1

EPA Responses to Public Comments on the Proposed Prevention of Significant Deterioration Permit for the Desert Rock Energy Facility

US Environmental Protection Agency Region 9

July 31, 2008

b. **Comment:** One commenter noted the opportunity to conserve energy, and encouraged EPA to take a lead role in promoting conservation. [936]

Response: EPA agrees with the commenter about the importance of conserving energy. Please see www.energystar.gov for information on EPA programs encouraging energy efficiency. However, EPA's role after it receives an application for a PSD permit is to determine if the facility will satisfy the requirements of our PSD regulations, including the requirement to install and operate the best available pollution control technology and the requirement to demonstrate that the project will not have an unacceptable impact on the NAAQS, increments, or AQRVs.

c. **Comment:** One commenter stated that they believe power plants and coal mining will use a lot of energy and will be inefficient. [988]

Response: As a supercritical boiler facility, this will be one of the most efficient coal-fired facilities constructed to date.

d. **Comment:** One commenter noted that they believe the United States lacks a long-term perspective in how its energy policy looks at the future 50 or 150 years from now, and may lead to problems that may not be solvable through technology. [988]

Response: The commenter's statement is noted. For further information related to US energy policy, Commenter is referred to the websites for the Department of Energy and the White House at http://www.energy.gov/, and http://www.whitehouse.gov/infocus/energy/, respectively.

2. Integrated Combined Cycle Coal Gasification

a. **Comment:** A number of commenters stated generally that Integrated Gasification Combined Cycle (IGCC) technology should be evaluated, and/or required. [1, 8, 21, 44, 64, 84, 101, 689, 756, 757, 764, 791, 793, 851, 856, 864, 912, 922, 945, 952, 962, 980, 983] Several of these commenters noted that other proposed facilities are planning to use IGCC, and several of them stated that IGCC has environmental advantages, such as more efficient use of coal and lower emission rates. In contrast, one commenter [957] stated "There is only one unit having problems. It's not a controlled technology, as defined in the regs. It costs a lot. It doesn't have a better emissions performance story. It doesn't

work well in high altitudes, and the gasification requires a place for a waste stream. "

Response: See response to comment II.B.2.b.

b. **Comment:** One commenter provided extensive comments that the Clean Air Act and implementing regulations require evaluation of technologies like IGCC as part of the Best Available Control Technology (BACT) analysis. [23] The commenter disagrees with the statement in the EPA's Ambient Air Quality Impact Report that IGCC would be redefining the source, and therefore falls outside the scope of the BACT evaluation process. The commenter states that BACT requires evaluation of potentially lower-emitting production processes or methods, which include IGCC. The commenter states that "the draft permit must be withdrawn, EPA must evaluate in detail the potential for applying IGCC, and the Agency must make its determination and its justification available for public comment." A number of other commenters also stated that they disagree that IGCC would constitute redefining the source and thus falls outside the scope of the BACT determination. [13, 21, 689, 928, 945]

Response: EPA does not agree that the Clean Air Act requires a detailed evaluation of IGCC for the proposed facility, at or beyond step 1 of the top-down BACT analysis. We evaluated whether IGCC should be listed at step 1 and considered the commenter's arguments, but we have not been persuaded to change our view that this alternative process would redefine the source proposed by the applicant and thus need not be listed as a potentially applicable control option at step 1 and evaluated further in the BACT analysis for this type of facility. We have, however, evaluated this option as a potential alternative to the proposed source under other parts of our PSD permit review discussed below.

The Administrator and EPA's Environmental Appeals Board ("EAB or Board") have long maintained a policy against utilizing the BACT requirement as a means to fundamentally redefine the basic design or scope of a proposed project. See, e.g., In *Re: Knauf Fiber Glass, GMBH*, 8 E.A.D. 121 (Feb. 4, 1999), at 140; *In the Matter of: Pennsauken County, New Jersey, Resource Recovery Facility*, 2 E.A.D. 667, at 673 (Adm'r 1988). EPA has not required applicants proposing to construct coal-fired steam electric generating facilities to evaluate building natural gas-fired combustion turbines as part of a BACT analysis, even though a gas turbine may be inherently less polluting. See, *In Re: SEI Birchwood Inc*, 5 E.A.D. 25 (Jan. 27, 1994); *In the Matter of: Old Dominion Electric Cooperative, Clover, Virginia*, 3 E.A.D. 779, at 793 n. 38 (Adm'r 1992).

Likewise, in *In Re: Hawaii Commercial & Sugar Co.*, the EAB found no error by the permitting authority when the petitioner argued that the BACT analysis for a coal-fired steam electric generator should include the option of constructing an oil-fired combustion turbine. 4 E.A.D. 95 (Jul. 20, 1992), at 99-100 (EAB 1992).

EPA's policy reflects the Agency's longstanding judgment that there should be limits on the degree to which permitting authorities can dictate the design and scope of a proposed facility through the BACT analysis. This policy is based on a reasonable interpretation of sections 165 and 169(3) of the CAA, which recognizes that, although the permitting authority must take comment on and may consider alternatives to a proposed facility, the BACT analysis itself is done without changing fundamental characteristics of the proposed source.

The EAB recently reiterated and explained EPA's policy against redefining the source through the BACT analysis in Prairie State Generating Company, PSD Appeal No. 05-05 (Aug. 24, 2006). In the Prairie State case, involving a permit for a coal-fired electric generating station that was co-located and co-permitted with a new coal mine supplying fuel for the facility, the Board determined that it was consistent with EPA's historic policy and the Clean Air Act for the permitting authority in this case to decline to conduct a detailed BACT review of the option of using lower-sulfur coal from another location. Based on various provisions of the Clean Air Act, including language that requires the "proposed facility" to be "subject to" BACT, the Board concluded that "the statute contemplates that the permit issuer looks to how the permit applicant defines the proposed facility's purpose or basic design" as part of Step 1 of the top-down BACT analysis. Prairie State, slip. op. at 28-29. The Board further explained that "the permit issuer must be mindful that BACT, in most cases, should not be applied to regulate the applicant's objective or purpose for the proposed facility." Prairie State slip. op. at 30. The Seventh Circuit recently affirmed the EAB's Prairie State decision, including the Board's interpretation of the interplay of determining what redefines a source and the required BACT analysis. See generally Sierra Club v. EPA, 499 F. 3d 653 (7th Cir. 2007).

As discussed by the Board in the Prairie State opinion, affirmed by the Seventh Circuit, and explained more fully below, EPA's policy against redefining the proposed source through the BACT analysis is supported by a permissible and reasonable interpretation of the Clean Air Act. The language in sections 165 and 169 of the CAA distinguishes between the consideration of alternatives to a proposed

source on the one hand and permitting and selection of BACT for the proposed source on the other. Alternatives to a proposed source are evaluated through the CAA section 165(a)(2) public hearing process, which requires that, before a permitting authority may issue a permit, interested persons have an opportunity to "submit written or oral presentations on the air quality impact of such source, *alternatives thereto*, control technology requirements, and other appropriate considerations." 42 U.S.C. § 7475(a)(2) (emphasis added). By listing "alternatives" and "control technology requirements" separately in section 165(a)(2), Congress distinguished "alternatives" to the proposed source that would wholly replace the proposed facility with a different type of facility from the kinds of "production processes and available methods, systems and techniques" that are potentially applicable to a particular type of facility and should be considered in the BACT review. See 42 U.S.C. § 7479(3).

