

3 **AIR EMISSIONS MANAGEMENT**  
4 **AT NIST-GAITHERSBURG**

7 NIST S 7301.02

8 Approval Date: 01/12/2021

9 Effective Date:<sup>1</sup> 10/07/2016

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12 **1. PURPOSE**

13 The purpose of this suborder is to define the requirements for the control of air pollutant  
14 emissions at the NIST Gaithersburg site.

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17 **2. BACKGROUND**

18 The Clean Air Act (1970) called for Federal, State, local, and tribal governments to implement  
19 the Act in partnership to reduce air pollution. NIST is required to comply with both federal  
20 [Code of Federal Regulations (CFR) Title 40, Subchapter C] and state regulations [Code of  
21 Maryland Regulations (COMAR) Title 26, Subtitle 11] related to air pollution control.

22  
23 Title V of the Clean Air Act Amendments (1990) requires that all major stationary sources of air  
24 pollutants obtain a permit to operate. Based on the quantity of air pollutants produced, the NIST  
25 Gaithersburg site is designated as a major stationary source. Federal regulations regarding air  
26 permits are discussed in 40 CFR Part 70.

27  
28 At the NIST Gaithersburg site, the Maryland Department of the Environment (MDE) has issued  
29 NIST a Part 70, Title V Operating Permit (#24-031-00323) which defines air emissions control  
30 requirements specific to NIST. The permit is renewed every five years.

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33 **3. APPLICABILITY**

34 a. The provisions of this suborder apply to all activities and processes at the NIST Gaithersburg  
35 site.

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<sup>1</sup> For revision history, see Appendix A.

37 b. In general, laboratory scale activities at NIST Gaithersburg are exempt from federal and state  
38 regulatory requirements and the provisions of this suborder. However, air emissions should  
39 be minimized from all sources. Any questions regarding air emissions shall be directed to  
40 the NIST Office of Safety Health and Environment (OSHE), x5375, Option 2.  
41

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#### 43 4. REFERENCES

44 a. COMAR Title 26, Subtitle 11, Air Quality

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46 b. CFR Title 40, Subchapter C, [Air Programs](#)

47

48 c. NIST Part 70, Title V Operating Permit No. 24-031-0323, issued June 1, 2013 (renewed  
49 every five years)

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#### 52 5. APPLICABLE NIST DIRECTIVES

53 a. NIST S 7301.01: [Environmental Management System](#)

54

55 b. NIST S 7301.07: *Underground Storage Tank Management*

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#### 58 6. REQUIREMENTS

59 a. General Requirements

60

61 (1) New Project Review – On an ongoing basis, all new projects and changes to existing  
62 systems or equipment at NIST Gaithersburg that will result in increased emissions of air  
63 pollutants shall be evaluated by the Environmental Management Group (EMG),  
64 Gaithersburg Safety, Health, and Environment Division (GSHED), to determine the  
65 applicability of federal or state air quality regulations. As applicable, EMG will  
66 determine any required actions that must be taken by NIST prior to beginning the project  
67 or change (e.g. permit modifications, emission control).  
68

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70 (2) Particulate Matter from Construction and Demolition – Construction and/or demolition  
71 shall not occur at NIST Gaithersburg without implementing reasonable precautions to  
72 prevent particulate matter from becoming airborne. (COMAR 26.11.06.03D).

73

74 (3) Asbestos Containing Material – NIST shall control the release of asbestos containing  
75 material (ACM) when conducting renovation or demolition activities involving ACM.  
76 All work shall be conducted in accordance with federal regulations (40 CFR 61.145,  
Subpart M, and 29 CFR 1910 and 1926).

77 (4) Ozone Depleting Substances (e.g. Chlorofluorocarbons) – For equipment containing 50  
78 lbs. of refrigerant or greater, the owner shall maintain records of maintenance, calculate  
79 annual leak rates, and perform repairs in accordance with federal regulations for ozone  
80 depleting substances (40 CFR 82).

81  
82 (5) Open Burning – No open burning is permitted at NIST Gaithersburg without approval  
83 from EMG and the Maryland Department of the Environment (MDE) (COMAR  
84 26.11.07).

