



UNIVERSITY OF
SOUTH DAKOTA

February 10, 2022

Air Quality Program Secretary
South Dakota Department of Environment and Natural Resources
Air Quality Program
Joe Foss Building
523 E. Capitol
Pierre, SD 57501-3181

Re: Permit #28.2201 - University of South Dakota
Annual Operational Report and Compliance Certification

Dear Secretary:

In conformance with permit condition 2.2, this letter is attached to the completed 2021 Operational Report Air Emission Inventory and the Annual Compliance Certification Report for the University of South Dakota's (USD) Vermillion, South Dakota, campus.

No instances of non-compliance occurred in 2021.

Cordially,

A handwritten signature in black ink, appearing to read 'B. Limoges'.

Brian Limoges
Interim Assistant Vice President, Facilities Management

Cc: Kevin O'Kelley, USD
Connor Weber, DANR
Cooper Baltzer, DANR

414 E Clark Street Vermillion, SD 57069-2390
605-677-5341 / Fax 605-677-6242
facmgt@usd.edu

2021 ANNUAL COMPLIANCE CERTIFICATION REPORT
UNIVERSITY OF SOUTH DAKOTA

Responsible Official: Brian Limoges, Assistant Vice President/Facilities Management
Mailing Address: The University of South Dakota
414 East Clark Street
Vermillion, South Dakota 57069

Phone Number: (605) 658-3308
Location: 414 East Clark Street
Vermillion, South Dakota 57069

Permit Number: 28.2201-19
Permit Expiration Date: January 7, 2027

Description of Source

Title V air quality operating permit

- 40 CFR 60 Subpart Dc - Standards of Performance for Small Steam Generating Units
- 40CFR 60 Subpart IIII – Standards of Performance for Stationary Compression Ignition Internal Combustion Engines
- 40 CFR 60 Subpart JJJJ – Standards of Performance for Stationary Spark Ignition Internal Combustion Engines
- 40 CFR 63 Subpart ZZZZ - National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

List of Emission Points and Control Equipment

A description of permitted units, operations, and processes is displayed in Table 1-1 which is derived from USD’s existing Title V air quality operating permit issued September 17, 2019.

Table #1-1 -Description of Permitted Units, Operations, and Processes

Unit	Description	Maximum Operating Rate	Control Device
#2	A 1970 Babcock & Wilcox steam boiler with a Coen burner, model no. FM10, fired with natural gas and distillate oil.	60,000 pounds of steam per hour heat output	Not Applicable
#8	2008 York Shipley, Model #5112L-S3W-1000X-S200 steam boiler, fired with natural gas and/or distillate oil.	33.5 million Btus per hour heat input	Not Applicable
#9	2008 York Shipley, Model #5112L-S3W-1000X-S200 steam boiler, fired	33.5 million Btus per hour heat	Not Applicable

Unit	Description	Maximum Operating Rate	Control Device
	with natural gas and/or distillate oil.	input	
#10	Caterpillar 3406 generator fired with distillate oil	400 horsepower	Not Applicable
#11	2004 Caterpillar 3412 750 Kw generator fired with distillate oil	7.4 million Btus per hour heat input	Not Applicable
#12	Caterpillar 3408 generator fired with distillate oil	450 horsepower	Not Applicable
#15b	2016 Richardson/Olson Cummins emergency generator fired with distillate oil.	80 kilowatts	Not Applicable
#16b	2015 Caterpillar D40-6 emergency generator fired with diesel fuel.	40 kilowatts	Not Applicable
#17b	2015 Caterpillar D40-6 emergency generator fired with diesel fuel.	40 kilowatts	Not Applicable
#18	Onan 350 generator fired with distillate oil	470 horsepower	Not Applicable
#23	2009 Caterpillar D60-6 emergency generator fired with distillate fuel	80.5 horsepower	Not Applicable
#24	2007 Cummins 50DGHE emergency generator fired with distillate fuel	82 horsepower	Not Applicable
#25	2010 Kohler 100 REZG generator fired with natural gas	155 horsepower	Not Applicable
#26	Boiler #8 – 2012 Cleaver Brooks 4WG-200-500=200ST steam boiler fired with natural gas and distillate oil.	22.5 million Btu per hour heat input	Not Applicable
#27	2009 Generac 100 KW emergency generator fired with distillate fuel	100 KW	Not Applicable
#28	2013 Kohler 150REZGC generator fired with natural gas	259 horsepower	Not Applicable
#29	2015 Cummins DQDAC emergency generator fired with diesel fuel	300 kilowatts	Not Applicable
#30	2017 Slagle Mitsubishi emergency generator fired with distillate oil.	1,528 horsepower	Not Applicable

Permit Conditions

The box below the permit condition contains a “Yes” or “No” check box to identify if you are in compliance with the permit condition. Check the appropriate box and complete the additional information requested below the permit condition. By checking the “Yes” box, the owner or operator is in continuous compliance. A checked “No” box means the owner or operator is in compliance intermittently or out of compliance.

2.0 PERMIT FEES

2.1 Annual air fee required.

In accordance with ARSD 74:36:05:06.01, the owner or operator shall submit an annual administrative fee and an annual fee. The fee is based on actual emissions in accordance with ARSD 74:37.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Date annual air fee submitted: 7/23/2021

2.2 Annual operational report.

In accordance with ARSD 74:37:01:06, the Secretary will supply the owner or operator with an annual operational report in January of each year. The owner or operator shall complete and submit the operational report to the Secretary by March 1 of each year. The responsible official shall sign the operational report in the presence of a notary public.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Date annual operational report submitted: FEBRUARY 10, 2021

2.3 Annual air fee.

In accordance with ARSD 74:37:01:08, the Secretary will notify the owner or operator of the required annual air emission fee and administrative fee by June 1 of each year. The fees shall accrue on July 1 and are payable to the Department of Revenue by July 31 of each year.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Date annual air fee paid: 7/23/2021

3.0 PERMIT AMENDMENT AND MODIFICATION CONDITIONS

3.6 Testing new fuels or raw materials.

In accordance with ARSD 74:36:11:04, an owner or operator may request permission to test a new fuel or raw material to determine if it is compatible with existing equipment before requesting a permit amendment or modification. A complete test proposal shall consist of the following:

1. A written proposal that describes the new fuel or raw material, operating parameters, and parameters that will be monitored and any testing associated with air pollutant emissions during the test;
2. An estimate of the type and amount of regulated air pollutant emissions that will result from the proposed change; and
3. The proposed schedule for conducting the test. In most cases the owner or operator will

be allowed to test for a maximum of one week. A request for a test period longer than one week will need additional justification. A test period shall not exceed 180 days.

The Secretary shall approve, conditionally approve, or deny in writing the test proposal within 45 days after receiving a complete proposal. Approval conditions may include changing the test schedule or pollutant sampling and analysis methods. Pollutant sampling and analysis methods may include, but are not limited to performance testing, visible emission evaluation, fuel analysis, dispersion modeling, and monitoring of raw material or fuel rates.

If the Secretary determines that the proposed change will result in an increase in the emission of a regulated air pollutant or result in the emission of an additional regulated air pollutant, the Secretary shall give public notice of the proposed test for 30 days. The Secretary shall consider all comments received during the 30-day public comment period before making a final decision on the test.

The Secretary will not approve a test if the test would cause or contribute to a violation of a national ambient air quality standard.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: NO NEW FUELS OR RAW MATERIALS WERE
USED IN 2021.

