

May 13, 2021

Todd Peterson
Montana-Dakota Utilities
400 N. 4th Street
Bismarck, ND 58501

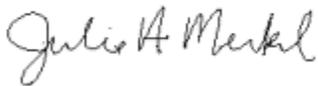
RE: Final Title V Operating Permit #OP0691-08

Dear Mr. Peterson:

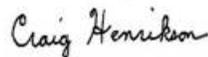
The Department of Environmental Quality has prepared the enclosed Final Operating Permit #0691-08, for Montana-Dakota Utilities – Lewis and Clark Field Station, located in Richland County, Montana. Please review the cover page of the attached permit for information pertaining to the action taking place on Permit #OP0691-08.

If you have any questions, please contact Craig Henrikson, the permit writer, at (406) 444-6711 or by email at chenrikson@mt.gov.

Sincerely,



Julie A. Merkel
Permitting Services Supervisor
Air Quality Bureau
(406) 444-3626



Craig Henrikson, P.E.
Environmental Engineer
Air Quality Bureau
(406) 444-6711

JM: CH
Enclosure

Cc: Gail Fallon, US EPA Region VIII 8P-AR

STATE OF MONTANA
Department of Environmental Quality
Helena, Montana 59620



AIR QUALITY OPERATING PERMIT OP0691-08

Issued to: Montana-Dakota Utilities
Lewis & Clark Field Station
400 N. 4th Street
Bismarck, ND 58501

Final Date: May 13, 2021
Expiration Date: May 13, 2026
Renewal Application Due: November 13, 2025

Effective Date: May 13, 2021
Date of Decision: April 12, 2021
End of EPA 45-day Review: April 8, 2021
Proposed Issue Date: February 22, 2021
Draft Issue Date: January 15, 2021

Application Deemed Technically Complete: December 9, 2019
Application Deemed Administratively Complete: December 9, 2019
Renewal Application Received: December 9, 2019
AFS Number: 030-083-0003A

Permit Issuance and Appeal Processes: In accordance with Montana Code Annotated (MCA) Sections 75-2-217 and 218 and the Administrative Rules of Montana (ARM), ARM Title 17, Chapter 8, Subchapter 12, Operating Permit Program, this operating permit is hereby issued by the Department of Environmental Quality (Department) as effective and final on May 13, 2021. This permit must be kept on-site at the above-named facility.

Montana Air Quality Operating Permit
 Department of Environmental Quality

SECTION I. GENERAL INFORMATION	1
SECTION II. SUMMARY OF EMISSION UNITS.....	2
SECTION III. PERMIT CONDITIONS.....	3
A. FACILITY-WIDE	3
B. EU01: TANGENTIAL COAL-FIRED BOILER (COAL AND NATURAL GAS)	7
C. EU06: FUEL (GASOLINE) STORAGE TANK	11
D. EU07: COAL STORAGE PILES	12
E. EU08: FUGITIVE COAL, ASH, AND LIME HANDLING	13
F. EU09: EMERGENCY UNITS	14
G. EU10: 2 – 20V34SG WÄRTSILÄ NATURAL GAS RICE GENERATOR SETS	15
H. EU11: NATURAL GAS LINE HEATING AND HVAC UNITS.....	20
I. EMERGENCY DIESEL-FIRED GENERATOR AND DIESEL STORAGE TANK.....	20
SECTION IV. NON-APPLICABLE REQUIREMENTS.....	22
A. FACILITY-WIDE	22
B. EMISSION UNITS.....	23
SECTION V. GENERAL PERMIT CONDITIONS.....	24
A. COMPLIANCE REQUIREMENTS.....	24
B. CERTIFICATION REQUIREMENTS	25
C. PERMIT SHIELD	25
D. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS.....	26
E. PROMPT DEVIATION REPORTING.....	27
F. EMERGENCY PROVISIONS.....	28
G. INSPECTION AND ENTRY.....	29
H. FEE PAYMENT	29
I. MINOR PERMIT MODIFICATIONS.....	30
J. CHANGES NOT REQUIRING PERMIT REVISION	30
K. SIGNIFICANT PERMIT MODIFICATIONS	31
L. REOPENING FOR CAUSE	32
M. PERMIT EXPIRATION AND RENEWAL	32
N. SEVERABILITY CLAUSE	33
O. TRANSFER OR ASSIGNMENT OF OWNERSHIP.....	33
P. EMISSIONS TRADING, MARKETABLE PERMITS, ECONOMIC INCENTIVES.....	33
Q. NO PROPERTY RIGHTS CONVEYED.....	33
R. TESTING REQUIREMENTS.....	33
S. SOURCE TESTING PROTOCOL.....	33
T. MALFUNCTIONS.....	34
U. CIRCUMVENTION.....	34
V. MOTOR VEHICLES	34
W. ANNUAL EMISSIONS INVENTORY	34
X. OPEN BURNING.....	34
Y. MONTANA AIR QUALITY PERMITS.....	34
Z. NATIONAL EMISSION STANDARD FOR ASBESTOS	35
AA. ASBESTOS	35
BB. STRATOSPHERIC OZONE PROTECTION – SERVICING OF MOTOR VEHICLE AIR CONDITIONERS.....	35
CC. STRATOSPHERIC OZONE PROTECTION – RECYCLING AND EMISSION REDUCTIONS	36
DD. EMERGENCY EPISODE PLAN	36
EE. DEFINITIONS.....	36

APPENDIX A	INSIGNIFICANT EMISSION UNITS.....	A-1
APPENDIX B	DEFINITIONS AND ABBREVIATIONS	B-1
APPENDIX C	NOTIFICATION ADDRESSES	C-1
APPENDIX D	AIR QUALITY INSPECTOR INFORMATION	D-1
APPENDIX E	PREDICTIVE OPACITY	E-1
APPENDIX F	SO ₂ CEMS	F-1
APPENDIX G	NO _x CEMS	G-1
APPENDIX H	ACID RAIN	H-1
APPENDIX I	COMPLIANCE ASSURANCE MONITORING (CAM) PLAN.....	I-1
APPENDIX J	MEMS	J-1
APPENDIX K	CLARIFICATION OF RICE START-UP OPERATIONS AND CONDITIONS K-1	
APPENDIX L	CAM PLAN FOR RICE NO _x	L-1

Terms not otherwise defined in this permit or in the Definitions and Abbreviations Appendix of this permit have the meaning assigned to them in the referenced regulations.

SECTION I. GENERAL INFORMATION

The following general information is provided pursuant to ARM 17.8.1210(1).

Company Name: Montana Dakota Utilities Co., Lewis & Clark Station

Mailing Address: 400 North Fourth Street

City: Bismarck State: North Dakota Zip: 58501

Plant Location: Southwest ¼, Section 9, Township 22 North, Range 59 East, Richland County, Montana

Responsible Official: Jay Skabo Phone: (701) 222-7722

Facility Contact Person: Todd Peterson Phone: (701) 222-7835

Primary SIC Code: 4911

Nature of Business: Electric Services

Description of Process: Montana-Dakota operates a tangential coal-fired boiler capable of burning coal or natural gas and associated equipment for generation of electricity.

SECTION II. SUMMARY OF EMISSION UNITS

The emission units regulated by this permit are the following (ARM 17.8.1211):

Emissions Unit ID	Description	Pollution Control Device/Practice
EU01	Tangential Coal and Natural Gas Fired Boiler	Multi-Cyclone and Flooded Disc Wet Scrubber
EU06	Fuel (gasoline) Storage Tank	40 CFR 63 Subpart CCCCCC
EU07	Coal Storage Piles	Reasonable Precautions (usually water dust suppression)
EU08	Fugitive Coal, Ash, and Lime Handling	Reasonable Precautions: Enclosure/Fabric Filter Baghouse
EU09	Emergency Units	40 CFR 63 Subpart ZZZZ
EU10	20V34SG Wärtsilä Natural Gas RICE Generator Sets	Selective Catalytic Reduction (SCR) and Oxidation Catalyst
EU11	Natural Gas Line Heating and HVAC Units	None
EU12	Emergency Diesel-Fired Generator and Diesel Storage Tank	None

SECTION III. PERMIT CONDITIONS

The following requirements and conditions are applicable to the facility or to specific emissions units located at the facility (ARM 17.8.1211, 1212, and 1213).

A. Facility-Wide

Conditions	Rule Citation	Rule Description	Pollutant/Parameter	Limit
A.1	ARM 17.8.105	Testing Requirements	Testing Requirements	-----
A.2	ARM 17.8.304(1)	Visible Air Contaminants	Opacity	40%
A.3	ARM 17.8.304(2)	Visible Air Contaminants	Opacity	20%
A.4	ARM 17.8.308(1)	Particulate Matter, Airborne	Fugitive Opacity	20%
A.5	ARM 17.8.308(2)	Particulate Matter, Airborne	Reasonable Precautions	-----
A.6	ARM 17.8.308	Particulate Matter, Airborne	Reasonable Precaution, Construction	20%
A.7	ARM 17.8.309	Particulate Matter, Fuel Burning Equipment	Particulate Matter	$E = 0.882 * H^{-0.1664}$ Or $E = 1.026 * H^{-0.233}$
A.8	ARM 17.8.310	Particulate Matter, Industrial Processes	Particulate Matter	$E = 4.10 * P^{0.67}$ or $E = 55 * P^{0.11} - 40$
A.9	ARM 17.8.322(4)	Sulfur Oxide Emissions, Sulfur in Fuel	Sulfur in Fuel (liquid or solid fuels)	1 lb/MMBtu fired
A.10	ARM 17.8.322(5)	Sulfur Oxide Emissions, Sulfur in Fuel	Sulfur in Fuel (gaseous)	50 gr/100 CF
A.11	ARM 17.8.324(3)	Hydrocarbon Emissions, Petroleum Products	Gasoline Storage Tanks	-----
A.12	ARM 17.8.324	Hydrocarbon Emissions, Petroleum Products	65,000 Gallon Capacity	-----
A.13	ARM 17.8.324	Hydrocarbon Emissions, Petroleum Products	Oil-effluent Water Separator	-----
A.14	ARM 17.8.342	NESHAPs General Provisions	SSM Plans	Submittal
A.15	ARM 17.8.1211(1)(c) and 40 CFR Part 98	Greenhouse Gas Reporting	Reporting	-----
A.16	ARM 17.8.1212	Reporting Requirements	Prompt Deviation Reporting	-----
A.17	ARM 17.8.1212	Reporting Requirements	Compliance Monitoring	-----
A.18	ARM 17.8.1207	Reporting Requirements	Annual Certification	-----

Conditions

- A.1. Pursuant to ARM 17.8.105, any person or persons responsible for the emission of any air contaminant into the outdoor atmosphere shall, upon written request of the Department, provide the facilities and necessary equipment (including instruments and sensing devices) and shall conduct tests, emission or ambient, for such periods of time as may be necessary using methods approved by the Department.

Compliance demonstration frequencies that list “as required by the Department” refer to ARM 17.8.105. In addition, for such sources, compliance with limits and conditions listing “as required by the Department” as the frequency, is verified annually using emission factors and engineering calculations by the Department’s compliance inspectors during the annual emission inventory review; in the case of Method 9 tests, compliance is monitored during the regular inspection by the compliance inspector.

- A.2. Pursuant to ARM 17.8.304(1), Montana-Dakota shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed on or before November 23, 1968, that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes, unless otherwise specified by rule or in this permit.
- A.3. Pursuant to ARM 17.8.304(2), Montana-Dakota shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any source installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes, unless otherwise specified by rule or in this permit.
- A.4. Pursuant to ARM 17.8.308(1), Montana-Dakota shall not cause or authorize the production, handling, transportation, or storage of any material unless reasonable precautions to control emissions of particulate matter are taken. Such emissions of airborne particulate matter from any stationary source shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes, unless otherwise specified by rule or in this permit.
- A.5. Pursuant to ARM 17.8.308(2), Montana-Dakota shall not cause or authorize the use of any street, road or parking lot without taking reasonable precautions to control emissions of airborne particulate matter, unless otherwise specified by rule or in this permit.
- A.6. Pursuant to ARM 17.8.308, Montana-Dakota shall not operate a construction site or demolition project unless reasonable precautions are taken to control emissions of airborne particulate matter. Such emissions of airborne particulate matter from any stationary source shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes, unless otherwise specified by rule or in this permit.
- A.7. Pursuant to ARM 17.8.309, unless otherwise specified by rule or in this permit, Montana-Dakota shall not cause or authorize particulate matter caused by the combustion of fuel to be discharged from any stack or chimney into the outdoor atmosphere in excess of the maximum allowable emissions of particulate matter for existing fuel burning equipment and new fuel burning equipment calculated using the following equations:

For existing fuel burning equipment (installed before November 23, 1968):

$$E = 0.882 * H^{-0.1664}$$

For new fuel burning equipment (installed on or after November 23, 1968):

$$E = 1.026 * H^{-0.233}$$

Where H is the heat input capacity in million BTU (MMBtu) per hour and E is the maximum allowable particulate emissions rate in pounds per MMBtu.

- A.8. Pursuant to ARM 17.8.310, unless otherwise specified by rule or in this permit, Montana-Dakota shall not cause or authorize particulate matter to be discharged from any operation, process, or activity into the outdoor atmosphere in excess of the maximum hourly allowable emissions of particulate matter calculated using the following equations:

$$\begin{array}{ll} \text{For process weight rates up to 30 tons per hour:} & E = 4.10 * P^{0.67} \\ \text{For process weight rates in excess of 30 tons per hour:} & E = 55.0 * P^{0.11} - 40 \end{array}$$

Where E = rate of emissions in pounds per hour and P = process weight rate in tons per hour.

- A.9. Pursuant to ARM 17.8.322(4), Montana-Dakota shall not burn liquid or solid fuels containing sulfur in excess of 1 pound per million BTU fired, unless otherwise specified by rule or in this permit.
- A.10. Pursuant to ARM 17.8.322(5), Montana-Dakota shall not burn any gaseous fuel containing sulfur compounds in excess of 50 grains per 100 cubic feet of gaseous fuel, calculated as hydrogen sulfide at standard conditions, unless otherwise specified by rule or in this permit.
- A.11. Pursuant to ARM 17.8.324(3), Montana-Dakota shall not load or permit the loading of gasoline into any stationary tank with a capacity of 250 gallons or more from any tank truck or trailer, except through a permanent submerged fill pipe, unless such tank is equipped with a vapor loss control device or is a pressure tank as described in ARM 17.8.324(1), unless otherwise specified by rule or in this permit.
- A.12. Pursuant to ARM 17.8.324, unless otherwise specified by rule or in this permit, Montana-Dakota shall not place, store or hold in any stationary tank, reservoir or other container of more than 65,000 gallon capacity any crude oil, gasoline or petroleum distillate having a vapor pressure of 2.5 pounds per square inch absolute or greater under actual storage conditions, unless such tank, reservoir or other container is a pressure tank maintaining working pressure sufficient at all times to prevent hydrocarbon vapor or gas loss to the atmosphere, or is designed and equipped with a vapor loss control device, properly installed, in good working order and in operation.
- A.13. Pursuant to ARM 17.8.324, unless otherwise specified by rule or in this permit, Montana-Dakota shall not use any compartment of any single or multiple-compartment oil-effluent water separator, which compartment receives effluent water containing 200 gallons a day or more of any petroleum product from any equipment processing, refining, treating, storing or handling kerosene or other petroleum product of equal or greater volatility than kerosene, unless such compartment is equipped with a vapor loss control device, constructed so as to prevent emission of hydrocarbon vapors to the atmosphere, properly installed, in good working order and in operation.
- A.14. Pursuant to ARM 17.8.342 and 40 CFR 63.6, Montana-Dakota shall submit to the Department a copy of any startup, shutdown, and malfunction (SSM) plan required under 40 CFR 63.6(e)(3) within 30 days of the effective date of this operating permit (if not previously submitted), within 30 days of the compliance date of any new National Emission Standard for Hazardous Air Pollutants (NESHAPs) or Maximum Achievable Control Technology (MACT) standard, and within 30 days of the revision of any such SSM plan, when applicable. The Department requests submittal of such plans in electronic form, when possible.