85  
86 (6) Report of Excessive Emissions – Any air emission that could endanger human health or  
87 the environment must be reported orally to MDE immediately upon discovery. All  
88 reporting to the MDE shall be done by the EMG.

89  
90 b. NIST Gaithersburg Part 70, Title V Permit Requirements

91  
92 (1) Subject Equipment

93 The NIST-Gaithersburg equipment subject to the requirements of the Part 70, Title V  
94 Permit is listed in Table 6.

95  
96 (2) Equipment Specific Requirements

97 Equipment specific requirements and responsible individuals are listed in Appendix B.

98  
99 (3) Routine Reporting

100 NIST is required to submit routine reports to both MDE and the U.S. Environmental  
101 Protection Agency (USEPA) to demonstrate compliance with the requirements of the Part  
102 70, Title V Permit and also to declare the amount and type of emissions for each calendar  
103 year. The reports and corresponding due dates are summarized in Table 6.2 below.  
104 Specific report requirements are found in the Part 70, Title V Permit. EMG shall prepare  
105 and submit these routine reports with input from NIST stakeholder OUs (identified in  
106 Section 9 and Appendix B).

| <b>Table 6.1<br/>Air Emission Sources Regulated Under NIST's Part 70, Title V Permit</b> |   |  |                     |
|--|---|--|---------------------|
| <b>Equipment</b>   | <b>OU</b>   | <b>Description</b>   | <b>Installation</b> |
| NIST Boilers #1-4  | Office of Facilities and Property Management (OFPM) | 55 MMBtu/hr Union Iron Works boilers burning natural gas as primary fuel w/ No. 2 fuel oil back-up | 1961                |
| NIST Boilers #5-6  | OFPM  | 99.8 MMBtu/hr English boilers burning natural gas as primary fuel w/ No. 2 fuel oil back-up        | 1997                |
| National Fire Research Laboratory  | EL  | Laboratory equipped with four preheaters, four scrubbers, and four baghouses, Bldg. 205            | 1999                |
| Gasoline Underground Storage Tank  | OFPM  | 6,000-gallon gasoline underground storage tank with Stage 1 vapor recovery system, Bldg. 303       | 1997                |
| Emergency Generators   | OFPM  | 1,000 KW emergency diesel generator, Bldg. 215<br>500 KW emergency diesel generator, Bldg. 227     | 2002<br>1999        |

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| <b>Table 6.2 Routine Reporting Requirements</b> |  |   |
|---|--|---|
| <b>Report Type</b>                              | <b>Summary</b>   | <b>Due Date</b>   |
| 6-Month Monitoring Report                       | Report to communicate performance of required monitoring and any permit deviations (MDE)   | July 30 <sup>th</sup> (Jan-Jun)<br>Jan 30 <sup>th</sup> (Jul-Dec) |
| Annual Emissions Certification Report           | Report of annual air emissions of regulated pollutants for the preceding calendar year (MDE). Included in this report are toxic and hazardous air pollutant emissions. | April 1 <sup>st</sup>   |
| Annual Compliance Certification Report          | Report to certify compliance or report non-compliance with each term of the Part 70, Title V Permit for the preceding calendar year (MDE/USEPA)                        | April 1 <sup>st</sup>   |

- 111 c. Training  
112  
113 (1) The NIST National Fire Research Laboratory shall have an operator training program to  
114 train its operators on the proper procedures of conducting research fires and operating the  
115 Fire Lab's air pollution equipment (preheater, dry scrubber and baghouse filter).  
116  
117 (2) Emergency generator operators or maintenance personnel shall attend equipment  
118 combustion optimization training every three (3) years.  
119
- 120 d. Evaluation of Compliance  
121 EMG shall conduct a compliance evaluation of this program on at least an annual basis.  
122
- 123 e. Records  
124 NIST shall maintain records as necessary to demonstrate compliance with the Part 70, Title  
125 V Permit and other air emissions regulations.  
126
- 127 (1) General Records  
128 The following records shall be maintained by EMG:  
129  
130 (a) Routine reports identified in Section 6b;  
131  
132 (b) Emergency Notification reports;  
133  
134 (c) Regulatory Correspondence;  
135  
136 (d) Stack Test Reports;  
137  
138 (e) Compliance Evaluation Reports;  
139  
140 (f) Permit Applications and related information; and  
141  
142 (g) Current and Historic Permits  
143
- 144 (2) Equipment Specific Records  
145 Records to demonstrate compliance with equipment-specific requirements (Appendix B)  
146 shall be maintained by the owners of the equipment.  
147
- 148 (3) Retention of Records  
149 All records required by this Suborder will be maintained for a period of five (5) years.  
150

