Air Quality Construction Permit

Permit Number: 05-A-031-P6

Plant Number: 58-07-001

Company: MidAmerican Energy Co. – Louisa Station

Contact Person:
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8602 172nd Street
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Responsible Party:
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8602 172nd Street
Muscatine, Iowa 52761

Permitted Equipment

Emission Point ID: EP-1

Emission Unit(s) and Control Equipment:

EU ID	Description	Maximum Rated Capacity	Control Equipment Description and ID
EU1	Louisa Boiler	8,000 MMBtu/hr	Dry Electrostatic Precipitator (DESP, CE1), Lime Spray Dryer Flue Gas Desulfurization (FGD, CE1B), Baghouse (CE1C), Mercury (Hg) Sorbent Injection (CE1D), Low NOx Burners (LNB) & Overfire Air (OFA) (CE2)

Equipment Location: 8602 172nd St.
Muscatine, IA 52761

Issuance of this permit shall not relieve the owner or operator of the responsibility to comply fully with applicable provisions of the State Implementation Plan (SIP), and any other requirements of local, state, and federal law.

Project Number	Project Description	Stack Testing	Issuance Date
21-348	Establish Regional Haze SO2 Limit	No	07/20/23

Under the Direction of the Director of the
Department of Natural Resources

PZ

PERMIT CONDITIONS

1a. Best Available Control Technology (BACT) Emission Limits

The owner or operator is required to report all emissions as required by law, regardless of whether a specific emission limit has been established in this permit. The following emission limits shall not be exceeded:

Pollutant	Tons/Yr[1]	Additional Limits
Federal Particulate Matter (PM)	NA	0.03 lb/MMBTU[2]
State Particulate Matter (PM)	1,019	0.027 lb/MMBTU[2]
PM_{10}	1,019	0.027 lb/MMBTU[2]
Opacity[3]	NA	10%[4]
Sulfur Dioxide (SO_2)[3]	NA	0.96 lb/MMBTU[5]
Nitrogen Oxides (NO_x)[3]	NA	0.5 lb/MMBTU[5]
Volatile Organic Compounds	135.98	0.0036 lb/MMBTU[2]
Carbon Monoxide (CO)[3]	15,864	0.42 lb/MMBTU[6]

[1] Standard is a 12-month rolling total.
[2] The emission limit is expressed as the average of three (3) runs.
[3] Compliance with the emission standards shall be demonstrated through the use of Continuous Emission Monitoring Systems (CEMS). See Condition 5 and Condition 6 for more information on compliance with the use of CEMS.
[4] Standard is a one (1) hour average.
[5] This standard is a 30-day rolling average not including periods of startup, shutdown, and malfunction (SSM).
[6] Standard is a one (1) calendar day average not including periods of SSM.

1b. New Source Performance Standards (NSPS) Emission Limits

The owner or operator is required to report all emissions as required by law, regardless of whether a specific emission limit has been established in this permit. The following emission limits shall not be exceeded:

Pollutant	Emission Standard[1]	Reference/Basis
Federal PM	43 ng/J heat input[2]	567 IAC 23.1(2)"a"[3]
Opacity[4]	20%[5]	567 IAC 23.1(2)"a"[3]
SO_2[4]	520 ng/J heat input[6]	567 IAC 23.1(2)"a"[3]
NO_x[4]	300 ng/J heat input[7]	567 IAC 23.1(2)"a"[3]

[1] Standard is expressed as the average of three (3) runs.
[2] 43 ng/J = 0.10 lb/MMBTU. See 40 CFR §60.42(a)(1).
[3] IAC reference to New Source Performance Standards (NSPS) Subpart D (Standards of Performance for Fossil-Fuel-fired Steam Generators for Which Construction Is Commenced After August 17, 1971; 40 CFR §60.40 – 40 CFR §60.46).
[4] Compliance with the emission standards shall be demonstrated through the use of a CEMS. See Condition 12 and Condition 16 for more information on compliance with the use of CEMS.
[5] Opacity shall not exceed 20% (6-minute average), except for one (1) 6-minute period per hour of not more than 27% opacity. See 40 CFR §60.42(a)(2).
[6] 520 ng/J = 1.20 lb/MMBTU. Emission limit per 40 CFR §60.43(a)(2) when the unit is combusting solid fossil fuel or solid fossil fuel and wood residue. Per 40 CFR §60.43 alternative limits are:

- 340 ng/J heat input (0.80 lb/MMBTU) when combusting liquid fossil fuel or liquid fossil fuel and wood residue [40 CFR §60.43(a)(2)].
- Per 40 CFR §60.43(b), when different fossil fuels are combusted simultaneously in any combination, the applicable standard (in ng/J) shall be determined by proration using the following formula:

$$PS_{SO2} = \frac{[y(340) + z(520)]}{y+z}$$

Where:

PS_{SO2} = the prorated standard for SO_2 when burning different fuels simultaneously, in nanograms per joule (ng/J) heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired.
y = the percentage of total heat input derived from liquid fossil fuel
z = the percentage of total heat input derived from solid fossil fuel.

1b. NSPS Limits (continued)

- Per 40 CFR §60.43(d), as an alternate to meeting the requirements of 40 CFR §60.43(a) and 40 CFR §60.43(b), an owner or operator can petition the Administrator (in writing) to comply with 40 CFR §60.43Da(i)(3) or comply with 40 CFR §60.42b(k)(4) as applicable to the affected source. If the Administrator grants the petition, the source will from then on (unless the unit is modified or reconstructed in the future) have to comply with the requirements in 40 CFR §60.43Da(i)(3) or 40 CFR §60.42b(k)(4) as applicable to the affected source.

