

Permit #: 28.0802-02  
Effective Date: October 23, 2015  
Expiration Date: October 23, 2020

The seal of the State of South Dakota is a large, circular emblem with a serrated outer edge. It features a central landscape scene with a river, a bridge, and a mountain range. The text "STATE OF SOUTH DAKOTA" is written in a large, serif font around the top inner edge of the seal. Below this, the motto "UNDER GOD THE PEOPLE RULE" is inscribed in a smaller font. At the bottom of the seal, the year "1889" is prominently displayed. Two stars are positioned on either side of the central landscape.

**SOUTH DAKOTA DEPARTMENT OF  
ENVIRONMENT AND NATURAL RESOURCES  
TITLE V AIR QUALITY OPERATING PERMIT**

  
Steven M. Pirner, P.E., Secretary  
Department of Environment and Natural Resources

**Under the South Dakota Air Pollution  
Control Regulations**

Pursuant to Chapter 34A-1-21 of the South Dakota Codified Laws and the Air Pollution Control Regulations of the State of South Dakota and in reliance on statements made by the owner designated below, a permit to operate is hereby issued by the Secretary of the Department of Environment and Natural Resources. This permit authorizes such owner to operate the unit(s) at the location designated below and under the listed conditions:

**A. Owner**

**Company Name and Mailing Address**

Black Hills Power, Inc.  
P.O. Box 1400  
Rapid City, SD 57709-1400

**2. Actual Source Location if Different from Above**

2900 Lange Road  
NE ¼, Section 22, T2N, R7E, Pennington County

**3. Permit Contact**

Steven Finley  
(605) 721-2249

**4. Facility Contact**

Kevin Hall, Plant Manager  
(719) 546-6548

**5. Responsible Official**

Mark Lux, Vice President of Power Delivery  
(303) 568-3241

**B. Permit Revisions or Modifications**

Not applicable

**C. Type of Operation**

Black Hills Corporation operates one simple cycle combustion turbine for production of electricity at its Lange facility.

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## 1.0 Standard Conditions

### 1.1 Operation of source

In accordance with Administrative Rules of South Dakota (ARSD) 74:36:05:16.01(8), the owner or operator shall operate the units, controls, and processes as described in Table 1-1 in accordance with the statements, representations, and supporting data contained in the complete permit application received February 18, 2014, unless modified by the conditions of this permit. Except as otherwise provided herein, the control equipment shall be operated at all times in accordance with the manufacturer's specification and in a manner that achieves compliance with the conditions of this permit. The application consists of the application forms, supporting data, and supplementary correspondence. If the owner or operator becomes aware it failed to submit any relevant facts in a permit application or submitted incorrect information in an application, such information shall be promptly submitted.

**Table 1-1 – Description of Permitted Units, Operations, and Processes**

<b>Unit</b>	<b>Description</b>	<b>Maximum Operating Rate</b>	<b>Control Device</b>
<b>#1</b>	2001 General Electric, model #LM6000PD, a natural gas-fired, stationary simple cycle gas turbine with lean-premix staged combustion (dry low NOx combustors).	325 million Btus per hour heat input based on the lower heating value of the fuel fired.	Not applicable
<b>#2</b>	Turbine inlet air heater, model CT-1, equipped with a low NOx burner. The turbine inlet air heater is fired with natural gas.	17.5 million Btus per hour heat input.	Not applicable

### 1.2 Duty to comply

In accordance with ARSD 74:36:05:16.01(12), the owner or operator shall comply with the conditions of this permit. An owner or operator who knowingly makes a false statement in any record or report or who falsifies, tampers with, or renders inaccurate, any monitoring device or method is in violation of this permit. A violation of any condition in this permit is grounds for enforcement, reopening this permit, permit termination, or denial of a permit renewal application. The owner or operator, in an enforcement action, cannot use the defense that it would have been necessary to cease or reduce the permitted activity to maintain compliance. The owner or operator shall provide any information requested by the Secretary to determine compliance or whether cause exists for reopening or terminating this permit.

