RESPONSE TO PUBLIC COMMENTS

ON

Draft
Air Pollution Control
Greenhouse Gas
Prevention of Significant Deterioration (PSD)
Permit to Construct

Permit No. PSD-WY-000001-2011.001

Permittee:
Owner: Cheyenne Light, Fuel & Power / Black Hills Power, Inc.
Operator: Black Hills Service Company
P.O. Box 1400
625 Ninth Street
Rapid City, South Dakota 57709

Permitted Facility:
Cheyenne Prairie Generating Station
Laramie County, Wyoming

United States Environmental Protection Agency
Region 8
Air Program
Denver, Colorado
September 27, 2012

In the Matter of a Permit Application from Cheyenne Light Fuel and Power/Black Hills Power, Inc. to Construct the Proposed New 220 Mega Watt (MW) Electric Generating Utility to be known as the Cheyenne Prairie Generating Station Located in Laramie County, Wyoming.

I. Introduction

The United States Environmental Protection Agency, Region 8 (EPA) received a permit application from Black Hills Corporation (BHC) on behalf of its wholly owned subsidiaries Cheyenne Light Fuel and Power and Black Hills Power, Inc (owners) and Black Hills Service Company (operator) to construct a new 220 MW electric generating utility to be known as the Cheyenne Prairie Generating Station (CPGS). CPGS is proposed to be sited adjacent to the Dry Creek water treatment facility approximately five miles east of downtown Cheyenne along the south side of the Interstate - 80 corridor.

II. Analysis of Black Hills Corporation's Comments

BHC provided detailed comments which we have outlined below (in order of their appearance in the comment letter) and provided responses.

1. Statement of Basis (SOB), Table 9, Column 5 - BHC notes that the fifth column should state "gross load" rather than "net load."

EPA Response: The information in Table 9 was presented to EPA in the applicant's PSD application on page 5-14 within Table 5-5, which listed column five as "net load (MWh)." In light of the applicant's comment we note that Table 9 of the SOB should have indicated "gross load (MWh)." The reference to a 5% difference between net and gross load for Polk Power Station will remain unchanged as this was presented in the SOB consistent with the information presented in the application. This comment has not resulted in any change to the draft permit.

2. Part I - Introduction, Cover Page - BHC clarifies that the CPGS will be owned by Cheyenne Light Fuel and Power and Black Hills Power, Inc., and requests that "Black Hills Corporation" be deleted from the Introduction and Black Hills Power, Inc., be added.

EPA Response: The change has been made.

3. Part I - Introduction, Cover Page - BHC commented that there should be a line inserted for the "Operator" and that the operator will be Black Hills Service Company.

EPA Response: The change has been made.

4. Part I - Introduction, Page 1 - Paragraph 1 - Line 2 - BHC requests that Black Hills Power, Inc., be added following Cheyenne Light Fuel and Power since they will share ownership.

EPA Response: The change has been made.

5. Part I - Introduction, Page 1 - Paragraph 1 - Line 5 - BHC requests that the name of the facility be Cheyenne **Prairie** Generating Station rather than Cheyenne Plains.

EPA Response: The change has been made.

6. Part II - General Permit Conditions, Section B - #4 - Line 1 - BHC requests the option of either installing a CO_2 CEMS or use the 40 CFR Part 75, Appendix G methodology to measure CO_2 emissions.

EPA Response: The draft permit already allows for either option. These options are discussed in our responses to BHC Comments 19 and 20. Nevertheless, after further review of Condition II.B.4., we have revised it to be clearer, by indicating that Condition II.B.4 is only applicable if the Permittee elects to use the option of a CEMS to demonstrate compliance with the lb CO_2e/MWh emission limits in the permit. The revised condition reads as follows:

> ***4.*** *the date upon which certification tests of the CO_2 and flow rate CEMS will commence, in accordance with 40 CFR 75.61(a)(1)(i) and 40 CFR Part 60, Appendix B, Performance Specification 3 (if the Permittee elects to use CEMS to demonstrate compliance with the lb CO_2e/MWh emission limit). Additionally, the initial certification or recertification application shall be submitted for the CO_2 CEMS (if used) as required by 40 CFR 75.63.*

7. Part II - General Permit Conditions - Section B - #4 - Line 2 - BHC suggests deleting the reference to 40 CFR 60, Appendix B, Performance Specification 3 from Condition II.B.4., (which outlines permit notification requirements) as Performance Specification 3 has no notification requirements; the reference to Performance Specification 3 only details CEMS certification. BHC believes the remaining reference to 40 CFR 75.61(a)(1)(i) is sufficient for documenting permittee notification requirements.

EPA Response: EPA disagrees with BHC's rationale for removing the reference to 40 CFR 60, Appendix B, Performance Specification 3. Condition II.B.4 requires the submission of notification in accordance with Part 75 for certifications of CO_2 CEMS using the test procedure in Performance Specification 3. The requirement to conduct the certification using Performance Specification 3 is not stated in 40 CFR 75.61(a)(1)(i). We therefore consider it necessary to state this in the permit. 40 CFR Part 75, Appendix A, Section 6.5.5., Reference Method Measurement Location as well as Section 6.5.6., Reference Method Travers Point Selection, require compliance with Performance Specification 3 for CO_2 monitoring systems. The permit condition shall remain as shown in EPA's response to BHC Comment 6 above.

8. Part II - General Permit Conditions - Section C - BHC requests EPA delete, "…including associated air pollution control equipment (including SCR and Catox)…" because BHC believes that the SCR and CatOx are not control units used to control GHG emissions and are addressed within the WDEQ PSD permit.

EPA Response: We disagree, to the extent that BHC assumes that SCR and CatOx are listed because they reduce GHG emissions. Instead, they are listed because they potentially increase GHG emissions. SCR catalysts are known to generate nitrous oxide (a GHG) and CatOx convert some carbon compounds within the exhaust to CO_2 (the primary GHG to be emitted by CPGS). Since the conversion of NO_x within the SCR system to nitrous oxide depends on operational parameters, and likewise conversion of

CO, hydrocarbons, aldehydes, ketones, and other volatiles and HAPs to CO_2 within the CatOx depends on operational parameters, it is appropriate to include SCR and CatOx as part of the emission point/equipment description in Condition III.A., Table 1. However, to avoid potential conflict between the WDEQ PSD permit with respect to facility operation, the reference to SCR and CatOx in this Condition II.C., will be removed. The revised condition reads as follows:

> ***C. FACILITY OPERATION***
>
> *At all times, including periods of startup, shutdown, and malfunction, Permittee shall maintain and operate the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing GHG emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility.*

9. Part II - General Permit Conditions - Section C - Operating and Maintenance Procedures - BHC requests that EPA delete the following language, "Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the EPA, which may include, but is not limited to, monitoring results, review of operating maintenance procedures and inspection of the facility." BHC provides the following three reasons for this request. (1) There are no regulatory requirements to have Operating and Maintenance Procedures for equipment in EPA's GHG Tailoring Rule, and specifically no regulatory requirement for an Operating and Maintenance Plan at this facility. The permit does not specify which equipment requires an Operating and Maintenance Procedure for GHG compliance; (2) There will be operating and maintenance procedures for some equipment on site, but not all. As worded in the draft permit, this condition could pertain to equipment that does not impact GHG air quality emissions; and (3) will EPA want to review and determine if the "Operating and Maintenance Procedures" are acceptable for every procedure at the facility?