151 **7. DEFINITIONS**

- 152 a. Open Burning – The burning of material where combustion products are emitted directly into  
153 the ambient air without first passing through a chimney or stack.  
154
- 155 b. Ozone-Depleting Substances – Any chemical listed as a Class I or Class II substance in  
156 Section 602 of the Clean Air Act. These are substances that deplete the ozone layer and are  
157 widely used in refrigerators and air conditioning equipment.  
158
- 159 c. Particulate Matter – Pollutant that includes dust, soot, and other heterogeneous small, solid  
160 materials released into and transported by the air.  
161
- 162 d. Part 70, Title V Air Permit – A federally enforceable operating permit issued under 40 CFR  
163 Part 70 which regulates the emissions of air pollutants.  
164  
165

166 **8. ACRONYMS**

- 167 a. CFR – Code of Federal Regulations  
168
- 169 b. COMAR – Code of Maryland  
170
- 171 c. dscm – Dry Standard Cubic Meter  
172
- 173 d. EMS – Environmental Management System  
174
- 175 e. EMG – The Environmental Management Group which is part of the Gaithersburg Safety,  
176 Health, and Environment Division  
177
- 178 f. EU – Emission Unit as designated by MDE on the NIST Part 70, Title V Permit  
179
- 180 g. FSD – Facilities Services Division  
181
- 182 h. GDCD – Gaithersburg Design and Construction Division  
183
- 184 i. GFMD – Gaithersburg Facility Maintenance Division  
185
- 186 j. GSHED – Gaithersburg Safety, Health, and Environment Division  
187
- 188 k. MDE – Maryland Department of the Environment  
189
- 190 l. MMBtu – Million British Thermal Units

- 191 m. NO<sub>x</sub> – Nitrogen Oxides
- 192
- 193 n. OFPM – Office of Facilities and Property Management
- 194
- 195 o. OSHE – Office of Safety, Health, and Environment
- 196
- 197 p. OU – Organizational Unit
- 198
- 199 q. USEPA – U.S. Environmental Protection Agency
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- 201

## 202 **9. RESPONSIBILITIES**

203 Roles and responsibilities common to all NIST Environmental Suborders can be found in Section  
204 8 of NIST O 7301.00. The roles and responsibilities specific to this suborder are as follows:

### 206 a. Chief Safety Officer

207 As NIST’s designated Environmental Manager, the CSO is responsible for overseeing  
208 NIST’s efforts in complying with the requirements identified in this suborder.

209

### 210 b. EMG Leader, GSLED, OSHE is responsible for the following:

211

212 (1) Acting as the NIST point of contact with regulatory agencies for air pollution issues;

213

214 (2) Applying for and obtaining required air emission permits on required timetables;

215

216 (3) Maintaining overall compliance with the requirements established in the MDE Part 70,  
217 Title V Permit and all applicable federal, state, and local regulations;

218

219 (4) Requesting extensions from the USEPA when refrigerant leaks of greater than 15% per  
220 year cannot be completed within 30 calendar days;

221

222 (5) Performing an internal compliance evaluation once per calendar year at a minimum to  
223 verify ongoing compliance with this Suborder;

224

225 (6) Coordinating regulatory agency inspections – as requested;

226

227 (7) Reporting to the MDE as specified in Section 6b and any emergency reporting required  
228 (Section 6a);

229

230 (8) Communicating the regulatory requirements of this Suborder to affected personnel;

231 (9) Maintaining this Suborder and keeping it up to date; and

232

233 (10) Maintaining the following records:

234

235 (a) Routine reports identified in Section 6b;

236

237 (b) Emergency Notification reports;

238

239 (c) Regulatory Correspondence;

240

241 (d) Stack Test Reports;

242

243 (e) Compliance Evaluation Reports;

244

245 (f) Permit Applications and related information; and

246

247 (g) Current and Historic Permits.