### 1.3 Property rights or exclusive privileges

In accordance with ARSD 74:36:05:16.01(12), the State's issuance of this permit, adoption of design criteria, and approval of plans and specifications does not convey any property rights of any sort, any exclusive privileges, any authorization to damage, injure or use any private property, any authority to invade personal rights, any authority to violate federal, state or local laws or regulations, or any taking, condemnation or use of eminent domain against any property owned by third parties. The State does not warrant the owner's or operator's compliance with this permit, design criteria, approved plans and specifications, and operation under this permit, will not cause damage, injury or use of private property, an invasion of personal rights, or

violation of federal, state or local laws or regulations. The owner or operator is solely and severally liable for all damage, injury or use of private property, invasion of personal rights, infringement of federal, state or local laws and regulations, or taking or condemnation of property owned by third parties, which may result from actions taken under the permit.

#### **1.4 Penalty for violating a permit condition**

In accordance with South Dakota Codified Laws (SDCL) 34A-1-39 and 34A-1-47, a violation of a permit condition may subject the owner or operator to civil or criminal prosecution, a state penalty of not more than \$10,000 per day per violation, injunctive action, administrative permit action, and other remedies as provided by law.

#### **1.5 Inspection and entry**

In accordance with SDCL 34A-1-41, the owner or operator shall allow the Secretary, upon presentation of credentials, to:

1. Enter the premises where a regulated activity is located or where pertinent records are stored;
2. Have access to and copy any records required under this permit;
3. Inspect operations regulated under this permit; and/or
4. Sample or monitor any substances or parameters for the purpose of assuring compliance.

#### **1.6 Severability**

In accordance with ARSD 74:36:05:16.01(11), any portion of this permit that is void or challenged shall not affect the validity of the remaining permit requirements.

#### **1.7 Permit termination, modification, or revocation**

In accordance with ARSD 74:36:05:46, the Secretary may recommend the Board of Minerals and Environment terminate, modify, or revoke this permit for violations of SDCL 34A-1 or the federal Clean Air Act or for nonpayment of any outstanding fee or enforcement penalty.

#### **1.8 Credible evidence**

In accordance with ARSD 74:36:13:07, credible evidence may be used for the purpose of establishing whether the owner or operator has violated or is in violation of this permit. Credible evidence may consist of the following:

1. Information from the use of the following methods is presumptively credible evidence of whether a violation has occurred:
  - a. A monitoring method approved pursuant to 40 CFR § 70.6(a)(3) and incorporated in this permit; or
  - b. Compliance methods specified in an applicable plan;
2. The following testing, monitoring, or information gathering methods are presumptively credible testing, monitoring, or information-gathering methods:
  - a. Any monitoring or testing methods approved in this permit, including those in 40 CFR Parts 51, 60, 61, and 75; or

- b. Other testing, monitoring, or information-gathering methods that produce information comparable to that produced by any method in paragraph (1) or (2)(a).

## **2.0 Permit Fees**

### **2.1 Annual air fee required**

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

### **2.2 Annual operational report**

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

### **2.3 Annual air fee**

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

## **3.0 Permit Amendments and Modifications**

### **3.1 Permit flexibility**

In accordance with ARSD 74:36:05:30, the owner or operator shall have the flexibility to make changes to the source during the term of this permit. The owner or operator shall provide the Secretary written notice at least seven days in advance of the proposed change (NOTE: The Secretary will forward a copy of the written notice to EPA). The written notice shall include a brief description of the change, the date on which the change is to occur, any change in emissions, the proposed changes to the permit, and whether the requested revisions are for an administrative permit amendment, minor permit amendment, or permit modification.

The Secretary will notify the owner or operator whether the change is an administrative permit amendment, a minor permit amendment, or a permit modification. A proposed change that is considered an administrative permit amendment or a minor permit amendment can be completed immediately after the Secretary receives the written notification. The owner or operator must comply with both the applicable requirements governing the change and the proposed permit terms and conditions until the Secretary takes final action on the proposed change.

A proposed change that is considered a modification cannot be implemented until the Secretary takes final action on the proposed change or the owner or operator was issued an air quality construction permit. Permit modifications are subject to the same procedural requirements,

including public comment, as the original permit issuance except that the required review shall cover only the proposed changes.