- A.15. Pursuant to ARM 17.8.1211(1)(c) and 40 CFR Part 98, Montana-Dakota shall comply with requirements of 40 CFR Part 98 – Mandatory Greenhouse Gas Reporting, as applicable (ARM 17.8.1211(1)(c), Not an applicable requirement under Title V).
- A.16. Montana-Dakota shall promptly report deviations from permit requirements including those attributable to upset conditions, as upset is defined in the permit. To be considered prompt, deviations shall be reported to the Department using the schedule and content as described in Section V.E (unless otherwise specified in an applicable requirement) (ARM 17.8.1212).
- A.17. On or before February 15 and August 15 of each year, Montana-Dakota shall submit to the Department the compliance monitoring reports required by Section V.D. These reports must contain all information required by Section V.D, as well as the information required by each individual emissions unit. For the reports due by February 15 of each year, Montana-Dakota may submit a single report, provided that it contains all the information required by Section V.B & V.D. Per ARM 17.8.1207,

any application form, report, or compliance certification submitted pursuant to ARM Title 17, Chapter 8, Subchapter 12 (including semiannual monitoring reports), shall contain certification by a responsible official of truth, accuracy and completeness. This certification and any other certification required under ARM Title 17, Chapter 8, Subchapter 12, shall state that, “based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.”

- A.18. By February 15 of each year, Montana-Dakota shall submit to the Department the compliance certification required by Section V.B. The annual certification required by Section V.B must include a statement of compliance based on the information available which identifies any observed, documented or otherwise known instance of noncompliance for each applicable requirement. Per ARM 17.8.1207,

any application form, report, or compliance certification submitted pursuant to ARM Title 17, Chapter 8, Subchapter 12 (including annual certifications), shall contain certification by a responsible official of truth, accuracy and completeness. This certification and any other certification required under ARM Title 17, Chapter 8, Subchapter 12, shall state that, “based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.”

B. EU01: Tangential Coal-Fired Boiler (Coal and Natural Gas)

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Method	Demonstration Frequency	Reporting Requirements
B.1, B.11, B.12, B.23 B.25, B.32, B.34, B.35	Opacity	40%	Method 9	As Required by the Department	Semiannual
			Predictive Opacity	Ongoing	Quarterly
B.2, B.13, B.23, B.25, B.32, B.34, B.35	Particulate Matter Fuel Burning	0.17 lb/MMBtu	Method 5	Annual	Semiannual
		0.08 gr/dscf			
B.3, B.4, B.14, B.15, B.16, B.22, B.24, B.26, B.27, B.34, B.35	SO ₂ Emissions	1.0 lb sulfur/MMBtu fuel or 2.0 lb SO ₂ /MMBtu	Continuous Scrubber Operations and CEMS	Ongoing	Semiannual
		50 gr sulfur/100 CF fuel	Record Keeping	Ongoing	Semiannual
B.5, B.17, B.27, B.34, B.35	NO _x Emissions/Acid Rain Provisions	0.40 lb/MMBtu	CEMS	Ongoing	Semiannual
B.6, B.18, B.28, B.34, B.35	Acid Rain Provisions	40 CFR 72-78	40 CFR 72-78	40 CFR 72-78	Semiannual
B.7, B.19, B.29, B.34, B.35	PM CAM Plan	ARM 17.8.1506	Provisions from CAM Plan, Appendix I	Ongoing	Semiannual
B.8, B.9, B.20, B.30, B.34, B.35	Mercury Emissions	1.5 lb/TBtu	MEMS	Ongoing	Semiannual
B.10, B.21, B.31, B.34, B.35	40 CFR 63 Subpart UUUUU	40 CFR 63 Subpart UUUUU	40 CFR 63 Subpart UUUUU	40 CFR 63 Subpart UUUUU	Semiannual and 40 CFR 63 Subpart UUUUU

Conditions

- B.1. Montana-Dakota may not cause or authorize emissions from the Tangential Coal-Fired Boiler (boiler) to be discharged into the outdoor atmosphere that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes. (ARM 17.8.304 (2))
- B.2. Particulate matter emissions from the boiler shall not exceed 0.17 lb/MMBtu or 0.08 gr/dscf. (ARM 17.8.309)
- B.3. Montana-Dakota shall not fire in the boiler liquid or solid fuels containing sulfur in excess of 1.0 lb of sulfur/MMBtu fuel or 2.0 lb SO₂/MMBtu. (ARM 17.8.322(4))

- B.4. Montana-Dakota shall not fire in the boiler any fuels in excess of 50 grains of sulfur/100 cubic feet of gaseous fuel. (ARM 17.8.322)
- B.5. NO_x emissions from the boiler shall not exceed 0.40 lb/MMBtu. (40 CFR 76.7)
- B.6. Montana-Dakota shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements of the Acid Rain Program contained in 40 CFR 72-78. (40 CFR 72-78)
- B.7. Montana-Dakota shall provide a reasonable assurance of compliance with emission limitations or standards for the anticipated range of operations at the Tangential Coal-fired Boiler for PM. (ARM 17.8.1504)
- B.8. Montana-Dakota shall limit mercury emissions from Unit 1 to an emission rate equal to or less than 1.5 pounds mercury per trillion British thermal units (lb/TBtu), calculated as a rolling 12-month average. (ARM 17.8.771)
- B.9. Montana-Dakota shall operate and maintain a mercury control system that oxidizes and sorbs emissions of mercury to achieve compliance with the mercury emissions limit in Section III.B.8. (ARM 17.8.771, this requirement is State-Only)
- B.10. Montana-Dakota shall comply with all applicable requirements of 40 CFR 63 Subpart UUUUU. Since Montana-Dakota requested and the Department approved a one-year initial compliance deadline extension for the non-mercury HAP metals portion of this rule, conditions a, b, and c below apply. (ARM 17.8.342 and 40 CFR 63 Subparts A and UUUUU)
 - a. Montana-Dakota shall complete the construction activities for the mist eliminator retrofit and sieve tray installation by December 31, 2015.
 - b. Montana-Dakota shall notify the Department when the construction activities for the mist eliminator retrofit and sieve tray installation are complete.
 - c. Montana-Dakota shall comply with the applicable non-mercury Hazardous Air Pollutant (HAP) metals emission standards of 40 CFR 63 Subpart UUUUU no later than April 16, 2016, using filterable PM as a surrogate for non-mercury HAP metals with total non-mercury HAP metals or individual non-mercury HAP metals as alternative equivalent standards.

Compliance Demonstration

- B.11. Montana-Dakota shall perform a Method 9 opacity test on the boiler annually or as required by the Department while the boiler is being fired exclusively on coal to monitor compliance with the opacity limitation in Section III.B.1. (ARM 17.8.749 and ARM 17.8.106)
- B.12. Montana-Dakota shall operate and maintain the predictive opacity monitoring system to monitor compliance with the opacity limitation in Section III.B.1. The monitoring system operation shall be performed in accordance with the Predictive Opacity Appendix E of this permit. (40 CFR Part 51, Appendix P, §3.9 and ARM 17.8.749)

- B.13. Montana-Dakota shall perform a Method 5 or Method 5B particulate matter test, or another method approved by the Department, on the boiler annually to monitor compliance with the particulate matter fuel burning limit in Section III.B.2. The testing shall be performed in accordance with the Montana Source Test Protocol and Procedures Manual while the boiler is being fired exclusively on coal. (ARM 17.8.749 and ARM 17.8.106)
- B.14. Montana-Dakota shall operate the scrubber when the boiler is operating to monitor compliance with the emission limit in III.B.3. (ARM 17.8.322(6)(c))
- B.15. Montana-Dakota shall monitor compliance with emission limits in III.B.3 pursuant to the requirements in 40 CFR Part 75, and the SO₂ CEMS Appendix F in this permit. (ARM 17.8.1212)
- B.16. Montana-Dakota shall burn only pipeline quality natural gas in the emissions unit when burning gaseous fuel to monitor compliance with the emission limit of 50 grains of sulfur/100 cubic feet of gaseous fuel. (ARM 17.8.1213)
- B.17. Montana-Dakota shall monitor compliance with emission limits in III.B.5 pursuant to the requirements in 40 CFR Part 75, 40 CFR Part 76 and the NO_x CEMS Appendix G in this permit. (ARM 17.8.1212)
- B.18. Compliance monitoring for the applicable requirements contained in 40 CFR 72-78 shall be accomplished as described in 40 CFR 72-78. (40 CFR 72-78 and ARM 17.8.1213)
- B.19. Montana-Dakota shall monitor compliance by following the Compliance Assurance Monitoring (CAM) Plan (Appendix I). The CAM Plan, written by Montana-Dakota in accordance with ARM 17.8.1504, is in Appendix I. (ARM 17.8.1503 and ARM 17.8.1213)
- B.20. In order to monitor compliance with the mercury emission limit in Section III.B.8, a mercury emissions monitoring system (MEMS) shall be operated and maintained on the Unit 1 stack outlet. Said monitor shall comply with the applicable provisions of 40 CFR Part 75. The monitors shall also conform to requirements included in Appendix J. Specific to Mercury, reference to 40 CFR Part 75 is in reference to the 2005 Annual Version of 40 CFR Part 75. (ARM 17.8.771 and ARM 17.8.1213, this requirement is State-Only)
- B.21. Montana-Dakota shall monitor compliance with 40 CFR 63 Subpart UUUUU as required by 40 CFR 63 Subpart UUUUU. (ARM 17.8.342 and 40 CFR 63 Subpart UUUUU)

Recordkeeping

- B.22. Montana-Dakota shall maintain, on site, an operations and maintenance log which includes the type of fuel fired in the boiler on a daily basis. (ARM 17.8.1212)
- B.23. All source testing recordkeeping shall be performed in accordance with the Source Test Protocol and Procedures Manual, and shall be maintained on site. Method 9 source test reports for opacity need not be submitted unless requested by the Department. (ARM 17.8.106)
- B.24. Montana-Dakota shall maintain, on site, a log of scrubber downtime and maintenance with respect to boiler operations. (ARM 17.8.1212)

- B.25. Montana-Dakota shall perform recordkeeping in accordance with the Predictive Opacity Monitoring System Appendix E of this permit. (ARM 17.8.1212)
- B.26. Montana-Dakota shall maintain a log of when non-pipeline quality natural gas is being used for gas supply, to include; date, time, duration of fuel usage, reason for non-pipeline quality natural gas usage (if available from the supplier), and the operator's initials. (ARM 17.8.1212)
- B.27. Montana-Dakota shall perform recordkeeping as required in Appendix F and Appendix G of this permit as well as in accordance with 40 CFR Parts 75 and 76, as applicable. (ARM 17.8.1212 and 40 CFR Parts 75 and 76)
- B.28. Montana-Dakota shall perform recordkeeping in accordance with 40 CFR 72-78, as applicable and as required by Appendix G and Appendix H of this permit. (40 CFR 72-78 and ARM 17.8.1212)
- B.29. Records shall be prepared and data kept in accordance with 40 CFR Part 64 and the CAM Appendix I of this permit. (ARM 17.8.1212 and 40 CFR 64)
- B.30. Records shall be prepared and data kept in accordance with 40 CFR Part 75 and the MEMS Appendix J of this permit. Specific to Mercury, Montana-Dakota shall comply with the 2005 Annual Version of 40 CFR Part 75. (ARM 17.8.1212 and ARM 17.8.771, this requirement is State-Only)
- B.31. Montana-Dakota shall comply with all applicable recordkeeping requirements of 40 CFR 63 Subpart UUUUU. (ARM 17.8.342 and 40 CFR 63 Subpart UUUUU)

Reporting

- B.32. Any compliance source tests shall be submitted in accordance with the Montana Source Test Protocol and Procedures Manual. (ARM 17.8.106)
- B.33. Montana-Dakota shall comply with all applicable reporting requirements of 40 CFR 63 Subpart UUUUU. (ARM 17.8.342 and 40 CFR 63 Subpart UUUUU)
- B.34. The annual compliance certification report required by Section V.B must contain a certification statement for the above applicable requirements. (ARM 17.8.1213)
- B.35. The semiannual reporting shall provide (ARM 17.8.1212):
 - a. A summary of results of any source test that was performed during the reporting period;
 - b. A summary of the log of fuel type used to fire the boiler;
 - c. A summary of any downtime and maintenance work performed on the wet scrubber;
 - d. Reference to dates of submittal of the quarterly reports required in Appendices E, F, G, and J;

- e. A summary of compliance with 40 CFR Part 64 and Appendix I of this permit, including reference to dates of submittal of reports;
- f. A summary of compliance with the requirements of 40 CFR 72-78, as applicable;
- g. A summary of compliance with the requirements of 40 CFR 63 Subpart UUUUU

C. EU06: Fuel (gasoline) Storage Tank

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Demonstration		Reporting Requirement
			Method	Frequency	
C.1, C.2, C.3, C.4, C.5	40 CFR 63, Subpart CCCCCC	40 CFR 63, Subpart CCCCCC	40 CFR 63, Subpart CCCCCC	Ongoing	40 CFR 63 Subpart CCCCCC and Semiannual

Conditions

- C.1. Montana-Dakota shall comply with all applicable standards and limitations, and the applicable operating, reporting, recordkeeping, and notification requirements contained in 40 CFR 63, Subpart CCCCCC. (ARM 17.8.340 and 40 CFR 63, Subpart CCCCCC)

Compliance Demonstration

- C.2. Compliance monitoring for the operating, reporting, recordkeeping, and notification requirements contained in 40 CFR 63, Subpart CCCCCC shall be accomplished as described in 40 CFR 63, Subpart CCCCCC. (ARM 17.8.340 and 40 CFR 63, Subpart CCCCCC)

Recordkeeping

- C.3. Montana-Dakota shall perform recordkeeping in accordance with 40 CFR 63, Subpart CCCCCC. (ARM 17.8.1212 and 40 CFR 63, Subpart CCCCCC)

Reporting

- C.4. The annual compliance certification required by Section V.B must contain a certification statement for the above applicable requirements. (ARM 17.8.1213)
- C.5. The semiannual reporting shall provide a summary of compliance with 40 CFR 63, Subpart CCCCCC.