EPA Response: The language that BHC requests be deleted is included in all EPA Region 8 PSD permits and is provided for under 40 CFR 52.21 as measures to assure compliance with BACT limits. The condition does not require that Operating and Maintenance Procedures or Plans be generated, only that if they are available they may be used by EPA in determining whether the Permittee has indeed maintained and operated the facility including associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing GHG emissions. Emissions of GHGs can be affected indirectly by a wide range of activities at the site not necessarily limited to the actual GHG emission point. The permit condition will remain as written.

10. Part II - General Permit Conditions - Section D - #1 - Malfunction Reporting - BHC requests that the timeframe for reporting malfunctions and the malfunction permit condition be identical to the Wyoming's SIP approved malfunction reporting provision. BHC notes that Wyoming requires 72 hours notice rather than 48 hours. BHC also requests that the permit condition stipulate that the submission only need be "post marked within 72 hours" since it may take 3-10 days for the letter to travel through the mail before it is delivered to EPA.

EPA Response: BHC does not cite the specific rule within the WY SIP. The current EPA approved SIP rule at Wyoming Air Quality Standards and Regulations (WAQSR) Chapter 1, Section 5(a)(i), states, "Any source believing that any emissions in excess of established regulation limits or standards resulted

from an unavoidable equipment malfunction shall notify the Division within 24 hours of the incident via telephone, electronic mail, fax, or other similar method. A detailed description of the circumstances of the incident as described in paragraph 5(a)(i)(A) of this section, including a corrective program directed at preventing future such incidents, must be submitted within 14 days of the onset of the incident." We note that the draft WDEQ PSD permit for this project uses the same language as referenced above, which is at least as stringent as EPA's draft PSD permit. The permit condition will remain unchanged.

11. Part II - General Permit Conditions - Section F - Transfer of Ownership - BHC comments that the reference to transfer a permit is based upon transferring a permit under the Clean Water Act (40 CFR Part 122, Subpart D). The Clean Water Act process requires a permit action such as the permit being modified, revoked, reissued, or having a minor modification made. BHC requests that EPA reference the title V operating permit requirements for change of ownership in 40 CFR Part 70.7(d) (Administrative Permit Amendments). BHC believes the GHG PSD permit will sequence into a title V permit and therefore believes the procedures and requirements from 40 CFR Part 70 to be the appropriate method to transfer ownership.

EPA Response: The language on transfer of ownership is standard language in all EPA Region 8 PSD permits. Since 40 CFR part 124 (administrative procedures for issuance of federal PSD permits) does not address transfer of ownership, EPA uses language from 40 CFR Part 122, Subpart D, since it pertains to federally issued permits. The administrative permit amendment track in 40 CFR 70.7(d) is not an appropriate model because it does not pertain to federally issued permits, and because there is no administrative permit amendment track in PSD rules. In any event, the language in EPA Region 8 PSD permits on transfer of ownership is similar to the language in 40 CFR 70.7(d). The permit condition shall remain as written.

12. Part III - Special Conditions - Section A - Table 1 - CO_{2e} versus CO_2 - BHC comments that they developed an emission inventory to define CO_{2e} emissions for each unit in the permit that included CO_2, CH_4, and N_2O emissions. BHC states that they believe the limits in Table 1 will be determined through emissions monitoring or testing of CO_2 emissions on each unit. BHC comments that the monitoring and testing methods are designed to measure CO_2 emissions, not CO_{2e}. Therefore, BHC requests that "CO_{2e}" be deleted and replaced with "CO_2" for each limit in the table. BHC cites another reason for this request: consistency with EPA's proposed GHG New Source Performance Standard (NSPS).

EPA Response: EPA disagrees that the CO_{2e} limits should be replaced with CO_2 limits. The regulated pollutant in this case is GHG, which includes the aggregate of the six gases (or classes of gases in the case of CFCs or PFCs). The definition of BACT requires a numeric limit for the pollutant undergoing PSD review, in this case GHGs. Therefore the compliance demonstration needs to account for all GHGs emitted by the source. Since only CO_2, CH_4, and N_2O have the potential to be emitted by the combustion equipment, the limit must apply to the aggregate of the three gases (or, as an alternative, individual limits may be established for each of the three GHGs). Condition III.B.1.a., which describes the procedure for calculating CO_{2e} emissions for demonstrating compliance with the lb/MWh emission limits in Condition III.A., Table 1, has been revised to clarify that all three gases, rather than just CO_2, must be accounted for in calculating the CO_{2e} emissions for this source. See EPA response to BHC Comment 19 for the revised permit language.

13. Part III - Special Conditions - Section A - Table 1 - Short Ton Notation - BHC requests that a footnote be added to Table 1 to clarify that all references to "ton" are representative of US short tons (2000 lb).

EPA Response: The addition has been made.

14. Part III - Special Conditions - Section A - Table 1 - BHC requests that for units EP15 and EP16 that the limitation on hours of operation not include emergency use and requests EPA add the words "non-emergency" to the 500 hour per year operational limitation.

EPA Response: BHC has not presented a rationale for its request. We have included limitations on hours of operation of these units to support demonstration of compliance with the tpy CO_{2e} limits, and to reflect the emergency role of these units, consistent with EPA guidance. *See* EPA memo dated September 6, 1995, from John S. Seitz to Regional EPA Air Program Directors, entitled *Calculating Potential to Emit (PTE) for Emergency Generators* (1995 Seitz Memo). This guidance states that emergency generators (or more broadly, emergency equipment) are constrained in their operation and that while the combined periods of power outages (or other emergency situations) during any one year will vary somewhat, an upper bound can be estimated which would never be expected to be exceeded absent extraordinary circumstances. Also, the duration of these outages (or other emergency situations) are entirely beyond the control of the source, and when they do occur (except in the case of a major catastrophe) rarely last more than a day (page 3, 1995 Seitz Memo).

Further, "EPA recommends that the potential to emit be determined based upon an estimate of the maximum amount of hours the generator [or other emergency equipment] could operate, taking into account (1) the number of hours power would be expected to be unavailable and (2) the number of hours for maintenance activities. The EPA finds that 500 hours is an appropriate default assumption for estimating the number of hours that an emergency generator could be expected to operate under worst-case conditions. Alternative estimates can be made on a case-by-case basis where justified by the source owner…" (page 3, 1995 Seitz Memo). The guidance goes on to state that, "[it] is [not] intended to discourage permitting authorities from establishing operational limitations in construction permits" (page 4, 1995 Seitz Memo).

With this guidance in mind it is not appropriate to exempt operation of units EP15 and EP16 from the hours of operation limitation. The 250 hour and 500 hour per year limitations on operation of the units shall remain as written and does include operation of the engine for both maintenance and readiness as well as operation during emergency conditions.

15. Part III - Special Conditions - Section A - Table 1 - BHC comments that the use of "better" in the requirement to use No. 2 fuel oil or better is ambiguous and could have different meanings such as lower sulfur content, higher heat content, or even a lower cost.

EPA Response: EPA agrees. EPA has deleted the words "or better."

16. Part III - Special Conditions - Section A - Table 1 - Row 1, Column 3 - BHC comments that to remain consistent with the proposed GHG CO_2 NSPS rule, the limit should be based on a 12-month rolling average. BHC requests a citation to the proposed GHG CO_2 NSPS (Docket No. EPA-HQ-OAR-2011-0660). BHC adds that if the 365-day rolling average is to be retained, EPA needs to provide a detailed description on how the value is to be calculated and validated.

