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Governor

STATE OF NEBRASKA

DEPARTMENT OF ENVIRONMENTAL QUALITY

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CONSTRUCTION PERMIT

PERMIT NUMBER: CP07-0050

**PREVENTION OF SIGNIFICANT DETERIORATION (PSD) and
BEST AVAILABLE RETROFIT TECHNOLOGY (BART)
PERMIT TO MODIFY AN
AIR CONTAMINANT SOURCE
IS HEREBY ISSUED TO:**

Nebraska Public Power District (NPPD)
PO Box 499
Columbus, Nebraska 68602-0499

FOR THE SPECIFIC MODIFICATION OF:

Replacing Unit 2's Existing Burner Equipment System with
New Low NO_x Burner Equipment System including Overfire Air Port System

TO BE LOCATED AT:

Gerald Gentleman Station
6089 South Highway 25
Sutherland, Lincoln County, Nebraska 69165

Pursuant to Chapter 14 of the Nebraska Air Quality Regulations, the public has been notified by prominent advertisement of this proposed modification of an air contaminant source and the thirty (30) day period allowed for comments has elapsed. This construction permit approves the proposed project as identified in the air quality construction permit application #07-0050 received August 8, 2007, including any supporting information received prior to issuance of this permit. Additional details of the proposed project, including estimated pollutant emissions caused by the project, can be found in the accompanying Fact Sheet. This construction permit shall supersede the construction permit issued on August 18, 2006 (CP06-0001) in its entirety at the time compliance with the NO_x emissions limitation is demonstrated. Until such time as the August 18, 2006, permit is superseded, specific conditions found in XIII.(A), (C), and (D)¹ remain in effect for Unit 1.

¹ These conditions of the August 18, 2006, permit contain CO BACT limits and reporting requirements for Unit 1. These BACT requirements remain in effect until that permit is superseded. That permit is not superseded until such time as Unit 2 has BART controls operational and both Units have demonstrated compliance. Condition V places time constraints for the demonstration to occur.

Compliance with this permit shall not be a defense to any enforcement action for violation of an ambient air quality standard. The permit holder, owner, and operator of the facility shall assure that the installation, operation, and maintenance of all equipment is in compliance with all of the conditions of this permit.

This permit is issued with the following conditions:

General Conditions

- I. This permit is not transferable to another source or location. {Chapter 17}
- II. Holding of this permit does not relieve the owner/operator of the source from the responsibility to comply with all applicable portions of the Nebraska Air Quality Regulations and any other requirements under local, State, or Federal law. {Chapter 41}
- III. Application for review of plans or advice furnished by the Director will not relieve the owner or operator of legal compliance with any provision of these regulations, or prevent the Director from enforcing or implementing any provision of these regulations. {Chapter 37}
- IV. Any owner or operator who failed to submit any relevant facts or who submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. If the owner or operator wishes to make changes at the source that will result in change(s) to values, specifications, and/or locations of emission points that were indicated in the permit application (or other supplemental information provided by the owner or operator and reviewed by the NDEQ in issuance of this permit), the owner or operator must receive approval from the NDEQ before the change(s) can be made. In addition, any modification which may result in an adverse change to the air quality impacts predicted by atmospheric dispersion modeling (such as changes in stack parameters or increases in emission rates, potential emissions, or actual emissions) shall have prior approval from the NDEQ. The owner or operator shall provide all necessary information to verify that there are no substantive changes affecting the basis upon which this permit was issued. Information may include, but not be limited to, additional engineering, modeling and ambient air quality studies. {Chapter 17, Sections 006, 007, & 008}
- V. The BART controls on Units 1 and 2 shall be operational and shall demonstrate compliance with the BART limitations as expeditiously as practicable, but no later than five years after approval of the Regional Haze SIP. Construction shall commence on the installation of the required BART equipment on Unit 2 within eighteen (18) months of Regional Haze SIP approval. The Department shall notify the source of the approval of the Regional Haze SIP within fifteen (15) days of the approval occurring. {Chapter 17, Section 012}
- VI. The owner/operator of the source shall provide the following notifications to the NDEQ:
 - (1) The date construction, reconstruction or modification commenced as defined in Chapter 1, Section 031. Notification shall be postmarked no later than 30 days after such date and include a summary description of whether the requirement was met through: {Chapter 17, Section 012}
 - (a) Initiating physical on-site construction activities of a permanent nature that meet the definition of “begin actual construction”, or

