EXHIBIT 2
Part 1

Comment 15

Note: Attachments to this letter are included in the docket and are available upon request.

November 10, 2006

VIA U.S. MAIL, FACSIMILE, AND ELECTRONIC MAIL

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Comments on EPA's Proposed Construction Permit for the Desert Rock Energy Facility

Dear Mr. Baker:

Sierra Club and Phyllis Fox respectfully submit the following comments on the EPA's proposed permit to be issued to Sithe Global Power (Sithe) to construct the Desert Rock Energy Facility (DREF) on Navajo Nation lands. A compact disc containing supporting materials referred to herein is enclosed.

I. THE PERMIT'S EMISSIONS LIMITS DO NOT MEET "BEST AVAILABLE CONTROL TECHNOLOGY" STANDARDS

The Clean Air Act and its implementing regulations require the Permit to include emission limits consistent with the "best available control technology" for each pollutant subject to regulation under the Act. 42 U.S.C. § 7475(a)(4). The emission limits proposed for the pulverized coal-fired boilers ("PC boilers"), fuel-oil-fired sources, and material handling sources do not satisfy BACT. As discussed below, the BACT determinations for all of these pollutants suffer from the same fundamental flaw, failure to set a BACT limit based on the maximum degree of reduction that is achievable. In addition, the particular BACT limits for each of these pollutants suffer from a variety of additional errors, also discussed below.

I.A BACT Is The Lowest Limit That Is Achievable

The term "best available control technology" means "an emission limitation based on the maximum degree of reduction of each pollutant...." 40 CFR 52.21 (b)(12).

A BACT limit must represent the lowest limit "*achievable*" for the source—not the lowest limit previously *achieved* by sources in the past. 40 CFR 52.21 (b)(12) (emphasis added). This forward-looking emphasis is the "most important" mechanism promoting the Clean Air Act's "philosophy of encouragement of technology development." S. Rep. No. 95-127 at 18.

See also Alabama Power v. Costle, 636 F.2d 323, 372 (D.C. Cir. 1980) (noting that Prevention of Significant Deterioration Program is intended to be "technology forcing"). The BACT standard is intended to require use of "the latest technological developments [in pollution control] as a requirement in granting the permit," so as to "lead to rapid adoption of improvements in technology as new sources are built," rather than "the stagnation that occurs when everyone works against a single national standard for new sources." S. Rep. No. 95-127 at 18.

The BACT analyses for all pollutants rely on emission levels that have been permitted in the past or demonstrated in the past at other sources. The record we reviewed contains no evidence that an analysis was conducted to determine emission levels that are "achievable" with the selected BACT technology, as opposed to achieved. Ap.,[1] Sec. IV and Statement of Basis (SOB),[2] Sec. IV. The applicant and the EPA should have collected and evaluated test data reported to the EPA under various regulatory programs, discussed technology performance and guarantees with vendors, and then made an engineering judgment based on physical and chemical principles using this data as to what limits are "achievable" for Desert Rock to fulfill the technology forcing nature of BACT. The limits in permits for plants built in the past or permitted in the past serve only as the starting point for the BACT analysis of what is achievable for a plant to be built in the future. Those limits cannot also be the end of the BACT analysis; limits achieved in the past are a floor, not the ceiling for the BACT determination of what is "achievable" for a new source.

I.B BACT Limits Must Be Based on Maximum Degree Of Reduction

The term "best available control technology" means "an emission limitation based on the maximum degree of reduction of each pollutant..." 40 CFR 52.21 (b)(12). The degree of reduction means the amount by which a pollutant concentration is reduced, relative to the uncontrolled level. The degree of reduction information is used in step 3 of the top-down process to rank emissions from the lowest to the highest. NSR Manual, p. B.25 and Tables B-2 and B-3. The degree of reduction is calculated from design parameters and performance data for pollution control systems.

The control efficiency must be determined first so that the control options can be ranked and the top option selected. You cannot determine whether a given emission limit corresponds to the maximum degree of reduction without first determining what that reduction is and how it compares with reductions achievable by other methods and combinations of methods.

The Application and SOB do not include any performance data or degree of reduction data, required to prepare step 3 rankings, for any pollutant. Such data would include parameters such as design boiler outlet PM, PM10, NOx, SO2 and SAM; fabric filter, SCR, and FGD design control efficiency for each pollutant affected by these controls (NOx, SO2, SAM, fluorides, PM,

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[1] ENSR Corp., Application for Prevention of Significant Deterioration Permit for the Desert Rock Energy Facility, Prepared for Steag Power, LLC, May 2004.