### **3.2 Administrative permit amendment**

In accordance with ARSD 74:36:05:33, the Secretary has 60 days from receipt of a written notice to verify the proposed change is an administrative permit amendment. As provided in ARSD 74:36:01:03, the Secretary considers a proposed change an administrative permit amendment if the proposed change accomplishes one of the following:

1. Corrects typographical errors;
2. Changes the name, address, or phone number of any person identified in this permit or provides a similar minor administrative change;
3. Requires more frequent monitoring or reporting;
4. The ownership or operational control changes and the Secretary determines no other change in this permit is necessary. However, the new owner must submit a certification of applicant form and a written statement specifying the date for transfer of operating permit responsibility, coverage, and liability; or
5. Any other changes the Secretary and the administrator of EPA determines to be similar to those requirements in this condition.

### **3.3 Minor permit amendment**

In accordance with ARSD 74:36:05:38, the Secretary has 90 days from receipt of a written notice or 15 days after the end of EPA's 45-day review period, whichever is later, to take final action on a minor permit amendment. Final action consists of issuing or denying a minor permit amendment or determining the proposed change is a permit modification. As provided in ARSD 74:36:05:35, the Secretary considers a proposed change to be a minor permit amendment if the proposed change:

1. Does not violate any applicable requirements;
2. Does not involve significant changes to existing monitoring, reporting, or recordkeeping requirements;
3. Does not require or change a case-by-case determination of an emission limit or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis; or
4. Does not seek to establish or change a permit term or condition for which the source has assumed to avoid an applicable requirement, a federally enforceable emission cap, or an alternative emission limit. An alternative emission limit is approved pursuant to regulations promulgated under section 112(i)(5) of the federal Clean Air Act.

### **3.4 Permit modification**

In accordance with ARSD 74:36:05:39, an owner or operator may apply for a permit modification. A permit modification is defined in ARSD 74:36:01:10 as a physical change in or change in the operation of a source that results in at least one of the following:

1. An increase in the amount of an air pollutant emitted by the source or results in the emission of an air pollutant not previously emitted;
2. A significant change to existing monitoring, reporting, or recordkeeping requirements in the permit;
3. The change requires or changes a case-by-case determination of an emission limit or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis; or
4. The change seeks to establish or change a permit term or condition for which there is a corresponding underlying applicable requirement that the source has assumed to avoid an applicable requirement, a federally enforceable emissions cap assumed to avoid classification as a modification under a provision of the Title I of the Clean Air Act, or an alternative emissions limit approved pursuant to regulations promulgated under section 112(i)(5) of the Clean Air Act.

Permit modifications are subject to the same procedural requirements, including public comment, as the original permit issuance except the required review shall cover only the proposed changes.

### **3.5 Permit revision**

In accordance with ARSD 74:36:05:40, the Secretary may reopen and revise this permit to meet requirements of SDCL 34A-1 or the federal Clean Air Act. In accordance with ARSD 74:36:05:41, the Secretary shall notify the owner or operator at least 30 days before reopening this permit. The 30-day period may be less in the case of an emergency.

### **3.6 Testing new fuels or raw materials**

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

1. A written proposal describing the new fuel or raw material, operating parameters, and parameters that will be monitored and any testing associated with air pollutant emissions during the test;
2. An estimate of the type and amount of regulated air pollutant emissions resulting from the proposed change; and
3. The proposed schedule for conducting the test. In most cases the owner or operator will be allowed to test for a maximum of one week. A request for a test period longer than one week will need additional justification. A test period shall not exceed 180 days.

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

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

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

## **4.0 Permit Renewal**

### **4.1 Permit effective**

In accordance with ARSD 74:36:05:07, this permit shall expire five years from date of issuance unless reopened or terminated for cause.

### **4.2 Permit renewal**

In accordance with ARSD 74:36:05:08, the owner or operator shall submit an application for a permit renewal at least 180 days before the date of permit expiration if the owner or operator wishes to continue to operate an activity regulated by this permit. The current permit shall not expire and shall remain in effect until the Secretary takes final action on the timely permit renewal application.

### **4.3 Permit expiration**

In accordance with ARSD 74:36:05:28, permit expiration terminates the owner's or operator's right to operate any unit covered by this permit.

