



**Environmental Health Department  
Air Quality Program  
Interoffice Memorandum**

Timothy M. Keller, Mayor

<b>To:</b>	Permit File
<b>From:</b>	Regan Eyerman
<b>Subject:</b>	<b>Permit Application #0917-M6</b>
<b>Date:</b>	March 22, 2021
<b>Permit Description:</b>	Respiratory Health-Related Research  (3) Emergency Generators (6) Boilers (1) Thermal Oxidizer

<b>Facility Name:</b>	<b>Lovelace Biomedical Research Institute</b>	<b>UTM Coordinates, East:</b>	363058
<b>Facility Address:</b>	Bldg. 9217, Area Y Kirtland AFB - East	<b>UTM Coordinates, North:</b>	3868527
<b>Facility ID:</b>	FA0004263	<b>Record ID:</b>	PR0010717

### Proposal

An application was received by the Air Quality Program (Program) from Lovelace Respiratory Research Institute South Facility located at Bldg. 9217, Area Y Kirtland AFB - East, Albuquerque, NM 87108 on November 23, 2020 and additional information received on March 19, 2021. The purpose of the modification is to remove two boilers (Units #BS-005 and BS-006) and to add a new boiler (Unit #BS-009). The new boiler will be used for sterilization and humidification for the animals onsite. Additionally, existing boiler (Unit #BS-004) was removed from the exempt equipment and added to the permitted process equipment because Unit #BS-004 is used for effluent water decontamination and was included in the modeling analysis for the facility.

### Permitting History

Permit Number	Issuance Date	Permit Type	Brief Description
0917-M5	11/3/2020	Modification	Fixing typos in the Unit Emissions Limits Table, restricting Unit #BH-003 to natural gas only, removing annual testing requirements for Units #GS-004, GS-005 and GS-006 and changing company name to Lovelace Biomedical Research Institute

Permit Number	Issuance Date	Permit Type	Brief Description
0917-M4	6/13/2017	Modification	Updating equipment nameplate capacities and emissions/adding exempted equipment table
0917-M3	6/27/2012	Modification	Removal and addition of boilers, grouping of boilers under a combined diesel fuel limit and changing the thermal oxidizer operating temperature
0917-M2	10/12/2006	Modification	Discontinue non-combustion activities, removal of the crematory, update boiler equipment and increase their diesel usage
0917-M1	6/06/2000	Modification	Increase in hourly CO emissions from emergency engine, a facility-wide VOC limit for non-combustion activities and update boiler emissions using AP-42

### Regulatory Applicability

The applicable Albuquerque-Bernalillo County Air Quality Control Board regulations include but are not limited to the provisions below:

#### New Mexico Administrative Code (NMAC) Regulations

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
20.11.1	Environmental Protection General	Yes. All facility
20.11.2	Permit Fees	Yes. All facility
20.11.2.19.A	Ton-per-year application review fees for stationary sources that require permit modification pursuant to 20.11.41 NMAC or other	

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
	board regulation, and whose applicability is based on the source's pound per hour or ton per year emissions:	
(3)	proposed sources with a proposed allowable emission rate equal to or greater than 25 tons per year and less than 50 tons per year: \$3,503.00	
	<i>The fees above have been adjusted for the Consumer Price Index on January 1, 2020.</i>	
<b>20.11.2.21</b>	<b>Annual Emissions Fees and Rate for Stationary Sources</b>	
<b>B.</b>	Permitted source: Sources issued a permit pursuant to 20.11.41 NMAC, 20.11.42 NMAC, 20.11.60 NMAC, 20.11.61 NMAC or other board regulation, shall pay a minimum annual emission fee of \$219.00 or \$52.00 per ton, whichever is greater. The annual emission fee shall be calculated as required by Subsection C of 20.11.2.13 NMAC	
<b>F.</b>	Beginning January 1, 2011, and every January 1 thereafter, an increase based on the consumer price index shall be added to the annual emission fee and rates required by 20.11.2.21 NMAC. The annual emission fees and rates pursuant to 20.11.2.21 NMAC shall be adjusted by an amount equal to the increase in the consumer price index for the immediately preceding year.	
	<i>The Annual Emission Fees were adjusted for the Consumer Price Index on January 1, 2021.</i>	

Emission Unit #	CO* TPY	NOx* TPY	SO2* TPY	VOC* TPY	PM10* TPY	HAPs* TPY
<b>Totals</b>	<b>22</b>	<b>47</b>	<b>3</b>	<b>2</b>	<b>2</b>	<b>1</b>
<b>Total = 77 tpy</b>						
*Note: The total emissions on this table are for billable use only. These are NOT the allowable annual emissions for the facility.						