5.0 RECORD KEEPING REQUIREMENTS

5.2 Signatory Requirements.

In accordance with ARSD 74:36:05:12 and ARSD 74:36:05:16.01, all applications submitted to the Secretary shall be signed and certified by a responsible official. A responsible official for a corporation is a responsible corporate officer and for a partnership or sole proprietorship is a general partner or the proprietor, respectively. All reports or other information submitted to the Secretary shall be signed and certified by a responsible official or a duly authorized representative. A person is a duly authorized representative only if:

1. The authorization is made in writing by a person described above and submitted to the Secretary; and
2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.

The responsible official shall notify the Secretary if an authorization is no longer accurate. The new duly authorized representative must be designated prior to or together with any reports or

information to be signed by a duly authorized representative.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: ALL SUBMISSIONS WERE SIGNED BY A DULY AUTHORIZED REPRESENTATIVE.

5.3 Certification statement.

In accordance with ARSD 74:36:05:16.01(14)(a), all documents required by this permit, including application forms, reports, and compliance certification, must be certified by a responsible official or a duly authorized representative. The certification shall include the following statement:

“I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this document and all attachments are true, accurate, and complete.”

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: ALL DOCUMENTS WERE PROPERLY CERTIFIED.

5.4 Monitoring log.

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain a monitoring log. The monitoring log shall contain the following information.

1. Maintenance schedule for each piece of control equipment listed in Table 1. At a minimum, the maintenance schedule shall meet the manufacturer’s recommended schedule for maintenance. The following information shall be recorded for maintenance:
 - a. Identify the unit;
 - b. The date and time maintenance was performed;
 - c. Description of the type of maintenance;
 - d. Reason for performing maintenance;
 - e. Signature of person performing maintenance;
2. The following information shall be recorded for each visible emission reading required in permit condition 8.1:
 - a. Identify the unit;
 - b. The date and time the visible emission reading was performed;
 - c. If visible emissions were observed;
 - d. Description of maintenance performed to eliminate visible emissions;

- e. Visible emission evaluation if visible emissions are not eliminated; and
- f. Signature of person performing visible emission reading and/or visible emission evaluation;
- 3. The owner or operator shall maintain relevant records of the occurrence and duration of each startup, shutdown, or malfunction of process equipment and/or air pollution control equipment; and
- 4. The following information shall be recorded within two days of each emergency exceedance:
 - a. The date of the emergency exceedance and the date the emergency exceedance was reported to the Secretary;
 - b. The cause(s) of the emergency;
 - c. The reasonable steps taken to minimize the emissions during the emergency; and
 - d. A statement that the permitted equipment was at the time being properly operated.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

5.5 Annual records.

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall calculate and record the following amounts from January 1 to December 31 of each year:

- 1. The amount of natural gas burned in Units #2, #4 through #9, and #25, 26 and #28 in million cubic feet;
- 2. The amount of distillate oil burned in Units #2, #8 - #12, #18, #23, #24, #25, #26 and #27 in gallons;
- 3. The amount of material burned in Unit #4; and
- 4. The number of hours all permitted units listed in Table 1-1 were operated.

The amount of natural gas and distillate oil consumed and the amount of material processed shall be based on production records, consumption records, purchase records, daily records, etc.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: UNITS 2 AND 4 ARE NO LONGER IN SERVICE

5.6 Annual compliance certification.

In accordance with ARSD 74:36:05:16.01(14), the owner or operator shall submit an annual

compliance certification letter to the Secretary by March 1 of each year this permit is in effect (NOTE: The Secretary will forward a copy of the certification letter to EPA). The certification shall contain the following information:

1. Methods used to determine compliance, including: monitoring, record keeping, performance testing and reporting requirements;
2. The source is in compliance and will continue to demonstrate compliance with all applicable requirements;
3. In the event the source is in noncompliance, a compliance plan that indicates how the source has or will be brought into compliance; and
4. Certification statement required in permit condition 5.3.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

5.7 Reporting permit violations.

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall report all permit violations. A permit violation should be reported as soon as possible, but no later than the first business day following the day the violation was discovered. The permit violation may be reported by telephone to the South Dakota Department of Environment and Natural Resources at (605) 773-3151 or by FAX at (605) 773-5286.

A written report shall be submitted within five days of discovering the permit violation. Upon prior approval from the Secretary, the submittal deadline for the written report may be extended up to 30 days. The written report shall contain:

1. Description of the permit violation and its cause(s);
2. Duration of the permit violation, including exact dates and times; and
3. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the permit violation.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: THERE WERE NO PERMIT VIOLATIONS IN 2021.

6.0 CONTROL OF REGULATED AIR POLLUTANTS

6.1 Visibility limit.

In accordance with ARSD 74:36:12:01, the owner or operator may not discharge into the ambient air an air contaminant of a density equal to or greater than that designated as 20 percent opacity from any permitted unit, operation, or process listed in Table #1. This provision does not apply when the presence of uncombined water is the only reason for failure to meet the requirement.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

6.2 Visibility exceedances.

In accordance with ARSD 74:36:12:02, an exceedance of the operating limit in permit condition 6.1 is not considered a violation during brief periods of soot blowing, start-up, shutdown, or malfunctions. Malfunction means any sudden and unavoidable failure of air pollution control equipment, process equipment, or a process to operate in a normal or usual manner. A failure caused entirely or in part by poor maintenance, careless operation, preventable equipment breakdown, or any other cause within the control of the owner or operator of the source is not a malfunction and is considered a violation.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: No exceedances in 2021

6.3 Total suspended particulate matter limits.

In accordance with ARSD 74:36:06:02(1) and/or ARSD 74:36:06:03(1), the owner or operator shall not allow the emission of total suspended particulate matter in excess of the emission limit specified in Table 6-1 for the appropriate permitted unit, operation, and process.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

6.4 Particulate limits.

In accordance with ARSD 74:36:06:02(1), the owner or operator shall not allow the emission of total suspended particulate in excess of the emission limit specified in Table #6-1 for the appropriate permitted unit, operations, and process:

Table #6-1 - Total Suspended Particulate Emission Limit

Identification	Description	Emission Limit
Unit #2	1970 Boiler	0.5 pounds per million Btu heat input
Unit #4	2005 Mathews incinerator	0.4 pounds per million Btu heat input
Unit #11	2004 Caterpillar 3412 750 Kw generator	0.6 pounds per million Btu heat input
Unit #12	1980 Cat 3408 generator fired with distillate oil	0.6 pounds per million Btu heat input
Unit #18	1977 Onan 350 generator fired with distillate oil	0.6 pounds per million Btu heat input

In Compliance Yes No

Comments: UNITS 2 AND 4 ARE NO LONGER IN SERVICE.

6.5 Sulfur dioxide limits.

In accordance with ARSD 74:36:06:02(2), the owner or operator shall not allow the emission of sulfur dioxide in excess of the emission limit specified in Table #6-2 for the appropriate permitted unit, operations, and process:

Table #6-2 - Sulfur Dioxide Emission Limit

Identification	Description	Emission Limit
Unit #2	1970 Boiler	3.0 pounds per million Btu heat input
Unit #11	2004 Caterpillar 3412 750 Kw generator	3.0 pounds per million Btu heat input
Unit #18	1977 Onan 350 generator fired with distillate oil	3.0 pounds per million Btu heat input
Unit #18	1977 Onan 350 generator fired with distillate oil	3.0 pounds per million Btu heat input

Compliance with the sulfur dioxide emission limit is based on a three-hour rolling average, which is the arithmetic average of three contiguous one-hour periods.