Per 40 CFR §60.43(c), compliance shall be based on the total heat input from all fossil fuels burned, including gaseous fuels.
In addition, per 40 CFR §60.45(g)(2), excess emissions are defined as:

- For affected facilities electing not to comply with 40 CFR §60.43(d), any three (3) hour period during which the average emissions [arithmetic average of three (3) contiguous one (1) hour periods] of SO_2 as measured by a CEMS exceed the applicable standard in 40 CFR §60.43; or
- For affected facilities electing to comply with 40 CFR §60.43(d), any thirty (30) operating day period during which the average emissions [arithmetic average of all one (1) hour periods during the thirty (30) operating days) of SO_2 as measured by a CEMS exceed the applicable standard in 40 CFR §60.43. Facilities complying with the thirty (30) day SO_2 standard shall use the most current associated SO_2 compliance and monitoring requirements in 40 CFR §60.48Da and 40 CFR §60.49Da or 40 CFR §60.45b and 40 CFR §60.47b as applicable.

[7] 300 ng/J = 0.70 lb/MMBTU. Emission limit per 40 CFR §60.43(a)(3) when the unit is combusting solid fossil fuel or solid fossil fuel and wood residue (except lignite or a solid fossil fuel containing 25%, by weight, or more of coal refuse). Per 40 CFR §60.44 alternative limits are:

- 86 ng/J heat input (0.20 lb/MMBTU) when combusting gaseous fossil fuel.
- 129 ng/J heat input (0.30 lb/MMBTU) when combusting liquid fossil fuel, liquid fossil fuel and wood residue, or gaseous fossil fuel and wood residue.
- liquid fossil fuel or liquid fossil fuel and wood residue [40 CFR §60.43(a)(2)].
- Per 40 CFR §60.44(b), when different fossil fuels are combusted simultaneously in any combination, the applicable standard (in ng/J) shall be determined by proration using the following formula:

$$PS_{NOx} = \frac{[w(260) + x(86) + y(130) + z(300)]}{w + x + y + z}$$

Where:

PS_{NOx} = the prorated standard for NO_x when burning different fuels simultaneously, in nanograms per joule (ng/J) heat input derived from all fossil fuels fired or from all fossil fuels and wood residue fired.
w = the percentage of total heat input derived from lignite
x = the percentage of total heat input derived from gaseous fossil fuel
y = the percentage of total heat input derived from liquid fossil fuel
z = the percentage of total heat input derived from solid fossil fuel.

- Per 40 CFR §60.44(e), as an alternate to meeting the requirements of 40 CFR §60.43(a) and 40 CFR §60.43(b), an owner or operator can petition the Administrator (in writing) to comply with 40 CFR §60.43Da(e)(3). If the Administrator grants the petition, the source will from then on (unless the unit is modified or reconstructed in the future) have to comply with the requirements in 40 CFR §60.43Da(e)(3).

In addition, per 40 CFR §60.45(g)(3), excess emissions are defined as:

- For affected facilities electing not to comply with 40 CFR §60.44(e), any three (3) hour period during which the average emissions [arithmetic average of three (3) contiguous one (1) hour periods] of SO_2 as measured by a CEMS exceed the applicable standard in 40 CFR §60.44; or
- For affected facilities electing to comply with 40 CFR §60.44(e), any thirty (30) operating day period during which the average emissions [arithmetic average of all one (1) hour periods during the thirty (30) operating days) of NO_x as measured by a CEMS exceed the applicable standard in 40 CFR §60.44. Facilities complying with the thirty (30) day NO_x standard shall use the most current associated NO_x compliance and monitoring requirements in 40 CFR §60.48Da and 40 CFR §60.49Da.

1c. Regional Haze Limit

Pollutant	lb/hr	tons/yr	Other Limits	Reference/Basis
Sulfur Dioxide (SO_2)	800[1,2]	NA	NA	567 IAC 22.9(6)

[1]Limit based on 65.6 percent reduction of SO_2 emissions from the baseline years of 2017 to 2019. Compliance with the limit is based on continuous emissions monitoring as specified in permit condition 6.
[2] Limit based on 30-day rolling average. Limit is applicable at all times including periods of Boiler startup, shutdown, and malfunction.

1d. Other Emission Limits

The owner or operator is required to report all emissions as required by law, regardless of whether a specific emission limit has been established in this permit. The following emission limits shall not be exceeded:

Pollutant	lb/hr	Tons/yr[1]	Additional Limits	Reference/Basis
PM_{10}	258.7[2, 3]	NA	NA	NAAQS
SO_2[4]	3,449.6[5, 6]	NA	NA	NAAQS
NO_x[4]	1,724.8[6]	7,555[7]	NA	NAAQS
CO[4]	3,622[3, 6]	NA	NA	NAAQS

[1] Standard is a 12-month rolling total.
[2] The emission limit is expressed as the average of three (3) runs.
[3] Emission rate used in the computer aided dispersion model to demonstrate predicted attainment of the National Ambient Air Quality Standards (NAAQS).
[4] Compliance with the emission standards shall be demonstrated through the use of a CEMS. See Condition 5 and Condition 6 for more information on compliance with the use of CEMS.
[5] Emission limit carried over from EPA Prevention of Significant Deterioration (PSD) permit. This emission limit was also used in order to net Project Number 05-511 out of PSD review. The SO_2 emissions of this unit shall not exceed:
- 153,600 lbs/calendar day and/or
- 6,400 lbs/hr for more than five (5) hours in any calendar day.