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
<b>20.11.5</b>	<b>Visible Air Contaminants</b>	
<b>20.11.5.12</b>	<b>General Stationary Sources</b>	
	No person owning or operating any stationary source, not otherwise addressed in this Part, shall cause or allow visible air	Yes Units #BH-003, BS-004, BH-005,

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
	contaminant emissions that exceed an opacity of 20 percent, 6 minute time-averaged.	BS-007, BH-009, BS-009, & Thermal Oxidizer
20.11.5.13.C	<b>Diesel-Powered Engine:</b> No person shall cause or allow visible emissions from any stationary diesel-powered engine to exceed 20 percent opacity, 6 minute time-averaged. During the first 20 minutes of cold startup the visible emissions shall not exceed 40 percent opacity, 6 minute time-averaged. Additionally, no increase of load shall be applied so as to cause an emission having an opacity greater than 40 percent during any time interval.	Yes Units #GS-004, GS-005, & GS-006
20.11.8	<b>Ambient Air Quality Standards – Only New Mexico State Standards</b>  <b>Note:</b> 20.11.8 NMAC is applicable, but the newer federal standards contained in 40 CFR §50 apply.	
20.11.40	<b>Source Registration</b>	
20.11.40.2.A	This Part is applicable to any stationary source located in Bernalillo County.	Yes. All facility
20.11.40.6	By January 1, 1974, any person owning or operating any commercial or industrial stationary source, which emits more than two thousand pounds of any air contaminant per year or any amount of a hazardous air pollutant, must obtain a Registration Certificate for the source from the Director. Any person owning or operating any commercial or industrial stationary source constructed after September 1, 1973, and meeting the emission requirements of this section, must obtain a Registration Certificate for the source from the Director within one hundred and eighty days after the initial startup date of the source.	
20.11.41	<b>Construction Permits</b>	
20.11.41.2.B	Emission thresholds that require a construction permit before commencing construction, modification or operation of a stationary source subject to 20.11.41 NMAC:	Yes. All facility
(2)	If a person proposes a modification of a stationary source and the modification will emit one or more regulated air contaminants for which a federal, state or board ambient air quality standard exists, and if, as a result of the modification, all activities at the source will emit, when calculated at the contaminant’s potential emission rate, 10 pounds per hour or more or 25 tons per year or more of a regulated air contaminant,	

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
	then the person shall apply for and obtain a construction permit or permit modification as required by 20.11.41 NMAC before the person commences construction or operation.	
<b>20.11.41.2.C</b>	Source classifications; source types:	
(1)	Any equipment or process that is subject or becomes subject to 20.11.63 NMAC, New Source Performance Standards for Stationary Sources, or 20.11.64 NMAC, Emission Standards for Hazardous Air Pollutants for Stationary Sources	
<b>20.11.41.29</b>	<b>Permit Modification</b>	
	A person who proposes to modify a stationary source shall comply with all requirements of 20.11.41 NMAC. Applications for permit modifications shall be processed in accordance with all requirements established by 20.11.41 NMAC for permit applications, including public notice, review, fees and hearing procedures.	
<b>20.11.49</b>	<b>Excess Emissions</b>	
<b>20.11.49.13.A</b>	Applicable to any source:	Yes. All facility
(1)	whose operation results in an emission of a regulated air pollutant, including a fugitive emission, in excess of the quantity, rate, opacity or concentration specified by an air quality regulation or permit condition; or	
(2)	subject to the requirements of 20.11.47 NMAC, Emissions Inventory Requirements, 20.11.41 NMAC, Construction Permits, 20.11.42 NMAC, Operating Permits, 20.11.61 NMAC, Prevention of Significant Deterioration, or 20.11.60 NMAC, Permitting In Nonattainment Areas.	
<b>20.11.49.15.A</b>	The owner or operator of a source having an excess emission shall report the following information to the department on forms provided by the department. The department may authorize the submittal of such reports in electronic format. The department may require that the owner or operator of a source provide further information in addition to that already required by 20.11.49.15 NMAC by a deadline specified by the department.	
(1)	<b>Initial excess emission report:</b> The owner or operator shall file an initial report, no later than the end of the next regular business day after the time of discovery of an excess emission. The initial report shall include all available information regarding each item required by Subsection B of 20.11.49.15 NMAC.	
(2)	<b>Final excess emission report:</b> No later than 10 days after the end of the excess emission, the owner or operator shall file a final	