In contrast to the requirements of section 165(a)(2), other parts of the PSD permitting process, including the requirement to apply BACT, focus on, and are generally confined by, the project as proposed by the applicant. Sections 165(a)(1) and 165(a)(4) of the CAA provide that no facility may be constructed unless "a permit has been issued for *such proposed facility* in accordance with this part" and "the *proposed facility* is *subject* to best available control technology for each pollutant subject to regulation under the Act." 42 U.S.C. §§ 7475(a)(1) and (a)(4) (emphasis added). The following definition of BACT in section 169(3) of the Act also makes clear that the BACT review is based on the proposed project, as opposed to something fundamentally different:

> an emission limitation based on the maximum degree of reduction of each pollutant subject to regulation under this Act emitted from or which results from any major emitting facility, which the permitting authority, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs determines is achievable for *such facility* through application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques for control of such pollutant.

42 U.S.C. § 7479(3) (emphasis added). The phrases "proposed facility" and "such facility" in section 165(a)(4) and 169(3) refer to the specific facility proposed by the applicant, which has certain inherent design characteristics. The Act also requires BACT to be determined "on a case-by-case basis." The case-specific nature of the BACT analysis indicates that the particular characteristics of each

facility are an important aspect of the BACT determination. Thus, the Act requires that permitting authorities determine BACT for each facility individually, considering the unique characteristics and design of each facility.

As the group of commenters has also pointed out, the statutory definition of BACT also requires permitting authorities in selecting BACT to consider "application of production processes and available methods, systems, and techniques, including fuel cleaning, clean fuels, or treatment or innovative fuel combustion techniques." Comment letter 23 at 13. EPA has interpreted this phrase to require that permitting authorities evaluate both add-on pollution control technologies and lower polluting process in the BACT review. *Prairie State* at 33.

Considering these provisions together, the Act requires that we conduct the BACT analysis on a "case-by-case" basis on the "proposed facility" while concurrently considering the "application of production processes and available methods, systems and techniques" that could alter the proposed facility. The statute does not provide clear direction on how EPA is to reconcile these concepts and simultaneously consider the particulars of the facility proposed by the applicant while also assessing the use of methods or technology that could modify those particulars. Where a statute is ambiguous and Congress has not spoken to the precise issue, an administrative agency may formulate a policy to resolve the issue, provided that the policy is based on a permissible construction of the statute. Chevron v. Natural Resources Defense Council, 104 S.Ct. 2778, 2782 (1984). In this instance, sections 165 and 169(3) of the Clean Air Act are permissibly construed to authorize EPA and permitting authorities to establish some level of balance between the case-by-case nature of a BACT determination and the need to consider available processes, methods, systems, and techniques to reduce emissions. EPA's policy against redefining a source as part of the BACT analysis reasonably harmonizes the competing BACT obligations by requiring the permitting authority to consider potentially applicable processes, methods, systems, or techniques that may reduce pollution from the type of source proposed, provided such processes or techniques do not fundamentally redefine the basic design or scope of the facility proposed by the permit applicant.

EPA does not read the legislative history cited by the commenter to require a detailed evaluation of the IGCC technology in the BACT analysis for every proposed facility that generates electricity from coal. That Senator Huddleston intended for the phrase "innovative

fuel combustion techniques" to encompass "gasification" or "low Btu gasification" does not necessarily require EPA or other permitting authorities to identify the IGCC option as a candidate for further analysis at step 1 of a top-down BACT review. The "innovative fuel combustion techniques" phrase appears in the BACT definition among a list of examples of things included in the phrase "production processes and available methods, systems, and techniques." Thus, the "innovative fuel combustion" language, like the phrase it modifies in the definition of BACT, is limited by other language discussed above that requires BACT to be applied to each proposed facility and determined on a case-by-case basis. Thus, even assuming that coal gasification was in all respects an innovative fuel combustion technique for producing electricity from coal, we do not interpret the Clean Air Act to require an "innovative fuel combustion technique" to be subject to a detailed BACT review when application of such a technique would redesign the proposed source to the point that it becomes an alternative type of facility, which, as discussed below, we believe would be the case if the IGCC technology were applied to the DREF project.

Furthermore, it is not clear from the terms of his statement that Senator Huddleston himself intended to require mandatory review of coal gasification in every case where such an option was not proposed by the permit applicant. Senator Huddleston said the purpose of the amendment was to leave no doubt that "all actions taken by the fuel user are to be taken into account." This phrase suggests the Senator wanted to make sure that, when a fuel user was proposing an innovative fuel combustion technique, such as coal gasification, that such actions by the fuel user would be taken into account and credited in the determination of BACT for the proposed facility. Thus, the Senator's statement could be read to express an intent similar to that expressed in a subsequent Congress when adding the phrase "clean fuels" to the definition of BACT in the 1990 amendments of the Clean Air Act. Pub. Law No. 101-549, § 403(d), 104 Stat. at 2631 (1990). At the time "clean fuels" was added to the list that includes "innovative fuel combustion techniques," the relevant Senate committee report stated the following in consecutive paragraphs:

> The Administrator may consider the use of clean fuels to meet BACT requirements if a permit applicant proposes to meet such requirements using clean fuel. . . . In no case is the Administrator compelled to require mandatory use of clean fuels by a permit applicant.

S. Rep. 101-228, at 338 (describing section 402(d) of S. 1630). Based on this legislative history, EPA does not interpret the list of examples that appear in the BACT definition after the phrase "production processes, methods, systems, or techniques" to require mandatory evaluation of each of those options at advanced stages of the BACT analysis, regardless of the degree to which such an option would redefine the type of facility proposed by the permit applicant.

Although EPA reads the Act to preclude redefining the source and to draw a distinction between alternatives to the proposed source and lower polluting process that can be applied to the proposed source, EPA does not interpret the Clean Air Act to obligate a PSD permitting authority to accept all elements of a proposed project when determining BACT. To the contrary, EPA recognizes that the Act calls for an evaluation of the "application of production processes and available methods, systems, and techniques." 42 U.S.C. §7479(3).

As the Board observed in Prairie State, EPA's policy against redefining the source is only relevant when considering lower polluting processes and would not permit a reviewing authority to rule out "add-on controls" at Step 1 of the BACT analysis. Slip. op. at 33. Further, although EPA does not require a source to consider a totally different design, some design changes to the proposed source are within the scope of the BACT review. See Knauf Fiber Glass, 8 E.A.D. 121 at 136. As the Board observed in the Prairie State case, the central issue in situations involving a lower polluting process concerns "the proper demarcation between those aspects of a proposed facility that are subject to modification through the application of BACT and those that are not." Slip. Op. at 26. The Board observed that one of the permit issuer's tasks at step 1 of the BACT analysis is to "discern which design elements are inherent to [the applicant's] purpose, articulated for reasons independent of air quality permitting, and which design elements may be changed to achieve pollutant emissions reductions without disrupting the applicant's basic business purpose for the proposed facility." Prairie State, slip. op. at 30.