[6] This standard is a 30-day rolling average.
[7] Emission rate used to demonstrate a reduction in emissions for Project Number 04-750 (installation of OFA and LNB). This rate was corrected in Project Number 05-511 to reflect the actual size of the boiler.

2. Compliance Demonstration(s)

Compliance Demonstration Table

Pollutant	Compliance Methodology	Frequency	Test Run Time	Test Method
PM – Federal	None	NA	1 hour	40 CFR 60, Appendix A, Method 5
PM – State	None	NA	1 hour	40 CFR 60, Appendix A, Method 5 40 CFR 51 Appendix M Method 202
PM_{10}	None	NA	1 hour	40 CFR 51, Appendix M, 201A with 202
Opacity	Continuous Opacity Monitoring System (COMS)[1]	Continuous	1 hour	40 CFR 60, Appendix A, Method 9
SO_2	Continuous Emission Monitoring System (CEMS)[1]	Continuous	1 hour	40 CFR 60, Appendix A, Method 6C
NO_x	Continuous Emission Monitoring System (CEMS)[1]	Continuous	1 hour	40 CFR 60, Appendix A, Method 7E
VOC	None	NA	1 hour	40 CFR 63, Appendix A, Method 320 or 40 CFR 60, Appendix A, Method 18
CO	Continuous Emission Monitoring System (CEMS)[1]	Continuous	1 hour	40 CFR 60, Appendix A, Method 10

[1] See Condition 6 of the permit for the continuous monitoring requirements.

2. Compliance Demonstration(s) (Continued)

If an initial stack test is specified in the "Compliance Demonstration Table," the owner or the owner's authorized agent shall demonstrate compliance with the emission limitations contained in Condition 1 within the applicable time period specified below:

- Within sixty (60) days after achieving the maximum production rate and no later than one hundred eighty (180) days after the initial startup date of the proposed equipment for the addition of new equipment or the physical modification of existing equipment or control equipment.
- Within ninety (90) days of the issuance of this permit if there is no physical modification to any emission units or control equipment.

If any additional stack testing beyond an initial test (i.e. quarterly, semi-annual, annual, etc.) is required in "Compliance Demonstration Table," the owner or the owner's authorized agent shall demonstrate compliance with the emission limitations contained in Condition 1 as specified in the "Compliance Demonstration Table." See Conditions 12.A.(4) and 12.B.(5) for notification and reporting requirements.

If stack testing is required, the owner or the owner's authorized agent shall use the test method and run time listed in the "Compliance Demonstration Table" unless another testing methodology is approved by the Department prior to testing.

Each emissions compliance test must be approved by the Department. Unless otherwise specified by the Department, each test shall consist of three (3) separate runs. The arithmetic mean of three (3) acceptable test runs shall apply for compliance, unless otherwise indicated by the Department.

Per 567 IAC 25.1(7)"a", at the Department's request, a pretest meeting shall be held not later than fifteen (15) days before the owner or operator conducts the compliance demonstration. A testing protocol shall be submitted to the Department no later than fifteen (15) days before the owner or operator conducts the compliance demonstration. Representatives from the Department shall attend this meeting, along with the owner and the testing firm, if any. It shall be the responsibility of the owner to coordinate and schedule the pretest meeting. A representative of the Department shall be allowed to witness the test(s). The Department shall reserve the right to impose additional, different, or more detailed testing requirements.

The owner shall be responsible for the installation and maintenance of test ports. The unit(s) being sampled shall be operated in a normal manner at its maximum continuous output as rated by the equipment manufacturer, or the rate specified by the owner as the maximum production rate at which this unit(s) will be operated. In cases where compliance is to be demonstrated at less than the maximum continuous output as rated by the manufacturer, and it is the owner's intent to limit the capacity to that rating, the owner may submit evidence to the Department that this unit(s) has been physically altered so that capacity cannot be exceeded, or the Department may require additional testing, continuous monitoring, reports of operating levels, or any other information deemed necessary by the Department to determine whether this unit(s) is in compliance.

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3. Emission Point Characteristics

This emission point shall conform to the specifications listed below:

Parameter	Value
Stack Height (feet from the ground)	610 Feet
Discharge Style	Vertical Unobstructed Discharge
Stack Outlet Dimensions (inches)	360 inch Diameter
Exhaust Temperature (^oF)	200 ^oF
Exhaust Flowrate (scfm)	2,384,500 scfm

The temperature and flowrate are intended to be representative and characteristic of the design of the permitted emission point. The Department recognizes that the temperature and flow rate may vary with changes in the process and ambient conditions. If it is determined that any of the emission point characteristics above are different than the values stated, the owner or operator shall submit a request either by electronic mail or written correspondence to the Department within thirty (30) days of the discovery to determine if a permit amendment is required, or submit a permit application requesting to amend the permit.

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4. Federal Standards

A. New Source Performance Standards (NSPS):
The following subparts apply to the emission unit(s) in this permit:

EU ID	Subpart	Title	Type	State Reference (567 IAC)	Federal Reference (40 CFR)
EU1	A	General Provisions	NA	23.1(2)	§60.1 – §60.19
	D	Fossil-Fuel-fired Steam Generators for Which Construction Is Commenced After August 17, 1971	NA	23.1(2)"a"	§60.40 –§60.46

NOTE: The absence of the inclusion of any NSPS requirements as part of this permit does not relieve the owner or operator from any obligation to comply with all applicable NSPS conditions.