## **5.0 Recordkeeping and Reporting**

### **5.1 Recordkeeping and reporting**

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain all monitoring data, records, reports, and pertinent information specified by this permit for five years from the date of sample, measurement, report, or application unless otherwise specified in this permit. The records shall be maintained on site for the first two years and may be maintained off site for the last three years. All records must be made available to the Secretary for inspection. All notifications and reports shall be submitted to the following address:

South Dakota Department of Environment and Natural Resources  
PMB 2020, Air Quality Program  
523 E. Capitol, Joe Foss Building  
Pierre, SD 57501-3182

## **5.2 Signatory requirements**

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

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

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

## **5.3 Certification statement**

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

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

## **5.4 Monitoring log**

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall maintain a monitoring log. The following information shall be recorded within two days of each emergency exceedance:

1. The date of the emergency exceedance and the date the emergency exceedance was reported to the Secretary;
2. The cause(s) of the emergency;
3. The reasonable steps taken to minimize the emissions during the emergency; and
4. A statement the permitted equipment was at the time being properly operated.

## **5.5 Annual records**

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

1. Operational hours of Unit #1, Unit #2, and Unit #4; and

2. The amount of fuel used in Unit #1 and Unit #2, in million cubic feet per year and Unit #4, in gallons per year.

### **5.6 Annual compliance certification**

In accordance with ARSD 74:36:05:16.01(14), the owner or operator shall submit an annual compliance certification letter to the Secretary by March 1 of each year this permit is in effect (NOTE: The Secretary will forward a copy of the certification letter to EPA). The certification shall contain the following information:

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

### **5.7 Reporting permit violations**

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall report all permit violations. A permit violation should be reported as soon as possible, but no later than the first business day following the day the violation was discovered. The permit violation may be reported by telephone to the South Dakota Department of Environment and Natural Resources at (605) 773-3151 or by FAX at (605) 773-4068.

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

1. A description of the permit violation and its cause(s);
2. The duration of the permit violation, including exact dates and times; and
3. The steps taken or planned to reduce, eliminate, and prevent reoccurrence of the permit violation.

## **6.0 Control of Regulated Air Pollutants**

### **6.1 Visibility limit**

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

## **6.2 Visibility exceedances**

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

## **6.3 Total suspended particulate matter limits**

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

*Table 6-1 – Total Suspended Particulate Matter Emission Limit*

<b>Unit</b>	<b>Description</b>	<b>Emission Limit</b>
#1	General Electric simple cycle combustion turbine	0.38 pounds per million Btu heat input
#2	Turbine inlet air heater	0.60 pounds per million Btu heat input

## **6.4 Sulfur dioxide limits**

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

*Table 6-2 – Sulfur Dioxide Emission Limit*

<b>Unit</b>	<b>Description</b>	<b>Emission Limit</b>
#2	Turbine inlet air heater	3.0 pounds per million Btu heat input

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

## **6.5 Air emission exceedances – emergency conditions**

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

information required by the notification shall be submitted and postmarked within 30 days of the oral notification

### **6.6 Circumvention not allowed**

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

### **6.7 Minimizing emissions**

In accordance with ARSD 74:36:05:16.01(8), the owner or operator shall at all time, when practicable, maintain and operate all permitted units in a manner that minimizes air pollution emissions.

## **7.0 Performance Tests**

### **7.1 Performance test may be required**

In accordance with ARSD 74:36:11:02, the Secretary may request a performance test during the term of this permit. A performance test shall be conducted while operating the unit at or greater than 90 percent of its maximum design capacity, unless otherwise specified by the Secretary. A performance test conducted while operating less than 90 percent of its maximum design capacity will result in the operation being limited to the percent achieved during the performance test. The Secretary has the discretion to extend the deadline for completion of performance test required by the Secretary if circumstances reasonably warrant but will not extend the deadline past a federally required performance test deadline.

### **7.2 Test methods and procedures**

In accordance with ARSD 74:36:11:01, the owner or operator shall conduct the performance test in accordance with 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M. The Secretary may approve an alternative method if a performance test specified in 40 CFR Part 60, Appendix A, 40 CFR Part 63, Appendix A, and 40 CFR Part 51, Appendix M is not federally applicable or federally required.

### **7.3 Representative performance test**

In accordance with ARSD 74:36:07:01, as referenced to 40 CFR § 60.8(c), performance tests shall be conducted under such conditions as the Secretary shall specify to the owner or operator based on the representative performance of the unit being tested. The owner or operator shall make available to the Secretary such records as may be necessary to determine the conditions of the performance tests. Operations during periods of startup, shutdown, and malfunction shall not constitute representative conditions for the purpose of a performance test nor shall emissions in excess of the level of the applicable emission limit during periods of startup, shutdown, and malfunction be considered a violation of the applicable emission limit unless otherwise specified in this permit.