- (b) Entering into binding agreements or contractual obligations. If this option is used, the notice shall also include a brief summary of each binding agreement or contractual obligation entered into, the date of the agreement or contract, and why it cannot be cancelled or modified without substantial loss to the owner or operator.
 - (2) The date of startup of operations that utilize the New Low NO_x Burner Equipment System including Overfire Air Port System on Unit 2 postmarked within 15 days after such date. {Chapter 7, Section 002.03}
- VII. The owner or operator shall allow the NDEQ, EPA or an authorized representative, upon presentation of credentials to: {Neb. Rev. Statute §81-1504}
- (1) Enter upon the owner or operator's premises at reasonable times where a source subject to this permit is located, emissions-related activity is conducted or records are kept, for the purpose of ensuring compliance with the permit or applicable requirements;
 - (2) Have access to and copy, at reasonable times, any records, for the purpose of ensuring compliance with the permit or applicable requirements;
 - (3) Inspect at reasonable times any facilities, pollution control equipment, including monitoring and air pollution control equipment, practices, or operations, for the purpose of ensuring compliance with the permit or applicable requirements;
 - (4) Sample or monitor at reasonable times substances or parameters for the purpose of ensuring compliance with the permit or applicable requirements.
- VIII. When requested by the NDEQ, the owner or operator shall submit completed emission inventory forms for the preceding year to the NDEQ by March 31 of each year. {Chapter 6}
- IX. Open fires are prohibited except as allowed by Chapter 30.
- X. Particulate Matter – General Requirements: {Chapter 32}
- (1) The owner or operator shall not cause or permit the handling, transporting or storage of any material in a manner, which allows particulate matter to become airborne in such quantities and concentrations that it remains visible in the ambient air beyond the property line.
 - (2) The owner or operator shall not cause or permit the construction, use, repair or demolition of a building, its appurtenances, a road, a driveway, or an open area without applying all reasonable measures to prevent particulate matter from becoming airborne and remaining visible beyond the property line. Such measures include, but not limited to, paving or frequent cleaning of roads, driveways and parking lots; application of dust-free surfaces; application of water; and planting and maintenance of vegetative ground cover.

- XI. If and when the Director declares an air pollution episode as defined in Chapter 38, Sections 003.01B, 003.01C, or 003.01D, the owner or operator shall immediately take all required actions listed in Title 129, Appendix I until the Director declares the air pollution episode terminated.
- XII. This permit may be revised (reopened and reissued) or revoked for cause in accordance with Title 129 and Title 115, Rules of Practice and Procedure. Conditions, under which this permit will be revised or revoked for cause, include but are not limited to: {Chapter 15, Section 006}
- (1) A determination by the Director, or the Administrator of EPA that:
 - (a) the permit must be revised to ensure compliance with the applicable requirements;
 - (b) the permit contains a material mistake or that inaccurate statements were made in the emissions standards or other terms or conditions of the permit.
 - (2) The existence at the source of unresolved noncompliance with applicable requirements or a term or condition of the permit, and refusal of the owner or operator to agree to an enforceable schedule of compliance to resolve the noncompliance;
 - (3) The submittal by the owner or operator of false, incomplete, or misleading information to the NDEQ or EPA;
 - (4) A determination by the Director that the source or activity endangers human health or the environment and that the danger cannot be removed by a revision of the permit; or
 - (5) The failure of the owner or operator to pay a penalty owed pursuant to court order, stipulation and agreement, or order issued by the Administrator of the EPA.
- XIII. This permit may contain abbreviations and symbols of units of measure which are defined in 40 CFR Part 60.3. Other abbreviations may include, but are not limited to, the following: Best Available Control Technology (BACT), Best Available Retrofit Technology (BART), Code of Federal Regulations (CFR), Carbon Monoxide (CO), Continuous Emissions Monitoring System (CEMs), Environmental Protection Agency (EPA), Hazardous Air Pollutant (HAP), Low NO_x Burners (LNB), Nebraska Department of Environmental Quality (NDEQ), Nitrogen Oxides (NO_x), Prevention of Significant Deterioration (PSD).

Specific Conditions

- XIV. Specific terms and conditions of this permit:
- (A) BART Emissions Limitation for Units 1 & 2. Pursuant to Title 129, Chapter 43 {and 40 CFR 51, Appendix Y}, the permittee shall adhere to the following requirements. All such controls and monitoring equipment shall be fully functional during emission unit operation including emission unit startup and shutdown periods.
 - (1) Nitrogen Oxide (NO_x): BART for NO_x shall be the installation of Low NO_x Burners with Overfire Air Ports on Unit 2.

- (a) Emissions from both units shall be averaged together and shall meet a NO_x emissions limitation of 0.23 lb/MMBtu (30-day rolling average).
 - (b) The NO_x BART limitations established in Condition XIV.(A)(1)(a) applies at all times, including periods of startup, shutdown, and malfunction. Malfunctions shall be handled as described in Title 129, Chapter 35.
- (2) The following calculation shall be used to demonstrate compliance with the NO_x emission limitations in Condition XIV.(A)(1)(a):

$$\text{NO}_x \text{ Emission Rate (lb/MMBtu)} = \frac{MER_1 + MER_2}{HI_1 + HI_2}$$