B. National Emission Standards for Hazardous Air Pollutants (NESHAP): For information only: This equipment is of the source category affected by the following federal regulation: *National Emission Standards for Hazardous Air Pollutants: Coal- and Oil-Fired Electric Utility Steam Generating Units* [40 CFR Part 63, Subpart UUUUU].

NOTE: The absence of the inclusion of any NESHAP requirements as part of this permit does not relieve the owner or operator from any obligation to comply with all applicable NESHAP conditions.

C. Acid Rain:
The facility (plant number 58-07-001) is considered an affected source under 40 CFR 72, 73, 75, 76, 77, and 78 definitions as emission units at this source are subject to the acid rain emission reduction requirements or the acid rain emission limitations, as adopted by the Department by reference (See 567 IAC 22.120 – 567 IAC 22.148). This emission unit is subject to the SO_2 allowance allocation, NO_x emission limitations, and monitoring provisions of the federal acid rain program.

5. Operating Requirements with Associated Monitoring and Recordkeeping

Unless specified by a federal regulation, all records as required by this permit shall be kept on-site for a minimum of two (2) years and shall be available for inspection by the Department. Records shall be legible and maintained in an orderly manner. The operating requirements and associated recordkeeping for this permit shall be:

A. The owner or operator shall maintain records of SO_2 emissions for each calendar day and shall submit a summary of such emissions to the Department within thirty (30) calendar days of the end of each calendar quarter.

B. This unit shall be limited to firing bituminous coal, sub-bituminous coal, #2 fuel oil, and natural gas.

i. The owner or operator shall keep records of whenever bituminous coal is combusted at the facility.

C. The sulfur (S) content of any coal fired in the unit shall not exceed 2.0 lb/MMBTU.

i. The owner or operator shall maintain records of the sulfur (S) content of all coal or combination of coals fired in the boiler.

D. MidAmerican Energy shall be responsible for the construction and use of a new stack at the Grain Processing Corporation (GPC), Muscatine, Iowa to handle the exhaust from the boilers prior to commencement of operation of the Louisa Generating Station. Such stack shall be constructed according to the specification in the agreement between MidAmerican Energy and the Grain Processing Corporation, dated July 6, 1979. Detailed plans and specifications, and a construction schedule for this proposed stack shall be submitted to the EPA or its delegate not later than January 1, 1980.

5. Operating Requirements with Associated Monitoring and Recordkeeping (continued)

E. A bag leak detection system must be installed to meet the following criteria:
(1) At least one detector must be located in each compartment of the baghouse.
(2) The bag leak detection system must be installed, operated, calibrated and maintained in a manner consistent with the manufacturer's written specifications and recommendations and in accordance with the guidance provided in "Fabric Filter Bag Leak Detection Guidance", EPA-454/R-98-015, September 1997.
(3) The bag leak detection system must be certified by the manufacturer to be capable of detecting particulate matter emissions at concentrations of 10 milligrams per actual cubic meter or less.
(4) The bag leak detection system sensor must provide output of relative or absolute particulate matter loadings.
(5) The bag leak detection system must be equipped with a device to continuously record the output signal from the sensors.
(6) The bag leak detection system must be equipped with an alarm system that will sound automatically when an increase in relative particulate matter emissions over a preset level is detected. The alarm must be located where it is easily heard by plant operating personnel.
(7) The system's instrumentation and alarm may be shared among detectors.
(8) The system's alarm shall sound no more than 5% of the operating time during a 6 month period.

i. The following records must be maintained from the bag leak detection system:
(1) The date, time and duration of each system alarm.
(2) The time corrective action was initiated and completed
(3) A brief description of the cause of the alarm and the corrective action
(4) A record of the percent of operating time during each 6 month period that the alarm sounds. In calculating the operating time percentage,
a. If an inspection of the fabric filter demonstrates that no corrective action is required, no alarm time is counted.
b. If corrective action is required, each alarm shall be counted as a minimum of 1 hour.
c. If it takes longer than 1 hour to initiate corrective action, the alarm time shall be counted as the actual amount of time taken to initiate corrective action.

F. Trucks which haul either ash or sludge shall either be covered with a tarp or enclosed.

G. The waste material collected by the fabric filter and stored in the FGD waste silo system shall be processed through a pug-mill during loadout to increase the material moisture content to a minimum of 20%. Water wagons shall be used to wet the waste material during disposal site grading activities.

H. The following conditions are required on the haul roads when combusting bituminous coal at the facility (plant # 58-07-001) to meet the BACT emission rates:
(1) Haul truck loads shall be enclosed or covered.
(2) For paved roads:
(i) Fugitive emissions of paved haul roads shall be controlled to an effective control efficiency of 80% by either water flushing followed by sweeping or using a street sweeper that is certified to achieve a pick-up efficiency of 80%. The control efficiency of 80% shall be achieved by water flushing followed by sweeping or using a certified sweeper on the paved haul roads once per day. The water spray rate shall be a minimum of 0.23 gallons per square yard.
(ii) If water flushing followed by sweeping cannot be accomplished because the ambient air temperature (as measured at the facility during daylight operating hours) will be less than 35 F, or conditions due to weather, in combination with the application of the water, could create hazardous driving conditions, then the water flushing and sweeping shall be postponed and accomplished as soon after the scheduled date as the conditions preventing the application have abated.
(iii) Water flushing and sweeping need not occur when a rain gage located at the site indicates that at least 0.2 inches of precipitation (water equivalent) has occurred within the preceding 24-hr time period or the paved road(s) will not be used on a given day.