In Compliance Yes No

Comments: UNIT 2 IS NO LONGER IN SERVICE

6.6 Air emission exceedances – emergency conditions.

In accordance with ARSD 74:36:05:16.01(18), the Secretary will allow for an unavoidable emission exceedance of a technology-based emission limit if the exceedance is caused by an emergency condition and immediate action is taken by the owner or operator to restore the operations back to normal. An emergency condition is a situation arising from a sudden and reasonably unforeseeable event beyond the control of the source, including acts of God. An emergency shall not include an emission exceedance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. The owner or operator shall notify the Secretary within two working days of the incident and take all steps possible to eliminate the excess emissions. The notification must provide a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken. If the notification is submitted orally, a written report summarizing the information required by the notification shall be submitted and postmarked within 30 days of the oral notification

In Compliance Yes No

Comments: NO EMERGENCY CONDITIONS IN 2021.

6.7 Circumvention not allowed.

In accordance with ARSD 74:36:05:47.01, the owner or operator may not install, use a device, or use a means that conceals or dilutes an air emission that would otherwise violate this permit. This includes operating a unit or control device that emits air pollutants from an opening other than the designed stack, vent, or equivalent opening.

In Compliance Yes No

Comments: _____

6.8 Minimizing emissions.

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.11(d), the owner or operator shall at all times, when practicable, maintain and operate all permitted units in a manner that minimizes air pollution emissions.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

8.0 MONITORING

8.1 Periodic monitoring for opacity limits.

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall demonstrate compliance with the opacity limits in Chapter 6.0 on a periodic basis. Periodic monitoring for Units #1, #2, #8, and #9 and Units #10 – 12, #18, #23, #24, #26, and #27 if fueled with distillate oil during a month, shall be based on the amount of visible emissions from each unit and evaluated according to the following steps:

Step 1: If there are no visible emissions from a unit subject to an opacity limit, periodic monitoring shall consist of a visible emission reading. A visible emission reading shall consist of a visual survey of each unit over a two-minute period to identify if there are visible emissions. The visible emission reading must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions. Visible emission readings on each unit subject to an opacity limit in Chapter 6.0 shall be based on the following frequency:

- a. The owner or operator shall conduct a visible emission reading once per calendar month;
- b. If no visible emissions are observed from a unit in six consecutive monthly visible emission readings, the owner or operator may decrease the frequency of readings from monthly to semiannually for that unit; or
- c. If no visible emissions are observed from a unit in two consecutive semiannual visible emission readings, the owner or operator may decrease the frequency of testing of readings from semiannually to annually for that unit.

Step 2: If visible emissions are observed from a unit at any time other than periods of startup, shutdown, or malfunction, the owner or operator shall conduct a visible emission test on that unit to determine if the unit is in compliance with the opacity limit specified in Chapter 6.0. The emission test shall be for six minutes and conducted in accordance with 40 CFR Part 60, Appendix A, Method 9. The visible emission test must be conducted while the unit is in operation; but not during periods of startup, shutdown, or malfunctions. Visible emission tests shall be based on the following frequency:

- a. The visible emission test must be conducted within one hour of witnessing a visible emission from a unit during a visible emission reading;
- b. If the visible emission test required in Step 2(a) results in an opacity value less than or equal to 50 percent of the opacity limit for the unit, the owner or operator shall perform a visible emission test once per month;
- c. If the opacity value of a visible emission test is less than five percent for six straight

monthly tests, the owner or operator may revert back to monthly visible emission readings as required in Step 1;

- d. If the visible emission test required in Steps 2(a) or 2(b) results in an opacity value greater than 50 percent of the opacity limit but less than the opacity limit, the owner or operator shall perform a visible emission test once per week; or
- e. If the visible emission test in Step 2(d) results in an opacity value less than or equal to 50 percent of the opacity limit for six straight weekly readings, the owner or operator may revert back to a monthly visible emission test as required in Step 2(b).

The person conducting the visible emission test must be certified in accordance with 40 CFR Part 60, Appendix A, Method 9. If a visible emission test is required before a person is certified in accordance with permit condition 8.2, the owner or operator shall notify the Secretary within 24 hours of observing the visible emissions to schedule a visible emission test performed by a state inspector.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

8.2 Certified personnel – visible emission tests.

In accordance with ARSD 74:36:13:07, the owner or operator shall retain a person that is certified to perform a visible emission test in accordance with 40 CFR Part 60, Appendix A, Method 9. The owner or operator shall retain a certified person throughout the term of this permit.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

8.3 Monitoring sulfur content of distillate oil.

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall obtain a fuel supplier certification for each load of distillate oil purchased or received. The fuel supplier certification shall include the following information:

- 1. The name of the oil supplier;
- 2. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil. Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2. Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6.

Specifications for fuel oils are defined in the American Society for Testing and Materials in ASTM D396-78, "Standards Specifications for Fuel Oils"; and

3. A statement that the sulfur content of the oil does not exceed 0.5 weight percent sulfur.

In the case where a fuel supplier certification is not obtained, the owner or operator shall collect a grab sample from the distillate oil storage tank within 30 days of receiving the shipment of distillate oil but before another load of distillate oil is transferred into the storage tank. The grab sample shall be analyzed to determine the sulfur content of the distillate oil in the storage tank. A copy of the results of the distillate oil analysis shall be submitted with the semiannual report required in permit condition 10.8.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: NO FUEL^{oil} WAS PURCHASED IN 2021.

9.0 NEW SOURCE PERFORMANCE STANDARD SUBPART Dc

9.1 Changing boiler fuels.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.40c, Units #8, #9, and #26 shall be fueled only with natural gas and distillate oil. If the boiler is fueled with other fuels such as propane, coal, other oil, or wood, additional standards and requirements in 40 CFR Part 60, Subpart Dc may apply. The owner or operator shall apply for and obtain approval from the Secretary before other fuels can be used as a fuel in Units #8, #9, and #26.

Distillate oil means fuel oil that complies with the specifications for fuel oil numbers 1 or 2. Residual oil means crude oil, fuel oil that does not comply with the specifications under the definition of distillate oil, and all fuel oil numbers 4, 5, and 6. Specifications for fuel oils are defined in the American Society for Testing and Materials in ASTM D396-78, "Standards Specifications for Fuel Oils".

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: NO OTHER FUEL WAS USED IN 2021.

9.2 Initial performance test.

For Units #8, #9, and #26, the initial performance test shall consist of sampling and analyzing the oil in the initial tank of oil to be fired in Units #8, #9, and #26 to demonstrate that the oil

contains 0.5 weight percent sulfur or less. Thereafter, the owner or operator shall sample the oil in the fuel tank after each new shipment of oil is received, as described under ARSD 74:36:07:05, as referenced to 40 CFR §60.46c(e) and permit condition 8.3.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: NO FUEL OIL WAS PURCHASED IN 2021.