[2] The term, "SOB" or statement of basis, is used throughout to refer to EPA's "Ambient Air Quality Impact Report" or AAQIR, which serves as the statement of basis and fact sheet required by 40 CFR 124.7. SOB, p. 1.

PM10), and the content of lead and fluorides in the coal. All of this data is required to determine the degree of reduction the chosen technologies would achieve at Desert Rock.

I.C BACT Is Not Required For NOx Emissions From PC Boilers

The applicant proposed a NOx BACT emission limit of 0.06 lb/MMBtu based on a 24-hour average in its May 2005 Application. Ap., p. 4-9. The EPA independently evaluated the applicant's analysis, performed additional analysis, and concluded that the proposed limit is lower than "any other reported BACT emission limit." Thus, EPA proposed BACT for NOx as an emission limit of 0.06 lb/MMBtu based on a 24-hr average." SOB, pp. 12-14.

The Draft Permit contains the proposed BACT limit of 0.06 lb/MMBtu. Permit, p. 5, Condition IX.E. The proposed NOx limit is not BACT because lower limits have been permitted and are achievable and it excludes periods of startup and shutdown, as set out below. Further, the subject BACT analysis did not follow the top-down process as set out in the NSR Manual and did not adhere to the statutory and regulatory definition BACT as noted above. These issues are discussed below. Further, EPA's characterization of some prior permitting decisions is incorrect.[3]

I.C.1 Lower NOx Limits

The EPA asserts that the proposed NOx BACT limit of 0.06 lb/MMBtu based on a 24 hour average "is lower than other NOx rates that have been proposed for or achieved by pulverized coal fired boilers recently." SOB, pp. 12-13. This is not correct.

I.C.1.a Other Permits

The Permit issued to Louisville Gas & Electric for its Trimble Unit 2 facility contains a NOx limit equivalent to 0.05 lb/MMBtu based on a 24-hour average. Ex. 1. Several vendors offered to guarantee the NOx emissions from this facility at 0.03 to 0.04 lb/MMBtu. Ex. 2. This is the lowest permitted NOx limit that we are aware of. This facility is under construction.

Trimble Unit 2 is a 750 MW supercritical boiler fired on high sulfur bituminous coal from Kentucky. The boiler is the same type as proposed for Desert Rock. The coal represents a worst-case for Desert Rock because Trimble will fire high sulfur bituminous coal, which generates higher boiler outlet NOx. Meeting this lower NOx limit at Trimble Unit 2 requires a higher overall NOx efficiency, achieved with more efficient low NOx burners and a better performing SCR than proposed for Desert Rock. It is a straightforward engineering extrapolation to conclude that Desert Rock could meet the Trimble limit at less cost and with less efficient equipment. Thus, Trimble establishes the BACT floor for Desert Rock.

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[3] The NOx limit for Thoroughbred and Prairie State are incorrect. SOB, p. 13. The Thoroughbred NOx BACT limit is 0.07 lb/MMBtu, based on a remand from the Cabinet Secretary. The Prairie State NOx limit is also 0.07 lb/MMBtu. The Longleaf SO_2 limit (0.12 lb/MMBtu) is also inconsistent with the SO_2 limits in the draft Permit, which range from 0.065 to 0.105 lb/MMBtu on a 30-day rolling average, depending on the sulfur content of the coal. SOB, p. 18.

We note that the final Trimble permit was issued after the applicant's BACT analysis was published in the May 2004 Application. Thus, the BACT analysis is stale. BACT must be established as of the date of issue of the final Permit, not based on information that is over two years old. (We also note that the additional sources consulted by EPA are well known to be outdated and inaccurate.) The applicant and EPA did not update this stale determination or consult the most important sources as to achieved NOx levels, the most recent Clean Air Market NOx CEMS data reported quarterly to the U.S. EPA itself and vendors who design SCR systems.

I.C.1.b Lower NOx Limits Have Been Guaranteed

The Application conceded that the W.A. Parish facility in Texas was being designed for a NOx emission limit of 0.03 lb/MMBtu, but then went on to argue that it did not have to consider it since this levels had not been demonstrated. Ap., pp. 4-4 to 4-5. As noted in Comment I.A, a limit does not have to be "demonstrated" to satisfy BACT. The other reasons advanced for not considering this much lower NOx levels are discussed in Comment I.C.2.