D. EU07: Coal Storage Piles

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Demonstration Method	Demonstration Frequency	Reporting Requirement
D.1, D.2, D.3, D.4, D.5, D.6, D.7, D.8	Opacity	20%/40% and Reasonable Precautions	Visual Surveys	Once per Calendar Week	Semiannual

Conditions

- D.1. Montana-Dakota may not cause or authorize emissions from the Coal Storage Piles to be discharged into the outdoor atmosphere that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes. (ARM 17.8.304(1))
- D.2. Montana-Dakota shall not cause or authorize the production, handling, transportation, or storage of any material, including the Coal Storage Piles, unless reasonable precautions to control emissions of particulate matter are taken. Such emissions of airborne particulate from any stationary source shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes. (ARM 17.8.308(1))

Compliance Demonstration

- D.3. Montana-Dakota shall conduct a weekly visual survey of visible emissions on the Coal Storage Piles. Once per calendar week, during daylight hours, Montana-Dakota shall visually survey the Coal Storage Piles and associated Coal Handling for any visible emissions. If visible emissions are observed during the visual survey, Montana-Dakota must conduct a Method 9 source test. The Method 9 source test must begin within one hour of any observation of visible emissions. If visible emissions meet or exceed 15% opacity based on the Method 9 source test, Montana-Dakota shall immediately take corrective action to contain or minimize the source of emissions. If corrective actions are taken, then Montana-Dakota shall immediately conduct a subsequent visual survey (and subsequent Method 9 source test if visible emissions remain) to monitor compliance. The person conducting the visual survey shall record the results of the survey (including the results of any Method 9 source test performed) and any corrective action taken in a log. Conducting a visual survey does not relieve Montana-Dakota of the liability for a violation determined using Method 9. (ARM 17.8.1213)

Recordkeeping

- D.4. All source test recordkeeping shall be performed in accordance with the test method used and the Montana Source Test Protocol and Procedures Manual. (ARM 17.8.106)
- D.5. Montana-Dakota shall maintain a log to verify that the visual surveys were performed as specified in Section III.D.3. Each log entry must include the date, time, results of survey (and results of subsequent Method 9, if applicable), and observer’s initials. If any corrective action is required, the time, date, observer’s initials, and any preventive or corrective action taken must be recorded in the log. (ARM 17.8.1212)

Reporting

- D.6. All source test reports must be submitted to the Department in accordance with the Montana Source Test Protocol and Procedures Manual. (ARM 17.8.106)
- D.7. The annual compliance certification report required by Section V.B must contain a certification statement for the above applicable requirements. (ARM 17.8.1213)
- D.8. The semiannual reporting shall provide (ARM 17.8.1212):
- A summary of the visual survey log, including Method 9 source test results and any corrective actions taken, as required by Section III.D.5.

E. EU08: Fugitive Coal, Ash, and Lime Handling

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Method	Demonstration Frequency	Reporting Requirement
E.1, E.2, E.3, E.4, E.5, E.6, E.7, E.8	Opacity	20%/40% and Reasonable Precautions	Visual Surveys	Once per Calendar Week	Semiannual

Conditions

- E.1. Montana-Dakota may not cause or authorize emissions from the fugitive coal, ash, and lime handling to be discharged into the outdoor atmosphere that exhibit an opacity of 40% or greater averaged over 6 consecutive minutes. (ARM 17.8.304(1))
- E.2. Montana-Dakota shall not cause or authorize the production, handling, transportation, or storage of any material unless reasonable precautions to control emissions of particulate matter are taken. Such emissions of airborne particulate from any stationary source shall not exhibit an opacity of 20% or greater averaged over 6 consecutive minutes. (ARM 17.8.308(1))

Compliance Demonstration

- E.3. Montana-Dakota shall conduct a weekly visual survey of visible emissions on the Coal, Ash, and Lime Handling. Once per calendar week, during daylight hours, Montana-Dakota shall visually survey the Coal, Ash, and Lime Handling for any visible emissions. If visible emissions are observed during the visual survey, Montana-Dakota must conduct a Method 9 source test. The Method 9 source test must begin within one hour of any observation of visible emissions. If visible emissions meet or exceed 15% opacity based on the Method 9 source test, Montana-Dakota shall immediately take corrective action to contain or minimize the source of emissions. If corrective actions are taken, then Montana-Dakota shall immediately conduct a subsequent visual survey (and subsequent Method 9 source test if visible emissions remain) to monitor compliance. The person conducting the visual survey shall record the results of the survey (including the results of any Method 9 source test performed) and any corrective action taken in a log. Conducting a visual survey does not relieve Montana-Dakota of the liability for a violation determined using Method 9. (ARM 17.8.1213)

Recordkeeping

- E.4. All source test recordkeeping shall be performed in accordance with the test method used and the Montana Source Test Protocol and Procedures Manual. (ARM 17.8.106)
- E.5. Montana-Dakota shall maintain a log to verify that the visual surveys were performed as specified in Section III.E.3. Each log entry must include the date, time, results of survey (and results of subsequent Method 9, if applicable), and observer's initials. If any corrective action is required, the time, date, observer's initials, and any preventive or corrective action taken must be recorded in the log. (ARM 17.8.1212)

Reporting

- E.6. All source test reports must be submitted to the Department in accordance with the Montana Source Test Protocol and Procedures Manual. (ARM 17.8.106)
- E.7. The annual compliance certification report required by Section V.B must contain a certification statement for the above applicable requirements. (ARM 17.8.1213)
- E.8. The semiannual reporting shall provide (ARM 17.8.1212):
- A summary of the visual survey log, including Method 9 source test results and any corrective actions taken, as required by Section III.E.5.

F. EU09: Emergency Units

- 1957 185-horsepower Natural Gas Fired Emergency Generator
- 1984 355-horsepower Diesel Fired Fire Pump Engine

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Demonstration		Reporting Requirement
			Method	Frequency	
F.1, F.2, F.3, F.4, F.5, F.6	40 CFR 63 Subpart ZZZZ	40 CFR 63 Subpart ZZZZ	40 CFR 63 Subpart ZZZZ	40 CFR 63 Subpart ZZZZ	Semiannual and 40 CFR 63 Subpart ZZZZ

Conditions

- F.1. Montana-Dakota shall comply with all applicable standards and limitations contained in 40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines*, for any applicable diesel or natural gas fired engine. (ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ).

Compliance Demonstration

- F.2. Montana-Dakota shall monitor compliance as required in 40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines*, for any applicable diesel or natural gas fired engine. (ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ)

Recordkeeping

F.3. Montana-Dakota shall comply with all applicable recordkeeping requirements contained in 40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines*, for any applicable diesel or natural gas fired engine. (ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ)

Reporting

F.4. Montana-Dakota shall comply with all applicable reporting requirements contained in 40 CFR 63, Subpart ZZZZ, *National Emissions Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines*, for any applicable diesel or natural gas fired engine. (ARM 17.8.342 and 40 CFR 63, Subpart ZZZZ)

F.5. The annual compliance certification report required by Section V.B must contain a certification statement for the above applicable requirements. (ARM 17.8.1213)

F.6. The semiannual reporting shall provide (ARM 17.8.1212):

a. A summary of compliance with 40 CFR 63 Subpart ZZZZ

G. EU10: 2 – 20V34SG Wärtsilä Natural Gas RICE Generator Sets

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Demonstration		Reporting Requirement
			Method	Frequency	
G.1, G.13, G.21, G.28, G.29	Two 20V34SG Wärtsilä natural gas RICE generator sets with nominal gross output of ~9.3 MW	Operate and Maintain	Record keeping	Ongoing	Semiannual
G.2, G.14, G.22, G.28, G.29	Opacity	20%	Burning Pipeline Quality Natural Gas only	Ongoing	Semiannual
G.3, G.15, G.21, G.22, G.28, G.29	Natural Gas Consumption - combined	530.8 MMscf per rolling 12-month period	Record keeping	Ongoing	Semiannual
G.4, G.16, G.23, G.26, G.28, G.29	Wärtsilä natural gas RICE generator sets; SCR and Oxidation Catalyst	Operate and Maintain	Methods 7, 10, and 25A	Every 8760 hours of operation or 3 years	Semiannual

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Demonstration		Reporting Requirement
			Method	Frequency	
G.5, G.16, G.23, G.26, G.28, G.29	NO _x	2.6 lb/hr	Method 7	Every 8760 hours of operation or 3 years	Semiannual
G.6, G.16, G.23, G.26, G.28, G.29	CO	2.4 lb/hr	Method 10	Every 8760 hours of operation or 3 years	Semiannual
G.7, G.16, G.23, G.26, G.28, G.29	VOC	7.6 lb/hr	Method 25A	Every 8760 hours of operation or 3 years	Semiannual
G.8, G.14, G.22, G.28, G.29	SO ₂	0.37 lb/hr	Burning Pipeline Quality Natural Gas only	Ongoing	Semiannual
G.9, G.14, G.22, G.28, G.29	Particulate Matter (PM/PM ₁₀ /PM _{2.5})	2.27 lb/hr	Burning Pipeline Quality Natural Gas only	Ongoing	Semiannual
G.10, G.18, G.21, G.28, G.29	Total Startup Operation (cold, warm, hot)	500 hours per rolling 12-month period	Record keeping	Ongoing	Semiannual
G.11, G.19, G.24, G.27, G.28	40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ	40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ	40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ	40 CFR 60 Subpart JJJJ and 40 CFR 63 Subpart ZZZZ	40 CFR 60 Subpart JJJJ and Semiannual and 40 CFR 63 Subpart ZZZZ
G.12, G.20, G.25, G.28, G.29	NO _x CAM Plan	ARM 17.8.1506	Provisions from CAM Plan. Appendix L	Ongoing	Semiannual

Conditions

- G.1. Montana-Dakota shall not operate more than two (2) 20V34SG Wärtsilä natural gas RICE generator sets at any given time at the Lewis & Clark Station. Each of the engines shall be a lean burn four-stroke design, with a nominal gross output of approximately 9.3 megawatts (MW). (ARM 17.8.749)

- G.2. Montana-Dakota shall not cause or authorize emissions to be discharged into the outdoor atmosphere from any sources installed after November 23, 1968, that exhibit an opacity of 20% or greater averaged over 6 consecutive minutes. (ARM 17.8.304)
- G.3. Montana-Dakota shall limit gas consumption during normal operation of the two (2) Wärtsilä natural gas RICE generator sets to a maximum of 530.8 MMscf per rolling 12-month period. (ARM 17.8.752)
- G.4. Emissions from the two (2) Wärtsilä natural gas RICE generator sets shall be controlled with a selective catalytic reduction (SCR) system using urea as the reaction agent, and an oxidation catalyst capable of maintaining the required emission limits in Sections III.G.5, III.G.6, and III.G.7 during normal operation. (ARM 17.8.752)
- G.5. Montana-Dakota shall limit nitrogen oxides (NO_x) emissions from each of the two (2) Wärtsilä natural gas RICE generator sets to an emissions rate equal to or less than 2.6 lb/hr during normal operations. (ARM 17.8.752)
- G.6. Montana-Dakota shall limit carbon monoxide (CO) emissions from each of the two (2) Wärtsilä natural gas RICE generator sets to an emissions rate equal to or less than 2.4 lb/hr during normal operations. (ARM 17.8.752)
- G.7. Montana-Dakota shall limit volatile organic compounds (VOC) emissions from each of the two (2) Wärtsilä natural gas RICE generator sets to an emissions rate equal to or less than 7.6 lb/hr during normal operations. (ARM 17.8.752)
- G.8. Montana-Dakota shall limit sulfur dioxide (SO₂) emissions from each of the two (2) Wärtsilä natural gas RICE generator sets to an emissions rate equal to or less than 0.37 lb/hr during normal operations. (ARM 17.8.752)
- G.9. Montana-Dakota shall limit particulate matter (PM/PM₁₀/PM_{2.5}) emissions from each of the two (2) Wärtsilä natural gas RICE generator sets to an emissions rate equal to or less than 2.27 lb/hr during normal operations. (ARM 17.8.752)
- G.10. Montana-Dakota shall limit the total start-up operation¹ (cold, warm, and hot) of the two (2) Wärtsilä natural gas RICE generator sets to a maximum of 500 hours per rolling 12-month period. (ARM 17.8.752)
- G.11. Montana-Dakota shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart JJJJ – *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*, and 40 CFR 63, Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, for any applicable natural gas fueled engine. (ARM 17.8.340, ARM 17.8.342, 40 CFR 60, Subpart JJJJ, and 40 CFR 63, Subpart ZZZZ)
- G.12. Montana-Dakota shall provide a reasonable assurance of compliance with emission limitations or standards for the anticipated range of operations of each of the Wärtsilä natural gas RICE generator sets for NO_x. (ARM 17.8.1504)

¹ See Appendix K for definition of the term startup operation and clarification of when the limitation and its associated recordkeeping requirements apply.

Compliance Demonstration

- G.13. Montana-Dakota shall maintain maintenance records for each of the two (2) Wärtsilä natural gas RICE generator sets. (ARM 17.8.1213)
- G.14. Montana-Dakota shall burn only pipeline quality natural gas in each of the two (2) Wärtsilä natural gas RICE generator sets to monitor compliance with the opacity, SO₂, and PM/PM₁₀/PM_{2.5} emission limitations in Section III.G.2, III.G.8, and III.G.9. (ARM 17.8.1213)
- G.15. Montana-Dakota shall document, by month, the gas consumption during normal operation of the two (2) Wärtsilä natural gas RICE generator sets collected in the data acquisition system (DAS). By the 25th day of each month, Montana-Dakota shall total the hours of operation for the natural gas RICE for the previous month. The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section III.G.3. The information for each of the previous months shall be submitted along with the annual emission inventory. (ARM 17.8.749)
- G.16. After the initial source test, Montana-Dakota shall test each Wärtsilä natural gas RICE generator set for NO_x, CO, and VOC concurrently, every 8,760 hours of operation or 3 years, whichever comes first or according to another testing/monitoring schedule as may be approved by the Department. Methods used for demonstration shall include Method 7, Method 10 and Method 25A (ARM 17.8.105, ARM 17.8.340, ARM 17.8.749, and ARM 17.8.752)
- G.17. All compliance source tests shall conform to the requirements of the Montana Source Test Protocol and Procedures Manual. (ARM 17.8.106)
- G.18. Montana-Dakota shall document, by month, the hours of start-up operations (cold, warm, and hot) of the two (2) Wärtsilä natural gas RICE generator sets collected in the DAS. By the 25th day of each month, Montana-Dakota shall total the hours of start-up operation for the natural gas RICE for the previous month.

The monthly information will be used to demonstrate compliance with the rolling 12-month limitation in Section III.G.10. The information for each of the previous months shall be submitted along with the emission inventory. (ARM 17.8.749)

- G.19. Montana-Dakota shall monitor compliance as required in 40 CFR 60, Subpart JJJJ – *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*, and 40 CFR 63, Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, for any applicable natural gas fueled engine. (ARM 17.8.340, ARM 17.8.342, 40 CFR 60, Subpart JJJJ, and 40 CFR 63, Subpart ZZZZ)
- G.20. Montana-Dakota shall monitor compliance by following the Compliance Assurance Monitoring (CAM) plan (Appendix L). (ARM 17.8.1213 and ARM 17.8.1503)

Recordkeeping

- G.21. Montana-Dakota shall maintain records as required under sections III.G.13, III.G.15, and III.G.18. (ARM 17.8.1212)

- G.22. Montana-Dakota shall maintain a log that indicates any circumstances in which a fuel other than pipeline quality natural gas was burned in the two (2) Wärtsilä natural gas RICE generator sets. The log should include date, time, duration of fuel usage, reason for non-pipeline quality natural gas usage (if available from the supplier), and the operator's initials. (ARM 17.8.1212)
- G.23. All source testing recordkeeping shall be performed in accordance with the Source Test Protocol and Procedures Manual, and shall be maintained on site. Method 9 source test reports for opacity need not be submitted unless requested by the Department. (ARM 17.8.106)
- G.24. Montana-Dakota shall comply with all applicable recordkeeping requirements contained in 40 CFR 60, Subpart JJJJ – *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*, and 40 CFR 63, Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, for any applicable natural gas fueled engine. (ARM 17.8.340, ARM 17.8.342, 40 CFR 60, Subpart JJJJ, and 40 CFR 63, Subpart ZZZZ)
- G.25. Records shall be prepared and data kept in accordance with 40 CFR Part 64 and the CAM Plan for NO_x (Appendix L of this permit). (ARM 17.8.1212 and 40 CFR 64)

Reporting

- G.26. Any compliance source test shall be submitted in accordance with the Montana Source Test Protocol and Procedures Manual. (ARM 17.8.106)
- G.27. Montana- Dakota shall comply with all reporting requirements contained in 40 CFR 60, Subpart JJJJ – *Standards of Performance for Stationary Spark Ignition Internal Combustion Engines*, and 40 CFR 63, Subpart ZZZZ – *National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*, for any applicable natural gas fueled engine. (ARM 17.8.340, ARM 17.8.342, 40 CFR 60, Subpart JJJJ, and 40 CFR 63, Subpart ZZZZ)
- G.28. The annual compliance certification report required by Section V.B must contain a certification statement for the above applicable requirements. (ARM 17.8.1213)
- G.29. The semiannual reporting shall provide (ARM 17.8.1212);
- a. A summary of results of any source test that was performed during the reporting period;
 - b. A summary of maintenance performed on each of the two (2) Wärtsilä natural gas RICE generator sets during the reporting period;
 - c. A summary of the log for any instance of fuel use other than pipeline quality natural gas in the two (2) Wärtsilä natural gas RICE generator sets during the reporting period;
 - d. A summary of the hours of startup operations (cold, warm, hot) of the two (2) Wärtsilä natural gas RICE generator sets during the reporting period;

- e. A summary of the natural gas consumption during normal operation of the two (2) Wärtsilä natural gas RICE generator sets during the reporting period; and
- f. A summary of compliance with 40 CFR Part 64 and Appendix L of this permit, including reference to dates of submittal of reports.