9.3 Sulfur dioxide limits.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.42c(d) (h) and (i), the owner or operator shall not burn distillate oil containing greater than 0.5 weight percent sulfur in Units #8, #9, and #26. Compliance with the fuel oil sulfur limit shall be determined based on a certification from the fuel supplier. The certification shall include the information as stated in permit condition 8.3. The sulfur dioxide emission limits and fuel oil sulfur limits shall apply at all times, including periods of start-up, shutdown, and malfunction.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: NO FUEL OIL WAS PURCHASED IN 2021

9.4 Opacity limits.

In accordance with ARSD 74:36:07:04, as referenced to 40 CFR §60.43c(c), the owner or operator shall not discharge into the atmosphere from Units #8, #9, and #26 any gases that exhibit greater than 20 percent opacity (6-minute average), except for one 6-minute period per hour of not more than 27 percent opacity. The opacity standards under this section apply at all times, except during periods of start-up, shutdown, and malfunction.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

9.5 Diesel supplier certification.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(f)(1), the owner or operator shall obtain a fuel supplier certification for each load of diesel purchased or received.

The fuel supplier certification shall include the following information:

1. The name of the fuel supplier;
2. A statement from the fuel supplier that the diesel complies with the specifications under the definition of distillate oil given in permit condition 6.6; and
3. A statement that the sulfur content of the diesel does not exceed 0.5 weight percent sulfur.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: NO FUEL OIL WAS PURCHASED IN 2021

9.6 Natural gas supplier certification.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(f)(4), the owner or operator shall maintain the following natural gas fuel supplier information:

1. The name of the fuel supplier;
2. The potential sulfur emissions rate or maximum potential sulfur emissions rate of the natural gas in nanogram per Joules heat input; and
3. The method used to determine the potential sulfur emissions rate of the natural gas.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

9.7 Recordkeeping requirements for boiler.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(g) and (i), the owner or operator shall maintain the following records:

1. Each fuel supplier certification;
2. A copy of the initial startup notification;
3. A copy of each semiannual report; and
4. Records of the amount of each fuel combusted during each calendar month;
5. Records of the total amount of each fuel delivered to the property during each calendar month; and
6. Periods of gas curtailment, gas supply emergencies and if the boiler is operated on fuels other than natural gas.

All records shall be maintained for a period of two years following the date of such record.

In Compliance Yes No

Comments: _____

9.8 Monitoring sulfur content.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.46c(e) the owner or operator shall obtain a fuel supplier certification for each load of distillate oil purchased or received. The fuel supplier certification shall include the following information:

1. The name of the oil supplier;
2. A statement from the oil supplier that the oil complies with the specifications under the definition of distillate oil as stated in permit condition 8.3; and
3. A statement that the sulfur content of the oil does not exceed 0.5 weight percent sulfur.

In Compliance Yes No

Comments: NO FUEL OIL WAS PURCHASED IN 2021

9.9 Monitoring records.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR §§ 60.48c(e), the owner or operator shall maintain records of the following information, as applicable, for each day Units #8, #9, and #26 are operated. The records must be maintained for a minimum of two years from the date of such record.

1. Calendar date;
2. The 30-day average sulfur dioxide emission rates or 30-day average sulfur content (weight percent), calculated at the end of each day each boiler is operated and using the hourly sulfur dioxide emission rates for the preceding 30 days the boiler was operated;
3. Identification of each day when the calculated 30-day average sulfur dioxide emission rate is in excess of the sulfur dioxide emissions limit, the reasons for such excess emissions, and a description of corrective actions taken;
4. Identification of each day for which pollutant data was not obtained, reasons for not obtaining sufficient data, and a description of corrective actions taken;
5. Identification of the times when emission data have been excluded from the calculation of average emission rates and the reasons for excluding data;

6. Identification of "F" factor used for calculations, method of determination, and type of fuel combusted;
7. Identification of times when hourly averages have been obtained based on continuous emission monitoring system rather than manual sampling methods.
8. Identification of the times when the pollutant concentration exceeded full span of the continuous monitoring system;
9. Description of any modifications to the continuous monitoring system that could affect the ability of the continuous monitoring system to comply with 40 CFR Part 60, Appendix B, Performance Specification 2 or 3; and
10. Results of daily continuous emission monitoring system drift tests and quarterly accuracy assessments as required under 40 CFR Part 60, Appendix F, Procedure 1.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--

Comments: _____

9.10 Monthly records.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(g)(1)(2), the owner or operator shall record and maintain records of the amount of each fuel combusted each month for Units #8, #9, and #26.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
--

Comments: _____

9.11 Semi-annual report.

In accordance with ARSD 74:36:07:05, as referenced to 40 CFR § 60.48c(e) and (j), the owner or operator shall submit a semi-annual report to the Secretary for Units #8, #9, and #26. The semi-annual reports shall contain the following information:

1. Name of facility, permit number, reference to this permit condition, identifying the submittal as a semi-annual report, and the calendar dates covered in the reporting period; and
2. The fuel supplier certification for each load of distillate oil purchased or received. If no distillate oil is purchased or received during the reporting period, a statement that no distillate oil was purchased or received shall be included. The fuel supplier certification shall contain the information as stated in permit condition 8.3.

3. Each 30-day average SO₂ emission rate (ng/J or lb/MMBtu), or 30-day average sulfur content (weight percent), calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of corrective actions taken.
4. Each 30-day average percent of potential SO₂ emission rate calculated during the reporting period, ending with the last 30-day period; reasons for any noncompliance with the emission standards; and a description of the corrective actions taken.
5. Identification of any steam generating unit operating days for which SO₂ or diluent (O₂ or CO₂) data have not been obtained by an approved method for at least 75 percent of the operating hours; justification for not obtaining sufficient data; and a description of corrective actions taken.
6. Identification of any times when emissions data have been excluded from the calculation of average emission rates; justification for excluding data; and a description of corrective actions taken if data have been excluded for periods other than those during which coal or oil were not combusted in the steam generating unit.
7. Identification of the F factor used in calculations, method of determination, and type of fuel combusted.
8. Identification of whether averages have been obtained based on CEMS rather than manual sampling methods.
9. If a CEMS is used, identification of any times when the pollutant concentration exceeded the full span of the CEMS.
10. If a CEMS is used, description of any modifications to the CEMS that could affect the ability of the CEMS to comply with Performance Specifications 2 or 3 of appendix B of this part.
11. If a CEMS is used, results of daily CEMS drift tests and quarterly accuracy assessments as required under appendix F, Procedure 1 of this part.
12. If fuel supplier certification is used to demonstrate compliance, records of fuel supplier certification as described under paragraph (f)(1), (2), (3), or (4) of this section, as applicable. In addition to records of fuel supplier certifications, the report shall include a certified statement signed by the owner or operator of the affected facility that the records of fuel supplier certifications submitted represent all of the fuel combusted during the reporting period.

The semiannual reports must be postmarked no later than 30 days after the end of the reporting period (i.e., July 30th and January 30th).

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Date 1st semiannual report submitted: July 13, 2021

Date 2nd semiannual report submitted: JANUARY 25, 2022

10.0 Emergency Engine – NSPS Requirements

10.1 Emergency engine limits.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR §§ 60.4205(b) and 60.4206, the owner or operator shall operate and maintain the emergency engine that achieves the emission limits in Table 10-1 over the entire life of the emergency engine.

Table 10-1 – Emission Limits for Emergency Engines (grams per kilowatt-hour)

Unit	Nonmethane Hydrocarbon + Nitrogen Oxide	Carbon Monoxide	Particulate Matter
#15b	4.0	5.0	0.30
#16b	4.7	5.0	0.40
#17b	4.7	5.0	0.40
#23	4.7	5.0	0.40
#24	7.5	5.0	0.40
#27	4.0	5.0	0.30
#29	4.0	3.5	0.20
#30	6.4	3.5	0.20

In Compliance Yes No

Comments: _____

10.2 Fuel requirements for emergency engines.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4207(b), the owner or operator shall only combust diesel fuel in Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 that meets the following per gallon standards:

1. Maximum sulfur content of 15 parts per million; and
2. Minimum cetane index of 40; or
3. Maximum aromatic content of 35 volume percent.