5. Operating Requirements with Associated Monitoring and Recordkeeping (continued)

(3) For unpaved roads:
(i) Fugitive emissions from unpaved haul roads shall be controlled by applying a chemical dust suppressant. A control efficiency of 95% shall be maintained on all unpaved haul roads. MidAmerican may elect to use any chemical dust suppressant that is capable of achieving the 95% control efficiency. In the event that the manufacturer or distributor of a chemical dust suppressant recommends different amounts of chemical dust suppressant or MidAmerican chooses to use a different chemical dust suppressant, MidAmerican shall notify DNR of the change in application rates and/or chemical dust suppressant and the manufacturer's/distributor's recommendations.
(ii) If the selected chemical dust suppressant cannot be applied because the ambient air temperature (as measured at the facility during daylight operating hours) will be less than 35 F, or conditions due to weather, in combination with the application of the chemical dust suppressant, could create hazardous driving conditions, then the chemical dust suppressant application shall be postponed and accomplished as soon after the scheduled date as the conditions preventing the application have abated.

I. When bituminous coal is combusted, a log shall be kept showing the following for haul roads:
(1) Paved roads:
a. Records of either the use of a certified street sweeper or the applications shall be maintained and shall include
- The dates of each application
- The amount of water applied
- The areas treated, and
- The operator's initials.

b. If water is not applied when scheduled then the records should so indicate and provide an explanation.
(2) Unpaved roads:
a. Records of the applications shall be maintained and shall include:
- The dates of each application
- The chemical dust suppressant used
- The application intensity (gal/sq yd)
- Dilution ratio
- The operator's initials, and
- Documentation of road and weather conditions, if necessary.

b. If the suppressant is not applied as planned, then the records should so indicate and provide an explanation.

J. The owner or operator is not required to operate the Electrostatic Precipitator (ESP, CE 1) as long as the owner or operator is able to demonstrate compliance with the emission limits listed in Condition 1 of this permit without the ESP in operation.

K. The owner or operator is allowed, but not required, to combust coal which has been treated with chemicals to aid in mercury (Hg) emissions control. The following additives have been approved by the Department for use by the owner or operator:
a. a mineral composite of calcium silicate components,
b. other calcium compounds containing iron and aluminum,
c. calcium bromide
d. calcium chloride
e. potassium iodide

L. Prior to the use of any additional chemicals to aid in mercury (Hg) emissions control, the owner or operator shall supply material data to the Department for review and approval. This data shall include, but is not limited to:
a. A description of the chemical additive
b. Information demonstrating the potential impact on mercury emissions and any other HAPs regulated by an applicable state or federal standard, and
c. An evaluation of the impact on all NSR regulated air emissions.

M. The owner or operator shall record if treated coal is combusted and with what chemicals the coal has been treated.

5. Operating Requirements with Associated Monitoring and Recordkeeping (continued)

N. Per 567 IAC 33.3(18)"f"(1), prior to beginning actual construction of the project (Project Number 13-467) the owner or operator shall document:
   (1) A description of the project (Project Number 13-467),
   (2) Identification of the emission unit(s) whose emissions of a regulated NSR pollutant could be affected by the project (Project Number 13-467), and
   (3) A description of the applicability test used to determine that the project is not a major modification for any regulated NSR pollutant, including the baseline actual emissions (BAE), the projected actual emissions (PAE), the amount of emissions excluded under paragraph "3" of the definition of *"projected actual emissions"* in subrule 33.3(1), an explanation describing why such amount was excluded, and any netting analysis if applicable.
   (4) Per 567 IAC 33.3(18)"f"(1), the owner or operator shall maintain a record of the information required in Condition 5.K. of this permit for a period of five (5) years.

O. The owner or operator shall meet all applicable recordkeeping and reporting requirements under NSPS Subparts A and D.

Regional Haze Requirements

P. The owner or operator shall complete Lime Spray Dryer FGD (CE1B) enhancements to achieve the SO2 emission limit specified in condition 1c by December 31, 2023.

   i. The owner or operator shall maintain record of the completion date of Lime Spray Dryer FGD (CE1B) enhancements to achieve SO2 emission limit as specified in condition 1c.

Q. Within 60 operating days after completion of Lime Spray Dryer FGD (CE1B) enhancements, the owner or operator shall conduct an SO2 emissions study to determine the minimum additive injection rate to achieve SO2 reduction of 65.6 percent below the average of 2017-2019 baseline emissions. The minimum additive injection rate shall be determined during varying boiler operating loads. The study shall also include development and identification of an averaging period for the minimum additive injection rate, if applicable.

   i. The owner or operator shall submit the SO2 study results to the Department for review and approval.
   ii. The owner or operator shall maintain the SO2 study results onsite and make the results available for inspection.