Where: MER₁ = Mass Emission Rate from Unit 1 (lbs NO_x emitted)
 HI₁ = Heat Input from Unit 1 (MMBtu)
 MER₂ = Mass Emission Rate from Unit 2 (lbs NO_x emitted)
 HI₂ = Heat Input from Unit 2 (MMBtu)

- (a) The 30-day rolling average calculation shall be conducted as follows:
 - (i) The data inputs necessary for utilizing the calculation in Condition XIV.(A)(2) shall be obtained in accordance with 40 CFR Part 75.
 - (ii) The NO_x Emission Rate (lbs/MMBtu) shall be calculated each hour by utilizing the calculation methodology in Condition XIV.(A)(2).
 - (iii) Daily average NO_x emission calculations will be calculated by taking the summation of the hourly averages, obtained by Condition XIV.(A)(2)(a)(ii), and dividing by the number of hours in which there was a quality assured hourly average, to determine the average NO_x emissions for a particular day.
 - (iv) The 30-day rolling average shall be calculated each “boiler operating day” by summing the daily average NO_x emission rates for the previous 30 boiler operating days and dividing by 30.
- (b) The permittee shall demonstrate compliance with the requirement to install Low NO_x Burners with Over-fire Air Ports on Unit 2 by submitting notification that the installation has been completed to the Department within 30 days of installation completion.
- (c) The permittee shall install, operate, and maintain a NO_x continuous emissions monitoring system (CEMS) on each unit to demonstrate compliance with the BART NO_x limitation. Each CEMS shall be operated and certified in accordance with 40 CFR Part 75.
- (d) Recordkeeping and reporting associated with each NO_x CEMS shall be in accordance with 40 CFR 75.

- (B) BACT Emissions Limitations for Units 1 & 2. Pursuant to Title 129, Chapter 19 {40 CFR 52.21}, the permittee shall adhere to the following requirements. All such controls shall be fully functional during emission unit operation except as allowed during emission unit startup and shutdown periods.
- (1) Carbon Monoxide (CO): BACT for CO shall be the use of combustion controls to maintain a CO emissions limit of 0.50 lb/MMBtu (30-day rolling average) for each unit. The CO BACT limit shall not apply during periods of startup and shutdown. Malfunctions shall be handled as described in Title 129, Chapter 35.
- (a) The 30-day rolling average calculation shall be conducted as follows:
- (i) The average CO emissions for each GGS unit, for each hour, shall be recorded by sampling the lb/MMBtu value by completing a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period for Unit 1 anytime it is combusting fuel and its monitor is in service and is not malfunctioning or being calibrated; and for Unit 2 anytime it is combusting fuel and its monitor is in service and is not malfunctioning or being calibrated. Data for startup and shutdown shall not be used to calculate the average CO emissions. All data shall be reduced as specified in 40 CFR 60.13(h).
- (ii) Daily average CO emission calculations will be calculated by taking the summation of the hourly averages, obtained by Condition XIV.(B)(1)(a)(i), and dividing by the number of hours in which there was a quality assured hourly average, to determine the average CO emissions for a particular day.
- (iii) The 30-day rolling average shall be calculated each “boiler operating day” by summing the daily average CO emission rates for the previous 30 boiler operating days and dividing by 30.
- (b) The owner or operator shall install, operate, and maintain CO continuous emissions monitoring system (CEMS) on each unit to demonstrate compliance with the BACT CO limitations. Each CEMS shall be operated and certified in accordance with the following:
- (i) 40 CFR 60.13
- (ii) 40 CFR 60 – Appendix B
- (iii) 40 CFR 60 – Appendix F
- (c) Recordkeeping and reporting associated with each CO CEMS shall be in accordance with 40 CFR 60.7.
- (C) All records required in this permit shall be maintained on-site for a minimum period of five (5) years. These records shall be clear and readily accessible to Department

representatives and include, but are not limited to, copies of all notifications, reports, test results, and plans submitted to the Department.

The undersigned issues this permit on behalf of the Director under the authority of Title 129 – Nebraska Air Quality Regulations as amended May 17, 2009.

5/11/10

{Original Signed}

Date

Jay D. Ringenberg
Deputy Director of Programs

Nebraska Public Power District, Gerald Gentleman Station

EPA Rulemakings

CFR: 40 C.F.R. 52.1420(d)(3)
FRM: 77 FR 40150 (7/6/12)
PRM: 77 FR 12770 (3/2/12)
State Submission: 7/13/11
State Final: effective 5/11/10
APDB File: NE-69; EPA-R07-OAR-2012-0158; FRL-9689-2; effective 7/6/12
Description: Permit: CP07-0050. Issued to: Nebraska Public Power District (NPPD)
Location: Gerald Gentleman Station. The modification to this permit provides for the replacement of Unit 2's existing Burner Equipment System with a new Low NO_x Burner Equipment System supported by an Overfire Air Port System.

Difference Between the State and EPA-Approved Regulation

EPA has only approved the elements of the permit pertaining to NO_x requirements.