Since this line can be difficult to draw in each case, the Administrator and Environmental Appeals Board have generally recognized that the decision on whether to include a lower polluting process in the list of potentially-applicable control options compiled at Step 1 of the top-down BACT analysis is a matter within the discretion of the PSD permitting authority. Knauf Fiber Glass, 8 E.A.D. at 136; Old Dominion, 3 E.A.D. at 793; Hawaiian Commercial, 4 E.A.D. at 100 & n.9. The Administrator and the EAB

have usually respected the decisions of the permitting authority and only remanded permits in cases where it was clear that the permitting authority abused its discretion by excluding a particular option from consideration in the BACT review. Knauf Fiber Glass, 8 E.A.D. at 140. See, e.g., Hibbing Taconite Company, 2 E.A.D. 838, 843 (Adm'r 1989). The Seventh Circuit affirmed this view in upholding the EAB's Prairie State decision, emphasizing the discretion given the permitting authority in making the technical judgment as to "where control technology ends and a redesign of the 'proposed facility' begins." Sierra Club v. EPA, slip op. 499 F 3d at 5.

In its review of this issue in Hibbing, the Board considered whether the option in question would "require any fundamental change to Hibbing's product, purpose, or equipment." Hibbing at 843 n. 12. In Prairie State, where the use of the alternative coal source arguably did not significantly affect the power-generating equipment to be used at the proposed source, the Board focused on the applicant's "objective or purpose" to the extent that purpose was "articulated for reasons independent of air quality permitting." Prairie State, slip. op. at 30.

With respect to the DREF project proposed by Sithe, our assessment is that the application of the IGCC process would fundamentally change the nature of the proposed major source as it would change the basic design of the equipment Sithe proposed to install. Sithe has applied to construct a facility that fires pulverized coal in a boiler to generate steam to drive an electric turbine. An IGCC facility uses a chemical process to first convert coal into a synthetic gas and to fire that gas in a combined cycle turbine. See Attachment 1, "Final Report, Environmental Footprints and Costs of Coal-Based Integrated Gasification Combined Cycle and Pulverized Coal Technologies," EPA-430/R-06/006, July 2006. The combined cycle generation power block of an IGCC process employs the same turbine and heat recovery technology that is used to generate electricity with natural gas at other electric generation facilities. Thus, the combined cycle generation power block portion of the IGCC process is very similar to existing power generation designs that EPA has agreed would redefine the basic design of the source when an applicant proposed to construct a pulverized coal-fired boiler. In re SEI Birchwood Inc, 5 E.A.D. 25 (1994); In the Matter of: Old Dominion Electric Cooperative Clover, Virginia, 3 E.A.D. 779, (Adm'r 1992). Furthermore, the core process of gasification at an IGCC facility is fundamentally different than operating a boiler. Coal gasification is more akin to technology employed in the refinery and chemical manufacturing industries than technologies generally in use in power generation (i.e. a controlled chemical

reaction versus a true combustion process). Use of coal gasification technology would necessitate different types of expertise to operate the DREF to produce the desired product (electricity). Thus, these fundamental differences in equipment design are sufficient to conclude that the IGCC process would redefine the proposed source. As a result, we are considering the IGCC process to be an alternative to the proposed source that should be evaluated under section 165(a)(2) of the Clean Air Act rather than as a BACT candidate under section 165(a)(4). See Appendix A for discussion of IGCC as an alternative to the proposed Desert Rock facility.

c. **Comment:** One commenter states that Georgia, Illinois, Montana, and New Mexico have BACT definitions that are virtually identical to EPA's BACT definition, and that those states considered IGCC in BACT determinations. The commenter states that "Recent State Actions Requiring Consideration of Cleaner Coal Technology Establish Irrefutable Precedence for the Consideration of IGCC." The commenter also states that EPA Region 8 previously determined it was appropriate to evaluate IGCC in the BACT analysis for a CFB coal-fired power plant (we note that the term "CFB", which is not defined by the commenter, often refers to "circulating fluidized bed boiler" in this context). The Commenter cites EPA Region 8's April 6, 2004 letter to the Utah Division of Air Quality, on Utah's proposed PSD permit for Nevco Energy's Sevier Power Company Project. [23]

Response: State decisions as to how to conduct a BACT analysis do not necessarily set the bar for EPA. As discussed above, the decision of where to draw the line between alternatives to the proposed source is a discretionary matter. The fact that some states have elected to list IGCC at step 1 of the BACT analysis for a coal-fired steam electric generating facility does not require EPA to do so if EPA's reasoned assessment is that the option would redefine the proposed source. EPA does not interpret the Clean Air Act to mandate evaluation of IGCC in a BACT analysis in cases involving proposed coal-fired steam electric generating facilities. We do not read the state examples cited by commenters to be based on a contrary interpretation of the Clean Air Act, but rather to reflect policy decisions in those states to conduct a more extensive analysis. Even if a state were to conclude that evaluation of IGCC was mandatory under its interpretation of the Clean Air Act or state law, such a decision by a state is not binding on EPA. Furthermore, because Illinois administers the Federal PSD program under a delegation agreement with EPA Region V, Illinois must act in a manner

consistent with EPA's interpretation of the Clean Air Act and controlling regulations.

Regarding EPA's letter to Utah on Nevco, the commenter incorrectly characterized the letter as a determination on evaluating IGCC. Letters from EPA to states providing comments on proposed state PSD permits are not final EPA actions. See Public Service Co. of Colorado v. Environmental Protection Agency, 225 F 3d 1144 (10th Cir.2000).

d. **Comment:** One commenter stated that enough information is available to evaluate IGCC as BACT, and that "EPA should conduct a full top-down analysis for this project." The commenter provided their own BACT evaluation of the availability, feasibility, cost, emission rates, and other environmental impacts of IGCC. The commenter concluded that had EPA properly evaluated IGCC in the DREF BACT analysis, IGCC would have been the selected technology for the DREF facility. [23]

Response: For the reasons discussed in detail above, EPA disagrees that IGCC was improperly excluded from the BACT analysis. We have, however, considered this analysis in the context of alternatives to the proposed source. Please see Appendix A for further discussion.