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
	report that contains specific and detailed information for each item required by Subsection B of 20.11.49.15 NMAC.	
<b>20.11.49.15.D</b>	<b>Alternative reporting.</b> If an owner or operator of a source is subject to both the excess emission reporting requirements of 20.11.49.15 NMAC and the reporting requirements of 40 CFR Parts 60, 61, and 63, and the federal reporting requirements duplicate the requirements of 20.11.49.15 NMAC, then the federal reporting requirements shall suffice.	
	<b>New Source Performance Standards</b>	
<b>20.11.63</b>	<b>Incorporation of federal standards Codified at 40 CFR Part 60</b>	
<b>20.11.63.11</b>	Federal Standards at 40 CFR Part 60, Subpart Dc	Units #BH-005 and BH-009
	<b>Emission Standards For Hazardous Air Pollutants For Stationary Sources</b>	
<b>20.11.64</b>	Incorporation of Federal Standards Codified at 40 CFR Part 63:	
<b>20.11.64.12</b>	Federal Standard at 40 CFR Part 63, Subpart ZZZZ	Units #GS-004, GS-005 and GS-006
<b>20.11.90</b>	<b>Source Surveillance; Administration, Enforcement, Inspection</b>	
20.11.90.2.A	20.11.90 is applicable to any source within the Bernalillo County.	
20.11.90.13.A	The owner or operator of any stationary source of an air contaminant shall, upon notification by the director, maintain records of the nature and amounts of emissions, to which an air quality control emission regulation applies, from the source and any other information as may be deemed necessary by the director to determine whether the source is in compliance with applicable regulations.	
20.11.90.13.E	The director shall establish a periodic visual surveillance system to detect and investigate apparent violations of visible emission limitations and such complaints relating to apparent violations of the regulations as may occur.	
20.11.90.14.A	Upon request of the director, the person responsible for the emission of air contaminants for which limits are established by the rules codified under Title 20, Environmental Protection, Chapter 11, Albuquerque - Bernalillo County Air Quality Control Board, of the New Mexico Administrative Code, shall provide such facilities, utilities, and openings exclusive of instrument and sensing devices, as may be necessary for the proper determination of the nature, extent, quantity and degree of such air	

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
	contaminants. Such facilities may be either temporary or permanent at the discretion of the person responsible for their provisions; and shall be suitable for determination consistent with emission limits established in these rules.	

### Federal Applicability

The applicable federal regulations include, but are not limited to, the provisions below:

Citation	Regulation	Does it apply to the Facility and/or Equipment? Y/N (List units)
<b>40 CFR 50</b>	National Primary and Secondary Ambient Air Quality Standards	Yes. All facility
§50.4	National primary ambient air quality standards for sulfur oxides (sulfur dioxide) General Provision	
§50.5	National secondary ambient air quality standards for sulfur oxides (sulfur dioxide)	
§50.6	National primary and secondary ambient air quality standards for PM10	
§50.7	National primary and secondary ambient air quality standards for PM2.5	
§50.8	National primary ambient air quality standards for carbon monoxide	
§50.9	National 1-hr primary and secondary ambient air quality standards for ozone	
§50.10	National 8-hr primary and secondary ambient air quality standards for ozone	
§50.11	National primary and secondary ambient air quality standards for oxides of nitrogen (with nitrogen dioxide as the indicator)	
§50.13	National primary and secondary ambient air quality standards for PM2.5	
§50.15	National primary and secondary ambient air quality standards for ozone	
§50.16	National primary and secondary ambient air quality standards for lead	
§50.17	National secondary ambient air quality standards for sulfur oxides (sulfur dioxide)	
§50.18	National primary and secondary ambient air quality standards for PM2.5	