#### **7.4 Submittal of test plan**

In accordance with ARSD 74:36:11:01, the owner or operator shall submit the proposed testing procedures to the Secretary at least 30 days prior to any performance test. The Secretary will notify the owner or operator if the proposed test procedures are approved or denied. If the proposed test procedures are denied, the Secretary will provide written notification outlining what needs to be completed for approval.

#### **7.5 Notification of test**

In accordance with ARSD 74:36:11:03, the owner or operator shall notify the Secretary at least 10 days prior to the start of a performance test to arrange for an agreeable test date when the Secretary may observe the test. The Secretary may extend the deadline for the performance test in order to accommodate schedules in arranging an agreeable test date.

#### **7.6 Performance test report**

In accordance with ARSD 74:36:05:16.01(9), the owner or operator shall submit a performance test report to the Secretary within 60 days after completing the performance test or by a date designated by the Secretary. The performance test report shall contain the following information:

1. A brief description of the process and the air pollution control system being tested;
2. Sampling location description(s);
3. A description of sampling and analytical procedures and any modifications to standard procedures;
4. Test results represented in the same terminology as the permit limits;
5. Quality assurance procedures and results;
6. Records of operating conditions during the test necessary for demonstrating compliance with the permit limits, preparation of standards, and calibration procedures;
7. Raw data sheets for field sampling and field and laboratory analyses;
8. Documentation of calculations;
9. All data recorded and used to establish parameters for compliance monitoring; and
10. Any other information required by the test method.

### **8.0 PSD Requirements**

#### **8.1 PSD emission limit**

In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21, the owner or operator shall limit air emissions from Unit #1 to less than or equal to the applicable limit in Table 8-1.

*Table 8-1: PSD Emission Limits for Unit #1<sup>1</sup>*

Air Pollutant	Emission Limit	
	ppmvd <sup>2</sup>	pounds/hour
PM <sub>10</sub>	-	6.0 <sup>3</sup>
Nitrogen Oxide	25.0 <sup>4</sup>	33.0 <sup>4</sup>

Air Pollutant	Emission Limit	
	ppmvd <sup>2</sup>	pounds/hour
Carbon Monoxide	25.0 <sup>3</sup>	21.0 <sup>3</sup>
Volatile Organic Compounds	-	8.0 <sup>3</sup>

<sup>1</sup> – Unit #1 must comply with the ppmvd and pounds per hour emission limit;

<sup>2</sup> – “ppmvd” means parts per million by volume on a dry basis at 15 percent oxygen;

<sup>3</sup> – Compliance with particulate matter 10 microns in diameter or less (PM<sub>10</sub>), carbon monoxide, and volatile organic compound limits based on stack performance tests; and

<sup>4</sup> – The nitrogen oxide limit is based on a 24- hour rolling average during normal operating conditions. Startups, shutdowns, malfunctions, and periods in which the turbine is not operating shall be excluded from determining the 24- hour rolling average.

## **8.2 Continuous emission monitoring system**

In accordance with ARSD 74:36:09:02, as referenced to 40 CFR § 52.21 and ARSD 74:36:13:01, the owner or operator shall install, calibrate, operate, and maintain a continuous emission monitoring system on Unit #1. The continuous emission monitoring system shall continuously monitor the nitrogen oxide concentration in parts per million by volume on a dry basis at 15 percent oxygen and the emission rate in pounds per hour to demonstrate compliance with the nitrogen oxide emission limits in Table 8-1.

## **8.3 Performance specifications and quality assurance**

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:13:02 and ARSD 74:36:16:04, as referenced to 40 CFR § 75.10(b), the nitrogen oxide continuous emission monitoring system on Unit #1 shall meet the performance specifications in 40 CFR Part 60, Appendix B (Performance Specifications 2 and 3), except the 7-day calibration drift is based on the unit operating days, not calendar days, and 40 CFR Part 75, Appendix A. In addition, the nitrogen oxide continuous emission monitoring system shall meet the quality assurance requirements in 40 CFR Part 75, Appendix B.