3. Carbon Dioxide/Global Warming

a. General Concerns About Climate Change and Desert Rock Energy Facility Carbon Dioxide Emissions

i. **Comment:** Several commenters noted the importance of the effects of climate change. One commenter notes that climate change is one of the stresses facing mountains. [685] One commenter representing the City of Aspen stated that high greenhouse gas emissions scenarios are likely to end skiing in Aspen by 2100, and possibly well before then, while low emission path scenarios preserve skiing at mid- to upper mountain elevations. The commenter states that deterioration of snow conditions in the future, and severe impacts on plant and animal communities, wildfires, and water availability are predicted. [1] One commenter stated that the Southwest will be particularly hard hit by climate change. [709] Two commenters stated that carbon dioxide emissions linked to global warming are reducing the ice pack in Alaska, and two comments noted the negative impacts to polar bears. [781, 817, 988] One commenter stated that the proposal will add ten

acceptable to allow the selection of specific high-ozone periods, or episodes. The episodes are selected on the basis of ozone maximum, spatial extent of high ozone, data availability, and for their representativeness for the meteorological conditions that lead to high ozone. In this way modeling covers periods which are most relevant to the regulatory analysis. Modeling data are generally available only for limited periods. In this circumstance it was more important for the modeling to capture peak ozone-forming conditions, which it did. These results demonstrate that periods when the wind is blowing from DREF are not significant in terms of ozone formation. More importantly, the modeling demonstrates that in the worst circumstances, ozone levels do not exceed the NAAQS.

Since the NMED modeling incorporated impacts representative of the DREF and the modeling showed continued attainment of the ozone NAAQS, emissions from DREF would not jeopardize the ozone NAAQS, which is the only regulatory criterion applicable. The analysis performed for DREF exceeds what is typically expected for ozone in a PSD permit.

Lastly, EPA disagrees with the commenter that it is necessary to examine sub-NAAQS ozone impacts. As described elsewhere in this document, under the PSD permitting program, compliance with the NAAQS is used as the criterion for assessing ozone impacts. The primary NAAQS is set to protect public health, and the secondary NAAQS to protect public welfare (for ozone the levels of these two NAAAQS are the same).

5. **Comment:** Two commenters stated that a cumulative analysis for NO_2 is needed, for both Class I and Class II areas. [17, 23] Three arguments were given. First, unlike for Class II areas, there is no NO_2 "significant impact level" defined for Class I areas. Therefore, there is no de minimis impact level that would excuse a PSD applicant from conducting a Class I cumulative analysis for NO_2. Second, even a small impact cannot be dismissed as "insignificant" if the increment is threatened or violated. This seems to be the case from modeling in several recent Environmental Impact Statements covering nearby Class II areas, and a 1999 Colorado NO_2 increment study covering the Mesa Verde National Park Class I area. EPA recognized this point, stating in its PSD rulemaking that the use of ambient significance levels is not always appropriate to exempt a source from a cumulative impact analysis, especially when existing air quality is poor (45 FR 52678, August 7, 1980). Sithe may be overlooking areas where DREF's impact is "insignificant", but cumulatively there are significant impacts. Third and finally, since NOx emissions from associated vehicles and coal

production were not included in assessing DREF's NO_2 impact, it is inappropriate to conclude that it is insignificant.

Response: EPA disagrees that any NO_2 cumulative analyses are needed. EPA acknowledges that the absence of a significant impact level (SIL) for NO_2 causes some ambiguity in determining the need for a full analysis. In 1996 EPA proposed a number of changes to regulations dealing with PSD and Nonattainment New Source Review (61 FR 38249, July 23, 1996); this included proposed Class I SILs. These proposed Class I SILs were never finalized. However, in practice, EPA and the Federal Land Managers overseeing Class I Areas have used the proposed SILs as a baseline for comparison, and as one component of a determination on whether an impact is significant. Even without final SILs, a judgment must be made to assess whether the source "causes or contributes" to a NAAQS or PSD increment violation. Given how far below the NO2 SIL emissions from the DREF will be, EPA has determined that the DREF would not have a significant impact on the NO_2 Class I increment at any Class I area. The highest DREF NO_2 impact on a Class I area is only about one quarter of the proposed SIL (0.0261 $\mu g/m^3$ at Mesa Verde; proposed SIL is 0.1 $\mu g/m^3$).

The second argument was that SILs are not the sole measure of significance when air quality is threatened. For the Class II increment, it is long-standing EPA policy to use SILs defined for the NAAQS at 40 CFR §51.165(b)(2) as significance levels under PSD. See Attachment 32, Memorandum from Gerald A. Emison, Director, Office of Air Quality Planning and Standards, re: Air Quality Analysis for Prevention of Significant Deterioration (PSD), July 5, 1988. If a source is not itself a "significant" contributor to an increment violation, then there is no bar to issuing it a PSD permit. This does not excuse increment violations; rather it puts the onus on the sources that cause a violation, rather than on a new source that would not significantly contribute to it. For Class I areas, similar principles have generally been applied, with the proviso that the Federal Land Manager for a Class I area can make a showing that a source has an adverse impact on Air Quality Related Values, despite the absence of Class I increment violations. No such showing has been made for DREF.

EPA does not believe the commenter has demonstrated that the NO_2 increments are threatened. The commenter's description of Class II modeling results from several Environmental Impact Statements states that concentrations higher than the NO_2 increment were modeled, and that this would be an increment violation assuming all the emissions were increment-consuming. Without a detailed analysis of whether these emissions were in fact increment-consuming, it cannot be stated that the increment has been violated. The maximum modeled NO_2

impact of DREF was 0.56 $\mu g/m^3$, roughly half of the SIL at 1 $\mu g/m^3$. Further, this maximum impact occurred within a few kilometers of DREF. Even if NO_2 Class II increment violations existed elsewhere, DREF's contribution to them would be negligible.

The Class I modeling results described by the commenter were from "Periodic Assessment of Nitrogen Dioxide PSD Increment Consumption in Southwest Colorado", Colorado Department of Public Health & Environment, October 29, 1999. While one modeling run did show an apparent NO_2 increment violation at Mesa Verde, that report states that these results were from the ISCST3 model, and "contain significant uncertainties and probably significantly overestimate impacts at Mesa Verde" (p. 15). It also concludes that with CALPUFF, a more appropriate model given the transport distances and complex terrain meteorology, "modeled concentration estimates at both Mesa Verde National Monument and at the Weminuche Wilderness Area are well below the Class I NO_2 increment (p. 14). CALPUFF was also the model used by Sithe, for the same reasons. This modeling showed the highest impacts at Mesa Verde, which were at only one quarter of the proposed Class I SIL. Thus, EPA concluded that the Class I increment is not threatened, and that there is no basis for concluding that DREF would cause or contribute to any increment violation.

Finally, a portion of the comment seems, in part, to confuse significant impact from an individual new source with significant impact from all existing sources cumulatively; the latter kind of significance is independent of the new source. EPA does not agree that the overall significance of impacts from existing sources can be used to judge the impact of an individual new proposed source such as DREF.