EPA Response: PSD BACT limits must be met on a continuous basis. In recent Region 8 PSD permits, BACT limits have been 30-day rolling average limits or shorter. EPA acknowledges that a longer averaging period may be appropriate for GHG in its Permitting Guidance (available online at: http://www.epa.gov/nsr/ghgpermitting.html); however in issuing this permit we believe the ability to show at least daily compliance with continuous BACT limits should not be lost when adopting a longer averaging period. A 365-day rolling average accomplishes this. Also, EPA notes that the ton per year limits in the table are 365 day rolling totals, not 365 day rolling averages. Only the limits in lbs CO_{2e}/MWh are 365 day rolling averages. EPA has provided further clarification regarding calculation of the 365-day average in EPA response to BHC Comment 19.

17. Part III - Special Conditions - Section B - CO_{2e} versus CO_2 - BHC comments that they developed an emissions inventory to define the CO_{2e} emissions for each unit in the permit that included CO_2, CH_4, and N_2O emissions. BHC comments that compliance with the limits in Part III, Section A will be determined through the procedures in Part III, Section B (applicable to the combustion turbines) and that the emission monitoring (or testing required by Part VI of the permit) only require determination of CO_2 emissions. Therefore, the PSD BACT limit should be expressed in the permit in terms of CO_2, not CO_{2e}. BHC also requests that EPA distinguish that the ton per year limit be based upon US short tons, which would be consistent with EPA's proposed CO_2 NSPS.

EPA Response: EPA that emission monitoring (or testing required under Section VI., of this permit) only requires determination of CO_2 emissions. As explained in our response to BHC Comment 12, the regulated pollutant in this case is GHG, not CO_2. The compliance demonstration therefore needs to account for all GHGs emitted by the source, which is accomplished in this permit by establishing enforceable limits on a CO_2e basis. Also, please note EPA's response to BHC Comment 40, below, regarding permit Condition VI.A.

As to BHC's comment regarding short tons, EPA agrees that the permit uses short tons throughout and has made an addition to clarify this, see EPA response to BHC Comment 13, above.

18. Part III - Special Conditions - Section B - Requirements for Combustion Turbine - 1.a. - BHC requests CO_{2e} be replaced with CO_2 (as stated in BHC Comments 12 and 17). BHC also requests that the BACT limit and associated wording throughout the permit be based on gross energy output rather than net energy output. BHC provided five main reasons for this request as follows:

1. The Proposed GHG CO_2 NSPS (Docket No. EPA-HQ-OAR-2011-0660) identifies that the limits in the rule shall be based upon using "gross" hourly energy output.

2. In the proposed rule (page 208), EPA is seeking comments on using net or gross. EPA's considerations for the use of "net" electrical output are:

A. Recognizing the efficiency gains of selecting EGU designs and control equipment that require less auxiliary power. (BHC comments that as an electrical industry their goal is to generate the maximum amount of electrical energy for sale to the grid. BHC believes that evaluating efficiency gains is already undertaken in the design of the facility and through their Business Improvement Process program).

B. Selecting fuels that require less emissions control equipment. (BHC comments that pipeline quality natural gas in this region is materially the same between suppliers in terms of heating value and emissions).

C. Recognizing the environmental benefit of higher efficiency motors, pumps, and fans. (BHC states that their comment on item 1, above, applies to this item as well).

3. Auxiliary equipment could account for up to 3-5% parasitic load for combined cycle power plants. BHC estimates that the CPGS will have a 4% parasitic load for auxiliary equipment, based upon finding the appropriate equipment at the highest efficiency rate. It is BHC's opinion that using "net" electrical generation output only reduces the proposed limit and does not serve to force facilities to evaluate energy efficiency on auxiliary equipment. The proposed limit is 1100 lb/MWh (net). With a 4% parasitic load BHC comments that the limit would equate to 1056 lb/MWh on a gross electric generation basis.

4. BHC comments there will also be difficulties in allocating station loads to different generating units. (EPA understands this comment to mean that, when showing compliance with a limit based on "net" load rather than "gross" load, it may not be possible to determine what proportion of the total plant load should be attributed to each combustion turbine generator. This value would be needed to determine an emission rate in lb/MWh).

5. BHC also comments that the existing regulations at 40 CFR Part 60, Subparts KKKK and TTTT, Part 75, and Part 98 are all based upon gross electrical output.

EPA Response: For reasons explained in EPA's response to BHC Comment 17 above, EPA disagrees with BHC's request to replace CO_2e in the permit with CO_2. However, EPA agrees to BHC's request to express the BACT limits in terms of gross rather than net energy output. After considering BHC's comment, EPA finds that the benefits of using gross energy output support the use of such a limit for this GHG PSD permit. EPA continues to believe that the use of net electrical output, rather than gross electrical output, does provide some benefit. Without basing the limitation on net electrical output, there would be no practically enforceable mechanism to ensure that fuel burned (and GHGs emitted) at CPGS are in response to the electrical grid's need for additional generation. Additionally, because parasitic load can vary with different operating scenarios, the Permittee may be afforded further flexibility in complying with a net load based limit since different management practices may affect parasitic load levels.

Nevertheless, expressing BACT limits in terms of gross energy output avoids certain issues which may arise if net energy output is used. As described in BHC's comment, a limit based on net energy output presents practical enforceability issues in terms of how to allocate station loads to different generating units, especially in cases such as this where turbines will be operated in intermediate mode.

EPA therefore finds, that the benefits of using gross energy output support the use of such a limit for this GHG PSD permit. The combustion turbine BACT limits in this permit have been re-expressed accordingly. Our evaluation of this issue is specific to this permitting action and is not a commentary regarding GHG PSD permitting generally or the development of the NSPS for GHG emissions from electrical utility generating units.

19. Part III - Special Conditions - Section B - #1.a. - BHC suggests that the calculation method for CO_2 lb/MWh be clearly detailed for calculation methodology and harmonized more closely with the proposed 40 CFR 60, Subpart TTTT NSPS calculation for consistency. BHC suggested the following language:

"a. To demonstrate compliance with the lb CO_2/MWh BACT emission limits (for Units EP01-EP05), the Permittee shall calculate the pounds of CO_2 emitted hourly from the equations provided in 40 CFR Part 75 Appendix G or the CO_2 emissions CEMS data. The permittee shall also calculate the hourly gross output in terms of MWh for each hour. At the end of each operating month, the Permittee shall sum the hourly CO_2 pounds emitted during the 12 operating month rolling period, and sum the hourly gross output during the same period. The lb CO_2/MWh result is obtained by dividing the total pounds CO_2 emissions value by the total gross energy output (MWh(gross)) value. The result shall be expressed on a 12 month rolling average." (text struck-out in BHC comment not included)

EPA Response: For reasons explained in EPA's responses to BHC Comments 12 and 16, EPA does not agree with BHC's request to express the BACT limits on a 12-month rolling average rather than a 365-day rolling average, and further does not agree to BHC's request to express the BACT limits in terms of CO_2 rather than CO_2e. However, EPA agrees that Condition III.B.1. needs to be clearer on how to calculate CO_2e emissions. As a result of this Comment 19, and as a result of related BHC Comments 16 and 20, Condition III.B.1., has been revised to read as follows:

a. The Permittee shall demonstrate compliance with the lb CO_{2e}/MWh emission limits for each of the CTG's (Units EP01- EP05) as follows.

i. The Permittee shall calculate the pounds of CO_2 emitted hourly using the procedure provided in 40 CFR 75.10(a)(3)(i) (direct emission measurement using CEMS) or using the procedure provided in 40 CFR 75.10(a)(3)(ii) (calculation of CO_2 emissions using the equations from 40 CFR 75, Appendix G, using F_c factors updated monthly from fuel analysis), and sum the hourly emissions for each calendar day.

