbines.

18. Administrative procedures including emissions credit banking and emissions trading policy statements;

19. Monitoring, Recording, and Reporting of Source Emissions;

20. Regulation of malfunctions, start-ups, and shutdowns;

21. Alternate emissions limitations;

22. General policies or plans; Ozone Attainment and Maintenance Plans (SIP); Program Operating Procedures; Carbon Monoxide Maintenance Plan (SIP);

Particulate Matter Control Plan ($PM_{2.5}$);

23. System of permits and/or certificates and emission fees to include the Title V Permit Program;

24. Scheduling and collecting of fees for review of plans and specifications, issuance or renewal of permits or certificates (including Title V permit fees), inspection of air pollutant sources, including building demolition and renovation, and computer and research time;

25. Developing and recommending a comprehensive air pollution control program, reviewing such program, and recommending changes as may be deemed appropriate;

26. Requiring the furnishing of information from persons causing, or who may be about to cause air pollution;

27. Entering in or upon private or public property for the purpose of inspecting and investigating any air contaminant source;

28. Receiving, budgeting, receipting for and administering such monies as are appropriated or granted for carrying out the program of the local Board;

29. Collecting and disseminating information relative to air pollution; encouraging voluntary cooperation in preserving and restoring a reasonable degree of air purity; and advising, consulting and cooperating with other agencies, persons or groups in matters pertaining to air pollution;

30. Handling correspondence, keeping records, preparing reports and performing such duties as are necessary or authorized;

31. Granting or denying petitions for variances after first submitting variances to be issued to the Tennessee Division of Air Pollution Control for review;

32. Regulation of Infectious Waste Incinerators;

33. Regulation of good engineering practice stack height requirements;

34. Abatement of air contaminants, uncombined water, or a combination which reduces visibility across any road to cause a hazard;

35. Transportation Conformity Rule requirements;

36. Confidentiality determinations.

III.

Approved by the following members of the Air Pollution Control Board of the State of Tennessee and entered on this 8th day of June, 2022.

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Board Order 22_007 Knox COE 2022 a.docx

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

CERTIFICATE OF EXEMPTION

By authority of Tennessee Code Annotated section 68-201-115,
the Tennessee Air Pollution Control Board Declares that

Knoxville and Knox County Tennessee and all Included Municipalities

are
exempt from the provisions of the
Tennessee Air Quality Act as found in
Tennessee Code Annotated Title 68, Chapter 201
subject to such limitations as established by the Board pursuant
to Board Order No. 22-007, passed
by the Board on this the 8th day of June 2022

Air Pollution Control Board Members of the State of Tennessee

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Expiration Date: June 30, 2024

TENNESSEE DEPARTMENT OF ENVIRONMENT AND CONSERVATION
BUREAU OF ENVIRONMENT
DIVISION OF AIR POLLUTION CONTROL

IN THE MATTER OF:	**)**	
	)	
Shelby County, Tennessee	**)**	
City of Memphis, Tennessee	**)**	
Town of Arlington, Tennessee	**)**	**Board Order No. 22-008**
City of Bartlett, Tennessee	**)**	
Town of Collierville, Tennessee	**)**	
City of Lakeland, Tennessee	**)**	
City of Germantown, Tennessee	**)**	
City of Millington, Tennessee	**)**	

CERTIFICATE OF EXEMPTION

BOARD ORDER

I.

Under the authority of Tennessee Code Annotated section 68-201-115(a), a petition to renew the Shelby County Certificate of Exemption was filed on July 8, 2021, with the Tennessee Division of Air Pollution Control by the Shelby County Health Department Air Pollution Control Program for the City of Memphis, the County of Shelby and all included municipalities.

The terms in Tennessee Code Annotated section 68-201-115(b)(3) state that:

"(3) The certificate of exemption shall be granted if the board determines that:
(A) The municipality or county has enacted provisions for the control of air pollution not less stringent than this part;
(B) The enactments referenced in subdivision (b)(3)(A) are being, or will be, adequately enforced; and
(C) The granting of the certificate will not interfere with the state's goal of maintaining the purity of the air resources of the state;"

II.