The third argument supporting an NO_2 cumulative analysis concerned the lack of NOx emissions from vehicle and mining operations in Sithe's analysis. These omitted sources would have far smaller emissions than those already included in the modeling, and they would all be near-ground level, unlike the elevated emissions from DREF's main stack. Thus the effect of including them would be to slightly increase NO_2 impacts locally. Since the maximum modeled NO_2 impact of DREF was roughly half of the SIL, as described above, it is not possible that adding these small sources would push the total impact above the SIL. Thus, while it is true that these sources were omitted, EPA is confident that including these sources in the analysis of DREF would not cause or contribute to any Class I or Class II increment violations elsewhere.

In conclusion, while the NO_2 increment is an issue of concern for the States in the Four Corners area, EPA has determined from all available information that the DREF impact is so low that it is does not cause or

contribute to any Class I or Class II increment violation, and cannot be considered a basis for denying the DREF permit.

6. **Comment:** Numerous commenters stated that pollution concentrations should be monitored near the DREF site, to better represent existing background air quality than the monitors used in Sithe's analysis, which were more than 20 kilometers away. Also, no explanation was provided for the change in background values used between the original 2004 application and the final 2006 modeling update. [1, 16, 17, 23, 32, 43, 44, 48, 52, 64, 70, 74, 82, 104]

Response: EPA disagrees that the background concentrations used were unrepresentative for purposes of a PSD permit. First, it is important to recognize that air monitoring data is not used to assess compliance with the PSD increment. However, monitoring data is used to assess compliance with the NAAQS. The purpose of the background concentration is to represent the ambient pollutant concentration from sources that are not explicitly modeled, since it is generally not feasible to explicitly model every source that exists. See 40 CFR §51, Appendix W, "Guideline on Air Quality Models", section 8.2. The NAAQS are considered to be protected as long as the monitored concentrations added to modeled concentrations do not exceed the NAAQS. Therefore, monitors that provide a conservative representation of background air quality are favorable for this analysis.

Under 40 CFR §52.21(i)(5)(i), the permitting authority may exempt a source from the on-site monitoring requirement of 40 CFR §52.21(m) if the source's modeled impacts are less than the de minimis monitoring levels set forth in the regulations. Since Sithe's modeling analysis showed that DREF's impacts would be below these levels for all pollutants, DREF qualifies for, and EPA granted, this exemption. Thus, Sithe was not required to conduct on-site monitoring.

EPA determined that the monitors in Farmington, New Mexico and Rio Rancho, New Mexico used by Sithe would provide conservative results protective of the NAAQS. This is because those monitors would be expected to record higher concentrations than exist at the project site on the Navajo Nation, due to the greater residential and commercial activity at the Farmington and Rio Rancho locations. Also, 40 CFR §52.21 (m)(1)(iii) allows representative regional monitoring sites to be used, in lieu of requiring the collection of new on-site data. EPA determined that these monitors are regionally representative because they record the multi-day buildup of pollutants resulting from the mixed impact of sources throughout the general Four Corners area. The high concentrations recorded at these monitors are representative of the high concentrations seen in the general area, including the DREF site.

2

D R A F T
OCTOBER 1990

New Source Review Workshop Manual

Prevention of Significant Deterioration and Nonattainment Area Permitting

technology has the potential to achieve a more stringent emissions level than otherwise would constitute BACT or the same level at a lower cost, it may be proposed as an innovative control technology. Innovative technologies are distinguished from technology transfer BACT candidates in that an innovative technology is still under development and has not been demonstrated in a commercial application on identical or similar emission units. In certain instances, the distinction between innovative and transferable technology may not be straightforward. In these cases, it is recommended that the permit agency consult with EPA prior to proceeding with the issuance of an innovative control technology waiver.

In the past only a limited number of innovative control technology waivers for a specific control technology have been approved. As a practical matter, if a waiver has been granted to a similar source for the same technology, granting of additional waivers to similar sources is highly unlikely since the subsequent applicants are no longer "innovative".

IV.A.3. CONSIDERATION OF INHERENTLY LOWER POLLUTING PROCESSES/PRACTICES

Historically, EPA has not considered the BACT requirement as a means to redefine the design of the source when considering available control alternatives. For example, applicants proposing to construct a coal-fired electric generator, have not been required by EPA as part of a BACT analysis to consider building a natural gas-fired electric turbine although the turbine may be inherently less polluting per unit product (in this case electricity). However, this is an aspect of the PSD permitting process in which states have the discretion to engage in a broader analysis if they so desire. Thus, a gas turbine normally would not be included in the list of control alternatives for a coal-fired boiler. However, there may be instances where, in the permit authority's judgment, the consideration of alternative production processes is warranted and appropriate for consideration in the BACT analysis. A production process is defined in terms of its physical and chemical unit operations used to produce the desired product from a specified

set of raw materials. In such cases, the permit agency may require the applicant to include the inherently lower-polluting process in the list of BACT candidates.

In many cases, a given production process or emissions unit can be made to be inherently less polluting (e.g; the use of water-based versus solvent based paints in a coating operation or a coal-fired boiler designed to have a low emission factor for NOx). In such cases the ability of design considerations to make the process inherently less polluting must be considered as a control alternative for the source. Inherently lower-polluting processes/practice are usually more environmentally effective because of lower amounts of solid wastes and waste water than are generated with add-on controls. These factors are considered in the cost, energy and environmental impacts analyses in step 4 to determine the appropriateness of the additional add-on option.

Combinations of inherently lower-polluting processes/practices (or a process made to be inherently less polluting) and add-on controls are likely to yield more effective means of emissions control than either approach alone. Therefore, the option to utilize a inherently lower-polluting process does not, in and of itself, mean that no additional add-on controls need be included in the BACT analysis. These combinations should be identified in step 1 of the top down process for evaluation in subsequent steps.

IV.A.4. EXAMPLE

The process of identifying control technology alternatives (step 1 in the top-down BACT process) is illustrated in the following hypothetical example.

IV. DISPERSION MODELING ANALYSIS

Dispersion models are the primary tools used in the air quality analysis. These models estimate the ambient concentrations that will result from the PSD applicant's proposed emissions in combination with emissions from existing sources. The estimated total concentrations are used to demonstrate compliance with any applicable NAAQS or PSD increments. The applicant should consult with the permitting agency to determine the particular requirements for the modeling analysis to assure acceptability of any air quality modeling technique(s) used to perform the air quality analysis contained in the PSD application.

IV.A OVERVIEW OF THE DISPERSION MODELING ANALYSIS

The dispersion modeling analysis usually involves two distinct phases: (1) a ***preliminary analysis*** and (2) a ***full impact analysis***. The ***preliminary analysis*** models only the significant increase in potential emissions of a pollutant from a proposed new source, or the significant net emissions increase of a pollutant from a proposed modification. The results of this preliminary analysis determine whether the applicant must perform a full impact analysis, involving the estimation of background pollutant concentrations resulting from existing sources and growth associated with the proposed source. Specifically, the ***preliminary analysis***:

- *determines whether the applicant can forego further air quality analyses for a particular pollutant*;
- *may allow the applicant to be exempted from the ambient monitoring data requirements* (described in *section III* of this chapter); and
- *is used to define the impact area within which a full impact analysis must be carried out.*

The EPA does not require a full impact analysis for a particular pollutant when emissions of that pollutant from a proposed source or modification would not increase ambient concentrations by more than prescribed significant ambient impact levels, including special Class I significance

levels. However, the applicant should check any applicable State or local PSD program requirements in order to determine whether such requirements may contain any different procedures which may be more stringent. In addition, the applicant must still address the requirements for additional impacts required under separate PSD requirements, as described in Chapters D and E which follow this chapter.