ii.The Permittee shall calculate the pounds of CH_4 and N_2O emitted each calendar day by using the default CH_4 and N_2O emission factors contained in Table C-2 of 40 CFR 98 and the measured actual hourly heat input (HHV). The Permittee shall then calculate the pounds of CO_{2e} (as CH_4 and N_2O) based on the procedures contained in Greenhouse Gas Regulations, 40 CFR 98, Subpart A using the Global Warming Potentials (GWP) listed in Table A-1 of 40 CFR 98, Subpart A.

iii. The Permittee shall sum the daily emissions from Condition III.B.1.a.i. and ii. (in pounds of CO_{2e}).

iv. The Permittee shall also measure the hourly gross electrical output in terms of MWh for each hour.

v. At the end of each calendar day, the Permittee shall sum the pounds of CO_{2e} emitted that day with the emissions from the previous 364 days, and sum the hourly gross output during the same 365-day period. The average lb CO_{2e}/MWh result for the 365-day period is obtained by dividing the total pounds CO_{2e} emissions value by the total gross energy output (MWh(gross)) value. The result shall be expressed in lbs CO_{2e}/MWh(gross), on a 365-day rolling average.

b. The Permittee shall demonstrate compliance with the tons per year (tpy) emission limits for each of the CTG's (Units EP01- EP05) as follows.

i. The Permittee shall calculate the pounds of CO_{2e} emitted each calendar day using the procedures in Condition III.B.1.a.i through iii above, and convert the result into tons.

ii. At the end of each calendar day, the Permittee shall sum the tons of CO_{2e} emitted that day with the tons of CO_{2e} emitted from the previous 364 days, and record the 365-day total.

20. Part III - Special Conditions - Section B - #1.b.i. - BHC requests specific details from EPA on how to use 40 CFR 75, Appendix G to determine stack gas flow rate, if such is possible. BHC states that according to conversations with EPS Clean Air Markets Division staff, Appendix G contains no formulas to directly calculate stack gas flow rate. Appendix G relies upon natural gas fuel flow rate, for these proposed unit types, to determine CO_2 mass emissions. Assuming this is correct, BHC suggests the following wording:

"If Permittee opts to use 40 CFR 75, Appendix G, using F_c factors updated monthly from fuel analysis, no hourly volumetric stack gas flow rate is required."

EPA Response: EPA agrees that Condition III.B.1.b was not properly worded, and that related permit condition III.B.1.a needs to be clearer on the overall question of what options are available for determining the mass of CO_2 emitted; however EPA disagrees that BHC's additional wording is necessary. Instead, EPA has revised Condition III.B.1.a and has replaced Condition III.B.1.b. as it appeared in the draft permit, since the options for determining the mass of CO_2 emitted are now clearly laid out in revised Condition III.B.1.a., and b. For the same reason, EPA has removed Condition III.B.3.b.

In issuing the draft PSD permit for public comment and in issuing this final PSD permit, it has always been EPA's intent that Condition III.B.1., allows for the mass of CO_2 emitted to be calculated using either of the procedures listed in 40 CFR 75.10(a)(3)(i) or (ii). Therefore, EPA has simplified the permit to cite 75.10(a)(3)(i) and (ii) as the available options in Condition III.B.1.a.i., . This change is reflected in the modified permit language above, in EPA response to BHC Comment 19. Condition III.B.1.a., has also been expanded to provide a step-by-step procedure on how to calculate CO_{2e} emissions in lb/MWh on a 365-day rolling average. EPA has created a new Condition III.B.1.b, to provide a similar step-by-step procedure on how to calculate CO_{2e} emissions in tons as 365-day rolling totals.

21. Part III - Special Conditions - Section B - #1.b.ii. - BHC suggests that the reference contained in the condition be 40 CFR 75.10(a)(3)(i) rather than to 40 CFR 75.10(a)(3). BHC states that the reference to subparagraph (i) deals specifically with flow monitoring and that without a reference to subparagraph (i) the other subparagraphs have no relevance.

EPA Response: EPA finds that this comment is no longer relevant because, as explained in EPA's response to BHC Comment 20, EPA has simplified the permit by revising Condition III.B.1.a. and deleting Condition III.B.1.b., as it appeared in the draft permit.

22. Part III - Special Conditions - Section B - #1.b.ii. - Second Comment - BHC suggests the reference to 40 CFR 75.10(a)(5) be deleted since this is a multi-pollutant equipment use reference which does not apply for this limited CO_2 permit.

EPA Response: EPA finds that the comment is no longer relevant for the same reason as explained in EPA response to BHC Comment 21. Please see EPA response to BHC Comment 21.

23. Part III - Special Conditions - Section B - #2.a. - BHC requests substantial clarification on calculation methodology where a CO_2 monitor can be used to calculate volumetric stack gas flow rate. BHC states that in discussion with EPA Clean Air Markets Division staff, Part 75, Appendix G contains no formulas to directly calculate stack gas flow rate. BHC comments that Appendix G relies upon natural gas fuel flow rate, for these proposed unit types, to determine CO_2 mass emissions.

EPA Response: EPA agrees with BHC that the draft permit condition is confusing. EPA finds that the last sentence of the permit condition is erroneous and is the source of confusion. Neither of the allowed procedures in 40 CFR 75.10(a)(3)(i) or (ii) involve both a CO_2 CEMS and use of Appendix G procedures. EPA has removed this sentence from the permit condition and has revised the first sentence of the permit Condition III.B.2.a., to read as follows:

> *a. If the Permittee elects to follow the procedure from 40 CFR 75.10(a)(3)(i), which involves installation, certification, operation and maintenance of a CO_2 CEMS and flow monitoring system, the Permittee shall meet the applicable CEMS requirements, including certification testing, of 40 CFR Part 60, Appendix B, Performance Specification 3, and 40 CFR Part 75.*

Additionally, and as a result of the correction and clarification above, Condition III.B.2.b. (which allowed for the installation and operation of CO_2 and volumetric flow monitor CEMS) has been deleted and the Conditions following Condition III.B.2.a., have been renumbered accordingly.

24. Part III - Special Conditions - Section B - #2.c. - BHC requests the following be deleted from the permit text: "the earlier of 90 unit operating days or." BHC comments that the reference to 40 CFR 75.4(b) should be detailed further to include 40 CFR 75.4(b)(2), and that the current language requiring a 90 unit operating day timeframe is incorrect. BHC states that the applicable timeframe is 180 calendar days from commercial operation.

EPA Response: EPA agrees. EPA erroneously relied on an out-of-date version of 40 CFR 75.4(b)(2). EPA notes that 40 CFR 75.4(b)(2) no longer contains the provision concerning 90 unit operating days. The regulation was amended to remove that language, as published in the Federal Register on Monday, March 28, 2011, on page 17288. EPA has revised the Condition III.B.2.c., to read as follows:

> *c. In accordance with 40 CFR 75.4(b)(2), the Permittee shall ensure that all required CO_2 monitoring system/equipment are installed, and all certification tests are completed, on or before 180 calendar days after the date the unit commences commercial operation (as defined in 40 CFR 72.2).*

25. Part III - Special Conditions - Section B - #2.e. - BHC requests this condition be deleted in its entirety. BHC's reason for the request is that the reference to 40 CFR Part 60, Appendix F is redundant and overlaps Condition III.B.2.d., which requires compliance with ongoing quality assurance

requirements of 40 CFR 75. BHC comments that for CO_2 CEMS, 40 CFR 75 is more thorough and more stringent than the requirements of 40 CFR 60, Appendix F. BHC states that Part 75 also handles non-operating quarters, grace periods and infrequent unit operation that will be very pertinent to the CPGS site.