## **8.4 Determining compliance with continuous monitoring data**

In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:13:05, the Secretary may take enforcement action based on the information obtained from the continuous emission monitoring system for nitrogen oxide. Compliance with the nitrogen oxide concentration and hourly emission rate in permit condition 8.1 will be based on a 24- hour rolling average.

The 1-hour continuous emission monitoring system data for nitrogen oxide shall be expressed in both parts per million on a dry basis at 15% oxygen and pounds per hour and shall be used to calculate the 24- hour rolling data. Each 1-hour average shall be computed as follows:

1. Except as provided under paragraph (3) of this permit condition, a full operating hour (any clock hour with 60 minutes of unit operation), at least four valid data points are required to calculate the hourly average (i.e., one data point in each of the 15-minute quadrants of the hour);
2. Except as provided under paragraph (3) of this permit condition, for a partial operating hour (any clock hour with less than 60 minutes of unit operation), at least one valid data

- point in each 15-minute quadrant of the hour in which the unit operates is required to calculate the hourly average;
3. For any operating hour in which required maintenance or quality-assurance activities are performed:
    - a. If the unit operate in two or more quadrants of the hour, a minimum of two valid data points, separated by at least 15 minutes, is required to calculate the hourly average; or
    - b. If the unit operates in only one quadrant of the hour, at least one valid data point is required to calculate the hourly average;
  4. If a daily calibration error check is failed during any operating hour, all data for that hour shall be invalidated, unless a subsequent calibration error test is passed in the same hour and the requirements of paragraph (3) of this permit condition are met, based solely on valid data recorded after the successful calibration;
  5. For each full or partial operating hour, all valid data points shall be used to calculate the hourly average;
  6. Data recorded during periods of continuous monitoring system breakdown, repair, calibration checks, and zero and span adjustments shall not be included in the data averages; and
  7. Either arithmetic or integrated averaging of all data may be used to calculate the hourly averages. The data may be recorded in reduced or non-reduced form.

The 24-hour rolling data is calculated for each hour of operation including the current hour with the last 23 hours operated. The 1-hour and 24-hour data expressed as parts per million at 15% oxygen (rate) is calculated from the average of the valid data points whereas the pounds per hour (mass) is calculated from the sum of the valid data points.

### **8.5 Carbon monoxide analyzer**

In accordance with ARSD 74:36:05:16.01(9) and 74:36:09:02, as referenced to 40 CFR § 52.21, the owner or operator shall use an analyzer to measure the carbon monoxide concentration, in parts per million, being emitted from Unit #1. The carbon monoxide analyzer shall be calibrated and used in accordance with the manufacturers' specifications. The carbon monoxide analyzer shall be used as an indicator to determine if a stack performance test for carbon monoxide is necessary to determine compliance with permit condition 8.1. At a minimum, the carbon monoxide concentration shall be measured and recorded once per operating month. If a concentration is in excess of the carbon monoxide emission limit in permit condition 8.1, the owner or operator shall use the carbon monoxide analyzer to measure and record the carbon monoxide concentration within 60 minutes and 120 minutes of the reading that exceeded the carbon monoxide emission limit in permit condition 8.1.

### **8.6 Additional carbon monoxide performance tests**

In accordance with ARSD 74:36:09, as referenced to 40 CFR § 52.21 and ARSD 74:36:11:02, the owner or operator shall conduct a performance test on Unit #1 when the carbon monoxide analyzer monthly readings, specified in permit condition 8.5, demonstrates that the carbon monoxide emission limit in permit condition 8.1 may be exceeded. This would be demonstrated by the average of three consecutive one-hour carbon monoxide analyzer readings exceeding the

carbon monoxide emission limit in permit condition 8.1. The performance test shall be performed within 60 days of the occurrence.

### **8.7 CEMS Reporting**

In accordance with ARSD 74:36:07:18, as referenced to 40 CFR §§ 60.7(c) the owner or operator shall submit an excess emissions and monitoring systems performance report and/or a summary report form semiannually, or more frequent reporting as determined by the Secretary to assess the compliance status of the of Unit #1. The semiannual report shall be postmarked no later than the 30<sup>th</sup> day following the end of each 6-month period (i.e. July 30<sup>th</sup> and January 30<sup>th</sup>).