248

249 c. Steam and Chilled Water Generation Plant Group Leader, Gaithersburg Facility Maintenance  
250 Division (GFMD), OFPM is responsible for the following:

251

252 (1) Operating and maintaining the site's boilers per the requirements identified in Appendix  
253 B;

254

255 (2) Maintaining operations and maintenance records as identified in Appendix B;

256

257 (3) Reporting any nonconformance or excursion to EMG;

258

259 (4) Ensuring fuel oil supplied to the Central Plant meets the requirements identified in  
260 Appendix B (low sulfur content) and obtaining written certification from the fuel  
261 suppliers;

262

263 (5) Maintaining maintenance records for the Central Plant Chillers. Performing leak  
264 calculations whenever refrigerant is added to the chillers. Performing leak repairs as  
265 soon as possible. For any leak rates greater than 15% per year, performing leak repairs  
266 within 30 calendar days and notifying EMG if repairs cannot be completed in 30 calendar  
267 days;

268

269 (6) Providing records identified in Appendix B to EMG for 6-month compliance reports,  
270 annual compliance reports, and annual emission certification reports; and



- 271 (7) Participating in annual compliance evaluations with EMG and in regulatory inspections.  
272
- 273 d. National Fire Research Laboratory Group Leader, Fire Research Division, Engineering  
274 Laboratory is responsible for the following:  
275
- 276 (1) Operating and maintaining the NIST Gaithersburg Large Fire Laboratory and  
277 corresponding air pollution control equipment per the manufacturer's requirements and as  
278 identified in Appendix B;  
279
- 280 (2) Obtaining and maintaining training for personnel as identified in Appendix B and Section  
281 8;  
282
- 283 (3) Maintaining operations, maintenance, and training records as identified in Appendix B;  
284
- 285 (4) Reporting any nonconformance or excursion immediately to EMG; and  
286
- 287 (5) Participating in annual compliance evaluations with EMG and in regulatory inspections.  
288
- 289 e. Transportation Group Leader, Facilities Services Division, OFPM is responsible for the  
290 following:  
291
- 292 (1) Maintaining and operating the Building 303, Gasoline Tank as identified in Appendix B  
293 and maintaining the associated records; and  
294
- 295 (2) Participating in annual compliance evaluations with EMG and in regulatory inspections.  
296
- 297 f. Gaithersburg Safety, Health, and Compliance Group Supervisor, OFPM is responsible for the  
298 following:  
299
- 300 (1) Ensuring that all renovation or demolition activities conducted at NIST Gaithersburg  
301 involving asbestos-containing materials are conducted in accordance with all applicable  
302 federal and state regulations.  
303
- 304 g. Facilities Operations Group Leader, GFMD, OFPM is responsible for the following:  
305
- 306 (1) Operating and maintaining the Emergency Generators located at Building 215 and  
307 Building 227 as indicated Appendix B;  
308
- 309 (2) Maintaining run-hours record of emergency and non-emergency generator use;

- 310 (3) Ensuring fuel supplied to the Emergency Generators meets the requirements identified in  
311 Appendix B (low sulfur content) and obtaining written certification from the fuel  
312 suppliers;  
313  
314 (4) Obtaining and maintaining training for personnel as identified in Appendix B; and  
315  
316 (5) Participating in annual compliance evaluations with EMG and in regulatory inspections.  
317
- 318 h. Gaithersburg Design and Construction Division Chief (GDCD), OFPM is responsible for the  
319 following:  
320
- 321 (1) Promptly communicating any proposed project that may result in an air emissions  
322 increase to EMG. Providing permit application information to EMG as required; and  
323
- 324 (2) Ensuring that reasonable precautions are taken to minimize airborne particulate matter  
325 and dust from construction and demolition.  
326
- 327 i. Emergency Services Division Chief is responsible for the following:  
328
- 329 (1) Receiving notifications of significant air emissions through the emergency notification  
330 system (x2222); and  
331
- 332 (2) Ensuring that EMG is contacted immediately when any air emissions are reported  
333 through the emergency notification system.  
334
- 335 j. NIST Employees and Associates are responsible for the following:  
336
- 337 (1) Reporting to EMG any new activity that may release out-of-the-ordinary airborne  
338 pollutants into the environment; and  
339
- 340 (2) Reporting any observation of out-of-the-ordinary air emissions to the emergency number  
341 (x2222).  
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## 344 **10. AUTHORITIES**