In accordance with Tennessee Code Annotated section 68-201-115(b)(3), the Shelby County Air Pollution Control Program does enforce regulations and/or ordinances for the control of air pollution that are not less stringent than the State's. Therefore, the Air Pollution Control Board of the State of Tennessee does hereby grant a Certificate of Exemption to Shelby County and all included municipalities for a two (2) year period. The certificate goes into effect on **July 1, 2022**, and expires on **June 30, 2024** as authorized by Tennessee Code Annotated section 68-201-115(c). During this period, Shelby County and all included municipalities shall be exempt from the provisions of the Tennessee Air Quality Act with respect to the power and authority to enforce the following as set forth in the ordinances, regulations or other rules where indicated below:

1. Ambient air quality standards;
2. Open burning regulations;
3. Visible emission standards;
4. Non-process emission limitations;
5. Process emission limitations;
6. Fugitive dust regulations;
7. Permitting requirements:

    A. Construction Permits:
        (1) New Source Review – Growth Policy
        (2) PSD authority
        (3) Minor Source Permits

    B. Operating Permits:
        (1) Initial and Renewal
        (2) Federally Enforceable

    C. Part 70 Operating Permits

D. Asbestos Demolition and Renovation Projects

8. All National Emission Standards for Hazardous Air Pollutants, and Maximum Achievable Control Technology Standards and other standards and regulations for hazardous air pollutants (including authority to determine Maximum Achievable Control Technology Standards) and authority to incorporate them into permits to comply with all provisions of Section 112 of the Federal Clean Air Act and enforcement of these standards and regulations;

9. Methods of sampling and analysis;

10. Enforcement and Compliance provisions:

- Determining that any decision of the local Board or of any order, final order, determination, rule, regulation or ordinance of the Director of the Shelby County Health Department or of her designated representative, or of any included governmental entity, where applicable, has been violated, that such violation constitutes a public nuisance, and abating such a public nuisance in the manner provided by the general law relating to the abatement of public nuisances, and instituting legal proceedings to abate a public nuisance on behalf of a municipality or a county;

- Instituting, or causing to be instituted in a court of competent jurisdiction, legal proceedings to compel compliance with any decision of the local Board or with any order, final order, determination, rule, regulation or ordinance of the Director of the Shelby County Health Department or her designated representative, or of any included governmental entity where applicable;

- Obtaining compliance with air pollution control rules and regulations by conference, conciliation, persuasion, issuance of formal notices of violation and prosecution thereof; including when appropriate, holding hearings and issuing orders to assess civil penalties for each violation where each day of violation is a separate offense, and including, when appropriate, judicial proceedings or referral to the U.S. Environmental Protection Agency or district attorney general for prosecution;

- Providing for appellate review by the local air board of decisions, rulings, determinations, failure to act, or to act within a reasonable timeframe, by the Shelby County Health Department;

11. Control of emissions of particulate matter including PM10, and PM2.5 and precursors;

12. Control of emissions of carbon monoxide;

13. Control of emissions of the precursors to ozone including volatile organic compounds and nitrogen oxides;

14. Control of emissions of sulfur oxides, emissions of sulfuric acid and sulfur trioxide (combined);

15. Control of emissions of lead;

16. Emergency episode regulations including emergency stop orders;

17. New Source Performance Standards (NSPS) as set forth in Chapter 1200-3-16 and 40 CFR Part 60 and Emission Guidelines as set forth in 40 CFR Part 60, after adoption as local laws, as listed below:

    - General Provisions;

    - Fossil fuel-fired steam generating units of more than 250 million Btu/hr heat input rate which commenced construction after August 17, 1971;

    - Fuelfired steam generators for which construction commenced after April 3, 1972;

    - Electric utility steam generating units for which construction commenced after September 18, 1978;

    - Incinerators;

    - Municipal waste combustors;

    - Portland cement plants;

    - Sulfuric acid plants;

    - Nitric acid plants;

    - Asphalt concrete plants (hot mix asphalt facilities);

    - Petroleum refineries;

    - Storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after June 11, 1973 and prior to May 19, 1978;

    - Storage vessels for petroleum liquids for which construction, reconstruction, or modification commenced after May 18, 1978 and prior to July 23, 1984;