These reports may be provided more frequently and in conjunction with the 40 CFR Part 75 and 40 CFR Part 60 Subpart GG reports. If elected to do so, the reports shall be provided quarterly and postmarked no later than the 30<sup>th</sup> day following the end of each calendar quarter (i.e. April 30<sup>th</sup>, July 30<sup>th</sup>, October 30<sup>th</sup>, and January 30<sup>th</sup>)

## **9.0 NSPS Standards for Stationary Combustion Turbine – Subpart GG**

### **9.1 Emission limit for nitrogen oxides**

In accordance with ARSD 74:36:07:18, as referenced to 40 CFR §60.332(a)(1) and (b), the owner or operator shall limit the nitrogen oxide concentration in the exhaust gases from Unit #1 to less than or equal to 130 parts per million by volume on a dry basis at 15 percent oxygen. In accordance with ARSD 74:36:07:18, as referenced to 40 CFR § 60.8(c), emissions in excess of 130 parts per million by volume on a dry basis at 15 percent oxygen during periods of startup, shutdown, and malfunctions shall not constitute a violation.

### **9.2 Emission limit for sulfur dioxide**

In accordance with ARSD 74:36:07:18, as referenced to 40 CFR § 60.333, the owner or operator shall comply with one of the following:

1. The owner or operator shall not cause to be discharged into the atmosphere from Unit #1 any gases which contains sulfur dioxide in excess of 0.015 percent by volume at 15 percent oxygen and on a dry basis; or
2. The owner or operator shall not burn any fuel in Unit #1 which contains total sulfur in excess of 0.8 percent by weight (8,000 parts per million by weight)

### **9.3 Demonstrating compliance with sulfur content of natural gas**

In accordance with ARSD 74:36:07:18, as referenced to 40 CFR § 60.334(h)(3), the owner or operator shall monitor the sulfur content of the natural gas being fired in Unit #1 under one of the following methods:

1. The gas quality characteristics in a current, valid purchase contract, tariff sheet or transportation contract for the gaseous fuel, specifying the maximum total sulfur content of the fuel is 20.0 grains per 100 standard cubic foot or less; or

2. Representative fuel sampling data which show the sulfur content of the gaseous fuel does not exceed 20.0 grains per 100 standard cubic foot. At a minimum, the amount of fuel sampling data specified in in 40 CFR Part 75, Appendix D, section 2.3.1.4 or 2.3.2.4 is required.

“Natural gas” means a naturally occurring fluid mixture of hydrocarbons (i.e., methane, ethane, or propane) produced in geological formations beneath the Earth's surface that maintains a gaseous state at standard atmospheric temperature and pressure under ordinary conditions. Natural gas must be composed of at least 70 percent methane by volume or have a gross calorific value between 950 and 1100 British thermal units per standard cubic foot. Natural gas does not include the following gaseous fuels: landfill gas, digester gas, refinery gas, sour gas, blast furnace gas, coal-derived gas, producer gas, coke oven gas, or any gaseous fuel produced in a process which might result in highly variable sulfur content or heating value.

#### **9.4 Semiannual excess emission and monitor downtime report**

In accordance with ARSD 74:36:07:18, as referenced to 40 CFR §60.334(j)(1), the owner or operator shall submit a semiannual report of excess emissions and monitor downtime. Excess emissions shall be reported for all periods of unit operation, including startup, shutdown, and malfunction. The semiannual report shall contain the following information:

1. Name of the facility, permit number, reference to this permit condition, and identify the submittal as a semiannual report;
2. An hour of excess emissions for nitrogen oxide shall be any hour in which the 4-hour rolling average nitrogen oxide concentration exceeds 130 parts per million by volume on a dry basis at 15 percent oxygen. A 4-hour rolling average nitrogen oxide concentration is the arithmetic average of the average nitrogen oxide concentration measured by the continuous emission monitoring system for a given hour (on a dry basis corrected to 15 percent oxygen) and the three unit operating hour average nitrogen oxide concentrations immediately preceding that unit operating hour;
3. A period of monitor downtime for the continuous emission monitoring system shall be any unit operating hour in which sufficient data are not obtained to validate the hour, for either the nitrogen oxide concentration and/or diluent;
4. For each excess emission and monitoring downtime, the owner or operator shall report the following:
  - a. Magnitude of the excess emissions;
  - b. The date and time of commencement and completion of each time period of excess emissions;
  - c. Specific identification of each period of excess emissions that occurs during startups, shutdowns, and malfunctions. The nature and cause of any malfunction, if known, and the corrective action take or preventive measures adopted;
  - d. The date and time identifying each period during which the continuous emission monitoring system was inoperative except for zero and span checks and the nature of the system repairs or adjustments; and

- e. When no excess emissions have occurred or the continuous emission monitoring system have not been inoperative, repaired, or adjusted, such information shall be stated in the report.