The owner or operator may use any existing diesel fuel purchased (or otherwise obtained) prior to October 1, 2010, until depleted.

In Compliance Yes No

Comments: _____

10.3 Operating requirements for emergency engines.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(a), the owner or operator shall comply with the following, except as specified in permit condition 10.6:

1. Operate and maintain Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 according to the manufacturer's emission-related written instructions;
2. Change only those emission-related settings permitted by the manufacturer; and
3. Meet the applicable requirements in 40 CFR Part 89, 94, and/or 1068.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

10.4 Compliance with emergency engine emission limits.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(c), the owner or operator shall demonstrate compliance with the emission limits in permit condition 10.1 by purchasing an engine certified to meet the emission limits in permit condition 10.1 and install and configure the engine according to the manufacturer's emission-related specifications, except as permitted in permit condition 10.6.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

10.5 Annual operation of emergency engine.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(f), the owner or operator shall operate Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 as follows:

1. There is no time limit on the use of Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 in emergency situations;
2. Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 may be operated for up to 50 hours per calendar year in non-emergency situations. Except as provided in paragraph (3) of this permit condition, the 50 hours per calendar year for non-emergency situations cannot be used for peak shaving or non-emergency demand response, or to generate income for the owner or operator to an electric grid or otherwise supply power as part of a financial arrangement with another entity; and

3. The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
 - a. The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
 - b. The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region;
 - c. The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines;
 - d. The power is provided only to the owner or operator itself or to support the local transmission and distribution system; and
 - e. The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the owner or operator.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

10.6 Alternative requirements for emergency engines.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4211(g), if the owner or operator does not install, configure, operate, and maintain Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 according to the manufacturer’s emission-related written instructions or changes the emission-related settings in a way that is not permitted by the manufacturer, the owner or operator shall demonstrate compliance as follows:

1. Maintain a maintenance plan and records of conducted maintenance;
2. To the extent practicable, maintain and operate Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 in a manner consistent with good air pollution control practice for minimizing emissions;
3. Conduct an initial performance test to demonstrate compliance with the emission limits in Table 10-1 within 1 year of initial startup or within 1 year of such action; and
4. If Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 is greater than 500 horsepower, the owner or operator shall conduct subsequent performance testing every 8,760 hours of engine operation or 3 years, whichever comes first, thereafter to demonstrate compliance with the applicable limits in Table 10-1.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

10.7 Performance test requirements for emergency engines.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4212(a) and (c), if the owner or operator conducts a performance test to demonstrate compliance with Table 10-1, the following procedures shall be followed:

1. The performance test must be conducted according to the in-use testing procedures in 40 CFR Part 1039, Subpart F for emergency engines with a displacement of less than 10 liters per cylinder and according to 40 CFR Part 1042, Subpart F, for emergency engines with a displacement of greater than or equal to 10 liters per cylinder and less than 30 liters per cylinder; and
2. Exhaust emissions from the applicable unit shall not exceed the “NTE” numerical requirements, rounded to the same number of decimal places as the applicable emission limit in Table 10-1 and determined by Equation 10-1.

Equation 10-1 – NTE formula

$$NTE = 1.25 \times STD$$

Where:

- NTE = Numerical requirement for each pollutant identified in Table 10-1; and
- STD = Emission limit for each pollutant identified in Table 10-1

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

10.8 Non-resettable hour meter.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4209(a) and ARSD 74:36:05:16.01(9), the owner or operator shall install, maintain, and operate a non-resettable hour meter on Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 prior to initial startup.

In Compliance <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Comments: _____

10.9 Recordkeeping for 2011 or later emergency engines.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4214(b), the owner or operator shall maintain records for 2011 or later emergency engines. The owner or operator shall record the date, start time, and end time of operation using the non-resettable hour meter and the reason Units #15b, #16b, #17b, #23, #24, #27, #29, and #30 was in operation during that time.

In Compliance Yes No

Comments: _____

10.10 Annual reporting for emergency engines greater than 100 horsepower.

In accordance with ARSD 74:36:07:88, as referenced to 40 CFR § 60.4214(d), if the owner or operator operates Units #27, #29, and #30 for the purposes specified in paragraph (3) of permit condition 10.5, the owner or operator shall submit an annual report. The annual report shall contain the following:

1. Company name and address where Units #27, #29, and #30 are located;
2. Date of the report and beginning and ending dates of the reporting period;
3. Unit #27's, #29's, and #30's site rating and model year;
4. Latitude and longitude of Units #27, #29, and #30 in decimal degrees reported to the fifth decimal place; and
5. Hours spent for operation for the purposes specified in paragraph (3) of permit condition 10.5, including the date, start time, and end time. The report must also identify the entity that dispatched Units #27, #29, and #30 and the situation that necessitated the dispatch of Units #27, #29, and #30.

If the annual report is required for a particular calendar year, it must be submitted no later than March 31 of the following calendar year. The annual report must be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) (www.epa.gov/cdx). However, if the reporting form specific to this subpart is not available in CEDRI at the time the report is due, the written report must be submitted to the Secretary.

In Compliance Yes No

Comments: _____

11.0 NEW SOURCE PERFORMANCE STANDARD SUBPART JJJJ

11.1 Emission limits.

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR §§ 60.4233(e) and 60.4234, the owner or operator shall not allow emissions from Units #25 and #28 to exceed the emission limits in Table 11-1 for the appropriate fuel. The owner or operator of Units #25 and #28 shall achieve the emission limits in Table 11-1 over the entire life of the engine.

Table 11-1 - Emission limits for Units #25 and #28 ¹

Fuel Type	Grams per Horsepower-Hour			Parts per Million by Volume at 15% Oxygen		
	NO _x ²	CO ²	VOC ^{2,3}	NO _x ²	CO ²	VOC ^{2,3}
Natural Gas	2.0	4.0	1.0	160	540	86

¹ – The owner or operator may choose to comply with the emission standards in units of grams per horsepower-hour or parts per million by volume at 15 percent oxygen;

² – “NO_x” means nitrogen oxide, “CO” means carbon monoxide; and “VOC” means volatile organic compounds; and

³ – When calculating emissions of volatile organic compounds, emissions of formaldehyde should not be included.

In Compliance Yes No

Comments: _____

11.2 Compliance requirements.

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR § 60.4243(b), the owner or operator shall comply with the following:

1. Purchase an emergency generator certified to meet the emission in Table 11-1 and maintain a copy of the certification. The emergency generator must be installed and configured according to the manufacturer’s specifications; and
2. Operate and maintain the emergency generator according to or consistent with the manufacturer's emission-related written instructions; and
3. Maintain a maintenance plan and records of conducted maintenance.