345 There are no authorities specific to this suborder alone. For authorities applicable to all NIST  
346 Environmental Suborders, see Section 9 of NIST O 7301.01.

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350 **11. DIRECTIVE OWNER**

351 Chief Safety Officer

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354 **12. APPENDICES**

355 a. Revision History

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357 b. NIST's Part 70, Title V Permit Requirements for Subject Equipment

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### Appendix A. Revision History

| <b>Revision #</b> | <b>Approval Date</b> | <b>Responsible Person</b> | <b>Brief Description of Change/Rationale</b>                                   |
|-------------------|----------------------|---------------------------|--|
| 0                 | 10/07/16             |                           | <ul style="list-style-type: none"><li>• None – Initial document</li></ul>      |
| 1                 | 1/12/2021            | April Camenisch           | <ul style="list-style-type: none"><li>• Updated NIST suborder links.</li></ul> |

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**Appendix B: NIST’s Part 70, Title V Permit Requirements for Subject Equipment**

|                                       |  |
|---------------------------------------|--|
| <p><b>Emissions Unit(s)</b></p>       | <p><b>EUs-1 thru 4, Four (4) 55 MMBtu/hr dual fuel Union Works boilers w/ Low NO<sub>x</sub> Burners</b></p>   |
| <p><b>Responsible Individual</b></p>  | <p><b><u>Steam and Chilled Water Generation Plant Group Leader, GFMD, OFPM</u></b></p>   |
| <p><b>Standards and Limits</b></p>    | <ol style="list-style-type: none"> <li>1. No visible emissions other than water vapor, except for emissions during load changing, soot blowing, startup, adjustments, or cleaning of control equipment if the emissions do not exceed 40% opacity and do not occur for more than 6 consecutive minutes in any 60-minute period</li> <li>2. NO<sub>x</sub> limit of 0.25 lb/MMBtu for natural gas and 0.25 lb/MMBtu for No. 2 fuel</li> <li>3. Oil sulfur content limited to 0.3%</li> <li>4. Develop and implement operating and maintenance plans to minimize NO<sub>x</sub> emissions based upon equipment vendor recommendations and user experience</li> <li>5. Natural gas burning with No. 2 fuel as back up only during periods of interrupted gas service and testing</li> </ol> |
| <p><b>Testing Requirements</b></p>    | <ol style="list-style-type: none"> <li>1. Since compliance is sought under COMAR 26.11.09.08B(c), a stack test shall be conducted on at least two of the boilers during the permit term, while firing natural gas and fuel oil. Testing protocol must be submitted to EMG and MDE at least 30 calendar days prior to the proposed testing date.</li> </ol>   |
| <p><b>Monitoring Requirements</b></p> | <ol style="list-style-type: none"> <li>1. Perform visible emission evaluation for a 6-minute period every 168 hours of operation or at least once per year when burning No. 2 fuel oil. NOTE: This requirement is waived if the boiler operated less than 72 hours on No. 2 fuel oil in a calendar year.</li> <li>2. If visible emissions are identified, implement the following corrective actions: a) inspect combustion control systems and boiler operations; b) perform all required repairs w/in 48 hours of identified event; and c) document in writing all observations, adjustments, and repairs</li> <li>3. Obtain fuel oil sulfur content certificate from the vendor for each delivery. Ensure all fuel oil is below 0.3% sulfur</li> </ol>                                |