R. The owner or operator shall maintain the Lime Spray Dryer FGD (CE1B) minimum additive injection rate at the rates determined during the SO2 emissions study at corresponding boiler loads. The minimum additive injection rate shall be maintained at all times while Louisa Boiler is in operation except during periods of boiler start-up.

   i. The owner or operator shall properly operate and maintain equipment to monitor the additive injection rate to the Lime Spray Dryer FGD (CE1B). The monitoring devices and any recorders shall be installed, calibrated, operated and maintained in accordance with the manufacturer's recommendations, instructions and operating manuals or per written facility specific operation and maintenance plan.

   ii. The owner or operator shall continuously collect and record the additive injection rate to Lime Spray Dryer FGD (CE1B). The owner or operator shall calculate and record the additive injection rate based on the averaging period determined during the SO2 study, if applicable. If the additive injection rate to Lime Spray Dryer FGD (CE1B) falls below the value determined during the SO2 emissions study, the owner or operator shall investigate the Lime Spray Dryer FGD (CE1B) and make corrections to it. The owner or operator shall maintain a record of all corrective actions taken.

6. Continuous Emission Monitoring Systems (CEMS)

Continuous emission monitoring for the BACT and other emission limits for PM, SO_2 and NO_x shall be determined by all continuous monitoring and reporting methods which may be specified in 40 CFR Part 60, Subpart Da as of the date of initial source startup (i.e., operation of the boiler for any purpose), with the exception that the control efficiency of the sulfur dioxide removal device need not be demonstrated. Notwithstanding the fact that the Louisa Generating Station is still not subject to 40 CFR Part 60, Subpart Da as no increase in the hourly emission rate of an affected NSPS pollutant has occurred, Subpart Da is being referenced to specify methods for determining compliance with the BACT emission rates which were established under the PSD regulations promulgated pursuant to Section 110 of the Act (42 U.S.C. 7410).

A. The following monitoring systems are required:

- *Opacity:*

  The facility (plant number 58-07-001) shall install, calibrate, maintain and operate a continuous monitoring system (CEMS) on EP 1, and record the output of the system, for measuring the opacity of emissions discharged to the atmosphere. If opacity interference due to water droplets exists in the stack (for example, from the use of an FGD system), the opacity is monitored upstream of the interference (at the inlet to the FGD system). If opacity interference is experienced at all locations (both at the inlet and outlet of the sulfur dioxide control system), alternate parameters indicative of the particulate matter control system's performance are monitored (subject to the approval of the Administrator). This system shall be designed to meet the 40 CFR 60, Appendix B, Performance Specification 1 (PS1).

- *SO_2:*

  The owner or operator shall install, calibrate, maintain, and operate a continuous emission monitoring system (CEMS) and record the output of the system, for measuring sulfur dioxide (SO_2) emissions.

  The system shall be designed to meet the 40 CFR 60, Appendix B, Performance Specification 2 (PS2) and Performance Specification 6 (PS6) requirements. The specifications of 40 CFR 60, Appendix F (Quality Assurance/Quality Control) shall apply. Appendix F requirements shall be supplemented with a notice to the Department with the dates of the annual relative accuracy test audit.

- *O_2 or CO_2:*

  The owner or operator shall install, calibrate, maintain, and operate a CEMS and record the output of the system, for measuring the oxygen (O_2) or carbon dioxide (CO_2) content of the flue gases at each location where SO_2 emissions are monitored.

- *CO:*

  Compliance with the carbon monoxide (CO) emission limits of this permit shall be continuously demonstrated by the owner or operator through the use of a CEMS. Therefore, the facility shall install, calibrate, maintain and operate a CEMS on EP 1 for measuring CO emissions discharged to the atmosphere and record the output of the system. The system shall be designed to meet the 40 CFR 60 Appendix B, Performance Specification 4 (PS4) and Performance Specification 6 (PS6) requirements. The specifications of 40 CFR 60, Appendix F (Quality Assurance/Quality Control) shall apply. Appendix F requirements shall be supplemented with a notice to the Department with the dates of the annual relative accuracy test audit.

6. Continuous Emission Monitoring (Continued)

- *Flowmeter:*

  The owner or operator shall install, certify, operate, and maintain a continuous flow monitoring system meeting the requirements of 40 CFR 60, Appendix B, Performance Specification 6 and 40 CFR 60, Appendix F, Procedure 1. In addition, the owner or operator shall record the output of the system, for measuring the volumetric flow of exhaust gases discharged to the atmosphere or

  Alternatively, data from a continuous flow monitoring system certified according to the requirements of 40 CFR §75.20(c) and 40 CFR 75, Appendix A, and continuing to meet the applicable quality control and quality assurance requirements of 40 CFR §75.21 and 40 CFR 75, Appendix B, may be used.

B. The CEMS required in Condition 6.A. for SO_2, and either O_2 or CO_2 shall be operated and the data recorded during all periods of operation including periods of startup, shutdown, malfunction, or emergency conditions, except for CEMS breakdowns, repairs, calibration checks, and zero and span adjustments.

C. The following data requirements shall apply to all CEMS for non-NSPS emission standards in this permit:

(1) The CEMS required by this permit shall be operated and data recorded during all periods of operation of the emission unit except for CEM breakdowns and repairs. Data is recorded during calibration checks, and zero and span adjustments.
(2) The 1-hour average SO_2 and CO_2 emission rates measured by the CEMS required by this permit shall be used to calculate compliance with the emission standards of this permit. At least 2 data points must be used to calculate each 1-hour average.
(3) For each hour of missing emission data (SO_2 or CO_2), the owner or operator shall substitute data by:
  (i) If the monitor data availability is equal to or greater than 95.0%, the owner or operator shall calculate substitute data by means of the automated data acquisition and handling system for each hour of each missing data period according to the following procedures:
    (a) For the missing data period less than or equal to 24 hours, substitute the average of the hourly concentrations recorded by a pollutant concentration monitor for the hour before and the hour after the missing data period.
    (b) For a missing data period greater than 24 hours, substitute the greater of:
      - The 90th percentile hourly concentration recorded by a pollutant concentration monitor during the previous 720 quality-assured monitor operating hours; or
      - The average of the hourly concentrations recorded by a pollutant concentration monitor for the hour before and the hour after the missing data period.