In Compliance Yes No

Comments: _____

11.3 Operation of emergency engine.

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR § 63.4243(d), the owner or operator shall operate the emergency engines according to the following:

1. There is no time limit on the use of the emergency engine during emergency situations;
2. The owner or operator may operate the emergency engine for any combination of the following purposes for a maximum of 100 hours per calendar year. Any operation for non-emergency situations as allowed by paragraph (3) of this permit condition counts as part of the 100 hours per calendar year allowed by this paragraph:
 - a. The emergency engine may be operated for maintenance checks and readiness testing, provided 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 Secretary 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 federal, state, or local standards require maintenance and testing of an emergency engine beyond 100 hours per calendar year;
 - b. The emergency engine may be operated for 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 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; and
 - c. The emergency engine may be operated for periods where there is a deviation of voltage or frequency of 5 percent or greater below standard voltage or frequency.
3. The emergency engine may be operated for up to 50 hours per calendar year in non-emergency situations. 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 the owner or operator to an electric grid or otherwise supply power as part of a financial arrangement with another entity, except as provided below:
 - a. The 50 hours per year for non-emergency situations can be used to supply power as part of a financial arrangement with another entity if all of the following conditions are met:
 - i. The engine is dispatched by the local balancing authority or local transmission and distribution system operator;
 - ii. The dispatch is intended to mitigate local transmission and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region;
 - iii. The dispatch follows reliability, emergency operation or similar protocols that follow specific NERC, regional, state, public utility commission or local standards or guidelines;

- iv. The power is provided only to the owner or operator itself or to support the local transmission and distribution system; and
- v. The owner or operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the owner or operator.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

11.4 Recordkeeping requirements.

In accordance with ARSD 74:36:07:90, as referenced to 40 CFR § 60.4245(a), the owner or operator shall maintain the following records:

- 1. All notifications submitted to comply with this chapter and all documentation supporting any notification;
- 2. Maintenance conducted on the emergency generator; and
- 3. The owner operator shall maintain documentation that the emergency generator is meeting the emission standards in Table 11-1.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

11.5 Annual report.

In accordance with ARSD 74:36:08:40, as referenced to 40 CFR § 60.4245(e), the owner or operator shall submit an annual report that contains the following information:

- 1. Company name and address where each engine is located;
- 2. Date of the report and beginning and ending dates of the reporting period;
- 3. Engine site rating and model year;
- 4. Latitude and longitude of the engine in decimal degrees reported to the fifth decimal place;
- 5. Hours operated for the purposes specified in paragraph (2)(b) and (2)(c) of permit condition 11.3, including the date, start time, and end time for each engine;

6. Number of hours the engine is contractually obligated to be available for the purposes specified in paragraph (2)(b) and (2)(c) of permit condition 11.3; and
7. Hours spent for operation for the purpose specified in paragraph (3)(a) of permit condition 11.3, including the date, start time, and end time for each engine. The report must also identify the entity that dispatched the engine(s) and the situation that necessitated the dispatch of the engine.

The first annual report shall cover the calendar year 2015 and submitted no later than March 31, 2016. Subsequent annual reports for each calendar year must be submitted no later than March 31 of the following calendar year.

If available, the annual report shall be submitted electronically using the subpart specific reporting form in the Compliance and Emissions Data Reporting Interface (CEDRI) that is accessed through EPA's Central Data Exchange (CDX) at the following website: <http://www.epa.gov/cdx>. However, if the reporting form specific to this subpart or the database is not available at the time the report is due or the owner or operator does not have access to the database, the written report shall be submitted to the Secretary.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: LAST YEAR'S REPORT WAS SUBMITTED FEBRUARY 12, 2016

11.6 Installation of a non re-settable clock.

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall install a non re-settable clock on each emergency generator and continuously record the hours of operation.

In Compliance <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
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Comments: _____

12.0 MACT SUBPART JJJJJ EXEMPTION FOR BOILERS

12.1 Residual oil and distillate oil restrictions.

In accordance with 40 CFR § 63.11237, the owner or operator shall not use residual oil or distillate oil as a fuel in Units #2, #8, #9, and #26 except during periods of natural gas curtailment, natural gas supply emergencies, or periodic testing on liquid fuel. Periodic testing of residual oil and distillate oil shall not exceed a combined total of 48 hours during any calendar

year per boiler.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

12.2 Boiler recordkeeping requirements.

In accordance with 40 CFR § 63.11237, the owner or operator shall maintain records of the number of hours Units #2, #8, #9, and #26 operated per day while being fueled with residual oil or distillate oil. The reason Units #2, #8, #9, and #26 was operated with residual oil or distillate oil (i.e., natural gas curtailment, natural gas supply interruption, or periodic testing) shall be identified. The total number of hours per calendar year for each reason shall be calculated and recorded at the end of the calendar year.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

12.3 Changing boiler fuel.

In accordance with 40 CFR § 63.11195(e), Units #2, #8, #9, and #26 shall be fueled only with natural gas and residual oil or distillate oil during periods of gas curtailment, gas supply interruption, or periodic testing on liquid fuel. If Units #2, #8, #9, and #26 is fueled with other fuels such as coal or wood or residual oil or distillate oil outside the limitations identified in permit condition 12.1, requirements in 40 CFR Part 63 Subpart JJJJJ may apply. The owner or operator shall apply for and obtain approval from the Secretary before other fuels can be used as a fuel in Units #2, #8, #9, and #26 or residual oil or distillate oil can be used for other reasons besides natural gas curtailment, natural gas supply interruption, or periodic testing.

In Compliance	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
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Comments: _____

**2021 Operational Report
Air Emission Inventory
SD Department of Agriculture and Natural Resources**

Facility Name: University of South Dakota
Facility Site Location: Vermillion
Permit Number: 28.2201-19

Facility Contact: Kevin O'Kelley, Director, Environmental Health and Safety
Phone #: (605) 658-3766
Email Address: Kevin.O'kelley@usd.edu

Responsible Official: Brian Limoges
Responsible Official's Title: Assistant Vice President/Facilities Management

Permitted Units

- Unit #2 - 1970 Babcock/Wilcox boiler with a Coen burner
- Unit #8 - 2008 York Shipley Steam Boiler
- Unit #9 - 2008 York Shipley Steam Boiler
- Unit #10 - 2004 Caterpillar 3406 300 Kw generator
- Unit #11 - 2004 Caterpillar 3412 750 Kw
- Unit #12 - 1980 Caterpillar 3408 300 Hp generator
- Unit #15B - 2016 Richardson/Olson Cummins 80 Kw generator
- Unit #16B - 2015 Caterpillar 40 Kw generator
- Unit #18 - 1977 Onan 350 Kw generator
- Unit #23 - 2009 Caterpillar D60 generator
- Unit #24 - 2007 Cummins 50
- Unit #25 - 2010 Kohler 100
- Unit #26 - 2012 Cleaver Brooks 22.5 MMBtu/hr boiler
- Unit #27 - 2009 Generac 100
- Unit #28 - 2013 Kohler 259 Hp generator
- Unit #29 - 2015 Summins 300 kilwatt generator
- Unit #30 - 2017 Mitsubishi 1,528 Hp Generator

2021 Operation

General Information

- | | | |
|------------------------------------|---------|-----------------|
| 1. Sulfur content of #2 fuel oil? | 0.0015% | weight percent |
| 2. Heat content of distillate oil? | 139,600 | Btus per gallon |

Unit # 2 - 1970 Boiler

- | | | |
|-----------------------------------|---|---------------------------|
| 1. Amount of fuel burned in 2021? | | |
| A. Natural Gas | 0 | million cubic feet (MMcf) |
| B. #2 Fuel Oil | 0 | gallons |
| 2. Actual operating time? | | |
| A. Natural Gas | 0 | hours |
| B. #2 Fuel Oil | 0 | hours |