| <b>Emissions Unit(s)</b>          | <b>EUs-1 thru 4, Four (4) 55 MMBtu/hr dual fuel Union Works boilers w/ Low NO<sub>x</sub> Burners (continued)</b>   |
|-----------------------------------|---|
| <b>Recordkeeping Requirements</b> | <ol style="list-style-type: none"> <li>1. Maintain operation manual and preventative maintenance (PM) plan onsite</li> <li>2. Maintain combustion performance maintenance records</li> <li>3. Maintain log of visible emission observations</li> <li>4. Maintain a record of No. 2 fuel oil usage – gallons and run hours</li> <li>5. Maintain fuel supplier sulfur content certificates</li> <li>6. Maintain stack test results</li> <li>7. Maintain results of any required combustion analysis</li> <li>8. Maintain a record the monthly quantity of natural gas and No. 2 fuel oil used on a 12 month rolling period</li> </ol> |
| <b>Reporting Requirements</b>     | <ol style="list-style-type: none"> <li>1. Report incidences of visible emissions, in excess of the standards and limits, to EMG.</li> <li>2. Submit fuel supplier sulfur content certifications for each fuel oil shipment to EMG</li> <li>3. Submit stack test results to EMG upon receipt</li> <li>4. By January 30 of each calendar year, submit to EMG an annual summary of the monthly quantity of each fuel used. The EMG will incorporate this data into the Annual Emissions Certification Report to MDE.</li> <li>5. Upon request from the MDE/EMG, provide all records listed above.</li> </ol>                           |

|                                |  |
|--------------------------------|--|
| <b>Emission Unit(s)</b>        | <b>EU-5 and 6, Two (2) 99.8 MMBtu/hr dual fuel boilers w/ Low NO<sub>x</sub> Burners</b>   |
| <b>Responsible Individual</b>  | <u><b>Steam and Chilled Water Generation Plant Group Leader, GFMD, OFPM</b></u>  |
| <b>Standards and Limits</b>    | <ol style="list-style-type: none"> <li>1. No visible emissions other than water vapor, except for emissions during load changing, soot blowing, startup, adjustments, or cleaning of control equipment if the emissions do not exceed 40% opacity and do not occur for more than 6 consecutive minutes in any 60-minute period</li> <li>2. Oil sulfur content limited to 0.3% by weight</li> <li>3. NO<sub>x</sub> limit of 0.1 lb/MMBtu for natural gas and 0.2 lb/MMBtu for No. 2 fuel oil</li> <li>4. Natural gas limit of 518 million cu-ft during 12 month rolling period</li> <li>5. No. 2 fuel oil limit of 481,080 gallons during 12 month rolling period</li> </ol>             |
| <b>Testing Requirements</b>    | <ol style="list-style-type: none"> <li>1. Stack test for NO<sub>x</sub> emissions while burning natural gas and No. 2 fuel oil on each of the boilers at least once during the life of the permit; submit testing protocol to EMG and MDE at least 30 calendar days prior to the proposed testing date</li> </ol>  |
| <b>Monitoring Requirements</b> | <ol style="list-style-type: none"> <li>1. Verify no visible emissions other than water vapor while operating on No. 2 fuel oil</li> <li>2. Perform a visual observation for a 6-minute period once every 168 hours of operation on No. 2 fuel oil</li> <li>3. Obtain fuel oil sulfur content certificate from the vendor for each delivery that certifies fuel has &lt;0.3% sulfur by weight</li> <li>4. Measure NO<sub>x</sub> concentration of the flue gases from each boiler for a 3-5-minute period every 500 hours of operation</li> <li>5. By the 15<sup>th</sup> of each month, calculate the natural gas and No. 2 fuel oil usage per boiler for the preceding month</li> </ol> |