H. EU11: Natural Gas Line Heating and HVAC Units

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Demonstration		Reporting Requirement
			Method	Frequency	
H.1, H.2, H.3, H.4, H.5	Maximum Combined Heat Input	Not to Exceed 4.2 MMBtu/hr	Inspection and Verification	Annual	Semiannual

Conditions

H.1. Montana-Dakota shall operate a natural gas line heating unit and natural gas HVAC units with a maximum combined heat input not to exceed 4.2 MMBtu/hr. (ARM 17.8.749)

Compliance Demonstration

H.2. Montana-Dakota shall annually inspect and verify that no additional natural gas line heating or HVAC units have been added and that the total maximum combined heat input remains at or below 4.2 MMBtu/hr. (ARM 17.8.1213)

Recordkeeping

H.3. Montana-Dakota shall log the annual inspection/verifications including date, verification status, and inspector’s initials. (ARM 17.8.1212)

Reporting

H.4. The annual compliance certification report required by Section V.B must contain a certification statement for the above applicable requirements. (AR 17.8.1213)

H.5. The semiannual reporting shall provide any instance in which the maximum combined heat input for the natural gas line heating and HVAC units exceeds 4.2 MMBtu/hr for that reporting period. (ARM 17.8.1212)

I. Emergency Diesel-Fired Generator and Diesel Storage Tank

Condition(s)	Pollutant/Parameter	Permit Limit	Compliance Demonstration		Reporting Requirement
			Method	Frequency	
F.1, F.2, F.3, F.4, F.5, F.6	40 CFR 63 Subpart ZZZZ	40 CFR 63 Subpart ZZZZ	40 CFR 63 Subpart ZZZZ	40 CFR 63 Subpart ZZZZ	Semiannual and 40 CFR 63 Subpart ZZZZ

Conditions

- I.1. Montana-Dakota shall not operate more than one 3,285 horsepower diesel-fired engine with an associated 1,250-gallon diesel storage tank (ARM 17.8.749).

Compliance Demonstration

- I.2. Montana-Dakota shall comply with all applicable standards and limitations, and the reporting, recordkeeping, and notification requirements contained in 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines and 40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines, for any applicable diesel fueled engine (ARM 17.8.340, 40 CFR 60, Subpart IIII, ARM 17.8.342, and 40 CFR 63, Subpart ZZZZ).

Recordkeeping

- I.3. Montana-Dakota shall comply with all applicable recordkeeping requirements contained in 40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines, for any applicable diesel or natural gas fired engine and for 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (ARM 17.8.340, 40 CFR 60, Subpart IIII, ARM 17.8.342, and 40 CFR 63, Subpart ZZZZ).

Reporting

- I.4. Montana-Dakota shall comply with all applicable reporting requirements contained in 40 CFR 63, Subpart ZZZZ, National Emissions Standards for Hazardous Air Pollutant for Stationary Reciprocating Internal Combustion Engines, for any applicable diesel or natural gas fired engine and 40 CFR 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (ARM 17.8.340, 40 CFR 60, Subpart IIII, ARM 17.8.342, and 40 CFR 63, Subpart ZZZZ).
- I.5. The annual compliance certification report required by Section V.B must contain a certification statement for the above applicable requirements. (AR 17.8.1213)
- I.6. The semiannual reporting shall provide (ARM 17.8.1212):
 - a. A summary of compliance with 40 CFR 63 Subpart ZZZZ and 40 CFR 60, Subpart IIII;
 - b. A summary of results of any source test that was performed during the reporting period.

SECTION IV. NON-APPLICABLE REQUIREMENTS

Air Quality Administrative Rules of Montana (ARM) and Federal Regulations identified as not applicable to the facility or to a specific emissions unit at the time of the permit issuance are listed below (ARM 17.8.1214). The following list does not preclude the need to comply with any new requirements that may become applicable during the permit term.

A. Facility-Wide

The following table contains non-applicable requirements which are administrated by the Air Quality Bureau of the Department of Environmental Quality.

Rule Citation		Reason
State	Federal	
ARM 17.8.321, ARM 17.8.610		These rules are not applicable because the facility is not listed in the source category cited in the rules.
ARM 17.8.320		These rules are not applicable because the facility does not have the specific emissions unit cited in the rules.
	40 CFR 60, Subparts C, Ca, Cb 40 CFR 60, Subparts D, Da, Db, Dc 40 CFR 60, Subparts E-J 40 CFR 60, Subparts K, Ka, Kb 40 CFR 60, Subparts L-Z 40 CFR 60, Subparts AA-EE 40 CFR 60, Subparts GG-HH 40 CFR 60, Subparts KK-NN 40 CFR 60, Subparts PP-XX 40 CFR 60, Subparts AAA-BBB 40 CFR 60, Subpart DDD 40 CFR 60, Subparts FFF-LLL 40 CFR 60, Subparts NNN-VVV 40 CFR 60, Subpart WWW 40 CFR 60, Subparts AAAA-IIII 40 CFR 60, Subparts KKKK-OOOO 40 CFR 61, Subparts B-F 40 CFR 61, Subparts H-L 40 CFR 61, Subparts N-R 40 CFR 61, Subpart T 40 CFR 61, Subparts V-W 40 CFR 61, Subpart Y	These requirements are not applicable because the facility is not an affected source as defined in these regulations.

Rule Citation		Reason
State	Federal	
	40 CFR 61, Subpart BB 40 CFR 61, Subpart FF	
	40 CFR 63, Subparts F-I 40 CFR 63, Subpart J 40 CFR 63, Subparts L-Q 40 CFR 63, Subparts Q-U 40 CFR 63, Subparts W-Y 40 CFR 63, Subparts AA-EE 40 CFR 63, Subparts GG-MM 40 CFR 63, Subparts OO-YY 40 CFR 63, Subparts CCC-EEE 40 CFR 63, Subparts GGG-JJJ 40 CFR 63, Subparts LLL-RRR 40 CFR 63, Subparts TTT-VVV 40 CFR 63, Subpart XXX 40 CFR 63, Subpart AAAA 40 CFR 63, Subparts CCCC-KKKK 40 CFR 63, Subparts MMMM-NNNNN – except Subpart ZZZZ 40 CFR 63, Subparts PPPPP-TTTTT 40 CFR 63, Subpart WWWW 40 CFR 63, Subparts YYYYY-ZZZZZ 40 CFR 63, Subpart BBBB 40 CFR 63, Subparts DDDDD-HHHHH 40 CFR 63, Subparts LLLLL-TTTTT 40 CFR 63, Subparts WWWW-ZZZZZ 40 CFR 63, Subparts AAAAAA-HHHHHH 40 CFR 82, Subparts A-E 40 CFR 82, Subparts G-H	These requirements are not applicable because the facility is not an affected source as defined in these regulations.

B. Emission Units

The Operating Permit application identified applicable and non-applicable requirements. After review of the application, the Department listed all non-applicable requirements in Section IV.A. These requirements relate to each specific unit, as well as facility wide.

SECTION V. GENERAL PERMIT CONDITIONS

A. Compliance Requirements

ARM 17.8, Subchapter 12, Operating Permit Program §1210(2)(a)-(c)&(e), §1206(6)(c)&(b)

1. The permittee must comply with all conditions of the permit. Any noncompliance with the terms or conditions of the permit constitutes a violation of the Montana Clean Air Act, and may result in enforcement action, permit modification, revocation and reissuance, or termination, or denial of a permit renewal application under ARM Title 17, Chapter 8, Subchapter 12.
2. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
3. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. If appropriate, this factor may be considered as a mitigating factor in assessing a penalty for noncompliance with an applicable requirement if the source demonstrates that both the health, safety or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations, and that such health, safety or environmental impacts were unforeseeable and could not have otherwise been avoided.
4. The permittee shall furnish to the Department, within a reasonable time set by the Department (not to be less than 15 days), any information that the Department may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit, or to determine compliance with the permit. Upon request, the permittee shall also furnish to the Department copies of those records that are required to be kept pursuant to the terms of the permit. This subsection does not impair or otherwise limit the right of the permittee to assert the confidentiality of the information requested by the Department, as provided in 75-2-105, MCA.
5. Any schedule of compliance for applicable requirements with which the source is not in compliance with at the time of permit issuance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it was based.
6. For applicable requirements that will become effective during the permit term, the source shall meet such requirements on a timely basis unless a more detailed plan or schedule is required by the applicable requirement or the Department.

B. Certification Requirements

ARM 17.8, Subchapter 12, Operating Permit Program §1207 and §1213(7)(a)&(c)-(d)

1. Any application form, report, or compliance certification submitted pursuant to ARM Title 17, Chapter 8, Subchapter 12, shall contain certification by a responsible official of truth, accuracy and completeness. This certification and any other certification required under ARM Title 17, Chapter 8, Subchapter 12, shall state that, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate and complete.
2. Compliance certifications shall be submitted by February 15 of each year, or more frequently if otherwise specified in an applicable requirement or elsewhere in the permit. Each certification must include the required information for the previous calendar year (i.e., January 1 – December 31).
3. Compliance certifications shall include the following:
 - a. The identification of each term or condition of the permit that is the basis of the certification;
 - b. The identification of the method(s) or other means used by the owner or operator for determining the status of compliance with each term and condition during the certification period, consistent with ARM 17.8.1212;
 - c. The status of compliance with each term and condition for the period covered by the certification, *including whether compliance during the period was continuous or intermittent* (based on the method or means identified in ARM 17.8.1213(7)(c)(ii), as described above); and
 - d. Such other facts as the Department may require to determine the compliance status of the source.
4. All compliance certifications must be submitted to the Environmental Protection Agency, as well as to the Department, at the addresses listed in the Notification Addresses Appendix of this permit.

C. Permit Shield

ARM 17.8, Subchapter 12, Operating Permit Program §1214(1)-(4)

1. The applicable requirements and non-federally enforceable requirements are included and specifically identified in this permit and the permit includes a precise summary of the requirements not applicable to the source. Compliance with the conditions of the permit shall be deemed compliance with any applicable requirements and any non-federally enforceable requirements as of the date of permit issuance.
2. The permit shield described in 1 above shall remain in effect during the appeal of any permit action (renewal, revision, reopening, or revocation and reissuance) to the Board of Environmental Review (Board), until such time as the Board renders its final decision.

3. Nothing in this permit alters or affects the following:
 - a. The provisions of Sec. 7603 of the FCAA, including the authority of the administrator under that section;
 - b. The liability of an owner or operator of a source for any violation of applicable requirements prior to or at the time of permit issuance;
 - c. The applicable requirements of the Acid Rain Program, consistent with Sec. 7651g(a) of the FCAA;
 - d. The ability of the administrator to obtain information from a source pursuant to Sec. 7414 of the FCAA;
 - e. The ability of the Department to obtain information from a source pursuant to the Montana Clean Air Act, Title 75, Chapter 2, MCA;
 - f. The emergency powers of the Department under the Montana Clean Air Act, Title 75, Chapter 2, MCA; and
 - g. The ability of the Department to establish or revise requirements for the use of Reasonably Available Control Technology (RACT) as defined in ARM Title 17, Chapter 8. However, if the inclusion of a RACT into the permit pursuant to ARM Title 17, Chapter 8, Subchapter 12, is appealed to the Board, the permit shield, as it applies to the source's existing permit, shall remain in effect until such time as the Board has rendered its final decision.
4. Nothing in this permit alters or affects the ability of the Department to take enforcement action for a violation of an applicable requirement or permit term demonstrated pursuant to ARM 17.8.106, Source Testing Protocol.
5. Pursuant to ARM 17.8.132, for the purpose of submitting a compliance certification, nothing in these rules shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance. However, when compliance or noncompliance is demonstrated by a test or procedure provided by permit or other applicable requirements, the source shall then be presumed to be in compliance or noncompliance unless that presumption is overcome by other relevant credible evidence.
6. The permit shield will not extend to minor permit modifications or changes not requiring a permit revision (see Sections I & J).
7. The permit shield will extend to significant permit modifications and transfer or assignment of ownership (see Sections K & O).

D. Monitoring, Recordkeeping, and Reporting Requirements

ARM 17.8, Subchapter 12, Operating Permit Program §1212(2)&(3)

1. Unless otherwise provided in this permit, the permittee shall maintain compliance monitoring records that include the following information:

- a. The date, place as defined in the permit, and time of sampling or measurement;
 - b. The date(s) analyses were performed;
 - c. The company or entity that performed the analyses;
 - d. The analytical techniques or methods used;
 - e. The results of such analyses; and
 - f. The operating conditions at the time of sampling or measurement.
2. The permittee shall retain records of all required monitoring data and support information for a period of at least 5 years from the date of the monitoring sample, measurement, report, or application. Support information includes all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by the permit. All monitoring data, support information, and required reports and summaries may be maintained in computerized form at the plant site if the information is made available to Department personnel upon request, which may be for either hard copies or computerized format. Strip-charts must be maintained in their original form at the plant site and shall be made available to Department personnel upon request.
 3. The permittee shall submit to the Department, at the addresses located in the Notification Addresses Appendix of this permit, reports of any required monitoring by February 15 and August 15 of each year, or more frequently if otherwise specified in an applicable requirement or elsewhere in the permit. The monitoring report submitted on February 15 of each year must include the required monitoring information for the period of July 1 through December 31 of the previous year. The monitoring report submitted on August 15 of each year must include the required monitoring information for the period of January 1 through June 30 of the current year. All instances of deviations from the permit requirements must be clearly identified in such reports. All required reports must be certified by a responsible official, consistent with ARM 17.8.1207.

E. Prompt Deviation Reporting

ARM 17.8, Subchapter 12, Operating Permit Program §1212(3)(b)

The permittee shall promptly report deviations from permit requirements, including those attributable to upset conditions as defined in the permit, the probable cause of such deviations, and any corrective actions or preventive measures taken. To be considered prompt, deviations shall be reported to the Department within the following timeframes (unless otherwise specified in an applicable requirement):

1. For deviations which may result in emissions potentially in violation of permit limitations:
 - a. An initial phone notification (or faxed or electronic notification) describing the incident within 24 hours (or the next business day) of discovery; and,

- b. A follow-up written, faxed, or electronic report within 30 days of discovery of the deviation that describes the probable cause of the reported deviation and any corrective actions or preventative measures taken.
2. For deviations attributable to malfunctions, deviations shall be reported to the Department in accordance with the malfunction reporting requirements under ARM 17.8.110; and
3. For all other deviations, deviations shall be reported to the Department via a written, faxed, or electronic report within 90 days of discovery (as determined through routine internal review by the permittee).