    - Secondary lead smelters;

- Secondary brass and bronze ingot production plants;
- Primary emissions from basic oxygen process furnaces for which construction is commenced after June 11, 1973;
- Sewage treatment plants, incinerators;
- Phosphate fertilizer industry for:
    - Wet process phosphoric acid plants;
    - Super phosphoric acid plants;
    - Diammonium phosphate plants;
    - Triple superphosphate plants;
- Granular triple superphosphate storage facilities;
- Primary aluminum reduction plants;
- Coal preparation plants;
- Primary copper smelters;
- Primary zinc smelters;
- Primary lead smelters;
- Steel plant electric arc furnaces constructed after October 21, 1974 and on or before August 17, 1983;
- Ferroalloy production;
- Lime Manufacturing plants;
- Kraft pulp mills;
- Grain elevators;
- Stationary gas turbines;
- Ammonium sulfate manufacture;
- Glass manufacturing plants;

- Automobile and Light-duty truck surface coating operations;
- Asphalt processing and asphalt roofing manufacture;
- Industrial surface coating: large appliances;
- Surface coating of metal furniture;
- Metal coil surface coating;
- Graphic arts industry: Publication Rotogravure Printing;
- Beverage can surface coating industry;
- Metallic mineral processing plants;
- Pressure sensitive tape & label surface coating operations;
- Equipment leaks of VOC in the synthetic organic chemicals manufacturing industry;
- Bulk-gasoline terminals;
- Synthetic fiber production facilities;
- Lead-acid battery manufacturing plants;
- Equipment leaks of VOC in petroleum refineries;
- Flexible vinyl & urethane coating and printing;
- Petroleum dry cleaners;
- Phosphate rock plants;
- Equipment leaks of VOC from onshore natural gas processing plants;
- Electric arc furnaces and argon-oxygen decarburization vessels constructed after August 7, 1983;
- Onshore natural gas processing: SO2 emissions;
- Non-metallic mineral processing plants;

- Secondary emissions from basic oxygen process steelmaking facilities for which construction is commenced after January 20, 1983;

- Wool fiberglass insulation manufacturing plants;

- Industrial Surface Coating: plastic parts for business machines;

- Industrial-commercial-institutional steam generating units;

- Rubber Tire Manufacturing Industry;

- Volatile organic liquid storage vessels (including petroleum liquid storage vessels) constructed on or after July 23, 1984;

- Calciners and Dryers in Mineral Industries;

- Municipal Solid Waste Landfills;

- Small industrial-commercial-institutional steam generating units;

- Hospital/medical/infectious waste incineration;

- Volatile organic compound (VOC) emissions from the polymer manufacturing industry;

- Volatile organic compound (VOC) emissions from the synthetic organic chemical manufacturing industry (SOCMI) air oxidation unit processes;

- Volatile organic compound (VOC) emissions from the synthetic organic chemical manufacturing industry (SOCMI) distillation operations;

- Volatile organic compound (VOC) emissions from petroleum refinery wastewater systems;

- Volatile organic compound (VOC) emissions from the synthetic organic chemical manufacturing industry (SOCMI) reactor processes;

- Magnetic tape coating facilities;

- Polymeric coating of supporting substrates facilities;

- Commercial and industrial solid waste incineration units for which construction is commenced after November 30, 1999 or for which modification or reconstruction is commenced on or after June 1, 2001;

18. Emission limitations for hospital/medical/infectious waste incineration;

19. Administrative procedures including emissions credit banking and emissions trading policy statements;

20. Emissions limitations and monitoring;

21. Regulation of malfunctions, start-ups, and shutdowns;

22. Alternate emissions limitations;

23. General policies or plans; [Ozone Attainment and Maintenance Plans (SIP); * Program Operating Procedures; Carbon Monoxide Maintenance Plan (SIP); Lead Maintenance Plan (SIP); Particulate Matter Control Plan ($PM_{2.5}$);

24. System of permits and/or certificates and emission fees to include the Title V Permit Program;

25. Scheduling and collecting of fees for review of plans and specifications, issuance or renewal of permits or certificates (including Title V permit fees), inspection of air pollutant sources, including building demolition and renovation, and computer and research time;