Unit # 8 - 2008 Boiler

- | | | |
|-----------------------------------|-------|---------------------------|
| 1. Amount of fuel burned in 2021? | | |
| A. Natural Gas | 28.42 | million cubic feet (MMcf) |
| B. #2 Fuel Oil | 0 | gallons |
| 2. Actual operating time? | | |
| A. Natural Gas | 5,778 | hours |
| B. #2 Fuel Oil | 0 | hours |

Unit # 9 - 2008 Boiler

- | | | |
|-----------------------------------|-------|---------------------------|
| 1. Amount of fuel burned in 2021? | | |
| A. Natural Gas | 28.27 | million cubic feet (MMcf) |
| B. #2 Fuel Oil | 0 | gallons |
| 2. Actual operating time? | | |
| A. Natural Gas | 3,937 | hours |
| B. #2 Fuel Oil | 0 | hours |

Unit # 10 - 2004 Cat Generator

1. Amount of fuel burned in 2021?
A. #2 Fuel Oil

14 gallons

2. Actual operating time?

A. #2 Fuel Oil

2 hours

Unit # 11 - 2004 Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

33 gallons

2. Actual operating time?

A. #2 Fuel Oil

2 hours

Unit # 12 - 1980 Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

6.8 gallons

2. Actual operating time?

A. #2 Fuel Oil

1 hours

Unit # 15B - 2016 Richardson/Olson Cummins Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

3.99 gallons

2. Actual operating time?

A. #2 Fuel Oil

1.9 hours

Unit # 16B - 2015 Caterpillar Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

9.45 gallons

2. Actual operating time?

A. #2 Fuel Oil

4.5 hours

Unit #18 - 1977 Onan Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

11.85 gallons

2. Actual operating time?

A. #2 Fuel Oil

1.5 hours

Unit #23 - 2009 Caterpillar Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

3.96 gallons

2. Actual operating time?

A. #2 Fuel Oil

2.2 hours

Unit #24 - 2007 Cummins Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

4.14 gallons

2. Actual operating time?

A. #2 Fuel Oil

2.3 hours

Unit #25 - 2010 Kohler Generator

1. Amount of fuel burned in 2021?

A. Natural Gas

0.03084 million cubic feet (MMcf)

2. Actual operating time?

A. Natural Gas

51.4 hours

Unit # 26 - 2008 Boiler

1. Amount of fuel burned in 2021?

A. Natural Gas

19.49 million cubic feet (MMcf)

B. #2 Fuel Oil

0 gallons

2. Actual operating time?

A. Natural Gas

2,659 hours

B. #2 Fuel Oil

0 hours

Unit #27 - 2009 Generac Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

5.28 gallons

2. Actual operating time?

A. #2 Fuel Oil

2.4 hours

Unit # 28 - 2008 Generator

1. Amount of fuel burned in 2021?

A. Natural Gas

0.026694 million cubic feet (MMcf)

2. Actual operating time?

A. Natural Gas

39 hours

Unit # 29 - 2015 Cummins Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

20 gallons

2. Actual operating time?

A. #2 Fuel Oil

3 hours

Unit #30 - 2017 Mitsubishi Generator

1. Amount of fuel burned in 2021?

A. #2 Fuel Oil

387 gallons

2. Actual operating time?

A. #2 Fuel Oil

18 hours

2021 Emissions Calculations

Total Suspended Particulate

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	7.6	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	3.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.1080	tons / year	1
	Fuel Oil	0	gallons	3.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.1074	tons / year	1
	Fuel Oil	0	gallons	3.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0.0384	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0003	tons / year	3
#11	Fuel Oil	33	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0002	tons / year	3
#12	Fuel Oil	7	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#18	Fuel Oil	12	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#23	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.0384	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0006	tons / year	3
#26	Natural Gas	19	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0741	tons / year	1
	Fuel Oil	0	gallons	3.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0.0384	pounds/MMBtu's	AP-42, 3.2.1, 7/00	0.0005	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
TOTAL PM							0.2933		

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

PM-10

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	7.6	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	2.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.1080	tons / year	1
	Fuel Oil	0	gallons	2.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.1074	tons / year	1
	Fuel Oil	0	gallons	2.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0.0384	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0003	tons/year	3
#11	Fuel Oil	33	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0002	tons / year	3
#12	Fuel Oil	7	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#18	Fuel Oil	12	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#23	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.0384	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0006	tons / year	3
#26	Natural Gas	19	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0741	tons / year	1
	Fuel Oil	0	gallons	3.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0.0384	pounds/MMBTu's	AP-42, 3.2.1, 7/00	0.0005	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
Total PM-10							0.29	tons / year	

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

PM2.5

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	7.6	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	1.55	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.1080	tons / year	1
	Fuel Oil	0	gallons	1.55	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.1074	tons / year	1
	Fuel Oil	0	gallons	1.55	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0.0384	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0003	tons/year	3
#11	Fuel Oil	33	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0002	tons / year	3
#12	Fuel Oil	7	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#18	Fuel Oil	12	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#23	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.0384	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0006	tons / year	3
#26	Natural Gas	19	MMcf	7.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0741	tons / year	1
	Fuel Oil	0	gallons	3.3	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0.0384	pounds/MMBtu's	AP-42, 3.2.1, 7/00	0.0005	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
Total PM2.5							0.29	tons / year	

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Sulfur Dioxide

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	0.6	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	0.002355	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	0.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0085	tons / year	1
	Fuel Oil	0	gallons	0.002355	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	0.6	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0085	tons / year	1
	Fuel Oil	0	gallons	0.002355	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	13.6	MMcf	0.0006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0000	tons/year	3
#11	Fuel Oil	33	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#12	Fuel Oil	7	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#18	Fuel Oil	12	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#23	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0.03084	MMcf	0.006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#26	Natural Gas	19.49	MMcf	0.006	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0001	tons / year	1
	Fuel Oil	0	gallons	0.00213	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5.28	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0.026694	MMcf	0.0006	pounds/MMBTu's	AP-42, 3.2.1, 7/00	0.0000	tons / year	3
#29	Fuel Oil	20	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0014	tons / year	3
TOTAL SO2							0.02		

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Nitrogen Oxides

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	280	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	24	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	100	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	1.4210	tons / year	1
	Fuel Oil	0	gallons	20	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	100	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	1.4135	tons / year	1
	Fuel Oil	0	gallons	20	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	3.17	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0216	tons/year	3
#11	Fuel Oil	33	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0073	tons / year	3
#12	Fuel Oil	7	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0015	tons / year	3
#15B	Fuel Oil	4	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0009	tons / year	3
#16B	Fuel Oil	9	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0021	tons / year	3
#18	Fuel Oil	12	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0027	tons / year	3
#23	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#26	Natural Gas	19	MMcf	100	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.9745	tons / year	1
	Fuel Oil	0	gallons	20	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0012	tons / year	3
#28	Natural Gas	0	MMcf	3.17	pounds/MMBtu's	AP-42, 3.2.1, 7/00	0.0432	tons / year	3
#29	Fuel Oil	20	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0046	tons / year	3
#30	Fuel Oil	387	gallons	3.2	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0867	tons / year	3