Prompt deviation reports do not need to be resubmitted with regular semiannual (or other routine) reports, but may be referenced by the date of submittal.

F. Emergency Provisions

ARM 17.8, Subchapter 12, Operating Permit Program §1201(13) and §1214(5), (6)&(8)

1. An “emergency” means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation and causes the source to exceed a technology-based emission limitation under this permit due to the unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of reasonable preventive maintenance, careless or improper operation, or operator error.
2. An emergency constitutes an affirmative defense to an action brought for noncompliance with a technology-based emission limitation if the permittee demonstrates through properly signed, contemporaneous logs, or other relevant evidence, that:
 - a. An emergency occurred and the permittee can identify the cause(s) of the emergency;
 - b. The permitted facility was at the time being properly operated;
 - c. During the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in the permit; and
 - d. The permittee submitted notice of the emergency to the Department within 2 working days of the time when emission limitations were exceeded due to the emergency. This notice fulfills the requirements of ARM 17.8.1212(3)(b). This notice must contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
3. These emergency provisions are in addition to any emergency, malfunction or upset provision contained in any applicable requirement.

G. Inspection and Entry

ARM 17.8, Subchapter 12, Operating Permit Program §1213(3)&(4)

1. Upon presentation of credentials and other requirements as may be required by law, the permittee shall allow the Department, the administrator, or an authorized representative (including an authorized contractor acting as a representative of the Department or the administrator) to perform the following:
 - a. Enter the premises where a source required to obtain a permit is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
 - b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
 - c. Inspect at reasonable times any facilities, emission units, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
 - d. As authorized by the Montana Clean Air Act and rules promulgated thereunder, sample or monitor, at reasonable times, any substances or parameters at any location for the purpose of assuring compliance with the permit or applicable requirements.
2. The permittee shall inform the inspector of all workplace safety rules or requirements at the time of inspection. This section shall not limit in any manner the Department's statutory right of entry and inspection as provided for in 75-2-403, MCA.

H. Fee Payment

ARM 17.8, Subchapter 12, Operating Permit Program §1210(2)(f) and ARM 17.8, Subchapter 5, Air Quality Permit Application, Operation, and Open Burning Fees §505(3)-(5) (STATE ONLY)

1. The permittee must pay application and operating fees, pursuant to ARM Title 17, Chapter 8, Subchapter 5.
2. Annually, the Department shall provide the permittee with written notice of the amount of the fee and the basis for the fee assessment. The air quality operation fee is due 30 days after receipt of the notice, unless the fee assessment is appealed pursuant to ARM 17.8.511. If any portion of the fee is not appealed, that portion of the fee that is not appealed is due 30 days after receipt of the notice. Any remaining fee, which may be due after the completion of an appeal, is due immediately upon issuance of the Board's decision or upon completion of any judicial review of the Board's decision.
3. If the permittee fails to pay the required fee (or any required portion of an appealed fee) within 90 days of the due date of the fee, the Department may impose an additional assessment of 15% of the fee (or any required portion of an appealed fee) or \$100, whichever is greater, plus interest on the fee (or any required portion of an appealed fee), computed at the interest rate established under 15-31-510(3), MCA.

I. Minor Permit Modifications

ARM 17.8, Subchapter 12, Operating Permit Program §1226(3)&(11)

1. An application for a minor permit modification need only address in detail those portions of the permit application that require revision, updating, supplementation, or deletion, and may reference any required information that has been previously submitted.
2. The permit shield under ARM 17.8.1214 will not extend to any minor modifications processed pursuant to ARM 17.8.1226.

J. Changes Not Requiring Permit Revision

ARM 17.8, Subchapter 12, Operating Permit Program §1224(1)-(3), (5)&(6)

1. The permittee is authorized to make changes within the facility as described below, provided the following conditions are met:
 - a. The proposed changes do not require the permittee to obtain a Montana Air Quality Permit under ARM Title 17, Chapter 8, Subchapter 7;
 - b. The proposed changes are not modifications under Title I of the FCAA, or as defined in ARM Title 17, Chapter 8, Subchapters 8, 9, or 10;
 - c. The emissions resulting from the proposed changes do not exceed the emissions allowable under this permit, whether expressed as a rate of emissions or in total emissions;
 - d. The proposed changes do not alter permit terms that are necessary to enforce applicable emission limitations on emission units covered by the permit; and
 - e. The facility provides the administrator and the Department with written notification at least 7 days prior to making the proposed changes.
2. The permittee and the Department shall attach each notice provided pursuant to 1.e above to their respective copies of this permit.
3. Pursuant to the conditions above, the permittee is authorized to make Section 502(b)(10) changes, as defined in ARM 17.8.1201(30), without a permit revision. For each such change, the written notification required under 1.e above shall include a description of the change within the source, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change.
4. The permittee may make a change not specifically addressed or prohibited by the permit terms and conditions without requiring a permit revision, provided the following conditions are met:
 - a. Each proposed change does not weaken the enforceability of any existing permit conditions;

- b. The Department has not objected to such change;
 - c. Each proposed change meets all applicable requirements and does not violate any existing permit term or condition; and
 - d. The permittee provides contemporaneous written notice to the Department and the administrator of each change that is above the level for insignificant emission units as defined in ARM 17.8.1201(22) and 17.8.1206(3), and the written notice describes each such change, including the date of the change, any change in emissions, pollutants emitted, and any applicable requirement that would apply as a result of the change.
5. The permit shield authorized by ARM 17.8.1214 shall not apply to changes made pursuant to ARM 17.8.1224(3) and (5), but is applicable to terms and conditions that allow for increases and decreases in emissions pursuant to ARM 17.8.1224(4).

K. Significant Permit Modifications

ARM 17.8, Subchapter 12, Operating Permit Program §1227(1), (3)&(4)

1. The modification procedures set forth in 2 below must be used for any application requesting a significant modification of this permit. Significant modifications include the following:
 - a. Any permit modification that does not qualify as either a minor modification or as an administrative permit amendment;
 - b. Every significant change in existing permit monitoring terms or conditions;
 - c. Every relaxation of permit reporting or recordkeeping terms or conditions that limit the Department's ability to determine compliance with any applicable rule, consistent with the requirements of the rule; or
 - d. Any other change determined by the Department to be significant.
2. Significant modifications shall meet all requirements of ARM Title 17, Chapter 8, including those for applications, public participation, and review by affected states and the administrator, as they apply to permit issuance and renewal, except that an application for a significant permit modification need only address in detail those portions of the permit application that require revision, updating, supplementation or deletion.
3. The permit shield provided for in ARM 17.8.1214 shall extend to significant modifications.

L. Reopening for Cause

ARM 17.8, Subchapter 12, Operating Permit Program §1228(1)&(2)

This permit may be reopened and revised under the following circumstances:

1. Additional applicable requirements under the FCAA become applicable to the facility when the permit has a remaining term of 3 or more years. Reopening and revision of the permit shall be completed not later than 18 months after promulgation of the applicable requirement. No reopening is required under ARM 17.8.1228(1)(a) if the effective date of the applicable requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms or conditions have been extended pursuant to ARM 17.8.1220(12) or 17.8.1221(2);
2. Additional requirements (including excess emission requirements) become applicable to an affected source under the Acid Rain Program. Upon approval by the administrator, excess emission offset plans shall be deemed incorporated into the permit;
3. The Department or the administrator determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emission standards or other terms or conditions of the permit; or
4. The administrator or the Department determines that the permit must be revised or revoked and reissued to ensure compliance with the applicable requirements.

M. Permit Expiration and Renewal

ARM 17.8, Subchapter 12, Operating Permit Program §1210(2)(g), §1220(11)&(12), and §1205(2)(d)

1. This permit is issued for a fixed term of 5 years.
2. Renewal of this permit is subject to the same procedural requirements that apply to permit issuance, including those for application, content, public participation, and affected state and administrator review.
3. Expiration of this permit terminates the permittee's right to operate unless a timely and administratively complete renewal application has been submitted consistent with ARM 17.8.1221 and 17.8.1205(2)(d). If a timely and administratively complete application has been submitted, all terms and conditions of the permit, including the application shield, remain in effect after the permit expires until the permit renewal has been issued or denied.
4. For renewal, the permittee shall submit a complete air quality operating permit application to the Department not later than 6 months prior to the expiration of this permit, unless otherwise specified. If necessary to ensure that the terms of the existing permit will not lapse before renewal, the Department may specify, in writing to the permittee, a longer time period for submission of the renewal application. Such written notification must be provided at least 1 year before the renewal application due date established in the existing permit.

N. Severability Clause

ARM 17.8, Subchapter 12, Operating Permit Program §1210(2)(i)&(l)

1. The administrative appeal or subsequent judicial review of the issuance by the Department of an initial permit under this subchapter shall not impair in any manner the underlying applicability of all applicable requirements, and such requirements continue to apply as if a final permit decision had not been reached by the Department.
2. If any provision of a permit is found to be invalid, all valid parts that are severable from the invalid part remain in effect. If a provision of a permit is invalid in one or more of its applications, the provision remains in effect in all valid applications that are severable from the invalid applications.

O. Transfer or Assignment of Ownership

ARM 17.8, Subchapter 12, Operating Permit Program §1225(2)&(4)

1. If an administrative permit amendment involves a change in ownership or operational control, the applicant must include in its request to the Department a written agreement containing a specific date for the transfer of permit responsibility, coverage and liability between the current and new permittee.
2. The permit shield provided for in ARM17.8.1214 shall not extend to administrative permit amendments.

P. Emissions Trading, Marketable Permits, Economic Incentives

ARM 17.8, Subchapter 12, Operating Permit Program §1226(2)

Notwithstanding ARM 17.8.1226(1) and (7), minor air quality operating permit modification procedures may be used for permit modifications involving the use of economic incentives, marketable permits, emissions trading, and other similar approaches, to the extent that such minor permit modification procedures are explicitly provided for in the Montana State Implementation Plan or in applicable requirements promulgated by the administrator.

Q. No Property Rights Conveyed

ARM 17.8, Subchapter 12, Operating Permit Program §1210(2)(d)

This permit does not convey any property rights of any sort, or any exclusive privilege.

R. Testing Requirements

ARM 17.8, Subchapter 1, General Provisions §105

The permittee shall comply with ARM 17.8.105.

S. Source Testing Protocol

ARM 17.8, Subchapter 1, General Provisions §106

The permittee shall comply with ARM 17.8.106.

T. Malfunctions

ARM 17.8, Subchapter 1, General Provisions §110

The permittee shall comply with ARM 17.8.110.

U. Circumvention

ARM 17.8, Subchapter 1, General Provisions §111

The permittee shall comply with ARM 17.8.111.

V. Motor Vehicles

ARM 17.8, Subchapter 3, Emission Standards §325

The permittee shall comply with ARM 17.8.325.

W. Annual Emissions Inventory

ARM 17.8, Subchapter 5, Air Quality Permit Application, Operation and Open Burning Fees §505 (STATE ONLY)

The permittee shall supply the Department with annual production and other information for all emission units necessary to calculate actual or estimated actual amount of air pollutants emitted during each calendar year. Information shall be gathered on a calendar-year basis and submitted to the Department by the date required in the emission inventory request, unless otherwise specified in this permit. Information shall be in the units required by the Department.

X. Open Burning

ARM 17.8, Subchapter 6, Open Burning §604, 605 and 606

The permittee shall comply with ARM 17.8.604, 605 and 606.

Y. Montana Air Quality Permits

ARM 17.8, Subchapter 7, Permit, Construction and Operation of Air Contaminant Sources §745 and 764

1. Except as specified, no person shall construct, install, modify or use any air contaminant source or stack associated with any source without first obtaining a permit from the Department or Board. A permit is not required for those sources or stacks as specified by ARM 17.8.744(1)(a)-(k).
2. The permittee shall comply with ARM 17.8.743, 744, 745, 748, and 764.
3. ARM 17.8.745(1) specifies de minimis changes as construction or changed conditions of operation at a facility holding a Montana Air Quality Permit (MAQP) issued under Chapter 8 that does not increase the facility's potential to emit by more than 5 tons per year of any pollutant, except:
 - a. Any construction or changed condition that would violate any condition in the facility's existing MAQP or any applicable rule contained in Chapter 8 is prohibited, except as provided in ARM 17.8.745(2);

- b. Any construction or changed conditions of operation that would qualify as a major modification under Subchapters 8, 9 or 10 of Chapter 8;
 - c. Any construction or changed condition of operation that would affect the plume rise or dispersion characteristic of emissions that would cause or contribute to a violation of an ambient air quality standard or ambient air increment as defined in ARM 17.8.804;
 - d. Any construction or improvement project with a potential to emit more than 5 tons per year may not be artificially split into smaller projects to avoid Montana Air Quality Permitting; or
 - e. Emission reductions obtained through offsetting within a facility are not included when determining the potential emission increase from construction or changed conditions of operation, unless such reductions are made federally enforceable.
4. Any facility making a de minimis change pursuant to ARM 17.8.745(1) shall notify the Department if the change would include a change in control equipment, stack height, stack diameter, stack gas temperature, source location or fuel specifications, or would result in an increase in source capacity above its permitted operation or the addition of a new emission unit. The notice must be submitted, in writing, 10 days prior to start up or use of the proposed de minimis change, or as soon as reasonably practicable in the event of an unanticipated circumstance causing the de minimis change, and must include the information requested in ARM 17.8.745(1).

Z. National Emission Standard for Asbestos
40 CFR, Part 61, Subpart M

The permittee shall not conduct any asbestos abatement activities except in accordance with 40 CFR 61, Subpart M (National Emission Standard for Hazardous Air Pollutants for Asbestos).

AA. Asbestos
ARM 17.74, Subchapter 3, General Provisions and Subchapter 4, Fees

The permittee shall comply with ARM 17.74.301, *et seq.*, and ARM 17.74.401, *et seq.* (State only)

BB. Stratospheric Ozone Protection – Servicing of Motor Vehicle Air Conditioners
40 CFR, Part 82, Subpart B

If the permittee performs a service on motor vehicles and this service involves ozone-depleting substance/refrigerant in the motor vehicle air conditioner (MVAC), the permittee is subject to all the applicable requirements as specified in 40 CFR 82, Subpart B.

CC. Stratospheric Ozone Protection – Recycling and Emission Reductions
40 CFR, Part 82, Subpart F

The permittee shall comply with the standards for recycling and emission reductions in 40 CFR 82, Subpart F, except as provided for MVACs in Subpart B:

1. Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to §82.156;
2. Equipment used during the maintenance, service, repair or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to §82.158;
3. Persons performing maintenance, service, repair or disposal of appliances must be certified by an approved technical certification program pursuant to §82.161;
4. Persons disposing of small appliances, MVACs and MVAC-like (as defined at §82.152) appliances must comply with recordkeeping requirements pursuant to §82.166;
5. Persons owning commercial or industrial process refrigeration equipment must comply with the leak repair requirements pursuant to §82.156; and
6. Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to §82.166.

DD. Emergency Episode Plan

The permittee shall comply with the requirements contained in Chapter 9.7 of the State of Montana Air Quality Control Implementation Plan.

Each major source emitting 100 tons per year located in a Priority I Air Quality Control Region, shall submit to the Department a legally enforceable Emergency Episode Action Plan (EEAP) that details how the source will curtail emissions during an air pollutant emergency episode. The industrial EEAP shall be in accordance with the Department's EEAP and shall be submitted according to a timetable developed by the Department, following Priority I reclassification.

EE. Definitions

Terms not otherwise defined in this permit or in the Definitions and Abbreviations Appendix of this permit, shall have the meaning assigned to them in the referenced regulations.

APPENDICES

Appendix A INSIGNIFICANT EMISSION UNITS

Disclaimer: The information in this appendix is not State or Federally enforceable, but is presented to assist Montana-Dakota, the permitting authority, inspectors, and the public.