Citation	Regulation	Does it apply to the Facility and/ or Equipment? Y/N (List units)
§50.19	National primary and secondary ambient air quality standards for ozone	
40 CFR 60 Subpart Dc	<i>Standards of Performance for Small Institutional Steam Generating Units</i>	Process Equipment Units #BH-005 and BH-009
40 CFR 63 ZZZZ	<i>National Emission Standards for Hazardous Air Pollutants for Source Category: Stationary Reciprocating Internal Combustion Engines</i>	Process Equipment Units #GS-004, GS-005 and GS-006

## Actions Taken

10/01/2020	Application received by the Program
10/30/2020	Application deemed incomplete by the Program
11/23/2020	Updated application received by the Program
12/23/2020	Application deemed complete by the Program
1/05/2021	Public notice on the permit application published on the Program website marking the beginning of public comment period on the application
03/19/2021	Application supporting documentation received

## Specific Conditions for this Facility

### FACILITY WIDE SPECIFIC CONDITIONS

#### Reporting Conditions

An annual (January 1 through December 31 of the previous year) emissions inventory for the facility to include annual hours of operation for Units #GS-004, GS-005, GS-006 and the Thermal Oxidizer, as well as the annual diesel usage in gallons for Units #BS-007, BH-009 and BS-009.

### EQUIPMENT SPECIFIC CONDITIONS

<b>Emergency Engines</b>	National Emissions Standard for Hazardous Air Pollutants (NESHAP) found in 40 CFR 63 Subpart ZZZZ - <u>National Emission Standards for Hazardous Air Pollutants for Source Category: Stationary Reciprocating Internal Combustion Engines</u> (RICE) do not apply for existing emergency stationary RICE listed in 40 CFR 63 Subpart ZZZZ §63.6585(f)(2) because they are considered commercial. However, Units #GS-004, GS-005 and GS-006 must operate according to the provisions specified in §63.6640(f). See Appendix A. Units #GS0-004, GS-005 and GS-006 shall meet the definition of emergency stationary RICE in 40 CFR §63.6675.
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Note: The EPA August 9, 2010 Memo, Guidance Regarding Definition of Residential, Commercial, and Institutional Emergency Stationary RICE in the NESHAP for Stationary RICE definition of institutional emergency stationary RICE includes research centers. The Lovelace Biomedical Research Institute has a facility process description of biomedical health related research with SIC 8733 and NAICS 541711. The EPA August 9, 2010 Memo lists NAICS 541711, Research and Development in Biotechnology as Commercial. Therefore Units #GS0-004, GS-005 and GS-006 are considered commercial based on the EPA August 9, 2010 Memo. The application form lists SIC 8733 and NAICS 541710. According to the U.S. Bureau of Labor Statistics, the description of NAICS 541710 is for research and development in physical, engineering, and life sciences. According to the NAICS Association website, <https://www.naics.com/naics-code-description/?code=541714>, the 2007 and 2012 NAICS code of 541711 has a description of biotechnology research and development laboratories or services (except nanobiotechnology research and development). The Program maintains the use of NAICS 541711 for the Lovelace Biomedical Research Institute is appropriate.

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Units #GS0-004, GS-005 and GS-006 may be operated for any combination of the following purposes for a combined maximum of 100 hours per calendar year:

Maintenance checks and readiness testing may be conducted, provided that the tests are recommended by federal, state or local government, the manufacturer, the vendor, the regional transmission organization or equivalent balancing authority and transmission operator, or the insurance company associated with the engine. The owner or operator may petition the Department for approval of additional hours to be used for maintenance checks and readiness testing, but a petition is not required if the owner or operator maintains records indicating that federal, state, or local standards require maintenance and testing of emergency RICE beyond 100 hours per calendar year.

Units #GS0-004, GS-005 and GS-006 may not operate or be contractually obligated to be available for more than 15 hours per calendar year for the following purposes:

Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation (NERC) Reliability Standard EOP-002-3, Capacity and Energy Emergencies (incorporated by reference, see §63.14), or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2 as defined in the NERC Reliability Standard EOP-002-3.

Periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.