  (ii) If the monitor data availability is at least 90.0% but less than 95.0%, the owner or operator shall calculate substitute data by means of the automated data acquisition and handling system for each hour of each missing data period according to the following procedures:
    (a) For a missing data period of less than or equal to 8 hours, substitute the average of the hourly concentrations recorded by a pollutant concentration monitor for the hour before and the hour after the missing data period.
    (b) For the missing data period of more than 8 hours, substitute the greater of:
      - The 95th percentile hourly pollutant concentration recorded by a pollutant concentration monitor during the previous 720 quality-assured monitor operating hours; or
      - The average of the hourly concentrations recorded by a pollutant concentration monitor for the hour before and the hour after the missing data period.
  (iii) If the monitor data availability is less than 90.0%, the owner or operator shall obtain actual emission data by an alternate testing or monitoring method approved by the Department.

D. If requested by the Department, the owner/operator shall coordinate the quarterly cylinder gas audits with the Department to afford the Department the opportunity to observe these audits. The relative accuracy test audits shall be coordinated with the Department.

7. Department Review

This permit is issued under the authority of 567 Iowa Administrative Code (IAC) 22.3. The proposed equipment has been evaluated for conformance with Iowa Code Chapter 455B; 567 IAC Chapters 20 – 35; and 40 Code of Federal Regulations (CFR) Parts 51, 52, 60, 61, and 63 and has the potential to comply. This permit is issued based on information submitted by the applicant. Any misinformation, false statements or misrepresentations by the applicant or by the applicant's representative(s) shall cause this permit to be void.

No review has been undertaken on the engineering aspects of the equipment or control equipment other than the potential of that equipment for reducing air contaminant emissions. The Department assumes no liability, directly or indirectly, for any loss due to damage to persons or property caused by, resulting from, or arising out of the design, installation, maintenance or operation of the proposed equipment.

8. Owner and Operator Responsibility

This permit is for the construction and operation of specific emission unit(s), control equipment, and emission point as described in this permit and in the application for this permit. The permit holder, owner, and operator of the facility shall assure that the installation of the equipment listed in this permit conforms to the design in the application (i.e. type, maximum rated capacity, etc.). No person shall construct, install, reconstruct or alter this emission unit(s), control equipment, or emission point without the required amended permit.

Any owner or operator of the specified emission unit(s), control equipment, or emission point, including any person who becomes an owner or operator subsequent to the date on which this permit is issued, is responsible for assuring that the installation, operation, and maintenance of the equipment listed in this permit is in compliance with the provisions of this permit and all other applicable requirements and that adequate operation and maintenance is provided to ensure that no condition of air pollution is created.

9. Transferability

Unless the equipment is portable, this permit is not transferable from one location to another or from one piece of equipment to another. See Condition 12.A.(2) for notification requirements for relocating portable equipment (567 IAC 22.3(3)"f").

10. Construction

A. General Requirements:
It is the owner's responsibility to ensure that construction conforms to the final plans and specifications as submitted.

In permit amendments, all provisions of the original permit remain in full force and effect unless they are specifically changed by the permit amendment. If a proposed project is not timely completed, the owner or operator shall seek a permit amendment in order to revert back to the most recent previous version of the permit. The previous, unchanged permit provisions are included in the amendment for your convenience only and are unappealable.

This permit or amendment shall become void if any one of the following conditions occurs:
(1) The construction or implementation of the proposed project, as it affects the emission point permitted herein, is not initiated within eighteen (18) months after the permit issuance date; or
(2) The construction or implementation of the proposed project, as it affects the emission point permitted herein, is not completed within thirty-six (36) months after the permit issuance date; or
(3) The construction or implementation of the proposed project, as it affects the emission point permitted herein, is not completed within a time period specified elsewhere in this permit.

B. Changes to Plans and Specifications:
The owner or operator shall amend this permit or amendment prior to startup of the equipment if:
(1) Any changes are made to the final plans and specifications submitted for the proposed project; or
(2) This permit becomes void.

Changes to the final plans and specification shall include changes to plans and specifications for permitted equipment

and control equipment and the specified operation thereof.

C. Amended Permits:
The owner or operator may continue to act under the provisions of the previous permit for the affected emission unit(s) and emission point, together with any previous amendment to the permit, until one of the following conditions occurs:
(1) The proposed project authorized by this amendment is completed as it affects the emission unit(s) and emission point permitted herein; or
(2) This current amendment becomes void.

11. Excess Emissions

Per 567 IAC 24.1(1), excess emissions during a period of startup, shutdown, or cleaning of control equipment are not a violation of the emission standard if it is accomplished expeditiously and in a manner consistent with good practice for minimizing emissions except when another regulation applicable to the unit or process provides otherwise. Cleaning of control equipment, which does not require the shutdown of process equipment, shall be limited to one (1) six-minute period per one (1) hour period.