Pursuant to ARM 17.8.1201(22)(a), an insignificant emissions unit means any activity or emissions unit located within a source that: (i) has a potential to emit less than 5 tons per year of any regulated pollutant; (ii) has a potential to emit less than 500 pounds per year of lead; (iii) has a potential to emit less than 500 pounds per year of hazardous air pollutants listed pursuant to Section 7412 (b) of the FCAA; and (iv) is not regulated by an applicable requirement, other than a generally applicable requirement that applies to all emission units subject to Subchapter 12.

List of Insignificant Activities:

The following table of insignificant sources and/or activities was provided by Montana-Dakota. Because there are no requirements to update such a list, the emission units and/or activities may change from those specified in the table.

Emissions Unit ID	Description
IEU02	Heating Boiler
IEU05	Miscellaneous Space Heaters
IEU09	Coal Tripper House
IEU10	Lime Storage Silo
IEU11	Plant Roads
IEU12	Vehicle Air Conditioning
IEU13	Activated Carbon Injection Silo
IEU14	Coal Conveyor Dust Collection Devices

Appendix B DEFINITIONS and ABBREVIATIONS

"Act" means the Clean Air Act, as amended, 42 U.S. 7401, *et seq.*

"Administrative permit amendment" means an air quality operating permit revision that:

- (a) corrects typographical errors;
- (b) identifies a change in the name, address or phone number of any person identified in the air quality operating permit, or identifies a similar minor administrative change at the source;
- (c) requires more frequent monitoring or reporting by Montana-Dakota;
- (d) requires changes in monitoring or reporting requirements that the Department deems to be no less stringent than current monitoring or reporting requirements;
- (e) allows for a change in ownership or operational control of a source if the Department has determined that no other change in the air quality operating permit is necessary, consistent with ARM 17.8.1225; or
- (f) incorporates any other type of change which the Department has determined to be similar to those revisions set forth in (a)-(e), above.

"Applicable requirement" means all of the following as they apply to emission units in a source requiring an air quality operating permit (including requirements that have been promulgated or approved by the Department or the administrator through rule making at the time of issuance of the air quality operating permit, but have future-effective compliance dates, provided that such requirements apply to sources covered under the operating permit):

- (a) any standard, rule, or other requirement, including any requirement contained in a consent decree or judicial or administrative order entered into or issued by the Department, that is contained in the Montana state implementation plan approved or promulgated by the administrator through rule making under Title I of the FCAA;
- (b) any federally enforceable term, condition or other requirement of any Montana Air Quality Permit issued by the Department under Subchapters 7, 8, 9 and 10 of this chapter, or pursuant to regulations approved or promulgated through rule making under Title I of the FCAA, including parts C and D;
- (c) any standard or other requirement under Section 7411 of the FCAA, including Section 7411(d);
- (d) any standard or other requirement under Section 7412 of the FCAA, including any requirement concerning accident prevention under Section 7412(r)(7), but excluding the contents of any risk management plan required under Section 7412(r);
- (e) any standard or other requirement of the acid rain program under Title IV of the FCAA or regulations promulgated thereunder;

- (f) any requirements established pursuant to Section 7661c(b) or Section 7414(a)(3) of the FCAA;
- (g) any standard or other requirement governing solid waste incineration, under Section 7429 of the FCAA;
- (h) any standard or other requirement for consumer and commercial products, under Section 7511b(e) of the FCAA;
- (i) any standard or other requirement for tank vessels, under Section 7511b(f) of the FCAA;
- (j) any standard or other requirement of the regulations promulgated to protect stratospheric ozone under Title VI of the FCAA, unless the administrator determines that such requirements need not be contained in an air quality operating permit;
- (k) any national ambient air quality standard or increment or visibility requirement under part C of Title I of the FCAA, but only as it would apply to temporary sources permitted pursuant to Section 7661c(e) of the FCAA; or
- (l) any federally enforceable term or condition of any air quality open burning permit issued by the Department under Subchapter 6.

"Department" means the Montana Department of Environmental Quality.

"Emissions unit" means any part or activity of a stationary source that emits or has the potential to emit any regulated air pollutant or any pollutant listed under Section 7412(b) of the FCAA. This term is not meant to alter or affect the definition of the term "unit" for purposes of Title IV of the FCAA.

"FCAA" means the Federal Clean Air Act, as amended.

"Federally enforceable" means all limitations and conditions which are enforceable by the administrator, including those requirements developed pursuant to 40 CFR Parts 60 and 61, requirements within the Montana state implementation plan, and any permit requirement established pursuant to 40 CFR 52.21 or under regulations approved pursuant to 40 CFR 51, Subpart I, including operating permits issued under an EPA approved program that is incorporated into the Montana state implementation plan and expressly requires adherence to any permit issued under such program.

"Fugitive emissions" means those emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening.

"General air quality operating permit" or "general permit" means an air quality operating permit that meets the requirements of ARM 17.8.1222, covers multiple sources in a source category, and is issued in lieu of individual permits being issued to each source.

"Hazardous air pollutant" means any air pollutant listed as a hazardous air pollutant pursuant to Section 112(b) of the FCAA.

"Non-federally enforceable requirement" means the following as they apply to emission units in a source requiring an air quality operating permit:

- (a) any standard, rule, or other requirement, including any requirement contained in a consent decree, or judicial or administrative order entered into or issued by the Department, that is not contained in the Montana state implementation plan approved or promulgated by the administrator through rule making under Title I of the FCAA;
- (b) any term, condition or other requirement contained in any Montana Air Quality Permit issued by the Department under Subchapters 7, 8, 9 and 10 of this chapter that is not federally enforceable;
- (c) does not include any Montana ambient air quality standard contained in Subchapter 2 of this chapter.

"Permittee" means the owner or operator of any source subject to the permitting requirements of this subchapter, as provided in ARM 17.8.1204, that holds a valid air quality operating permit or has submitted a timely and complete permit application for issuance, renewal, amendment, or modification pursuant to this subchapter.

"Regulated air pollutant" means the following:

- (a) nitrogen oxides or any volatile organic compounds;
- (b) any pollutant for which a national ambient air quality standard has been promulgated;
- (c) any pollutant that is subject to any standard promulgated under Section 7411 of the FCAA;
- (d) any Class I or II substance subject to a standard promulgated under or established by Title VI of the FCAA; or
- (e) any pollutant subject to a standard or other requirement established or promulgated under Section 7412 of the FCAA, including but not limited to the following:
 - (i) any pollutant subject to requirements under Section 7412(j) of the FCAA. If the administrator fails to promulgate a standard by the date established in Section 7412(e) of the FCAA, any pollutant for which a subject source would be major shall be considered to be regulated on the date 18 months after the applicable date established in Section 7412(e) of the FCAA;
 - (ii) any pollutant for which the requirements of Section 7412(g)(2) of the FCAA have been met but only with respect to the individual source subject to Section 7412(g)(2) requirement.

"Responsible official" means one of the following:

- (a) For a corporation: a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation, or a duly authorized representative of such person if the representative is responsible for the overall operation of one or more manufacturing, production, or operating facilities applying for or subject to a permit and either:
 - (i) the facilities employ more than 250 persons or have gross annual sales or expenditures exceeding \$25 million (in second quarter 1980 dollars); or
 - (ii) the delegation of authority to such representative is approved in advance by the Department.
- (b) For a partnership or sole proprietorship: a general partner or the proprietor, respectively.
- (c) For a municipality, state, federal, or other public agency: either a principal executive officer or ranking elected official. For the purposes of this part, a principal executive officer of a federal agency includes the chief executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., a regional administrator of the environmental protection agency).
- (d) For affected sources: the designated representative in so far as actions, standards, requirements, or prohibitions under Title IV of the FCAA or the regulations promulgated thereunder are concerned, and the designated representative for any other purposes under this subchapter.

Abbreviations:

ACI	Activated Carbon Injection
ARM	Administrative Rules of Montana
ASTM	American Society of Testing Materials
BACT	Best Available Control Technology
BTU	British Thermal Unit
CAM	Compliance Assurance Monitoring
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
dscf	dry standard cubic foot
dscfm	dry standard cubic foot per minute
EEAP	Emergency Episode Action Plan
EPA	U.S. Environmental Protection Agency
EPA Method	Test methods contained in 40 CFR 60, Appendix A
EU	emissions unit
FCAA	Federal Clean Air Act
gr	grains
HAP	hazardous air pollutant
IEU	insignificant emissions unit
Method 5	40 CFR 60, Appendix A, Method 5
Method 9	40 CFR 60, Appendix A, Method 9
MEMS	Mercury Emissions Monitoring System
MMBTU	million British Thermal Units
NO _x	oxides of nitrogen
NO ₂	nitrogen dioxide
O ₂	oxygen
OAI	oxidizing agent injection
Pb	lead
PM	particulate matter
PM ₁₀	particulate matter with an aerodynamic diameter of 10 microns or less
PM _{2.5}	particulate matter with an aerodynamic diameter of 2.5 microns or less
psi	pounds per square inch
scf	standard cubic feet
SIC	Source Industrial Classification
SO ₂	sulfur dioxide
SO _x	oxides of sulfur
tpy	tons per year
U.S.C.	United States Code
VE	visible emissions
VOC	volatile organic compound

Appendix C NOTIFICATION ADDRESSES

Compliance Notifications:

Montana Department of Environmental Quality
Air, Energy & Mining Division
Air Quality Bureau
P.O. Box 200901
Helena, MT 59620-0901

United States EPA
Air Program Coordinator
Region VIII, Montana Office
10 W. 15th Street, Suite 3200
Helena, MT 59626

Permit Modifications:

Montana Department of Environmental Quality
Air, Energy & Mining Division
Air Quality Bureau
P.O. Box 200901
Helena, MT 59620-0901

Office of Partnerships and Regulatory Assistance
Air and Radiation Program
US EPA Region VIII 8P-AR
1595 Wynkoop Street
Denver, CO 80202-1129

Appendix D AIR QUALITY INSPECTOR INFORMATION

Disclaimer: The information in this appendix is not State or Federally enforceable but is presented to assist Montana-Dakota, permitting authority, inspectors, and the public.

1. Direction to Plant:

The facility is located 1.5 miles south of Sidney, Montana and is accessed by traveling South on Highway 16 from Sidney and turning east onto Highway 23. Highway 23 borders the facility boundary.

2. Safety Equipment Required:

All visitors are required to check in when arriving on site. Hard hats and safety glasses are required at all times except in office areas or the CEMS shelter. All visitors are required to be accompanied by plant personnel. In situations such as during RATA testing, it is permissible for visitors to go unattended between the office area and the CEMS shelter as needed. Hard hats and safety glasses are available if needed.

3. Facility Plot Plan:

The facility plot plan was submitted with the initial operating permit application on June 10, 1996, and is available for review at the Department offices in Helena.

Appendix E PREDICTIVE OPACITY

Nothing in this appendix is intended to alter the requirements in the Acid Rain Appendix.

1. Pursuant to 40 CFR 51, Appendix P, § 3.9, Montana-Dakota shall maintain and operate a continuous predictive opacity monitoring system as approved by the Department. The predictive monitoring system shall be used to demonstrate compliance with the applicable 6-minute opacity limit.

The predictive opacity monitoring system shall include, at a minimum, instrumentation on the following parameters:

- a. 4 Scrubber Throat Nozzle Flows
- b. Scrubber Slurry Flow to Disk
- c. Disk Position
- d. Scrubber Differential Pressure
- e. Recycling Slurry pH
- f. Recycling Slurry Density (Specific Gravity)
- g. Mist Eliminator Sump Level
- h. Steam Flow
- i. Dust Collector Differential Pressure
- j. Flue Gas Temperature (air heater outlet)
- k. Flue Gas Oxygen (at air heater outlet)
- l. Dust Collector Compartments in Service

The parameters monitored must be used to predict the scrubber disk position and the opacity readings.

2. Montana-Dakota shall maintain the equation for calculating opacity on a six minute average. Any changes to the predictive opacity equation must be submitted to the Department for approval. Montana-Dakota shall also submit data as necessary to support the change requested.
3. Montana-Dakota shall maintain the scrubber disk position calculations. Any changes to the disk position calculations must be submitted to the Department. Montana-Dakota shall also submit data necessary to support the change requested.
4. Montana-Dakota shall maintain records for a minimum of 5 years of the log sheets, computerized data, analysis, and calculations used to prepare the required reports.
5. Montana-Dakota shall submit reports to the Department containing all 6-minute averages equal to or greater than the applicable opacity limit. The summary reports shall be submitted quarterly to the Department.

The quarterly reports must be postmarked by the 30th day after the end of each quarter.

Appendix F SO₂ CEMS

Nothing in this appendix is intended to alter the requirements in the Acid Rain Appendix.

1. Pursuant to 40 CFR Part 75, Montana-Dakota shall calibrate, maintain, and operate continuous monitoring systems. Heat input shall be determined as required in the 40 CFR 75, Appendix F and the NO_x CEMS Appendix.

Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required pursuant to 40 CFR Part 75, all continuous monitoring systems shall be in continuous operation.

2. The monitor range is set at 0 ppm to 500 ppm. The monitor must have an over-range alarm. Montana-Dakota shall report any exceedances of the range to the Department. An exceedance of the range is a violation of the 2 lb of SO₂/mmBtu emission limit.
3. Montana-Dakota shall maintain records for a minimum of 5 years of the log sheets, computerized data, analysis, and calculations used to prepare the required reports.
4. Montana-Dakota shall submit quarterly to the Department containing the following information:
 - a. Montana-Dakota shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which the continuous monitoring system is inoperative.
 - b. Montana-Dakota shall submit an excess emissions and monitoring systems performance report and/or a summary report form (see paragraph (c) below) to the Department. Written reports of excess emissions greater than 2 lbs of SO₂/mmBtu shall include the following information:
 - i. The magnitude of excess emissions, any conversion factor(s) used, and the date and time of commencement and completion of each time period of excess emissions. The process operating time during the reporting period.
 - ii. Any period of time when the monitor range is exceeded. This shall include the date and time of commencement and completion of each time period the monitor is exceeding the range. The process operating time during the reporting period. These periods shall be considered periods of excess emissions.
 - iii. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions of the affected facility. The nature and cause of any malfunction (if known), the corrective action taken or preventative measures adopted.
 - iv. The date and time identifying each period during which the continuous monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments.

- v. When no excess emissions have occurred or the continuous monitoring system(s) have not been inoperative, repaired, or adjusted, such information shall be stated in the report.
- c. The summary report form shall contain the information and be in the format shown in Figure 1. The summary report form shall be submitted:
 - i. If the total duration of excess emissions for the reporting period is less than 1 percent of the total operating time for the reporting period and CEMS downtime for the reporting period is less than 5 percent of the total operating time for the reporting period, only the summary report form shall be submitted and the excess emission report described in section (b) above need not be submitted unless requested.
 - ii. If the total duration of excess emissions for the reporting period is 1 percent or greater of the total operating time for the reporting period or the total CEMS downtime for the reporting period is 5 percent or greater of the total operating time for the reporting period, the summary report form and the excess emission report described in section (b) above shall both be submitted.