Units #GS0-004, GS-005 and GS-006 may operate up to 50 hours per calendar year in non-emergency situations. The 50 hours of operation in non-emergency situations are counted as part of the 100 hours per calendar year for maintenance and testing and emergency demand response provided above. Prior to May 3, 2014, the 50 hours per year for non-emergency situations can be used for peak shaving or non-emergency demand response to generate income for a facility, or to otherwise supply power as part of a financial arrangement with another entity if the engine is operated as part of a peak shaving (load management program) with the local distribution system operator and the power is provided only to the facility itself or to support the local distribution system. On or after May 3, 2014, the 50 hours per year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement with another entity.

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<b>Emergency Engines</b>	Units #GS-004, #GS-005 and #GS-006 shall not cause or allow visible air emissions from any stationary diesel powered engine to exceed 20 percent opacity for any six (6) minute timed average. During the first twenty (20) minutes of cold start up, the visible emissions shall not exceed 40 percent opacity for any six (6) MINUTE TIMED AVERAGE. No increase of load shall be applied so as to cause an emission having an opacity greater than 40 percent during any time interval. This condition is pursuant to 20.11.5.13.C NMAC.
<b>Emergency Engines</b>	Units #GS-004, #GS-005 and #GS-006 CO and NOx lb/hr emission rates shall be based on a 3-hour average.
<b>Emergency Engines</b>	Units #GS-004, GS-005 and GS-006 shall each be restricted to a maximum of five hundred (500) hours of operation based on a 12-month rolling total.
<b>Boilers</b>	Units #BS-004, BS-007, BH-009 and BS-009 may each operate continuously.
<b>Boilers</b>	Units #BH-003 and BH-005 may each operate continuously and are restricted to natural gas usage only.
<b>Boilers</b>	When combusting diesel fuel, Units #BS-007, BH-009 and BS-009 are restricted to a combined limit of 7,560 gallons based on a 12-month rolling total.
<b>Thermal Oxidizer</b>	The Thermal Oxidizer is restricted to 2,000 hours of operation based on a 12-month rolling total.
<b>Thermal Oxidizer</b>	The Thermal Oxidizer shall maintain an operating temperature greater than 900 degrees Fahrenheit at all times in order to meet the NOx, CO, VOC, and PM emission rates stated in Condition 2.
	<b>Recordkeeping Conditions</b>
<b>Emergency Engines</b>	Maintain an accurate monthly log for Units #GS-004, #GS-005 and #GS-006 hours of operation, both as a monthly total and as a 12-month rolling total.
<b>Boilers</b>	Maintain a monthly log of the combined diesel fuel usage for Units BS-007, BH-009 and BS-009 based on a 12-month rolling total.
<b>Boilers</b>	Maintain records on the amount of natural gas fuel consumption of Units #BH-005 and BH-009 on a monthly basis. This condition is pursuant to CFR Title 40, Part 60, Subpart Dc, §60.48c(g) based on a 12-month rolling total.
<b>Thermal Oxidizer</b>	Maintain a monthly log for hours of operation for the Thermal Oxidizer based on a 12-month rolling total.
<b>Thermal Oxidizer</b>	Maintain a log of the Thermal Oxidizer operating temperatures for each day the Thermal Oxidizer is operated
	<b>Monitoring Conditions:</b>
<b>Emergency Engines</b>	Monitor Units #GS-004, #GS-005 and #GS-006 hours of operation based on a 12-month rolling average
<b>Boilers</b>	Monitor the collective diesel fuel usage for Units #BS-007, BH-009 and BS-009 based on a 12-month rolling average.
<b>Boilers</b>	Monitor the monthly natural gas fuel consumption of Units #BH-005 and BH-009 pursuant with CFR Title 40, Part 60, Subpart Dc, §60.48c(g) based on a 12-month rolling average.
<b>Thermal Oxidizer</b>	Monitor the monthly hours of operations based on a 12-month rolling average and operating temperature of the Thermal Oxidizer for each day the Thermal Oxidizer is operated.
	<b>Compliance Tests</b>
<b>Emergency Engines</b>	Initial compliance tests for Units #GS-004, GS-005 and GS-006 were conducted in order to demonstrate compliance of the NOx, CO and opacity emissions stated in Condition 2.

<b>Emergency Engines</b>	Annual compliance tests for Units #GS-004, GS-005 and GS-006 have not been imposed at this time.
<b>Boilers and Thermal Oxidizer</b>	Compliance tests for Units #BH-003, BS-004, BH-005, BS-007, BH-009 and BS-009, and the Thermal Oxidizer have not been imposed at this time.