EPA Response: EPA agrees. EPA notes that Appendix B of 40 CFR Part 75 covers the same CEMS quality assurance topics as 40 CFR Part 60 Appendix F. Condition III.B.2.e has been removed.

26. Part III - Special Conditions - Section B - #3.a. - BHC requests details on how the calculation is to be performed for the 365-day rolling calculation yielding tons per year emissions. BHC believes the condition appears to request an average net "heat rate" be used in the G-4 calculation. BHC comments that Part 75, Appendix G Equation G-4 does not include a "heat rate" factor. In addition to this comment, BHC notes that the condition stipulates that the "heat rate" be based upon standard "heat input," implying the use of MW/hr to determine heat rate in MMBtu/MW. BHC requests clarification and believes that without such clarification, references to calculating CO_2 in units of tons per year need to be removed from the permit.

EPA Response: EPA agrees that details should be provided in the permit on how to calculate tons per year of CO_{2e} emissions expressed as a 365-day rolling total. These details are provided in a new Condition III.B.1.b., which may be found in EPA's response to BHC Comment 19. Since Conditions III.B.1.a., and b., as revised, describe how to calculate CO_2e emissions in lb/MWh on a rolling 365-day average, as well as in tons per year on a rolling 365-day total, EPA has removed Conditions III.B.3.a., c., and d. For reasons explained in EPA's responses to BHC Comments 20, 28 and 29, EPA has also removed Condition III.B.3.b.

With regard to BHC's comment about Appendix G, Equation G-4, EPA finds that the comment is relevant to calculation of a 365-day rolling total. Appendix G procedures are used to estimate daily CO_2 mass emissions.

27. Part III - Special Conditions - First Comment on Section B - #3.b. - BHC notes a typographical error in the citation to a nonexistent condition, Condition III.B.1.c, which should be Condition III.B.1.b.i.

EPA Response: EPA acknowledges the error. However, the comment is no longer relevant, see EPA response to BHC Comment 28.

28. Part III - Special Conditions - Second Comment on Section B - #3.b. - BHC understands this condition to require CO_2 emissions in tons per year from Condition III.B.3.a., be compared to another CO_2 tons per year result. BHC requests clarification on methods for this condition's comparative tons per year result. BHC also notes that as with Comment 20, above, clarification is needed with regard to calculation of stack gas volumetric flow rate from a CO_2 monitor which is used in this condition to calculate the CO_2 tons per year comparator.

EPA Response: As a result of revisions to the permit pursuant to BHC Comments 19, 20, 21, 22, and 23, EPA finds that this comment is no longer relevant, since EPA has removed the condition referenced in this comment. For reasons explained in EPA responses to BHC Comments 19 and 26, above, EPA has revised the permit to allow the use of the methods listed in 40 CFR 75.10(a)(3)(i) and (ii), which do not require the comparison of calculated versus measured stack gas volumetric flow rates that was required by Condition III.B.3.b., of the draft permit. Therefore, the final permit does not require this comparison.

29. Part III - Special Conditions - Third Comment on Section B - #3.b. - BHC requests that the requirement to conduct a comparison between the CO_2 monitor and the 40 CFR 75, Appendix G monitoring method be deleted from the permit. BHC understands EPA wishes to develop a ton per hour comparison. BHC comments that each ton per hour comparator will be derived from a different method for calculating CO_2 in tons per hour. BHC contends that calculating CO_2 emissions with two different methods will yield two different results. BHC questions whether EPA has a basis for the 10% difference as being indicative of a problem. BHC questions which result would EPA consider correct in order for investigative efforts to be focused on the erroneous reading.

BHC further comments that Condition III.B.3.b is a work practice permit condition requiring a cross verification that may conflict with current CO_2 emission calculation methodologies contained in long standing EPA regulations. BHC believes that this condition, and others, require a study be conducted on the two measurement techniques, and would prefer the option to use either monitoring methodology without caveats. BHC wishes to use 40 CFR Part 75, Appendix G methods for the following reasons:

- BHC states that this type of study has been conducted in the past and resulted in 40 CFR 75, Appendix G, 40 CFR 98, Subpart D and the newly proposed 40 CFR 60, Subpart TTTT. BHC suggests that a study of CO_2 emissions calculation methods should not be part of a PSD permit.
- BHC states that based on comments from EPA Clean Air Markets Division (CAMD) staff, there currently is not a 40 CFR 75, Appendix F calculation, or any other calculation for that matter, which uses a CO_2 monitor to calculate the volumetric stack gas flow rate. The CAMD staff indicated that the abandoned 40 CFR 75, Subpart I attempted this methodology, but that Subpart was promptly removed due to "wild inconsistencies." BHC is concerned that this permit condition is following that same flawed method that was retracted by CAMD.
- BHC comments that the proposed version of 40 CFR 60, Subpart TTTT (CO_2 NSPS) provides the option of using two compliance methods, which include 40 CFR 75, Appendix G, or a CO_2 CEMS approach. BHC notes the proposed NSPS does not require a comparison as the draft PSD permit does.
- BHC comments that CAMD allows the use of Part 75, Appendix G to measure and report CO_2 emissions. BHC states that substantial documentation and support data exists through development of this methodology. BHC believes EPA calculations are conservative on the emission factors used and therefore BHC believes these calculations overestimate emissions. BHC suggests EPA Region 8 review Appendix G development studies to gain confidence in the approach.
- BHC comments that 40 CFR 98, Subpart D of the GHG MRR requires Acid Rain Program sources that report under 40 CFR 75 to report CO_2 emissions relying on the 40 CFR 75 methodology.
- BHC states that the inclusion of a stack gas volumetric flow monitor in a combustion turbine stack is very unusual; and that the high stack gas exhaust temperatures from a simple cycle combustion turbine (700 - 800 degrees Fahrenheit entering the stack) will damage or destroy the flow monitor (in short stacks typically used with the proposed types of turbines). BHC conducted a short survey of CEMS vendors and stack testers that conduct monitoring and testing on combustion turbines and states that they did not find any cases where CEMS were used in conjunction with a flow monitor. BHC states that all sources use the 40 CFR 75, Appendix G method.
- BHC comments that flow conditions in short, large diameter stacks (as would most likely be used with the proposed turbines) would create difficult monitoring conditions. The reason stated for this conclusion is that these types of stacks rarely meet Alternative EPA Method 1 location requirements, which would be two diameters downstream and 0.5 diameter upstream [from a flow disturbance]. BHC also cites difficulties associated with flow monitors on units, such as those proposed, that will have large variations in load and stack gas flow. BHC states that 40 CFR 60, Performance

Specification 6, relative accuracy requirements are ± 20% and that EPA Region 9 has recently stated that ASTM measurement accuracies of Methods 1-4 are ± 15%. BHC states that the required accuracy of a fuel flow monitor is ± 2 % with actual repeated measured accuracy of less than a fraction of a percent. Therefore, BHC believes that the fuel monitoring approach is a more accurate method.

- BHC comments that if the comparison yields greater than a 10% difference, it may not necessarily be indicative of any problems. BHC believes that 10% variation may be inherent with the methodology for each monitoring device at times.
- BHC states that if the Permittee installs a CO_2 CEMS, and more specifically a stack flow monitor, the Permittee may have to increase stack heights, which may involve a permit modification that could include ambient air modeling re-analysis.

EPA Response: Please see EPA responses to BHC Comments 20 and 28. EPA finds that this comment is no longer relevant, since EPA has removed the condition referenced in this comment.

30. Part III - Special Conditions - Section B - #3.f. - First Sentence - BHC recommends that the term "non-resettable elapsed" be deleted. BHC is not aware that fuel flow meters are manufactured in this fashion.