| <b>Emission Unit(s)</b>           | <b>EU-5 and 6, Two (2) 99.8 MMBtu/hr dual fuel boilers w/ Low NO<sub>x</sub> Burners (continued)</b>  |
|-----------------------------------|---|
| <b>Recordkeeping Requirements</b> | <ol style="list-style-type: none"> <li>1. Maintain operation manual and preventative maintenance (PM) plan onsite</li> <li>2. Maintain combustion performance maintenance records</li> <li>3. Maintain log of visible emission observations</li> <li>4. Maintain a record of No. 2 fuel usage hours</li> <li>5. Maintain fuel supplier sulfur content certificates</li> <li>6. Maintain NO<sub>x</sub> monitoring results and calibration records for the NO<sub>x</sub> analyzer</li> <li>7. Maintain stack test results</li> <li>8. Record the monthly quantity of natural gas and No. 2 fuel oil used on a 12 month rolling period</li> <li>9. Record daily fuel combustion volumes</li> </ol> |
| <b>Reporting Requirements</b>     | <ol style="list-style-type: none"> <li>1. Report incidences of visible emissions, in excess of the standards and limits, to EMG</li> <li>2. Submit fuel supplier sulfur content certifications for each fuel oil shipment to EMG</li> <li>3. Submit stack test results to EMG upon receipt</li> <li>4. By January 30 of each calendar year, submit to EMG an annual summary of the monthly quantity of each fuel used during the previous year for incorporation by EMG into the Annual Emissions Certification Report to MDE</li> <li>5. Upon request from the MDE/EMG, provide all records listed above</li> </ol>  |

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|-----------------------------------|---|
| <b>Emission Unit</b>              | <b>EU-7, Large Fire Research Laboratory w/ two preheaters, two baghouses, and two dry scrubbers</b>   |
| <b>Responsible Individual</b>     | <b><u>National Fire Research Laboratory Group Leader, Fire Research Division, Engineering Laboratory</u></b>  |
| <b>Standards and Limits</b>       | <ol style="list-style-type: none"> <li>1. No visible emissions other than water vapor</li> <li>2. Particulate emissions limited to &lt;0.03 grains/SCFD (68.7 mg/dscm)</li> <li>3. Sulfur Dioxide emissions &lt; 500 ppm</li> <li>4. Sulfuric acid and sulfur trioxide or any combination of the &lt; 35 mg/m<sup>3</sup></li> <li>5. VOC Emissions &lt; 20 lbs / day unless the discharge is reduced by 85% or more overall</li> <li>6. Maintain operating practices per manufacturer recommendations</li> <li>7. Prepare and implement a preventative maintenance plan per the manufacturer's recommendations</li> <li>8. Preheaters may burn natural gas only</li> <li>9. Exhaust must vent through the pre-heater, dry scrubber and bag house system</li> </ol> |
| <b>Testing Requirements</b>       | None  |
| <b>Monitoring Requirements</b>    | <ol style="list-style-type: none"> <li>1. Verify no visible emissions at least once per month for a 6-minute period while burning and at the start of each new material burn</li> <li>2. Operate air pollution control equipment per manufacturer's recommendations</li> <li>3. Perform maintenance activities within the time frames established in the preventive maintenance plan</li> <li>4. Prepare and implement in-house operator training program</li> <li>5. Calculate VOC emissions based on material usage data</li> </ol>   |
| <b>Recordkeeping Requirements</b> | <ol style="list-style-type: none"> <li>1. Maintain log of visible emission observations</li> <li>2. Maintain preventative maintenance (PM) plan and records</li> <li>3. Maintain records of any visible emissions and NIST corrective actions</li> <li>4. Maintain records of types and amounts of materials burned</li> <li>5. Maintain records of annual fuel (natural gas) usage</li> <li>6. Maintain operator training records</li> </ol>   |
| <b>Reporting Requirements</b>     | <ol style="list-style-type: none"> <li>1. Report incidences of visible emissions, in excess of the standards and limits, to EMG.</li> <li>2. Upon request from the MDE/EMG, provide all records listed above.</li> <li>3. Submit material processed (types and amounts) and VOC emissions calculations upon request</li> </ol>  |