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## CALCULATIONS

**TABLE A**  
**Uncontrolled and Controlled Emissions for**  
**5.021 MMBtu/hr Natural-**  
**Gas Fired Boiler #BS-009**

Uncontrolled and controlled emissions for CO, NO<sub>x</sub>, PM, SO<sub>2</sub> and VOC have been calculated utilizing manufacturer specifications (Oiton Specification sheet application page 67). The fuel heat value as listed on the application is 1000 Btu/scf, which will be used to calculate the uncontrolled and controlled emissions. Fuel usage is 5000 scf/hr and 44 MMscf/yr. Uncontrolled emissions have been based on 8760 hours of annual operations. Controlled emissions equal uncontrolled emissions.

Unit Number	Pollutant	Emission Rate	Emission Calculation	Emission lbs/hour	Emission tons/year
BS-009	CO	0.0375 lb/10 <sup>6</sup> BTU	[0.0375 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [5000 scf/hr] = 0.19 lb/hr [0.0375 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [44 x 10 <sup>6</sup> scf/yr]/[2000 lb/ton] = 0.83 tpy	0.19	0.83
	NO <sub>x</sub>	0.035 lb/10 <sup>6</sup> BTU	[0.035 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [5000 scf/hr] = 0.18 lb/hr [0.035 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [44 x 10 <sup>6</sup> scf/yr]/[2000 lb/ton] = 0.77 tpy	0.18	0.77
5.021 MM Btu/hr	SO <sub>2</sub>	0.0006 lb/10 <sup>6</sup> BTU	[0.0006 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [5000 scf/hr] = 0.003 lb/hr [0.0006 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [44 x 10 <sup>6</sup> scf/yr]/[2000 lb/ton] = 0.01 tpy	0.003	0.01
(8,760 hours)	PM <sub>10</sub>	0.0075 lb/10 <sup>6</sup> BTU	[0.0075 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [5000 scf/hr] = 0.04 lb/hr [0.0075 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [44 x 10 <sup>6</sup> scf/yr]/[2000 lb/ton] = 0.17 tpy	0.04	0.17
	PM <sub>2.5</sub>	0.0075 lb/10 <sup>6</sup> BTU	[0.0075 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [5000 scf/hr] = 0.04 lb/hr [0.0075 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [44 x 10 <sup>6</sup> scf/yr]/[2000 lb/ton] = 0.17 tpy	0.04	0.17
	VOC	0.0036 lb/10 <sup>6</sup> BTU	[0.0036 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [5000 scf/hr] = 0.02 lb/hr [0.0036 lb/10 <sup>6</sup> BTU] [1000 BTU/scf] [44 x 10 <sup>6</sup> scf/yr]/[2000 lb/ton] = 0.08 tpy	0.02	0.08

**Table B**  
**Controlled Emissions for**  
**5.021 MMBtu/hr Diesel Fired Boiler #BS-009**

Uncontrolled and controlled emissions for CO, NO<sub>x</sub>, PM, SO<sub>2</sub> and VOC have been calculated utilizing the AP-42 Section 1.4 Fuel Oil Combustion [Tables 1.3-1 & 1.3.3] (5/10) and assuming each engine uses 7,560 gals of diesel per year as a worst-case scenario with the other boilers off-line. According to manufacturer documentation Unit #BH-009 has a diesel flow rate of 36 gal/hr. This would mean the engine is allowed to run for  $7560/36 = 210$  hrs/yr.