Most major SCR vendors currently offer and have offered and provided SCRs guaranteed to achieve 0.03 lb/MMBtu and below for units firing all coal types. These include Babcock Power, Haldor Topsoe, CERAM, Siemens, and Cormetech. See, for example, vendor presentations at the McIlvaine SCR Hot Topic session on October 12, 2006,[4] and vendor guarantees offered for Trimble Unit 2 in Exhibit 2. The Trimble unit will burn a high sulfur, high nitrogen bituminous coal. The boiler outlet NOx level for this facility (0.3 lb/MMBtu) is likely higher than Desert Rock, requiring a higher efficiency SCR. Further, Texas concluded over 5 years ago that a NOx limit of 0.030 lb/MMBtu "is technically feasible… based on the literature and discussion with SCR vendors." At that time, one utility (Reliant) had awarded a contract to construct SCRs on four coal-fired boilers guaranteed at 0.030 lb/MMBtu (the four Parish Units). Ex. 3.[5]

The November 2, 2006 McIlvaine Utility E-Alert notes: "Haldor Topsoe reported they have provided catalyst for several installations that consistently run at less than 0.03 lb/MMBtu NOx." Ex. 17.[6] The McIlvaine reports are one of the sources the NSR Manual states should be considered in a BACT analysis. NSR Manual, p. B.12.

I.C.1.c Low NOx Limits Have Been Achieved

SCR system designers have analyzed EPA's Clean Air Market's CEMS data to determine the NOx levels that are currently being achieved by over 100 SCR-equipped coal-fired boilers. This analysis identified 25 units that are achieving NOx emissions less than 0.05 lb/MMBtu on an hourly basis. Ex. 6, p. 28; Ex. 7, p. 75-77.

Experience outside of the U.S. should also be considered in a top-down BACT analysis. NSR Manual, p. B.12. Several facilities outside of the U.S. have achieved lower NOx emission

[4] Voice recording available online to subscribers of McIlvaine Power Plant Knowledge System.

[5] Texas Register, v. 26, no. 2, January 12, 2001, p. 557.

[6] Utility E-Alert 798, November 2, 2006, Hot Topics, Haldor Topsoe Catalyst Efficiency Revisted, page pdf 12.

limits. These include the 250 MW Amager Power Station in Denmark, which is achieving NOx levels of less than 0.04 lb/MMBtu. This plant started up in October 2000 and was designed for 2.5% S coal but currently burns coal with a sulfur content similar to that proposed for Desert Rock. Operating and emissions data are summarized in Ex. 10.[7] Several units are operating at low NOx levels in Japan. The EPA should update its historic survey of foreign experience.

I.C.1.d Boiler Efficiency

The permitted NOx limits that were (improperly) relied on (SOB, p. 13) to establish NOx BACT are based on subcritical boilers. Desert Rock will use supercritical boilers. SOB, p. 1. A supercritical boiler is more efficient (typically 41%) than a subcritical boiler (typically 34-38%). This means that less coal is burned and less NOx, SO_2, PM, PM10, etc are emitted from a supercritical boiler than a subcritical boiler per megawatt hour of electricity generated. Ex. 11.[8] The lower outlet NOx would not affect the degree of NOx reduction that an SCR can achieve. Thus, the achievable NOx emission rate for a supercritical boiler should be about 20% lower than the achievable rate for a comparable subcritical boiler. This was not considered in EPA's BACT analysis.

I.C.2 The NOx Control Myths

The applicant's and EPA's NOx BACT analyses (Ap., Sec. 4.2 and SOB, pp. 12-14) are based upon two widely advanced myths. These myths have been rebutted by SCR design engineers by comprehensively analyzing the performance of over 100 units equipped with the BACT technology (low NOx burners and SCR) proposed for Desert Rock. See Ex. 4,[9] Ex. 5,[10] Ex. 6,[11] and Ex. 7.[12] These "myths," relied on to set Desert Rock's NOx BACT limit, are discussed below. The EPA should reject these myths and set a NOx BACT limit based on what is achievable for a new supercritical boiler.

I.C.2.a Coal Type Should Not Dictate BACT

The EPA argues, based on the Newmont EAB decision, that coal type, among other factors discussed below, should dictate the NOx BACT limit. SOB, p. 14. The applicant also argued that BACT limits based on PRB coals needed to be adjusted to the equivalent levels that can be achieved with the Navajo subbituminous coal. Ap., p. 4-3. However, recent analyses of

[7] Topsoe DENOX Catalysts, DNX-Series, Industrial Experience, Amager Power Station Unit 3.