A ***full impact analysis*** is required for any pollutant for which the proposed source's estimated ambient pollutant concentrations exceed prescribed significant ambient impact levels. This analysis expands the preliminary analysis in that it considers emissions from:

- *the proposed source*;
- *existing sources*;
- *residential, commercial, and industrial growth that accompanies the new activity at the new source or modification (i.e., secondary emissions)*.

For SO_2, particulate matter, and NO_2, the full impact analysis actually consists of separate analyses for the NAAQS and PSD increments. As described later in this section, the selection of background sources (and accompanying emissions) to be modeled for the NAAQS and increment components of the overall analysis proceeds under somewhat different sets of criteria. In general, however, the full impact analysis is used to project ambient pollutant concentrations against which the applicable NAAQS and PSD increments are compared, and to assess the ambient impact of non-criteria pollutants.

The reviewer's primary role is to determine whether the applicant select ed the appropriate model(s), used appropriate input data, and followed recommended procedures to complete the air quality analysis. Appendix C in the *Modeling Guideline* provides an example checklist which recommends a standardized set of data to aid the reviewer in determining the completeness and correctness of an applicant's air quality analysis.

TABLE C-4.

SIGNIFICANCE LEVELS FOR AIR QUALITY IMPACTS IN CLASS II AREAS[a]

Pollutant	Annual	24-hour	8-hour	3-hour	1-hour
SO_2	1	5	-	25	-
TSP	1	5	-	-	-
PM-10	1	5	-	-	-
NO_x	1	-	-	-	-
CO	-	-	500	-	2,000
O_3	-	-	-	-	[b]

[a] This table does not apply to Class I areas. If a proposed source is located within 100 kilometers of a Class I area, an impact of 1 $\mu g/m^3$ on a 24-hour basis is significant.

[b] No significant ambient impact concentration has been established. Instead, any net emissions increase of 100 tons per year of VOC subject to PSD would be required to perform an ambient impact analysis.

When building **downwash** affects the air quality impact of the proposed source or any existing source which is modeled for the NAAQS analysis, those impacts generally should be considered in the analysis. Consequently, the appropriate dimensions of all structures around the stack(s) in question also should be included in the emissions inventory. Information including building heights and horizontal building dimensions may be available in the permitting agency's files; otherwise, it is usually the responsibility of the applicant to obtain this information from the applicable source(s).

Sources should not automatically be excluded from downwash considerations simply because they are located outside the impact area. Some sources located just outside the impact area may be located close enough to it that the immediate downwashing effects directly impact air quality in the impact area. In addition, the difference in downwind plume concentrations caused by the downwash phenomenon may warrant consideration within the impact area even when the immediate downwash effects do not. Therefore, any decision by the applicant to exclude the effects of downwash for a particular source should be justified in the application, and approved by the permitting agency.

For a PSD increment analysis, an estimate of the amount of increment consumed by existing point sources generally is based on increases in actual emissions occurring since the minor source baseline date. The exception, of course, is for major stationary sources whose actual emissions have increased (as a result of construction) before the minor source baseline date but on or after the major source baseline date. For any increment-consuming (or increment-expanding) emissions unit, the actual ***emissions limit***, ***operating level***, and ***operating factor*** may all be determined from source records and other information (e.g., State emissions files), when available, reflecting actual source operation. For the annual averaging period, the change in the actual ***emissions rate*** should be calculated as the difference between:

- *the current average actual* ***emissions rate***, and
- *the average actual* ***emissions rate*** *as of the minor source baseline date (or major source baseline date for major stationary sources).*

- for deterministically based standards (e.g., SO_2), the highest, second-highest short term estimate and the highest annual estimate; and

- for statistically based standards (e.g., PM-10), the highest, sixth-highest estimate and highest 5-year average estimate.

Further guidance to determine the appropriate estimates to use for the compliance determination is found in *Chapter 8* of the ***Modeling Guideline*** for SO_2, TSP, lead, NO_2, and CO; and in EPA's **PM-10 SIP Development Guideline** [Reference 21] for PM-10.

When a violation of any NAAQS or increment is predicted at one or more receptors in the impact area, the applicant can determine whether the net emissions increase from the proposed source will result in a significant ambient impact at the point (receptor) of each predicted violation, and at the time the violation is predicted to occur. The source will not be considered to cause or contribute to the violation if its own impact is not significant at any violating receptor at the time of each predicted violation. In such a case, the permitting agency, upon verification of the demonstration, may approve the permit. However, the agency must also take remedial action through applicable provisions of the state implementation plan to address the predicted violation(s).

- ***The proposed new source or modification, in conjunction with existing sources, will cause or contribute to a violation, but will secure sufficient emissions reductions to offset its adverse air quality impact.***

If the applicant cannot demonstrate that only insignificant ambient impacts would occur at violating receptors (at the time of the predicted violation), then other measures are needed before a permit can be issued. Somewhat different procedures apply to NAAQS violations than to PSD increment violations. For a **NAAQS violation** to which an applicant contributes significantly, a PSD permit may be granted only if sufficient emissions reductions are obtained to compensate for the adverse ambient impacts caused by the proposed source. Emissions reductions are considered to compensate for the proposed source's adverse impact when, at a minimum, (1) the modeled net

3

BEFORE THE
WYOMING ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

FILED
AUG 30 1993
Terri A. Lorenzon, Administrator
Environmental Quality Council

IN THE MATTER OF A PERMIT ISSUED TO BLACK HILLS POWER & LIGHT COMPANY, NEIL SIMPSON UNIT #2 PERMIT NO. CT-1028	)	DOCKET NO. 2476-93

FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER

On June 11, 1993, the Legal and Safety Employer Research, a division of the Western States Pipe Trades (herein referred to as "LASER"), appealed the decision of Charles A. Collins, the Administrator ("Administrator") of the Air Quality Division ("AQD"), and Dennis Hemmer, Director ("Director") of the Department of Environmental Quality ("DEQ"), to issue Permit No. CT-1028 to Black Hills Power and Light Company ("Black Hills") for construction of an 80 MW pulverized coal-fired steam electric generating plant, known as Neil Simpson Unit II (NS #2), adjacent to the existing Neil Simpson Unit I, five miles east of Gillette, in Campbell County, Wyoming.

Notice of Hearing, dated June 29, 1993 and served by mail to Black Hills, LASER, and the Director, set the hearing for 9:00 a.m. on Wednesday, July 21, 1993 at the hearing room of the Oil & Gas Commission, Basko Building, 777 West 1st Street in Casper, Wyoming.

On July 12, 1993, Black Hills served its Answer to LASER's appeal by telecopier and by Federal Express.