An incident of excess emissions other than the above is a violation and may be subject to criminal penalties according to Iowa Code 455B.146A. If excess emissions are occurring, either the control equipment causing the excess shall be repaired in an expeditious manner, or the process generating the emissions shall be shut down within a reasonable period of time, as specified in 567 IAC 24.1.

An incident of excess emissions shall be orally reported by telephone, electronic mail or in person to the appropriate field office within eight (8) hours of, or at the start of, the first working day following the onset of the incident [See Permit Condition 12.B.(1)]. A written report of an incident of excess emissions shall be submitted as a follow-up to all required initial reports within seven (7) days of the onset of the upset condition [See Permit Condition 12.B.(2)].

12. Notification, Reporting, and Recordkeeping

A. The owner or operator shall furnish the Department the following written notifications:
(1) Per 567 IAC 22.3(3)"b":
(a) The date construction, installation, or alteration is initiated postmarked within thirty (30) days following initiation of construction, installation, or alteration.
(b) The actual date of startup, postmarked within fifteen (15) days following the start of operation.
(2) Per 567 IAC 22.3(3)"f," when portable equipment for which a permit has been issued is to be transferred from one location to another, the Department shall be notified:
(a) At least fourteen (14) days before equipment relocation if the equipment will be located in a nonattainment area for the National Ambient Air Quality Standards (NAAQS) or a maintenance area for the NAAQS.
(b) At least seven (7) days before equipment relocation.
(3) Per 567 IAC 22.3(8), a new owner shall notify the Department of the transfer of equipment ownership within thirty (30) days of the occurrence. The notification shall include the following information:
- The date of ownership change; the name, address, and telephone number of the responsible official, the contact person, and the owner of the equipment both before and after the ownership change; and the construction permit number(s) of the equipment changing ownership.

(4) Unless specified per a federal regulation, the owner or the owner's authorized agent shall notify the Department in writing not less than thirty (30) days before a required test or performance evaluation of a continuous emission monitor [567 IAC 25.1(7)]. The notification shall include:
- The time; the place; the name of the person who will conduct the tests; and other information as required by the Department.

If the owner or operator does not provide timely notice to the Department, the Department shall not consider the test results or performance evaluation results to be a valid demonstration of compliance with the applicable rules or permit conditions. Upon written request, the Department may allow a notification period of less than thirty (30) days.

12. Notification, Reporting, and Recordkeeping

B. The owner or operator shall furnish the Department with the following reports:
   (1) Per 567 IAC 24.1(2), an incident of excess emissions as defined in 567 IAC 20.2 shall be reported within eight (8) hours or at the start of the first working day following the onset of the incident. The report may be made by electronic mail, in person or by telephone.
   (2) Per 567 IAC 24.1(3), a written report of an incident of excess emissions as defined in 567 IAC 20.2 shall be submitted as a follow-up to all required initial reports to the Department within seven (7) days of the onset of the upset condition.
   (3) Operation of this emission unit(s) or control equipment outside of those operating parameters specified in Permit Condition 5 in accordance to the schedule set forth in 567 IAC 24.1.
   (4) Per 567 IAC 25.1(6), the owner or operator of any facility required to install a continuous monitoring system or systems shall provide quarterly reports to the Director, no later than thirty (30) calendar days following the end of the calendar quarter, on forms provided by the Director.
   (5) Per 567 IAC 25.1(7), a written compliance demonstration report for each compliance testing event, whether successful or not, postmarked no later than six (6) weeks after the completion of the test period unless other regulations provide for other notification requirements. In that case, the more stringent reporting requirement shall be met.

C. All data, records, reports, documentation, construction plans, and calculations required under this permit shall be available at the plant during normal business hours for inspection and copying by federal, state, or local air pollution regulatory agencies and their authorized representatives, for a minimum of two (2) years from the date of recording unless otherwise required by another applicable law (i.e. NSPS, NESHAP, etc.)

D. Information regarding this permit should be sent to the attention of the following individuals based on the type of information being submitted: change in ownership (Air Quality Bureau Records Center), permit correspondence (Construction Permit Supervisor), stack testing correspondence (Stack Test Coordinator), and reports and notifications (Compliance Unit Supervisor and DNR Field Office). The addresses are:

Air Quality Bureau Iowa Department of Natural Resources 502 E. 9th St. Des Moines, IA 50319 Telephone: (515) 725-8200 Fax: (515) 725-9501	DNR Field Office 6 1023 West Madison Washington, IA 52353 Telephone: (319) 653-2135 Fax: (319) 653-2856

13. Appeal Rights

All conditions within an original permit may be appealed, subject to the appeal rights set forth in 561 IAC Chapter 7. Amended conditions within a permit amendment may be appealed, subject to the appeal rights set forth in 561 IAC Chapter 7. In permit amendments, all provisions of the original permit remain in full force and effect unless they are specifically changed by the permit amendment. The previous, unchanged permit provisions are included in the amendment for your convenience only and are unappealable.

14. Permit History

Permit No.	Project No.	Description	Date	Stack Testing
05-A-031-P	04-750	Original State Issued PSD Permit	03/01/05	Yes
05-A-031-P1	05-511	Added FGD & Baghouse	02/14/06	Yes
05-A-031-P2	11-259	Allowed Use of Refined Coal	09/28/11	No
05-A-031-P3	13-467	Added Hg Control	06/03/14	No
05-A-031-P4	19-298	Amend Exhaust Flowrate and Temperature	04/02/20	No
05-A-031-P5	21-442	Modify approved chemical list in Condition 5	4/13/22	No

END OF PERMIT