Total Nitrogen Oxide 3.98

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Volatile Organic Compounds

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	5.5	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	0.34	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	5.5	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0782	tons / year	1
	Fuel Oil	0	gallons	0.34	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	5.5	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0777	tons / year	1
	Fuel Oil	0	gallons	0.34	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0.12	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0008	tons/year	3
#11	Fuel Oil	33	gallons	0.09	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0002	tons / year	3
#12	Fuel Oil	7	gallons	0.09	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0.09	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0.09	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#18	Fuel Oil	12	gallons	0.09	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#23	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#26	Natural Gas	19	MMcf	5.5	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0536	tons / year	1
	Fuel Oil	0	gallons	0.34	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0.006	pounds/MMBTu's	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#29	Fuel Oil	20	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0014	tons / year	3

TOTAL VOC 0.21

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Organic Hazardous Air Pollutants

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	1.882	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	0.0412	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	1.89	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0269	tons / year	1
	Fuel Oil	0	gallons	0.0412	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	1.89	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0267	tons / year	1
	Fuel Oil	0	gallons	0.0412	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0.078	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0005	tons/year	3
#11	Fuel Oil	33	gallons	0.0015	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#12	Fuel Oil	7	gallons	0.0015	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0.0015	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0.0015	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#18	Fuel Oil	12	gallons	0.0015	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#23	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#26	Natural Gas	19	MMcf	1.89	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0184	tons / year	1
	Fuel Oil	0	gallons	0.0412	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0.078	pounds/MMBtu's	AP-42, 3.2.1, 7/00	0.0011	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
Total HAPs							0.08		

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Metal Hazardous Air Pollutants

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	0.006	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	0.0069	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	0.006	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0001	tons / year	1
	Fuel Oil	0	gallons	0.0069	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	0.006	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0001	tons / year	1
	Fuel Oil	0	gallons	0.0069	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0000	tons/year	3
#11	Fuel Oil	33	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#14	Natural Gas	7	MMcf	0	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#18	Fuel Oil	12	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#23	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#26	Natural Gas	19	MMcf	0.006	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0001	tons / year	1
	Fuel Oil	0	gallons	0.0069	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0.006	pounds/MMBTu's	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
Total Metal Hazardous Air Pollutants							0.00	tons / year	

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Carbon Monoxide

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	84	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	5	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	84	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	1.1936	tons / year	1
	Fuel Oil	0	gallons	5	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	84	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	1.1873	tons / year	1
	Fuel Oil	0	gallons	5	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0.386	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0026	tons/year	3
#11	Fuel Oil	33	gallons	0.85	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
#12	Fuel Oil	7	gallons	0.85	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0004	tons / year	3
#15B	Fuel Oil	4	gallons	0.85	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0002	tons / year	3
#16B	Fuel Oil	9	gallons	0.85	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0006	tons / year	3
#18	Fuel Oil	12	gallons	0.85	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0007	tons / year	3
#23	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#24	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#25	Natural Gas	0	MMcf	0.006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#26	Natural Gas	19	MMcf	84	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.8186	tons / year	1
	Fuel Oil	0	gallons	5	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0.006	pounds/MMBtu's	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
Total Carbon Monoxide							3.21	tons / year	

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Carbon Dioxide

Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	120,000	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	22,300	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	120,000	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	1705.2000	tons / year	1
	Fuel Oil	0	gallons	22,300	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	120,000	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	1696.2000	tons / year	1
	Fuel Oil	0	gallons	22,300	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	110	pounds / MMBTUs	AP-42, 3.2.1, 7/00	762.9600	tons/year	3
#11	Fuel Oil	33	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	2.6895	tons / year	3
#12	Fuel Oil	7	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0785	tons / year	3
#15B	Fuel Oil	4	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0461	tons / year	3
#16B	Fuel Oil	9	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.1091	tons / year	3
#18	Fuel Oil	12	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.1369	tons / year	3
#23	Fuel Oil	4	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0457	tons / year	3
#24	Fuel Oil	4	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0478	tons / year	3
#25	Natural Gas	0	MMcf	165	pounds / MMBTUs	AP-42, 3.2.1, 7/00	2.5952	tons / year	3
#26	Natural Gas	19	MMcf	120,000	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	1169.4000	tons / year	1
	Fuel Oil	0	gallons	22,300	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	165	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0610	tons / year	3
#28	Natural Gas	0	MMcf	110	pounds/MMBTu's	AP-42, 3.2.1, 7/00	1.4975	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
Total Carbon Dioxide							5341.0694	tons / year	

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

Lead									
Unit	Fuel Type	Fuel Consumption		Emission Factor		Emission Factor Citation	2021 Air Emissions		Equation
#2	Natural Gas	0	MMcf	0.0005	pounds / MMcf	AP-42, 1.4-3 - 1.4-6, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	1	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#8	Natural Gas	28.42	MMcf	0.0005	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	1	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#9	Natural Gas	28.27	MMcf	0.0005	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	1	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#10	Natural Gas	14	MMcf	0	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0000	tons/year	3
#11	Fuel Oil	33	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#12	Fuel Oil	7	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#15B	Fuel Oil	4	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#16B	Fuel Oil	9	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#18	Fuel Oil	12	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#23	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#24	Fuel Oil	4	gallons	0.05	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#25	Natural Gas	0	MMcf	0.006	pounds / MMBTUs	AP-42, 3.2.1, 7/00	0.0001	tons / year	3
#26	Natural Gas	19	MMcf	0.0005	pounds / MMcf	AP-42, 1.4-1 - 1.4-2, 7/98	0.0000	tons / year	1
	Fuel Oil	0	gallons	1	pounds / 1000 gallons	AP-42, 1.3-12 - 1.3-14, 9/98	0.0000	tons / year	2
#27	Fuel Oil	5	gallons	0	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0000	tons / year	3
#28	Natural Gas	0	MMcf	0	pounds/MMBtu's	AP-42, 3.2.1, 7/00	0.0000	tons / year	3
#29	Fuel Oil	20	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0001	tons / year	3
#30	Fuel Oil	387	gallons	0.07	pounds / MMBTUs	AP-42, 3.4-1, 10/96	0.0019	tons / year	3
Total Lead							0.00	tons / year	

Equations Used

1. (Fuel Consumption) x (Emission Factor) / (2000 pounds per ton)
2. (Fuel Consumption) / 1000 x (Emission Factor) / (2000 pounds per ton)
3. (Fuel Consumption) x (Heat Content) x (Emission Factor) / (2000 pounds per ton)

2021 Air Emission Summary

Total Particulate Matter	0.29	tons per year
PM10	0.29	tons per year
PM2.5	0.29	tons per year
Sulfur Dioxide	0.02	tons per year
Nitrogen Oxides	3.98	tons per year
VOCs	0.21	tons per year
Organic HAPS	0.08	tons per year
Metal HAPS	0.00	tons per year
Carbon Monoxide	3.21	tons per year
CO2	5341.07	tons per year
Lead	0.00	tons per year

Air Emissions Fee Summary

The department only charges air emission fees for Total Particulate Matter (TSP), Sulfur Dioxide (SO2), Nitrogen Oxides (NOx), Volatile Organic Compounds (VOC), and Hazardous Air Pollutants (HAP). All of the HAP are also VOC. Therefore, the following amount is the total that will be used to calculate the air emission fees.

Total Air Emissions 4.51

I certified that, based on information and belief formed after reasonable inquiry, the statements and information in this document and all attachments are true, accurate, and complete.

Bfr

Signature of Responsible Official

2/9/22

Date

Subscribed and sworn before me this 9th day of February 2022

Linda L. Rupp
Notary Public

My commission expires: 3/27/2025