**Figure 1 – Summary Report
Gaseous Excess Emission and Monitoring System Performance**

Pollutant:
 Reporting period dates: From _____ to _____
 Emission Limitation::
 Monitor Manufacturer and Model No.:
 Date of Latest CEMS Certification or Audit:
 Process Unit(s) Description:
 Total source operating time in reporting period:

Emission Data Summary

1. Duration of excess emission in reporting period due to:
 - a. Startup/shutdown
 - b. Control equipment problems
 - c. Process problems
 - d. Other known causes
 - e. Unknown causes
2. Total duration of excess emissions.
3. $\frac{\text{Total duration of excess emission} \times (100)}{\text{Total Boiler Operating Time}} = \% \text{ excess emissions}$

CEMS Performance Summary

1. CEMS downtime in reporting period due to:
 - a. Monitor equipment malfunctions
 - b. Non-Monitor equipment malfunctions
 - c. Quality assurance calibrations
 - d. Other known causes
 - e. Unknown causes
2. Total CEMS Downtime when the boiler is operating (nearest quarter hour).
3. $\frac{\text{Total CEMS downtime when the boiler is operating} \times 100}{\text{Total boiler operating time.}} = \% \text{ downtime}$
4. Total boiler operating time (nearest quarter hour).

5. Montana-Dakota shall submit quarterly reports to the Department containing the following information for each month of the quarter:
 - a. Tons of emissions calculated as the sum of $E_h = K \times C_h \times Q_h$ where E_h = emission rate (lb/hr), $K = 1.66 \times 10^{-7}$ (lb/scf)/ppm (SO₂), C_h = Measured Pollutant Concentration (ppm_{wet}), and Q_h = Measured Stack Gas Flow Rate (SCFH_{wet}); and

- b. A summary report including the information identified in 40 CFR § 75.64 (a)(3) in writing which includes: Tons (rounded to the nearest tenth) of SO₂ emitted during the quarter and cumulative SO₂ emissions for calendar year.

The quarterly reports must be postmarked by the 30th day after the end of the calendar quarter.

6. Montana-Dakota shall submit copies of all RATAs performed to the Department in accordance with ARM 17.8.106, Source Test Protocol and Procedures Manual.
7. Montana-Dakota shall submit copies of each monitoring plan revision which results in the need to recertify the CEMS.

Appendix G NO_x CEMS

Nothing in this appendix is intended to alter the requirements in the Acid Rain Appendix.

1. Except for system breakdowns, repairs, calibration checks, and zero and span adjustments required pursuant to 40 CFR Part 75, all continuous monitoring systems shall be in continuous operation.
2. Montana-Dakota shall conduct a “Standard Practice for Ultimate Analysis of Coal and Coke”, ASTM D5291-92, at a minimum of once per year for each type of coal used.
3. Montana-Dakota shall determine the gross calorific value (GCV) of the fuels using ASTM D2015-91, “Standard Test Method for Gross Calorific Value of Coal and Coke by the Adiabatic Bomb Calorimeter” or other method as identified in 40 CFR Part 75, Appendix F, §3.3.6.2, at a minimum of once per year for each type of coal used.
4. Montana-Dakota shall conduct a weekly fuel analysis using ASTM D4239-85 or other method approved by the Department.
5. Montana-Dakota shall maintain records for a minimum of 5 years of the log sheets, computerized data, analysis, and calculations used to prepare the required reports.
6. Montana-Dakota shall submit quarterly to the Department containing the following information:
 - a. Montana-Dakota shall maintain records of the occurrence and duration of any startup, shutdown, or malfunction in the operation of an affected facility; any malfunction of the air pollution control equipment; or any periods during which the continuous monitoring system is inoperative.
 - b. Montana-Dakota shall submit a monitoring systems performance report to the Department in the format shown in Figure 1.

**Figure 1 – Summary Report
Gaseous Excess Emission and Monitoring System Performance**

Pollutant:
 Reporting period dates: From _____ to _____
 Emission Limitation:
 Monitor Manufacturer and Model No.:
 Date of Latest CEMS Certification or Audit:
 Process Unit(s) Description:
 Total source operating time in reporting period:

CEMS Performance Summary

1. CEMS downtime in reporting period due to:
 - a. Monitor equipment malfunctions
 - b. Non-Monitor equipment malfunctions
 - c. Quality assurance calibrations
 - d. Other known causes
 - e. Unknown causes
2. Total CEMS Downtime when the boiler is operating (nearest quarter hour).
3. $\frac{\text{Total CEMS downtime when the boiler is operating} \times 100}{\text{Total boiler operating time}} = \% \text{ downtime}$
4. Total boiler operating time (nearest quarter hour).

7. Montana-Dakota shall submit quarterly reports to the Department containing the following information for each month of the quarter:
 - a. Monthly average coal analysis;
 - b. Coal consumption;
 - c. Other fuels combusted and the amount;
 - d. Tons of emissions calculated as the sum of $E_h = K \times C_h \times Q_h$ where E_h = emission rate (lb/hr), $K = 1.19 \times 10^{-7}$ (lb/scf)/ppm (NO_x), C_h = Measured Pollutant Concentration (ppm_{wet}), and Q_h where E_h = Measured Stack Gas Flow Rate (SCFH_{wet}); and
 - e. A summary report including the information identified in 40 CFR §75.64 (a)(4) through (6) in writing which includes:
 - i. Average NO_x emission rate (lb/mmBtu, rounded to the nearest hundredth) during the quarter and cumulative NO_x emission rate for calendar year.
 - ii. Tons of CO_2 emitted during quarter and cumulative CO_2 for calendar year.
 - iii. Total heat input (mmBtu) for quarter and cumulative heat input for calendar year.

The quarterly reports must be postmarked by the 30th day after the end of the calendar quarter.

8. Montana-Dakota shall submit copies of all RATAs performed to the Department in accordance with ARM 17.8.106, Source Test Protocol and Procedures.
9. Montana-Dakota shall submit copies of each monitoring plan revision which results in the need to recertify the CEMS.

Appendix H ACID RAIN

**Montana-Dakota Utilities Co.
Lewis & Clark Station**

Compliance Assurance Monitoring Plan

INTRODUCTION

The Lewis & Clark Station boiler is a tangentially fired lignite boiler rated at 600 mmBtu/Hour. The boiler, capable of burning approximately 50 tons of lignite, or 600,000 ft³ natural gas per hour at maximum capacity. The boiler, manufactured by Combustion Engineering, is capable of generating 425,000 lbs of steam per hour at 955° F and 1275 psig.

As the flue gas exits the boiler, 75 to 80 percent of the large particulate material is removed with mechanical duct collector. The dust collectors are multi-cyclone mechanical dust collectors manufactured by Western Precipitation Company. The mechanical collector uses a simple multi-cyclone method to remove the particulate matter. The particulate is conveyed from the dust collector by a pneumatic transport system to a storage silo.

The flue gas is then directed to a wet limestone scrubber that removes approximately 98 percent of the total particulate matter. The scrubber consists of a single module flooded disc scrubbing system. The scrubbing system is comprised of a flooded disc scrubber, mist eliminator with a sieve tray and forced oxidation, flue gas stack, and miscellaneous equipment to handle the limestone slurry. The scrubber slurry is sluiced to one of two storage ponds where the solid material settles. The slurry water is recycled. The storage ponds are periodically dewatered, the ash removed and transported off site for permanent ash disposal.

Lewis & Clark Station is permitted to emit 0.17 lbs/MMBtu, and 0.08 gr/dscf of particulate. The design of the scrubbing system is such that 100% of the flue gas passes through the scrubber. By scrubbing 100% of the flue gas, it creates a saturated condition in the stack making it impossible to monitor opacity with instrumentation due to the water particles present in the flue gas. Slurry flow is essential to cool the lining in the stack so the scrubber must be in operation when the plant is operating. There is no scrubber by-pass system.

PREDICTIVE INDICATORS and RANGES

In order to predict the position of the disk the following parameters are being measured:

1. Scrubber slurry flow to the four throat nozzles and slurry flow across the flooded disk. (1500 gpm to 4000 gpm)
2. Flooded disk position (0 to 18) inches.
3. Differential Flue Gas Pressure across the Flooded Disk Scrubber (10 IWC to 14 IWC)
4. Dust collector gas flow based on Dust collector differential, gas temperature and number of collectors in service. (50000 cfm to 300000 scfm)
5. Flue gas Temperature (200 °F to 420 °F)
6. Flue gas O₂ (2 % to 7%)
7. Inputs which indicate which sections of the dust collector are in service (2 TO 4 sections in service)

The above parameters are used in the following equations to predict disk position by calculating a gas flow dependent position and then correcting this position for variations in other parameters. The predicted position is compared with the actual position and the deviation is evaluated.

In addition we continue to monitor Scrubber Slurry Density, Slurry pH, and Mist Eliminator Sump Level. These parameters are not currently used in any calculations.

PREDICTIVE CLEANLINESS EQUATIONS

Flue gas flow is calculated by the equation:

$$\text{Flow} = \text{TUBES} * 12.3 * \text{SQRT} (\text{Dust Collector Differential} * (\text{Temperature} + 460))$$

Where TUBES has a value of 210, 308 or 406 depending on how many dust collector sections are in service.

Disk position based on gas flow is calculated by the following equations:

$$\text{Disk Position} = 18.1150 * \text{LN} (\text{Gas Flow}) - 201.59$$

$$\text{Disk Position} = 19.5223 * \text{LN} (\text{Gas Flow}) - 228.2543$$

$$\text{Disk Position} = 19.4240 * \text{LN} (\text{Gas Flow}) - 0.0000317 * (\text{Gas Flow}) - 219.8756$$

The equation used depends on the_ number of sections of the dust collector in service.

The following corrections are calculated:

Correction for Disk Differential pressure deviation from standard operating condition of 12 IWC:

$$\text{Correction} = -0.6017 * (\text{Differential pressure} - 12.0)$$

$$\text{Correction} = -0.5927 * (\text{Differential pressure} - 12.0)$$

$$\text{Correction} = -0.7347 * (\text{Differential pressure} - 12.0)$$

Correction used depends on the number of sections of the dust collector in service.

QUALITY ASSURANCE QUALITY CONTROL

Disk position deviation from predicted is the key parameter to calculate predicted particulate emissions. Disk deviation is alarmed to flag conditions when increased emissions are probable due to suspected ash buildup around the flooded disk. In addition, slurry flows are monitored for low flow conditions and scrubber differential pressure across the disk is monitored for low and high differential pressure.

During startup and shutdown periods, and periods when load changes are taking place, excursions in the monitored parameters may falsely indicate that the scrubber needs cleaning. This is normally caused when dust collector compartments are either placed in or out of service causing dampers to open and close fluctuating the flue gas flow. No action will be taken if these parameters fall back in the normal operating range once the unit has reached stable operation.

CORRECTIVE ACTION PLAN

The following parameters are monitored and when their value exceeds the expected operating range the following corrective action is performed.

Scrubber Slurry Density: Increase blowdown and add additional makeup water.

Slurry pH: Increase or decrease limestone feed.

Note: The pH is increased by the addition of limestone and controlled between a range of 4.9 - 5.1. Natural alkalinity present in some of the coal can increase the pH greater than 5.1 with no addition of limestone. No corrective action is necessary when this occurs because the objective of the pH control is to keep the pH above 4.9.

Mist Eliminator Sump Level: Adjust makeup or blowdown as needed.

Average Scrubber Delta P and Disk Deviation: Normally the buildup in the scrubber occurs over a number of days or weeks. When the disk deviation reaches an average of greater than 1.5 inches of deviation over a 24 hour period, the predictive parameters are reviewed to determine if there is any questionable data. If all parameters are determined to be indicating correctly, a plant outage is scheduled to clean the scrubber disk.

Table -- 1 MONITORING APPROACH

	Indicator #1	Indicator #2	Indicator #3	Indicator #4	Indicator #5	Indicator #6	Indicator #7	Indicator #8
Indicator	Scrubber Slurry Flow	Flooded Disk Position	Differential Pressure	Dust Collector Flow	Flue Gas Temperature	Flue Gas O ₂	Dust Collector Compartments in Service	Disk Deviation
Range	1500 to 4000 gpm	0 to 18 in.	10 to 14 IWC	50000 to 300000 scfm	200 to 420 ° F	2 to 7 %	2 to 4 Compartments	Disk position deviation from predicted
Data Collection Method	Flow meters located after Pump Discharge at disk inlet and disk	Transmitter located at disk shaft	Differential pressure monitor, sensors located above and below disk	Calculated from Dust Collector differential pressure, temperature corrected	Duct Temperature probe in gas duct at Dust Collector	O ₂ Monitor located after economizer before the air heater	Limit switch on control dampers	Calculated from indicators one through seven
QA/QC Practices	Periodic Inspections	Inspected and Calibrated at 6-month outages	Calibrated every 6-months , pressure taps cleaned weekly	Cleaned every 6-months, calibrated yearly	Inspect during one outage per year and clean well as necessary	Calibrated Monthly	Corrective action taken if false indication is observed	Comparison reviewed after cleaning of disk
Monitoring Frequency	Measured Continuously	Measured Continuously	Measured Continuously	Measured Continuously	Measured Continuously	Measured Continuously	Measured Continuously	Measured continuously
Data Collection Frequency	Instantaneous data compiled into 6-minute average	Instantaneous data compiled into 6-minute average	Instantaneous data compiled into 6-minute average	Instantaneous data compiled into 6-minute average	Instantaneous data compiled into 6-minute average	Instantaneous data compiled into 6-minute average	Instantaneous data compiled into 6-minute average	Instantaneous data compiled into 6-minute average
Averaging period	Instantaneous data used	Instantaneous data used	Instantaneous data used	Instantaneous data used for calculations	Instantaneous data used for calculations	Instantaneous data used for calculations	Instantaneous data used for calculations	Daily average calculated from 6-minute averages

Appendix J MEMS

MEMS

- a. Montana-Dakota shall install, calibrate, certify, maintain, and operate a MEMS to monitor and record the rate of mercury emissions discharged into the atmosphere from all mercury emitting generating units (units) as defined in the Administrative Rules of Montana 17.8.740.
 - (1) The MEMS shall be comprised of equipment as required in 40 CFR 75.81(a) and defined in 40 CFR 72.2.
 - (2) The MEMS shall conform to all applicable requirements of 40 CFR Part 75.
 - (3) The MEMS data will be used to demonstrate compliance with the emission limitations contained in Section II.A.4.
- b. Montana-Dakota shall prepare, maintain and submit a written MEMS Monitoring Plan to the Department.
 - (1) The monitoring plan shall contain sufficient information on the MEMS and the use of data derived from these systems to demonstrate that all the gaseous mercury stack emissions from each unit are monitored and reported.
 - (2) Whenever Montana-Dakota makes a replacement, modification, or change in a MEMS or alternative monitoring system under 40 CFR 75 subpart E, including a change in the automated data acquisition and handling system (DAHS) or in the flue gas handling system, that affects information reported in the monitoring plan (e.g. a change to a serial number for a component of a monitoring system), then the owner or operator shall update the monitoring plan.
 - (3) If any monitoring plan information requires an update pursuant to Section b.(2), submission of the written monitoring plan update shall be completed prior to or concurrent with the submittal of the quarterly report required in c. below for the quarter in which the update is required.
 - (4) The initial submission of the Monitoring Plan to the Department shall include a copy of a written Quality Assurance/Quality Control (QA/QC) Plan as detailed in 40 CFR 75 Appendix B, Section 1. Subsequently, the QA/QC Plan need only be submitted to the Department when it is substantially revised. Substantial revisions can include items such as changes in QA/QC processes resulting from rule changes, modifications in the frequency or timing of QA/QC procedures, or the addition/deletion of equipment or procedures.