The semiannual report shall be postmarked no later than the 30<sup>th</sup> day following the end of each 6-month period (i.e. July 30<sup>th</sup> and January 30<sup>th</sup>).

### **9.5 Changing fuels for Unit #1**

In accordance with ARSD 74:36:07:18, as referenced to 40 CFR § 60.330, Unit #1 shall be fueled solely with natural gas. The owner or operator shall apply for and obtain approval from the Secretary before other fuels can be used.

## **10.0 Acid Rain Program**

### **10.1 Operating in accordance with acid rain permit application**

In accordance with ARSD 74:36:16:01 through 74:36:16:04, inclusive, the owner or operator shall operate Unit #1 in accordance with the standard requirements set forth in the phase II acid rain permit application submitted April 10, 2000 (see Appendix A).

### **10.2 Reporting sulfur dioxide allowances**

In accordance with ARSD 74:36:16:01, as referenced to 40 CFR § 72.9(c)(1), the annual compliance certification report required in permit condition 5.8 shall include a statement that the owner or operator held sulfur dioxide allowances in the account for Unit #1 that equaled or exceeded the actual sulfur dioxide emissions from the unit for the previous calendar year.

## **11.0 State Only – BACM for Fugitive Dust Sources**

### **11.1 Unpaved roads and parking areas**

In accordance with ARSD 74:36:09, as referenced to 40 CFR § 52.21, and ARSD 74:36:05:16.01(8), the owner or operator shall implement one of the following particulate emission control measures to all unpaved roads and parking areas owned by Black Hills Corporation that go in and out of the Lange facility:

1. Apply a chemical stabilizer or water to all unpaved roads and parking areas in sufficient quantity and frequency to suppress particulate matter generation. The frequency of applying chemical stabilizer or water will be on an as needed basis to comply with the opacity limit in permit condition 11.2; or
2. Pave the unpaved road or parking area with tack seal, asphalt, recycled asphalt or concrete.

### **11.2 Opacity limit for fugitive sources**

In accordance with ARSD 74:36:09, as referenced to 40 CFR § 52.21, and ARSD 74:36:05:16.01(8), the owner or operator shall not discharge a visible emission to the ambient air of a density equal to or greater than 20 percent opacity from a paved road or parking lot, open storage pile, track out area, or waste pit. The 20 percent opacity reading is based on a series of two minutes averages with a minimum observation period of six minutes. The opacity reading shall be determined by 40 CFR Part 60, Appendix A, Method 9.

If an operation exceeds the opacity limit, the Secretary will allow the owner or operator two opportunities to correct the exceedance with existing controls and/or control measures. In the event of a third exceedance from the same operation, the Secretary will notify the owner or operator that the Best Available Control Measure (BACM) for that operation must be reevaluated. The owner or operator shall reevaluate BACM for that operation and submit a written proposal to the Secretary on the proposed new BACM for the operation within 60 days of receiving the Secretary's notification. The Secretary shall approve or disapprove the proposed new BACM within 60 days of receiving the proposal from the owner or operator. Once the proposed new BACM is approved by the Secretary, the permit will be revised to include the new BACM using the appropriate permit revision method identified in Chapter 3.0 of this permit.

### **11.3 Opacity readings during a high wind dust alert**

In accordance with ARSD 74:36:09, as referenced to 40 CFR § 52.21, and ARSD 74:36:05:16.01(8), opacity readings documenting an exceedance during a high wind air pollution alert shall not be considered an exceedance of the opacity limit in permit condition 11.2. A high wind air pollution alert is based on the following weather conditions:

1. Winds equal to or greater than 20 miles per hour on an hourly average occurring for two or more consecutive hours;
2. Peak winds of 40 miles per hour (one minute average) or greater; and
3. The above wind conditions with three or more days of low precipitation (less than 0.02 inches).