Unit Number	Pollutant	Emission Rate	Emission Calculation	Emission lbs/hour	Emission tons/year
BS-009	CO	5 lb/10 <sup>3</sup> gal	[5 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[210 hrs/yr] = 0.18 lb/hr [5 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[2000 lbs/ton] = 0.02 lb/hr	0.18	0.02
7560 gals/yr	NO <sub>x</sub>	20 lb/10 <sup>3</sup> gal	[20 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[210 hrs/yr] = 0.72 lb/hr [20 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[2000 lbs/ton] = 0.08 lb/hr	0.72	0.08
(210 hours)	SO <sub>2</sub>	142S lb/hr	[142 lb/10 <sup>3</sup> gal] [0.05] [7560 gal/yr]/[210 hrs/yr] = 0.26 lb/hr [142 lb/10 <sup>3</sup> gal] [0.05] [7560 gal/yr]/[2000 lbs/ton] = 0.03 lb/hr	0.26	0.03
S = 0.05	PM <sub>10</sub>	2 lb/10 <sup>3</sup> gal	[2 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[210 hrs/yr] = 0.07 lb/hr [2 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[2000 lbs/ton] = 0.008 lb/hr	0.07	0.008
	PM <sub>2.5</sub>	2 lb/10 <sup>3</sup> gal	[2 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[210 hrs/yr] = 0.07 lb/hr [2 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[2000 lbs/ton] = 0.008 lb/hr	0.07	0.008
	VOC	0.34 lb/10 <sup>3</sup> gal	[0.34 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[210 hrs/yr] = 0.01 lb/hr [0.34 lb/10 <sup>3</sup> gal] [7560 gal/yr]/[2000 lbs/ton] = 0.001 lb/hr	0.01	0.001

**TABLE C**  
**Uncontrolled and Controlled Emissions for**  
**1.674 MMBtu/hr Natural-**  
**Gas Fired Boiler #BS-004**

Uncontrolled and controlled emissions for CO, NO<sub>x</sub>, PM and VOC have been calculated utilizing the AP-42 Section 1.4 Natural Gas Combustion [Tables 1.4-1 & 1.4.2] (7/98) in the table below. The fuel heat value as listed on the application is 1000 Btu/scf, which will be used to calculate the uncontrolled and controlled emissions. Fuel usage is 1700 scf/hr and 14.7 MMscf/yr (according to pg 41 in the application). Uncontrolled emissions have been based on 8760 hours of annual operations. Controlled emissions equal uncontrolled emissions.

Unit Number	Pollutant	Emission Rate	Emission Calculation	Emission lbs/hour	Emission tons/year
BS-004	CO	84 lb/10 <sup>6</sup> scf	[84 lb/10 <sup>6</sup> scf] [1.674 x10 <sup>6</sup> btu/hr] [1 scf/1000 btu] = 0.14 lb/hr [0.14 lb/hr] [8760 hr/yr] [1 ton/2000lbs] = 0.62 tpy	0.14	0.62
	NO <sub>x</sub>	100 lb/10 <sup>6</sup> scf	[100 lb/10 <sup>6</sup> scf] [1.674 x10 <sup>6</sup> btu/hr] [1 scf/1000 btu] = 0.17 lb/hr [0.17 lb/hr] [8760 hr/yr] [1 ton/2000lbs] = 0.73 tpy	0.17	0.73
1.674 MM Btu/hr	SO <sub>2</sub> <sup>1</sup>	50 gr/10 <sup>3</sup> scf	[1700 scf/hr] [50 gr/10 <sup>3</sup> scf] [1 lb/7000 gr] [64 lb SO <sub>2</sub> /32 lb S] = 0.02 lb/hr [14.7 x 10 <sup>6</sup> scf/yr] [50 gr/10 <sup>3</sup> scf] [1 lb/7000 gr] [1 ton/2000lbs] [64 lb SO <sub>2</sub> /32 lb S] = 0.11 lb/hr	0.02	0.11
(8,760 hours)	PM <sub>10</sub>	7.6 lb/10 <sup>6</sup> scf	[7.6 lb/10 <sup>6</sup> scf] [1.674 x10 <sup>6</sup> btu/hr] [1 scf/1000 btu] = 0.01 lb/hr [0.01 lb/hr] [8760 hr/yr] [1 ton/2000lbs] = 0.06 tpy	0.01	0.06
	PM <sub>2.5</sub>	7.6 lb/10 <sup>6</sup> scf	[7.6 lb/10 <sup>6</sup> scf] [1.674 x10 <sup>6</sup> btu/hr] [1 scf/1000 btu] = 0.01 lb/hr [0.01 lb/hr] [8760 hr/yr] [1 ton/2000lbs] = 0.06 tpy	0.01	0.06
	VOC	5.5 lb/10 <sup>6</sup> scf	[5.5 lb/10 <sup>6</sup> scf] [1.674 x10 <sup>6</sup> btu/hr] [1 scf/1000 btu] = 0.009 lb/hr [0.009 lb/hr] [8760 hr/yr] [1 ton/2000lbs] = 0.04 tpy	0.009	0.04

<sup>1</sup>SO<sub>2</sub> emissions based on fuel sulfur content of 50 gr S/Mscf.