26. Developing and recommending a comprehensive air pollution control program, reviewing such program, and recommending changes as may be deemed appropriate;

27. Requiring the furnishing of information from persons causing, or who may be about to cause air pollution;

28. Entering in or upon private or public property for the purpose of inspecting and investigating any air contaminant source;

29. Receiving, budgeting, receipting for and administering such monies as are appropriated or granted for carrying out the program of the local Board;

30. Collecting and disseminating information relative to air pollution; encouraging voluntary cooperation in preserving and restoring a reasonable degree of air purity; and advising, consulting and cooperating with other agencies, persons or groups in matters pertaining to air pollution;

31. Handling correspondence, keeping records, preparing reports and performing such duties as are necessary or authorized;

32. Granting or denying petitions for variances after first submitting variances to be issued to the Tennessee Division of Air Pollution Control for review;

33. Regulation of Infectious Waste Incinerators;

34. Regulation of good engineering practice stack height requirements;

35. Abatement of air contaminants, uncombined water, or a combination which reduces visibility across any road to cause a hazard;

36. Transportation Conformity Rule requirements;

37. Confidentiality determinations.

III.

I. It has been determined that the Shelby County Health Department, Pollution Control Section, Air Monitoring Branch's ("SCHD") 2019 Technical System's Audit ("TSA") has not been closed out due to certain findings and concerns being left unaddressed and that this deficiency is due to the inadequate staffing of the Shelby County Pollution Control Air Monitoring Branch and, as such, the program is currently unable to demonstrate compliance with all federal requirements included in 40 C.F.R. Part 58:

A. The United States Environmental Protection Agency performs TSAs of state and local air monitoring programs in order to evaluate the operation and performance of the air monitoring program, pursuant to 40 CFR Part 58;

B. In SCHD's TSA Report, finding 4.5.2 indicated that standard operating procedures ("SOP") are out of date and do not reflect current practices and a data handling SOP had not been developed. Specifically, the report indicates many of the SOPs were last revised prior to 2016 and regulations and guidance have changed since those revisions in addition to the fact that SCHD had since developed a Quality Assurance Project Plan ("QAPP"). EPA also indicated that SCHD's QAPP discusses data verification and validation and provides a framework for handling generated data, but it did not describe the verification, validation, and reduction techniques in enough detail, nor does the QAPP discuss how the data will be consistently coded and qualified to ensure staff consistently handle data. EPA recommended SCHD review and revise its SOPs to ensure they reflect staff's current practices and ensure that measurement quality objectives for each pollutant identified in the QAPP are achieved. Finally, EPA indicated SCHD must develop a data handling SOP that

includes review of all information associated to collected data, including logbooks, forms, and $PM_{2.5}$ laboratory data and instructions on how to consistently handle data based on information available;

C. SCHD's TSA report also identified concerns, labeled 4.3.1; 4.3.2; and 4.4.3 that indicate a concern with insufficient information on forms and logbooks that impact the ability to fully validate data to ensure all measurement quality objectives are being achieved;

D. In its responses to questions posed by the Division in this COE renewal process, SCHD indicated that the findings and concerns noted in B and C remain incomplete, almost three years later due to inadequate staffing;

E. Staffing levels in the Air Monitoring Branch has historically been five employees, and SCHD has stated that all five positions are necessary to adequately run the Air Monitoring Branch and ensure data integrity;

F. Two of the three vacant positions in the Air Monitoring Branch have been vacant for over eighteen months and SCHD has indicated hiring challenges such as small applicant pools, lack of qualified candidates and the potential need for additional funding to increase offers to qualified candidates;

G. SCHD acknowledges that data integrity will be at risk if staffing is not corrected and indicates that the TSA findings and concerns that remain outstanding will not be addressed until staffing vacancies have been filled; however, cannot provide any indication of when the staffing deficiency will be corrected;

H. Sufficient air quality monitoring data that meets quality assurance and other data integrity parameters reported to EPA's Air Quality System (AQS) is critical for:

assessment of air quality,

attainment/non-attainment designations,

evaluating State Implementation Plans for non-attainment areas,

performing modeling for permit review analysis, and

prepare reports for Congress as mandated by the Clean Air Act; and

I. EPA is currently reviewing the ozone, PM, secondary SO_2, NO_x, and PM, and lead NAAQS and consequently may soon revise the NAAQS, for which air quality monitoring data of sufficient quality and quantity is critical.