- (5) The Monitoring Plan shall include, at a minimum, the following information:
- (a) Facility summary including:
 - (i) A description of each mercury emitting generating unit at the facility.
 - (ii) Maximum and average loads (in megawatts (MW)) with fuels combusted and fuel flow rates at the maximum and average loads for each unit.
 - (iii) A description of each unit's air pollution control equipment and a description of the physical characteristics of each unit's stack.
 - (b) Mercury emission control summary including a description of control strategies, equipment, and design process rates.
 - (c) MEMS description, including:
 - (i) Identification and description of each monitoring component in the MEMS including manufacturer and model identifications; monitoring method descriptions; and normal operating scale and units descriptions. Descriptions of stack flow, diluent gas, and moisture monitors (if used) in the system must be described in addition to the mercury monitor or monitors.
 - (ii) A description of the normal operating process for each monitor including a description of all QA/QC checks
 - (iii) A description of the methods that will be employed to verify and maintain the accuracy and precision of the MEMS calibration equipment.
 - (iv) Identification and description of the DAHS, including major hardware and software components, conversion formulas, constants, factors, averaging processes, and missing data substitution procedures.
 - (v) A description of all initial certification and ongoing recertification tests and frequencies; as well as all accuracy auditing tests and frequencies.
 - (d) The Maximum Potential Concentration (MPC), Maximum Expected Concentration (MEC), span value, and range value as applicable and as defined in 40 CFR 75 Appendix A, 2.1.7.
 - (e) Examples of all data reports required in c. below.

- c. Montana-Dakota shall submit written, Quarterly Mercury Monitoring Reports. The reports shall be postmarked to the Department by the 30th day after the end of each quarter and shall include, at a minimum, the following:
- (1) Mercury emissions. The reports shall include:
 - (a) The 12-month rolling average pounds per trillion British thermal units (lb/TBtu) emission rate for each month of the reporting quarter. The rolling 12-month basis is an average of the last 12 individual calendar monthly averages, with each monthly average calculated at the end of each calendar month;
 - (b) The monthly average lb/TBtu mercury emission rate for each month of the quarter;
 - (c) The total heat input to the boiler (in TBtu) for each 12-month rolling period of the quarter; and
 - (2) Mercury excess emissions. The report shall describe the magnitude of excess mercury emissions experienced during the quarter, including:
 - (a) The date and time of commencement and completion of each period of excess emissions. Periods of excess emissions shall be defined as those emissions calculated on a rolling 12-month basis which are greater than the limitation established in II.A.4.
 - (b) The nature and cause of each period of excess emissions and the corrective action taken or preventative measures adopted in response.
 - (c) If no periods of excess mercury emissions were experienced during the quarter, the report shall state that information.
 - (3) MEMS performance. The report shall describe:
 - (a) The number of operating hours that the MEMS was unavailable or not operating within quality assurance limits (monitor downtime) during the reporting quarter, broken down by the following categories:
 - Monitor equipment malfunctions;
 - Non-Monitor equipment malfunctions;
 - Quality assurance calibration;
 - Other known causes; and
 - Unknown causes.

- (b) The percentage of unit operating time that the MEMS was unavailable or not operating within quality assurance limits (monitor downtime) during the reporting quarter. The percentage of monitor downtime in each calendar quarter shall be calculated according to the following formula:

$$MEMSDowntime\% = \left(\frac{MEMSDownHours}{OpHours} \right) \times 100 \text{ where}$$

MEMSDowntime% = Percentage of unit operating hours classified as MEMS monitor downtime during the reporting quarter

MEMSDownHours = Total number of hours of MEMS monitor downtime during the reporting quarter

OpHours = Total number of hours the unit operated during the reporting quarter.

- (c) For any reporting quarter in which monitor downtime exceeds 10%, a description of each time period during which the MEMS was inoperative or operating in a manner defined in 40 CFR Part 75 as “out of control.” Each description must include the date, start and end times, total downtime (in hours), the reason for the system downtime, and any necessary corrective actions that were taken. In addition, the report shall describe the values used for any periods when missing data substitution was necessary as detailed in 40 CFR 75.30, *et seq.*
- (4) The quarterly report shall include the results of any QA/QC audits, checks, or tests conducted to satisfy the requirements of 40 CFR Part 75 Appendices A, B or K.
- (5) Compliance certification. Each quarterly report shall contain a certification statement signed by the facility’s responsible official based on reasonable inquiry of those persons with primary responsibility for ensuring that all of the unit's emissions are correctly and fully monitored. The certification shall indicate:
- (a) Whether the monitoring data submitted were recorded in accordance with the applicable requirements of 40 CFR Part 75 including the QA/QC procedures and specifications of that part and its appendices, and any such requirements, procedures and specifications of an applicable excepted or approved alternative monitoring method as represented in the approved Monitoring Plan.
- (b) That for all hours where data are substituted in accordance with 40 CFR 75.38, the add-on mercury emission controls were operating within the range of parameters listed in the quality-assurance plan for the unit, and that the substitute values do not systematically underestimate mercury emissions.

- (6) The format of each component of the quarterly report may be negotiated with the Department's representative to accommodate the capabilities and formats of the facility's DAHS.
 - (7) Each quarterly report must be received by the Department within 30 days following the end of each calendar reporting period (January-March, April-June, July-September, and October-December).
 - (8) The electronic data reporting detailed in 40 CFR Part 75 shall not be required unless Montana is able to receive and process data in an electronic format.
- d. Montana-Dakota shall maintain a file of all measurements and performance testing results from the MEMS; all MEMS performance evaluations; all MEMS or monitoring device calibration checks and audits; and records of all adjustments and maintenance performed on these systems or devices recorded in a permanent form suitable for inspection. The file shall be retained on site for at least five years following the date of such measurements and reports. Montana-Dakota shall make these records available for inspection by the Department and shall supply these records to the Department upon request.

Appendix K Clarification of RICE Start-up Operations and Conditions

For peaking units, startup emissions are a more frequent occurrence than for baseload facilities. One reason engines such as the Wärtsilä natural gas RICE generator sets, each with a nominal gross output of approximately 9.3 MW, are chosen as peaking units is because the RICE have a fast startup profile. The Wärtsilä natural gas RICE generator can achieve full load within approximately 10 minutes and emission controlled load within approximately 30 minutes from a cold start. However, the fast startup of the RICE results in varying exhaust flow, non-stable temperature, and a range of emission and oxygen levels. The emission control performance and emissions estimates during startup are based on Wärtsilä estimates and laboratory data.

Montana-Dakota anticipated a maximum of 1000 startups per year for the two engines combined (equating to 500 startup events under cold start conditions). During startup, emissions controls (SRC and catalytic oxidation) are not up to temperature and the full load emission limits are not applicable. Wärtsilä characterizes three types of startup for the RICE: cold, warm, and hot startups. Cold startups are described as starting up when the temperature of the SCR catalyst material inside the reactor is close to ambient temperature. These cold catalyst starts are generally expected when the engine has not operated in the previous 2-3 days. To fit in the framework of emissions, a cold start would be defined as starting up following a downtime of greater than 10 hours. A warm start would be defined as starting up following a downtime of less than 6 hours. Shorter downtime periods are associated with shorter startup periods and lower emissions.

For the purposes of determining when to apply the startup emission rates, “startup operation” is defined as the period of time from initial start (engine ignition) until applied load and associated equipment, including post-combustion controls, achieve normal operation. Normal operation is achieved when the following criteria have been met:

- (1) Exhaust gas temperature at the exit of the SCR reaches 330 degrees Celsius (°C)/626 degrees Fahrenheit (°F); and (2) urea injection has commenced.

The “startup operation” definition is intended to provide a consistent basis for defining when the engine is in “startup operation” and can be generally applied to all types of startups (i.e., cold, warm, and hot). The proposed operating parameters can be directly measured and recorded using the engine’s data acquisition system (DAS).

Depending on the type of start, the emission control system will reach its full abatement efficiency within 10-30 minutes from the start. Wärtsilä has developed startup emissions for each type of startup. SO₂ emissions remain the same because they are based purely on fuel sulfur content.

To determine the emissions from startup, an average rate of emissions during startup operations was calculated assuming the same number of cold, warm, and hot startups. Multiplying the lb/hr value by 500 hours per year in startup yields tons per year of emissions. Montana-Dakota will track the hours in startup in the DAS by recording the time from engine ignition to the exit gas temperature reaching 626 °F and urea injection commencing (when normal operation begins).

Appendix L CAM Plan for RICE NO_x

Montana-Dakota Utilities Co.
Lewis & Clark Station

Compliance Assurance Monitoring Plan
Wärtsilä Natural Gas RICE Generator Sets

INTRODUCTION

Montana-Dakota operates and maintains two Wärtsilä RICE generator sets, each with a nominal gross output of 9.3 MW as peaking units. These RICE generator sets incorporate lean-burn design for primary NO_x control. Each RICE has its own exhaust stack. In addition to lean-burn design, each unit is equipped with a selective catalytic reduction (SCR) system using urea as the reaction agent in the final NO_x control process, and an oxidation catalyst for control of CO and VOC emissions. Only NO_x is triggered for CAM requirements from these units; therefore, only the SCR/NO_x requirements will be addressed in this CAM analysis. SCR represent state-of-the-art controls for lean-burn four-stroke engine NO_x removal.

Each of the natural gas-fired engines will operate in simple-cycle mode; i.e., no heat recovery from the engine exhaust will be used to augment engine power production. The Wärtsilä RICE are four-stroke, port injected, turbocharged, intercooled, lean-burn principle spark-ignited engines. The engines are classified as medium-speed units, and have been proven to be highly efficient, low polluting, power production resources for peaking and cogeneration application.

SCR is an add-on/post-combustion technology that has been shown to be effective in reducing NO_x in exhaust from RICE. This SCR system consists of urea storage, feed, injection system, and a catalyst with catalyst housing. The SCR system selectively reduces NO_x emissions by injecting urea into the exhaust gas upstream of the catalyst. NO_x, ammonia (NH₃), and oxygen (O₂) react on the surface of the catalyst to form nitrogen (N₂) and water (H₂O). For the SCR system to operate properly, the exhaust gas must be within a particular temperature range (typically between 450 °F and 850 °F). The temperature range is dictated by the catalyst (typically made of noble metals, base metal oxides such as vanadium and titanium, and zeolite-based material). Exhaust gas temperatures greater than the upper limit (850 °F) will pass the NO_x and NH₃ unreacted through the catalyst prior to the reaction.

Each of the two Wärtsilä RICE generators are limited to 2.6 lb/hr of NO_x during normal operation by Montana Air Quality Permit #0691-03 (soon to be incorporated into the Montana Operating Permit #OP0691). The limitation represents an approximate 90% reduction in NO_x emissions. Start-up operations (cold, warm, and hot) are addressed separately in Appendix K because the fast startup of the RICE results in varying exhaust flow, non-stable temperature, and a range of emission levels. ***Only normal operations are described in this analysis.***

JUSTIFICATION

I. Background

The pollutant-specific emissions units are the two (2) Wärtsilä RICE generator sets. NO_x is controlled by an SCR system.

II. Rational for Selection of Performance Indicators

A. SCR Exit Temperature

The temperature at the SCR exit provides a good indication of catalytic reduction performance because it indicates that the gas stream is at sufficient temperature to initiate reduction of NO_x on the catalyst. Too high of a temperature may cause NO_x generation in the SCR rather than NO_x reductions. Too low of a temperature reduces catalyst activity and urea/ammonia slip increases. The indicator range for the temperature at the SCR exit is between 626 °F and 842 °F. Therefore, less than 626 °F and greater than 842 °F would be defined as excursions.

B. Urea Injection Rate (Deviation Between Indicated and Expected Flow)

The urea injection rate is a good performance indicator because the ratio of urea to NO_x controls the NO_x reduction efficiency. The ratio of urea to NO_x should be optimized; too much urea can result in excess “urea/ammonia slip” and too little urea results in increased NO_x emissions. The Data Acquisition System (DAS) records the deviation between the indicated and expected flow. An excursion is defined as an indicated urea injection rate greater than plus or minus 4 gallons per hour (\pm 4 gph) from the expected flow.

C. Catalyst Activity

Catalyst activity is a good performance indicator because the NO_x reductions rely on effective catalyst action. Catalyst deactivation would result in increases in NO_x emissions and NH₃ emission through ammonia slip. Periodically checking the catalyst provides an indication of fouling or masking. Catalysts must be periodically cleaned and/or replaced to ensure emission reductions are occurring. The inspections will be performed per manufacturer’s requirements. An excursion will be defined as no indicated reduction in NO_x emissions while urea flow is existent.

D. Pressure Drop Across the Catalyst

The pressure drop across the catalyst, like the catalyst activity inspection, is a good performance indicator because NO_x reductions rely on effective catalyst action. An increase in the pressure differential/drop over time may provide an indication that particulate matter is accumulating on the catalyst bed. Periodic blowing, vacuuming, or steaming of the bed may be necessary to remove accumulated particulate matter. The pressure drop will be measured with a pressure gauge across the catalyst bed of the reactor. An excursion is defined as a pressure drop of greater than 52.2 pounds per square foot (psf) and less than 2 psf. A pressure drop associated with normal operations is between 2 and 52.2 psf.

III. Rationale for SCR Exit Temperature, Urea Injection Rate, Catalyst Activity, and Pressure Drop across the Catalyst Indicator Ranges.

The temperature, urea flow rate, and pressure drop across the catalyst ranges were specified by the manufacturer's operating instructions and verified through performance testing and operations since startup in December of 2015. The periodic catalyst activity inspection is also specified by the manufacturer's operating instructions.

IV. Excursion Reporting

Semiannual excursion reports will be submitted in accordance with 40 CFR §64.9. These reports will include:

- The number, duration, and cause of excursions, and the corrective actions taken; and
- The number, duration, and cause of monitor downtime incidents

Table 2: CAM MONITORING APPROACH for RICE NO_x

	Indicator #1	Indicator #2	Indicator #3	Indicator #4
I. Indicator	Temperature at exit of SCR	Rate of Urea Injection	Catalyst Activity	Pressure drop across the catalyst
Measurement Approach	Operate and maintain a temperature gauge (thermocouple) to continuously record the temperature at the SCR exit of each RICE.	Operate and maintain a flow indicator to continuously record the urea sent to the SCR bed of each RICE. Record the deviation between indicated and expected flow.	Periodically inspect the catalyst bed of each SCR per manufacturer's requirements	Operate and maintain a differential pressure gauge across the catalyst bed of the reactor.
II. Indicator Range	Except during periods of start-up ¹ , an excursion is defined as a temperature of less than 626 °F and greater than 842 °F.	Except during periods of start-up ¹ , an excursion is defined as a urea injection rate deviation of ± 4 gph from the expected flow.	Except during periods of start-up ¹ , an excursion is defined as no indicated reduction in NO _x emissions while urea flow is indicated.	Except during periods of start-up ¹ , an excursion is defined as a pressure drop of greater than 52.2 psf and less than 2 psf.
III. Performance Criteria				
A. Data Representativeness	The thermocouple is located at the SCR exit.	The flow indicator is located in the urea injection line. The DAS calculates a urea demand and the deviation to the indicated flow.	The catalyst bed is inspected per manufacturer's requirements.	Differential pressure gauge sensing lines are located at the entrance and exit of the catalyst bed.
B. Verification of Operation Status	The thermocouple is an existing device currently operating.	The flow indicator is an existing device currently operating.	Inspection is performed per manufacturer's requirements	The differential pressure gauge is an existing device currently operating.
C. QA/QC Practices and Criteria	The accuracy of the thermocouple is verified by the mid and inlet thermocouples.	The flow indicator is calibrated annually.	Inspection is performed per manufacturer's requirements	The pressure gauge is calibrated annually.
D. Monitoring Frequency	Readings are collected instantaneously.	Readings are collected instantaneously.	Inspections take place annually, at minimum.	Readings are collected instantaneously.
E. Data Collection Procedures	The DAS collects the data.	The DAS collects the data.	Inspection logs are maintained with the RICE maintenance logs.	The DAS collects the data.
F. Averaging Period.	Not Applicable.	Monthly.	Not Applicable.	Monthly.

¹ The CAM analysis reflects normal operations. Startup operations are addressed in Appendix K.