EPA Response: EPA agrees to BHC's request. After further consideration EPA finds that it is not essential in this permit condition to specify "non-resettable" in order to maintain a continuous accounting of fuel burned in the combustion turbines. EPA has removed this phrase from the permit condition.

31. Part III - Special Conditions - Section B - #3.g. - First Sentence - BHC requests "net" be replaced with gross, as described above.

EPA Response: EPA agrees to BHC's request. Please see EPA Response to BHC Comment 18.

32. Part III - Special Conditions - Section B - #3.h. - BHC requests EPA delete this condition. BHC believes that the equipment listed in this condition has no relevance to GHG emissions, but rather concerns emissions of NO_x, CO, and VOC listed in the WDEQ PSD permit.

EPA Response: As explained in EPA response to BHC Comment 8, EPA disagrees that the types of equipment listed in this condition (SCR and CatOx) have no relevance to GHG emissions. Nevertheless EPA finds that this condition should be removed, for two reasons. The first reason is to avoid potential conflict between the WDEQ PSD permit with respect to facility operation (as also explained in EPA response to BHC Comment 8). The second reason is that the condition is unnecessary. Condition III.B.3.h. requires continuous compliance with the emission limits specified in this permit. This language in Condition III.B.3.h., is duplicative with language in Condition III.A., Table 1, which requires that the point source emission limits in Table 1 be complied with at all times.

33. Part III - Special Conditions - Section C - #2 - Second Sentence - BHC requests that the second sentence be deleted as it is redundant. The first sentence clearly states what is required for recordkeeping. The language BHC requests be deleted is as follows: "This may include, but is not limited to, the following: all records or reports pertaining to maintenance performed, all records relating to performance tests and monitoring of EP15 and/or EP16; for each diesel fuel oil delivery, documents from the fuel supplier certifying the fuel heat input values required to show compliance with the heat

rate limitation in Condition III.A., hours of operation; and all other information required by this permit recorded in a permanent form suitable for inspection."

EPA Response: EPA disagrees with BHC's request. The second sentence of this permit condition is not redundant with the first sentence. Instead the second sentence provides examples of the types of records, data measurements, reports, and documents mentioned in the first sentence. EPA finds however, that the permit condition could be clearer regarding its objective. Therefore, EPA has added to the first sentence the phrase, "as necessary to show compliance with the limitations in Condition III.A." Also, since there are no heat rate limitations in Condition III.A., Table 1, nor any requirements in the permit for performance testing of these engines, EPA has removed this language from this permit condition. To consolidate recordkeeping requirements for these engines into one condition, we have moved language pertaining to these engines from Condition IV.A., to Condition III.C.2. The permit Condition III.C.2., has been revised to read as follows:

> *2. The Permittee shall maintain a file of all records, data measurements, reports and documents related to the operation of the diesel fired engines, EP15 and EP16, as necessary to show compliance with the limitations in Condition III.A. This may include, but is not limited to, the following: all records or reports pertaining to maintenance performed; hours of operation; and, for each diesel fuel oil delivery, documents from the fuel supplier certifying compliance with the limitation to burn diesel fuel in Condition III.A., recorded in a permanent form suitable for inspection. The Permittee must retain the records for not less than five years following the date of such measurements, maintenance, reports, and/or records.*

In evaluating this comment and the objective of the recordkeeping requirements in Condition III.C.2., for the auxiliary combustion equipment (diesel-fired engines), EPA finds that clarification regarding the objective of Condition III.C.1., is also needed. Therefore, EPA has revised Condition III.C.1., to read as follows:

> *1. The Permittee shall install, maintain and operate a non-resettable elapsed time meter for the Diesel Emergency/Standby Generator (EP15) and the Diesel Fire Pump Engine (EP16). Compliance with the hours of operation limitations, fuel grade limitation, and brake-horsepower limitations, listed in Condition III.A., Table 1, for Units EP15 and EP16 shall constitute compliance with the tpy CO_{2e} emission limitations also listed in Condition III.A., Table 1 for these units.*

34. Part IV - Recordkeeping Requirements - Section A - Third and Fourth Sentences - BHC comments that the phrase, "all records or reports pertaining to significant maintenance performed on any system or device at the facility," is a broad statement that would include equipment at the facility that is not related to air pollution generating equipment. BHC requests that EPA delete this section or narrow the scope of maintenance to GHG pollutant emitting equipment and within this section define both the equipment and "significant."

EPA Response: EPA agrees with aspects of this comment, but disagrees with other aspects. EPA agrees that clarification is needed on the scope of this permit condition. In determining BACT for this GHG PSD permit, EPA has relied primarily on energy efficiency (efficient power generation), which is affected by not only the emitting units but also by other equipment at the facility. Therefore, maintenance performed on equipment other than the emitting units may be pertinent to the level of

GHGs emitted (in lb/MWh). To clarify this permit condition, EPA has added the phrase "any systems or devices that could affect the ability of the Permittee to comply with the limitations in Condition III.A., Table 1." Also, to consolidate language pertaining to the auxiliary combustion equipment (diesel-fired engines) into one permit condition, EPA has moved language regarding those engines from Condition IV.A., into Condition III.C.2., as explained in EPA response to BHC Comment 33. EPA disagrees that only the emitting units affect energy efficiency. Condition IV.A., has been revised to read as follows:

> *A. In addition to any recordkeeping requirements specified elsewhere in this permit, the Permittee shall maintain a record of all data, measurements, calculations, reports, and documents related to the operation of any systems or devices that could affect the ability of the Permittee to comply with the limitations in Condition III.A., Table 1., including, but not limited to, the following: all records or reports pertaining to significant maintenance performed on any such systems or devices, recorded in a permanent form suitable for inspection. The records must be retained for not less than five years following the date of such measurements, maintenance, reports, and/or records.*

35. Part IV - Recordkeeping Requirements - Section B - #2 - BHC requests that EPA delete the term "shakedown" as the current regulations (40 CFR 75, 40 CFR 60, or state regulations) outline the recordkeeping requirements for air quality related requirements during this period.

EPA Response: EPA agrees with BHC's request. EPA notes that Parts 60 and 75 do not require records on the duration of any initial shakedown period for emitting units or pollution control units or CEMS. EPA also notes that, regardless of the duration of the shakedown period, the permit already specifies the deadline for initial performance testing (Condition VI.A.) and cross-references Part 75 for any applicable deadlines for CEMS installation and certification (Condition III.B.2.C.). Therefore, EPA finds that the requirement to record the duration of any initial shakedown period is unnecessary. EPA has deleted Condition IV.B.2., and the reference to the shakedown period in Condition II.B.3., as well as the definition of shakedown period in Condition V in EPA's response to the request in BHC Comment 39.

36. Part IV - Recordkeeping Requirements - Section B - #4 - BHC states that in accordance with their prior request to measure CO_2 emissions using the methodology of 40 CFR 75, Appendix G, BHC requests EPA insert "if required" after "measurements" in this sentence of this condition.

EPA Response: EPA agrees that records of CEMS measurements should only be required if the CEMS compliance option, under 40 CFR 75.10(a)(3)(i), is chosen rather than the Appendix G compliance option under 40 CFR 75.10(a)(3)(ii). Both options are included in revised permit Condition III.B.1.a., please see EPA response to BHC Comment 19. EPA has revised and renumbered permit Condition IV.B.4. (now IV.B.3.), to read as follows:

> *3. CEMS emission measurements if the CEMS compliance option under 40 CFR 75.10(a)(3)(i) is used;*

37. Part IV - Recordkeeping Requirements - Section B - #5 - As with comment 36 directly above, BHC requests EPA add "if required" to the end of Condition IV.B.5., which if changed would then read: "5. CEMS testing, maintenance and calibration checks conducted to satisfy quality assurance requirements if required."