|                                   |  |
|-----------------------------------|--|
| <b>Emission Unit</b>              | <b>EU-8, One (1) 6,000-gallon underground gasoline storage tank equipped with Stage 1 vapor recovery</b>   |
| <b>Responsible Individual</b>     | <b><u>Transportation Group Leader, FSD, OFPM</u></b>   |
| <b>Standards and Limits</b>       | <ol style="list-style-type: none"> <li>1. No tank loading without a vapor balance line that is properly installed, maintained, and used</li> <li>2. Loading lines must have vapor tight connections that close upon disconnection</li> <li>3. Equipment is maintained and used in a manner to prevent avoidable liquid leaks during loading and unloading operations</li> <li>4. Throughput shall be less than 10,000 gallons per month by average across the calendar year</li> </ol> |
| <b>Testing Requirements</b>       | None   |
| <b>Monitoring Requirements</b>    | <ol style="list-style-type: none"> <li>1. Perform a visual inspection for component leaks during each gasoline delivery to the 6,000-gallon tank. Repairs should be made within 48 hours, but no later than 15 calendar days after discovery.</li> <li>2. If parts are needed for repair, the part should be ordered within 3 business days of discovery. Installation shall occur within 48 hours of receipt of part</li> </ol>   |
| <b>Recordkeeping Requirements</b> | <ol style="list-style-type: none"> <li>1. Maintain a log of visual leak inspections during fuel deliveries</li> <li>2. Maintain records of monthly fuel throughput</li> <li>3. Maintain records of each malfunction of operation or the air pollution control and monitoring equipment and the action taken to minimize emissions including corrective actions.</li> </ol>   |
| <b>Reporting Requirements</b>     | <ol style="list-style-type: none"> <li>1. Report to EMG within 30 calendar days if the average gasoline throughput exceeds 10,000 gallons in a calendar year. If this occurs, an approved vapor recovery system must be installed and operation started within one year.</li> <li>2. Upon request from the MDE/EMG, provide all records listed above.</li> </ol>   |

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| <b>Emissions Units</b>            | <b>EU-9 and 10, One (1) 1,000 kW and one (1) 500 kW emergency diesel generator</b>   |
| <b>Responsible Individual</b>     | <b><u>Facilities Operations Group Leader, GFMD, OFPM</u></b>   |
| <b>Standards and Limits</b>       | <ol style="list-style-type: none"> <li>1. No visible emissions greater than 10% opacity at idle (2 minutes after coming out of idle, or during cold engine start-up) (not applicable during preventative maintenance); no visible emissions greater than 40% at other than idle</li> <li>2. Oil sulfur content limited to 0.3%</li> <li>3. If the units operate for more than 500 hours during a calendar year: Perform a combustion analysis and optimize combustion</li> <li>4. Operation of the units for maintenance and testing limited to less than 100 hours per year</li> <li>5. Operators or maintenance personnel must attend operator training programs for combustion optimization offered by MDE, EPA, the vendor, or equivalent once every three years</li> <li>6. Change the oil and filter every 500 hours of operation or annually, whichever comes first.</li> <li>7. Inspect the air cleaner every 1,000 hours of operation or annually, whichever comes first, and replace as necessary</li> </ol> |
| <b>Testing Requirements</b>       | None   |
| <b>Monitoring Requirements</b>    | <ol style="list-style-type: none"> <li>1. Verify no visible emissions as defined in the Standards and Limits</li> <li>2. Obtain fuel oil sulfur content certificate from the vendor for each delivery</li> <li>3. Perform combustion analysis and optimization for each unit having greater than 500 hours of operation</li> </ol>   |
| <b>Recordkeeping Requirements</b> | <ol style="list-style-type: none"> <li>1. Maintain operation manual and preventative maintenance plan onsite</li> <li>2. Maintain combustion performance maintenance records</li> <li>3. Maintain fuel supplier sulfur content certificates</li> <li>4. Maintain records of hours of operation, separated by emergency and non-emergency use, and fuel consumption</li> <li>5. Maintain records of combustion analysis results, if applicable</li> <li>6. Maintain records of operator training</li> </ol>   |
| <b>Reporting Requirements</b>     | <ol style="list-style-type: none"> <li>1. Report incidences of visible emissions beyond those allowable in the standards and limits immediately to EMG</li> <li>2. Submit fuel supplier sulfur content certifications for each fuel oil shipment to EMG</li> <li>3. Upon request from the MDE/EMG, provide all records listed above</li> </ol>   |