On July 9, 1993, Harold L. Bergman, Hearing Examiner and member of the EQC issued an Order setting a prehearing telephone conference for July 13, 1993 at 11:00 a.m. On July 13, 1993, Black Hills, LASER, the Director and the EQC through their attorneys and representatives participated in the prehearing telephone conference.

At the time and place designated in the Notice of Hearing, the EQC held a hearing on LASER's appeal with the following members present: Harold L. Bergman, who served as Hearing Examiner, John C. Darrington, Fred H. Carr and Vincent R. Lee. LASER appeared through its attorney pro se, John Williams; Black

Hills appeared through its Chairman, Chief Executive Officer and President, Daniel P. Landguth, and the Project Manager of NS #2, Tom Ohlmacher, and its attorneys, David E. Morrill and Mrg Simon. The Administrator was present and represented by Mary A. Throne, Assistant Attorney General for the DEQ. The EQC's attorney, Terri A. Lorenzon, was also present.

Black Hills, LASER and the DEQ filed prehearing briefs with the EQC. Black Hills and DEQ offered testimonial and documentary evidence. LASER presented documentary evidence. Black Hills, LASER and DEQ made opening and closing statements.

The EQC has carefully considered all of the evidence and exhibits presented and all arguments presented through written briefs and orally. From such review, the Council makes the following:

FINDINGS OF FACT

1. On August 6, 1992, Black Hills submitted an application to the DEQ for a Prevention of Significant Deterioration ("PSD") permit to construct NS #2, an 80 MW coal-fired steam electric generating plant in Campbell County, Wyoming, approximately five miles east of Gillette, Wyoming, at 13151 Highway 51, Gillette, Wyoming 82716-9716. Black Hills proposed to build NS #2 with a pulverized coal boiler with a spray lime scrubber to control sulfur dioxide (SO_2) emissions, a fabric filter to control particulate matter emissions and low-NO_x burners and overfire air control to control nitrogen oxides (NO_x) emissions. The coal for NS #2 will be provided by the mine at the site of NS #2, Wyodak Resources Development Corp., a subsidiary of Black Hills. The quality of the coal is a site-specific consideration which was taken into account in performing the BACT analysis.

2. NS #2 is a major emitting facility in that it will consist of a fossil-fuel boiler of more than 250 million Btu per hour heat input which emits or has the potential to emit 100 tons per year or more of pollutants and is therefore regulated under the Wyoming Environmental Quality Act, W.S. § 35-11-801, Section 21 of the Wyoming Air Quality Standards and Regulations

("WAQSR"), and the PSD requirements found in Section 24 of the WAQSR.

3. The AQD requested additional information from Black Hills following a preliminary review of the application. On November 24, 1992, Black Hills resubmitted its air quality permit application to address AQD's requirement that the SO_2 emission rate could not exceed 0.20 lb/MMbtu during any two-hour period. The new application proposed a circulating dry scrubber and electrostatic precipitator in place of the spray lime scrubber and fabric filter.

4. On January 25, 1993, after extensive review of Black Hills' submission, the AQD issued its Permit Application Analysis, proposed permit, and public notice for a 30-day public comment period. (Tab 24 of State's Exhibit 23 and State's Exhibit 1).

5. *The News Record,* a daily newspaper of general circulation, printed and published in Gillette, Wyoming, published the public notice on February 1, 1993. The public notice invited comments for a period of 30 days ending March 4, 1993 in accordance with Section 21(m) of the WAQSR. All public comments received, including those of LASER's, are at tabs 25 and 26 of State's Exhibit 23, admitted into evidence.

6. At the request of LASER, the DEQ held a public hearing on March 19, 1993 at the Campbell County Library in Gillette, Wyoming, following notice by mail to all those who had submitted comments and publication of the hearing notice in *The News Record* on March 14, 1993. The Director and the Administrator closed the permit record at the end of the hearing. The transcript of the public hearing is at tab 28 of State's Exhibit 23, admitted into evidence.

7. The Administrator and the Director issued a memorandum to all participants in the public comment process, dated March 30, 1993 (tab 29 of State's Exhibit 23), reopening the record for a period of one week for the sole purpose of requesting clarification of the proposed NO_x emission rate associated with

the low-NO_x burner/overfire air proposed control methodology. Based on additional information gathered after reopening the record, the Administrator recommended a reduction in the NO_x emission rate.

8. On April 14, 1993, the Administrator and the Director issued Permit No. CT-1028 to Black Hills. Copies of Permit No. CT-1028, dated April 14, 1993, and the decision of the Administrator and Director, dated April 16, 1993, received as evidence at tab 31 of State's Exhibit 23, are expressly incorporated into these Findings by reference.

9. As set forth in its application, Black Hills conducted a complete best available control technology ("BACT") analysis for control of major pollutants, including particulate matter emissions, NO_x emissions and SO_2 emissions. Black Hills properly conducted a "top down" BACT analysis, taking into account site-specific concerns relating to technological considerations as well as energy, environmental and economic impacts of the available technologies presented in the application.

10. The DEQ/AQD independently reviewed Black Hills' BACT analysis and properly conducted its own top down BACT analysis, as required by EPA guidance. Based on this review, the DEQ/AQD approved an electrostatic precipitator to control particulates, a circulating dry scrubber for SO_2 emissions, and low-NO_x burners with overfire-air control for NO_x emissions. The DEQ/AQD concluded that serious technological, economic, environmental and energy considerations prevented selection of either Selective Catalytic Reduction ("SCR") or Selective Non-Catalytic Reduction ("SNCR") for NO_x control.

11. Evidence demonstrated that SCR technology may not be a viable method for removing NO_x from the combustion of western United States subbituminous coal. The extent of the life of the catalyst and the degree to which excessive pluggage will occur are yet to be determined. SNCR technology has been unreliable on the few pulverized coal boilers utilizing that system for NO_x removal and thus its viability for NS #2 is also questionable.

12. Certain serious environmental impacts may result from the installation of either an SCR or SNCR system on NS #2, including the danger to personal safety in delivering, storing and using ammonia (NH_3) on site, the creation of sulfuric acid mist, the problem in disposing of the catalyst of an SCR system, which is a hazardous material, excessive ammonia slip, ammonia odor and content in the ash and the potential impact on land and groundwater from disposing of that ash and not being able to commingle the ash with ash from other power plants on site for disposal.

13. The average cost effectiveness and incremental cost analyses conducted by Black Hills and the DEQ/AQD indicated that economic considerations justified rejection of both SCR and SNCR for the control of NO_x emissions. (Exhibit 23, tabs 14 and 24; Exhibit 38).

14. The energy use of either an SCR or SNCR system represents approximately 0.8 percent of the total output of NS #2.

15. Black Hills determined by competitive bid proposals that a pulverized coal boiler with a circulating dry scrubber and electrostatic precipitator costs substantially less than a circulating fluidized bed boiler with a fabric filter and SNCR system. These cost comparisons are analyzed in Black Hills Exhibit 38.