EPA Response: Similar to EPA's response to BHC Comment 36, above, EPA agrees that the records specified in Condition IV.B.5., should only be required if the CEMS compliance option, under 40 CFR 75.10(a)(3)(i), is chosen rather than the Appendix G compliance option under 40 CFR 75.10(a)(3)(ii). EPA has revised and renumbered permit Condition IV.B.5. (now IV.B.4.), to read as follows:

> *4. CEMS testing, maintenance, and calibration checks conducted to satisfy quality assurance requirements if the CEMS compliance option under 40 CFR 75.10(a)(3)(i) is used;*

38. Part IV - Recordkeeping Requirements - Section D - #5 - BHC requests that "of" be deleted and "or" be added to the permit condition.

EPA Response: EPA agrees to BHC's request. The permit condition contained a typographical error. The condition has been revised to read as follows:

> *5. any violation of limitations on operation, including but not limited to restrictions on hours or operation of the emergency generator or fire pump.*

39. Part V - Shakedown Periods - BHC requests that EPA delete the paragraph on shakedown as the current regulations (40 CFR 75, 40 CFR 60, or state regulations) outline all related requirements discussed in this section.

EPA Response: EPA agrees to BHC's request for the reasons explained in EPA response to BHC Comment 35. Permit Condition V., has been deleted.

40. Part VI - Performance Testing Requirements - Section A - First and Third Sentences - BHC requests that "CO_{2e}" be deleted and changed to "CO_2." BHC states that the test methods defined within this section provide the stack emissions in units of CO_2 and not CO_{2e}.

EPA Response: EPA agrees that CO_{2e} should be deleted. The stack test methods cited in this permit condition are only for determination of CO_2 emissions, not CO_{2e} emissions. EPA has revised the condition accordingly. The intent of this permit condition is to serve as an indicator of whether the Permittee will be able to comply with the BACT emission limits in this permit for the combustion turbines (EP01-EP05) in lb CO_{2e}/MWh(gross) on a rolling 365-day average . A three-hour stack test does not constitute a compliance demonstration with respect to a limit based on a rolling 365-day average. Instead the three-hour test is a compliance indicator. BHC reports in its application that the CO_2 emissions will likely constitute approximately 99.9% of the total CO_{2e} emissions from the combustion turbines (BHC Application, page 5-5).

Additionally since other conditions in this permit already specify how to demonstrate compliance with the CO_{2e} emission limits in Condition III.A., Table 1, EPA has re-titled Section VI., of the permit from "Performance Testing Requirements" to "Stack Testing and Fuel Sampling Requirements." Section VI., has also been renumbered Section V., as a result of the removal of existing Section V., of the draft permit, explained in EPA response to BHC Comment 39. Condition V.A., has been revised to read as follows:

V. STACK TESTING AND FUEL SAMPLING REQUIREMENTS

A. The Permittee shall conduct stack tests to establish the actual quantities of CO_2 being emitted into the atmosphere from one of the simple cycle turbines and from one of the combined cycle turbines. The testing shall be conducted by the deadline specified in Condition III.B.2.c. Sampling shall be conducted in accordance with 40 CFR 60.8 and EPA Methods 3A or 3B for CO_2 concentration, Method 2, 2F or 2G (for stack gas volumetric flow rate), and Method 4 (for stack gas moisture content, if needed).

The stack test shall consist of three separate runs. Each CO_2 test run shall be at least one hour in duration. Stack gas flow rate measurements, as well as moisture measurements (if needed), shall be made during each test run. The gross electrical load (megawatts) during each test run shall be recorded. The CO_2 emission rate shall be calculated and recorded for each test run in lb CO_2/MWh(gross). The arithmetic mean for the three test runs shall also be calculated and recorded. The Permittee shall submit a stack test report within 60 days of completion of testing.

Also, renumbered Conditions V.B., E., F., and G., have been revised to replace the word "performance" with the word "stack." Additionally, to simplify the permit, language from existing Condition VI.H., of the draft permit has been incorporated into revised Condition V.A., above, and Condition VI.H., has been removed. Renumbered Condition IV.B.2., has also been revised to require records of stack testing (including stack test results, and stack test reports), rather than require records of performance testing.

41. Part VI - Performance Testing Requirements - Section A - Third Sentence - BHC requests that "tons/year" be added after "emission." BHC believes this is the only limit they can determine compliance with utilizing the required test.

EPA Response: EPA finds this comment is no longer relevant to this permit condition since the permit condition has been revised in response to BHC Comment 40, explained above. The condition no longer refers to "annual emission limits," but refers to lb CO_2/MWh(gross) on a three-hour average. The three-hour CO_2 stack test in the revised condition is intended to serve as an indicator of whether the Permittee will be able to comply with the lb CO_{2e}/MWh(gross) BACT limits that apply to the combustion turbines (EP01-EP05). It is not intended to serve as a demonstration of compliance over a 365-day period.

42. Part VI - Performance Testing Requirements - Section C - BHC requests EPA define the reason for the required fuel sampling.

EPA Response: EPA explains below the reason in this response, but does not believe that a reason needs to be included in the permit itself. The reason for requiring fuel sampling is to assure that the carbon content and F_c factor used to calculate emissions for compliance with continuous BACT GHG emission limits is representative of the actual fuel used. Although the heating value of pipeline natural gas is very consistent, the carbon content may vary. This is due to a practice known as peak-shaving. Since the heat content of the well field natural gas may vary, natural gas providers must add gases other than methane (including the addition of propane) to even out the heat content. These additions affect the carbon content of the fuel and hence the CO_2 emission rate. The permit condition will remain as written.

43. Part VI - Performance Testing Requirements - Section D - BHC requests that EPA delete the second sentence. BHC states that this information will be provided for in any testing protocol approved by EPA.

The practice of pre-test meeting adds a significant cost to each testing program. In the past, the need for this practice has been eliminated with properly defined test procedures identified within the test protocol. BHC provided the following stricken language, which EPA interprets to be the requested deleted text: "The Permittee shall present at the pretest meeting the manner in which stack sampling will be executed in order to demonstrate compliance with the emissions limits contained in Condition III.A."

EPA Response: EPA agrees that a requirement for a pretest meeting is not needed in the permit. The requirement for a test protocol is already included elsewhere in the permit. The sentence in this condition that mentions a pretest meeting has been removed from the permit. The condition has been revised to read as follows:

> *D. Each turbine tested by the Permittee shall be at or above 90% of maximum load operations. Tested turbine load shall be identified by the Permittee in the stack test report.*

44. Part VI - Performance Testing Requirements - Section F - Second Sentence - BHC requests that EPA delete "and/or attend pre-test meeting." BHC states that the reason for this request is listed in comment 43, above.

EPA Response: EPA agrees to BHC's request as explained in EPA response to BHC Comment 43. The phrase "and/or to attend a pre-test meeting" has been removed. The condition has been further revised in response to BHC Comment 45, explained below. The revised condition may be found below in EPA response to BHC Comment 45.

45. Part VI - Performance Testing Requirements - Section F - Third Sentence - BHC requests that EPA delete "at least 7 days prior" and replace with "reasonable." There are circumstances (weather, plant outages, etc.) where a test will be cancelled within 7 days of the date it is planned, which BHC states, will cause them to be in violation of the permit due to circumstances not within BHC's control. BHC states that it is their standard practice to maintain good communications with the agencies leading up to the test date. BHC believes this practice allows the operator to communicate changes as quickly as possible once they are identified.