II. It has been determined that the SCHD has had a significant number of permitting activities in its Title V program that are beyond their regulatory deadline, which may be related to inadequate staffing or funding in the Title V program:

A. As of the time of the COE renewal process, SCHD had 30 permitting activities with applications beyond the 18-month regulatory deadline. In the past two years, SCHD has had about 75 permitting activities that were completed with applications beyond the 18-month deadline;

B. SCHD reported that the Local Air Board approved a new Title V fee structure on September 22, 2021, but the County Commission has not yet provided approval to move forward with the new fee structure;

C. SCHD reported that it plans to get approval from the County Commission for the fee structure as soon as possible; and

D. SCHD reported that the request for an engineer will be added to the current Title V staff.

Therefore, with respect to the program identified in section I above, this certificate is being issued conditionally with the requirement that SCHD resolve the outstanding findings and concerns identified in the 2019 TSA and provide the Technical Secretary of the State's Air Pollution Control Board ("the Board") with EPA's TSA close out letter no later than twelve months from the date of this Order.

The Board encourages SCHD to take whatever action may be most appropriate in order to quickly resolve the outstanding findings and concerns identified in the 2019 TSA, including but not limited to, supplementing current staffing with contract labor, working to resolve staffing concerns by finding and hiring staff, or seeking any available assistance from EPA or other air programs. In order for the Board to evaluate progress with regard to this condition, the SCHD must, on a quarterly basis (September, December, March, and June), notify the Technical Secretary of the State's Air Pollution Control Board in writing of progress being made towards making the necessary revisions to SOPs and creating an SOP to resolve the outstanding findings and concerns noted above and receive a close out letter from EPA for SCHD's 2019 TSA.

With respect to the program identified in section II above, the Board encourages SCHD to take action to correct the staffing deficiency or the lack of funding or any other factor that may be contributing to the significant backlog in Title V permitting activities beyond regulatory deadlines as soon as practicable.

In order to avoid the suspension of the program under the local certificate for failure to satisfy the terms of its conditional approval by resolving the concerns about the ambient monitoring

program, SCHD must address and complete the work necessary to resolve the outstanding findings and concerns identified in the 2019 TSA, and provide a 2019 TSA EPA close out letter to the Technical Secretary of the Tennessee Air Pollution Control Board no later than twelve months from the date of this Order demonstrating that the outstanding findings and concerns identified in the 2019 TSA have been resolved.

As authorized by Tennessee Code Annotated section 68-201-115(b)(7), the Board directs that the Division of Air Pollution Control shall, based upon the quarterly reports referenced in section I above and any other available information, determine at this specified frequency whether or not the SCHD will meet the condition of this exemption and comply with these provisions. If a determination is made that the SCHD does not meet the terms of this exemption or fails to comply with these provisions, the Division of Air Pollution Control shall so notify the Board, and the Board, upon reasonable notice to the SCHD, may suspend the exemption in whole or in part until such time as the SCHD resolves the outstanding findings and concerns identified in the 2019 TSA.

IV.

Approved by the following members of the Air Pollution Control Board of the State of Tennessee and entered on this 8th day of June, 2022.

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Board Order 22_008 Shelby COE 2022 b.docx

DEPARTMENT OF ENVIRONMENT AND CONSERVATION
DIVISION OF AIR POLLUTION CONTROL

CERTIFICATE OF EXEMPTION

By authority of Tennessee Code Annotated section 68-201-115, the Tennessee Air Pollution Control Board Declares that

Memphis and Shelby County, Tennessee and all Included Municipalities

are exempt from the provisions of the Tennessee Air Quality Act as found in Tennessee Code Annotated Title 68, Chapter 201, subject to such limitations as established by the Board pursuant to Board Order No. 22-008, passed by the Board on this the 8th day of June 2022

Air Pollution Control Board Members of the State of Tennessee

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Expiration Date: June 30, 2024