16. Due to the time delay inherent in a circulating fluidized bed boiler's ability to respond to increased SO_2 removal and the variance in the sulfur content in the coal to be used for NS #2, there is serious doubt that a circulating fluidized bed boiler could be operated to allow continuous compliance with Wyoming's SO_2 two-hour emissions limit of 0.20 lb/MMBtu.

17. Due to the qualities of coal to be used for NS #2 and the stringent SO_2 limitation, a free lime phenomenon would be likely to occur in a circulating fluidized bed boiler, thereby causing increased NO_x emissions and compromising the ability of

Black Hills to maintain the NO_x emissions limitation of the Permit.

18. NS #2 will have the lowest SO_2, NO_x and particulate emission rates of any coal-fired plant in Wyoming under the terms of Permit No. CT-1028.

19. LASER presented no credible evidence to support any of the factual allegations contained in its appeal, its brief or the oral statements of Mr. Williams.

20. LASER's list of BACT determinations from other permitting authorities (Exhibit No. 32) was not useful for assessing the BACT determination in Permit No. CT-1028. The list was hearsay and LASER presented no evidence as to the underlying factors in those decisions that may have provided some basis for comparing those emissions rates to the BACT determinations at issue here. Thus the list, even if legally relevant, was not persuasive.

21. LASER's reliance on EPA's March 18, 1993 comments to the DEQ/AQD (Exhibit No. 23, tab 27) questioning the DEQ/AQD's BACT determination for NO_x was misplaced. That document was hearsay, not supported by testimony and thus, was not credible evidence against the BACT determination in Permit No. CT-1028. Representatives of EPA did not seek to intervene in this proceeding or appear as witnesses to present evidence regarding their public comments. The EPA letter represented public comments received as part of the permitting process and the DEQ/AQD properly responded to those comments in its decision.

22. The documentary evidence and testimony presented by Black Hills and the DEQ/AQD were credible and not impeached by LASER.

From these Findings of Fact, the EQC makes the following:

CONCLUSIONS OF LAW

1. NS #2 is a major emitting facility as described at § 24(a)(i) of the WAQSR and is subject to the requirements of Section 24, containing Wyoming's requirements for PSD permits. Among other requirements, Section 24 requires that no permit

issue unless the source meets the emission standards represented by BACT, as determined by the DEQ/AQD for pollutants that the source has the potential to emit in significant amounts.

2. Black Hills conducted a BACT analysis for all pollutants that NS #2 has the potential to emit in significant amounts. The BACT analysis was conducted in full compliance with all applicable laws and regulations.

3. The DEQ/AQD issued PSD Permit No. CT-1028 in full compliance with the requirements of Section 801 of the Wyoming Environmental Quality Act, W.S. § 35-11-801, and Sections 21 and 24 of the WAQSR, including proper selection of BACT for SO_2, NO_x and particulates.

4. In issuing PSD Permit No. CT-1028, the DEQ/AQD complied with all procedural requirements as required by applicable laws and regulations.

5. The Applicant, Black Hills, defined the proposed source, a coal-fired steam electric generating plant with a pulverized coal boiler. Federal and state laws and regulations do not require the DEQ/AQD to redefine the source and as a result cause Black Hills to build a different type of boiler, such as a circulating fluidized bed boiler, rather than a pulverized coal boiler. The DEQ/AQD properly exercised its discretion not to redefine the source.

6. Notwithstanding the decisions of the DEQ/AQD not to require a BACT analysis of a circulating fluidized bed boiler, Black Hills properly rejected a circulating fluidized bed boiler due to concerns related to its ability to meet the required 0.2 lbs/MMBtu two hour emission limitation imposed by DEQ.

7. Neither the DEQ/AQD nor the EQC are bound by EPA comments concerning the application of BACT for PSD permits. The DEQ/AQD carefully considered EPA's comments as required during the public comment process.

8. The BACT decisions of other permitting authorities are not determinative of the appropriate emission rates for a source in Wyoming, although they may be helpful to both the DEQ/AQD and

the Applicant, Black Hills. BACT requires a site-specific analysis and the exercise of discretion by the permitting authority in applying technological, economic, environmental and energy considerations. Black Hills appropriately determined the lowest achievable emission rates of each major pollutant as the starting point for its top down BACT analysis and continued the top down BACT analysis until it selected the pollution controls representing BACT for NS #2. The DEQ/AQD independently reviewed the Black Hills BACT analysis and properly took into account technological, economic, environmental and energy considerations in selecting BACT and setting the emission rates for NS #2.

9. The DEQ/AQD and Black Hills properly rejected SCR and SNCR as BACT for NO_x based on economic, environmental, energy and technological considerations.

10. Black Hills properly rejected the circulating fluidized bed boiler due to technological considerations in accordance with relevant BACT considerations.

11. Black Hills conducted a proper BACT analysis in full compliance with all applicable laws and regulations, which was reviewed by the DEQ/AQD. The EQC affirms the BACT determinations made by the DEQ/AQD.

12. From all of the evidence presented, including testimony presented by the Administrator and Black Hills, Exhibits 1 through 24, 28, and 35-42, the EQC concludes that the Director and the Administrator issued Permit No. CT-1028 to Black Hills to construct NS #2 in compliance with all laws and regulations and finds no errors, either procedurally or substantively, in the DEQ/AQD decision.

ORDER

IT IS THEREFORE,

ORDERED, that the decision of the Director and the Administrator to issue Permit No. CT-1028 to Black Hills Corporation, doing business under the assumed name of Black Hills Power and Light Company, to build Neil Simpson Unit II is affirmed.

DATED August 26, 1993.

Harold L. Bergman
Hearing Examiner
for the Environmental Quality Council

CERTIFICATE OF SERVICE

I, Terri A. Lorenzon, certify that at Cheyenne, Wyoming, on the 30 day of August, 1993, I served a copy of the foregoing FINDINGS OF FACT, CONCLUSIONS OF LAW AND ORDER by depositing copies of the same in the United States mail, postage prepaid, duly enveloped and addressed to:

David E. Morrill and Mrg Simon
Morrill Brown & Thomas
625 Ninth Street, 8th Floor
P. O. Box 8108
Rapid City, SD 57709-8108

John Williams
Consultant for LASER
12770 Southwest Foothill Drive
Portland, OR 97225

and also to the following persons via interoffice mail:

Dennis Hemmer, Director
Department of Environmental Quality
122 W. 25th Street, Herschler Building
Cheyenne, WY 82002

Charles A. Collins, Administrator
Department of Environmental Quality
Air Quality Division
122 W. 25th Street, Herschler Bldg.
Cheyenne, WY 82002

Mary A. Throne
Assistant Attorney General
Attorney General's Office
123 Capitol Building
Cheyenne, WY 82002

Terri A. Lorenzon

TERRI A. LORENZON, Attorney
Environmental Quality Council
2301 Central Avenue, Rm. 407
Cheyenne, WY 82002
Tel: (307) 777-7170