EPA Response: EPA agrees with aspects of this comment, but disagrees with other aspects. While EPA acknowledges that certain circumstances may require cancellation of a test within 7 days of the date it is planned, EPA finds it is important for the permit to provide some indication of how much advance notice is needed by EPA. Therefore, the reference to 7 days prior notice has been retained in this condition, but language has been added to account for the circumstances described by BHC. As a result of EPA response to BHC Comments 44 and 45 the condition has been revised to read as follows:

> *F. The Permittee shall provide the EPA at least 30 days prior notice of any stack test, to afford the EPA the opportunity to have an observer present. If there is a delay in the original test date, the Permittee must provide at least 7 days prior notice of the rescheduled date of the stack test unless unavoidable circumstances (e.g. inclement weather, plant outage) result in cancellation of the test.*

46. Part VI - Performance Testing Requirements - Section H - First Sentence - BHC requests EPA insert "performance" before "standard" to provide more clarity on the requirement.

EPA Response: The comment is no longer relevant since, as explained in EPA's response to BHC Comment 40, EPA has removed this permit condition and has incorporated the language from it regarding three test runs into revised Condition V.A. The revised condition requires a stack test as a compliance indicator, rather than a performance test. (The expression "performance test" is normally intended to mean a demonstration of compliance with a standard). The revised condition may be found in EPA response to BHC Comment 40.

Note for the record: Following BHC's written comments, BHC included an edited version of the permit as it would have appeared if revised as requested in BHC's comments.

III. Analysis of United States Fish and Wildlife Service's (FWS) Comments

FWS comments that the proposed BACT limit for the combined cycle turbines is 1,100 lb CO_{2e}/MWh on a 365-day rolling average. FWS notes that the draft SOB acknowledges that the combined cycle units at CPGS would be subject to the proposed GHG NSPS for electric generating units, if finalized. FWS then cites 40 CFR 60.5520(a), from the proposed GHG NSPS, which proposes a limit on units, such as these combined cycle turbines, of 1,000 lb CO_2/MWh(gross) on a 12-operating month annual average basis.

FWS then notes that the SOB relates BHC's concern with not being able to meet the proposed NSPS limit due to anticipated operating of the units below 75% load. FWS quotes the SOB stating, "…in the same letter, [the company] indicates that they understand they will have to comply with the standards established in the final NSPS rule." (hard brackets in original).

FWS believes that it is inconsistent for EPA to propose this permit with a GHG BACT limit set above the Agency's proposed NSPS limit for the source category. FWS does not see the differences between the forms of the annual averaged limits to be significant enough to warrant a 10% higher GHG emission limit. If there are other considerations that influenced EPA's decision regarding the BACT limit, such as operational modes for the combined cycle units as raised in the company's concerns, then FWS suggests that the permit acknowledge these parameters and provide for revisiting the BACT limit should the underlying conditions change in the future. Otherwise, FWS recommends that the permit limit be set at the same level as the proposed NSPS standard.

EPA Response: EPA recognizes that the proposed NSPS standard is 1,000 lb CO_2/MWh(gross) while the proposed BACT limit is 1,100 lb CO_{2e}/MWh(gross). However, FWS notes that EPA has already explained that an NSPS standard only acts as the BACT floor once it is finalized. See PSD and Title V Permitting Guidance for Greenhouse Gases (March 2011) at 25 (explaining that a proposed NSPS "will not be controlling for BACT purposes since it is not a final action and the proposed standard may change"). EPA cannot foresee whether, or how, the proposed NSPS standard may be altered in response to comments on the proposed standard and what affect, if any, any such alterations could have on this facility, and so consistent with EPA guidance, that standard is not controlling for setting this BACT limit.

In addition, FWS has not presented any information, other than the fact that the proposed BACT limit is higher than the proposed NSPS standard, that would indicate that 1,100 lb CO_{2e}/MWh(gross) does not constitute BACT for CPGS (which will include both a combined cycle and simple cycle combustion turbine rated at or below 40 MW). As stated in the proposal for the GHG NSPS for electric utility generating units, EPA focused on stationary combined cycle turbines, proposed a specific exclusion of stationary simple cycle turbines, and requested comment on a potential NSPS range of 950 to 1,100 lb CO_{2e}/MWh. (72 Federal Register at 22405-406, April 13, 2012). In addition, in taking comment on a potential NSPS range, the proposal noted that a stricter standard "could limit presently available options for generation below approximately 40 MW," as is the case with the turbines proposed for CPCS. Id. at 22414. EPA has identified BACT for the GHG emissions from this source based on its judgment of the level of GHG emissions that can be achieved in this case, considering the particular characteristics of this source and the criteria for determining BACT. However, in light of the details regarding the proposed NSPS and the specific design at issue for the CPGS, the GHG BACT limit for this particular source is not inconsistent with the proposed NSPS under consideration.

IV. Analysis of General Electric (GE) Intrastructure Comments

GE provided comments regarding four main areas, including: 1) the use of gross energy output versus net output in the proposed CPGS GHG BACT limit; 2) the draft permit's provision that allows for fuel flow based CO_2 measurement in lieu of CO_2 CEMS, due to inaccuracies of the CEMS based approach; 3) the proposed NSPS GHG limit of 1,000 lb CO_2/MWh in combined cycle; and 4) the exemption of simple cycle combustion turbines from consideration in the proposed NSPS.

Comments 3 and 4 are in regard to the proposed NSPS standard, rather than the draft permit. As a result, EPA Region 8 is not considering them in this permit proceeding, but has forwarded these comments to EPA Headquarters to consider as part of the EGU NSPS rulemaking.

1. GE states that EPA has proposed in the EGU NSPS rulemaking to utilize gross electrical output in calculating CO_2 limits in lb/MWh. GE agrees that gross output is the right metric to use in this permit proceeding considering the fact that net electrical output becomes complex to define and varies from site to site depending on site equipment. GE believes that using gross output will keep the metric simple and easy to compute.

EPA Response: See EPA response to BHC Comment 18. The combustion turbine BACT limits in this permit have been re-expressed in terms of gross electrical output.

2. GE believes that using fuel flow and output metering is a very accurate measurement technique for characterizing CO_2 emissions. The NSPS allows the possibility of using CEMS or fuel flow. Today's flexible gas turbines are used in flexible operation with fast starts and ramps up and down in load. Under these conditions utilizing CEMS along with air flow measurement to determine lb/hr CO_2 could be problematic due to rapid swings in airflow. On the other hand, fuel flow is accurately measured along

with output MW. Utilizing this will lead to accurate measurements of CO_2 in lb/MWh. Hence, GE is requesting EPA to allow the possibility of using either of the methods independently to achieve compliance.

EPA Response: Comment noted. As explained in EPA response to BHC Comment 6, the draft permit already allows for either option (i.e., Appendix G calculations or CO_2 CEMS). These options are discussed further in our responses to BHC Comments 19 and 20. As explained in those EPA responses, EPA has revised the permit to be clearer regarding the compliance options available.

V. Decision

On the basis of comments received during the public notice period, an analysis of those comments as provided in the responses above, and representations made by the applicant in the application, EPA has determined that a Clean Air Act federal Prevention of Significant Deterioration air quality pre-construction permit, to address GHG emissions, will be issued to Cheyenne Light Fuel & Power/Black Hills Power, Inc., and Black Hills Service Company to construct and operate the CPGS as described in the application.

Dated this 27th day of September, 2012.