## APPENDIX A

### MEMORANDUM

**Subject:** Guidance Regarding Definition of Residential, Commercial, and Institutional Emergency Stationary RICE in the NESHAP for Stationary RICE

**From:** Melanie King, Energy Strategies Group

**To:** EPA Docket EPA-HQ-OAR-2008-0708

**Date:** August 9, 2010

On March 3, 2010, EPA promulgated amendments to the national emission standards for hazardous air pollutants (NESHAP) for reciprocating internal combustion engines (RICE). (75 FR 9674) In that rulemaking, EPA established a definition for residential/commercial/institutional emergency stationary RICE. Subsequent to the publication of the final rule, EPA received numerous questions regarding the definition and whether certain types of facilities would meet the definition. In order to provide additional clarification, EPA is separating the definition into individual definitions for residential emergency stationary RICE, commercial emergency stationary RICE, and institutional emergency stationary RICE, and is also providing additional examples of the types of facilities that would be included under those categories in the definitions in the rule. The definitions are as follows:

Residential emergency stationary RICE means an emergency stationary RICE used in residential establishments such as homes or apartment buildings.

Commercial emergency stationary RICE means an emergency stationary RICE used in commercial establishments such as office buildings, hotels, stores, telecommunications facilities, restaurants, financial institutions such as banks, doctor's offices, and sports and performing arts facilities.

Institutional emergency stationary RICE means an emergency stationary RICE used in institutional establishments such as medical centers, nursing homes, research centers, institutions of higher education, correctional facilities, elementary and secondary schools, libraries, religious establishments, police stations, and fire stations.

In order to give further guidance regarding the types of facilities that would be considered residential, commercial, or institutional, EPA has provided a list of NAICS codes in Appendix A and indicated for each code whether the establishment would be considered residential, commercial, or institutional.

2007 NAICS Code	2007 NAICS Title	Residential/ Commercial?
541219	Other Accounting Services	Commercial
541310	Architectural Services	Commercial
541320	Landscape Architectural Services	Commercial
541330	Engineering Services	Commercial
541340	Drafting Services	Commercial
541350	Building Inspection Services	Commercial
541360	Geophysical Surveying and Mapping Services	Commercial
541370	Surveying and Mapping (except Geophysical) Services	Commercial
541380	Testing Laboratories	Commercial
541410	Interior Design Services	Commercial
541420	Industrial Design Services	Commercial
541430	Graphic Design Services	Commercial
541490	Other Specialized Design Services	Commercial
541511	Custom Computer Programming Services	Commercial
541512	Computer Systems Design Services	Commercial
541513	Computer Facilities Management Services	Commercial
541519	Other Computer Related Services	Commercial
541611	Administrative Management and General Management Consulting Services	Commercial
541612	Human Resources Consulting Services	Commercial
541613	Marketing Consulting Services	Commercial
541614	Process, Physical Distribution, and Logistics Consulting Services	Commercial
541618	Other Management Consulting Services	Commercial
541620	Environmental Consulting Services	Commercial
541690	Other Scientific and Technical Consulting Services	Commercial
541711	Research and Development in Biotechnology	Commercial
541712	Research and Development in the Physical, Engineering, and Life Sciences (except Biotechnology)	Commercial
541720	Research and Development in the Social Sciences and Humanities	Commercial
541810	Advertising Agencies	Commercial
541820	Public Relations Agencies	Commercial
541830	Media Buying Agencies	Commercial
541840	Media Representatives	Commercial
541850	Display Advertising	Commercial
541860	Direct Mail Advertising	Commercial
541870	Advertising Material Distribution Services	Commercial
541890	Other Services Related to Advertising	Commercial
541910	Marketing Research and Public Opinion Polling	Commercial
541921	Photography Studios, Portrait	Commercial
541922	Commercial Photography	Commercial
541930	Translation and Interpretation Services	Commercial
541940	Veterinary Services	Commercial
541990	All Other Professional, Scientific, and Technical Services	Commercial