[8] E.S. Sadlon, Alstom, Application of State-of-the-Art Supercritical Boiler Experience to U.S. Coals – Corrosion Consideration, CoalGen 2000.

[9] Clayton A. Erickson and James E. Staudt, Selective Catalytic Reduction System Performance and Reliability Review, Mega Symposium, 2006.

[10] James E. Staudt and Clayton Erickson, Selective Catalytic Reduction System Performance and Reliability Review, Slides, Mega Symposium, 2006.

[11] Clay Erickson, Robert Lisauskas, and Anthony Licata, What's New in SCRs, DOE's Environmental Control Conference, May 16, 2006.

[12] Selective Catalytic Reduction: From Planning to Operation, Competitive College, PowerGen 2005, December 2005.

NOx CEMS data reported to the EPA indicate that coal type does not affect the achievable NOx emission rate. The same NOx emission level can be achieved, regardless of coal type, through proper design of the low NOx burners and SCR. The design parameters must be varied to achieve a given NOx emission rate, not the other way around. Ex. 4, p. 7; Ex. 5, pp. 12-14.

The applicant argued that lower NOx levels achieved on units firing PRB coal were not relevant because PRB coals have lower fuel nitrogen content and a greater percentage of fuel nitrogen in the volatile fraction, implying that lower boiler outlet NOx means lower stack NOx. Ap., p. 4-4, Table 4-1, note 2. However, recent analysis of the entire fleet of SCR-equipped coal-fired units in the U.S. refutes this argument.

This recent analysis concluded that "both fuels [PRB and bituminous] are very similar in their attainable outlet NOx values." Ex. 4, p. 7. Elsewhere, "SCR systems on PRB fired unit (sic) have no greater control or reliability issues compared to bituminous." And "SCR system on bituminous fired units can attain, with high removal efficiencies, outlet NOx emission limits in the same range or better than PRB unit with combustion NOx control system" *Ibid.* Thus, if Navajo coal burned in a supercritical boiler generated a higher boiler outlet NOx level than an equivalent PRB-fired unit, the SCR need only be designed to achieve a higher removal efficiency to satisfy BACT.

Finally, the definition of BACT requires that clean fuels be considered. The Application indicates that rail service is not available, thus precluding PRB. Ap., p. 4-3. However, this does not preclude importing PRB or another local coal by truck, or barge plus truck, or blending on-site coals from different seams. If PRB or other local coals allow lower NOx emissions, then the BACT analysis must consider these cleaner fuels, *e.g.*, PRB or a blend with PRB if EPA alleges that the achievable NOx limit is restricted by the coal type. The NOx BACT analysis did not consider cleaner fuels.

I.C.2.b Ozone Season v. Year Round Operation Is Not Material

The EPA argues, based on the Newmont EAB decision, that permits that only require ozone season operation are not persuasive. SOB, p. 14. This questionable legal conclusion has been superceded by a detailed technical analysis of NOx CEMS data reported to the EPA and posted on the Clean Air Markets website.

First, we note that CAIR will require year-round operation by 2009 of ozone-season SCRs, so this point is mute. The EPA has concluded that ozone season units can be operated on a year-round basis. If they can be operated on a year-round basis, year-round operation is a reasonable basis for a BACT determination.

Second, twelve year-round SCRs were analyzed to determine if they were distinguishable from ozone-season units. Four of these units were originally designed for ozone season operation and subsequently converted to year round. Ex. 4, pp. 13-15. The variability of NOx, as expressed by the coefficient of variation (CV) of these 12 units is consistent with the variability of NOx from ozone season only units. Compare the CVs shown in Figure 18 (year round units) with Figures 2 and 4 (ozone season units).

I.C.3 Flawed Legal Framework For NOx BACT Determination

As discussed in Comment I.B, BACT is an emission limit based on the maximum degree of reduction that is achievable. The NOx BACT analysis fails to meet this fundamental requirement.

I.C.3.a BACT Is The Lowest Limit That Is Achievable

The Application asserts: "we conclude that the lowest NOx emission rate that have (sic) been demonstrated in practice and can be achieved for the particular coal available to Desert Rock Energy Center is 0.06 lb/MMBtu as a 24-hour average." Ap., p. 4-9. This is presumably based on Steag's 20+ years of field experience with SCR, mentioned in the preceding sentence. *Ibid.* However, the application does not disclose any information about Steag's SCR experience other than a cursory mention that it exists. Steag is a Germany utility with a large fleet of coal-fired units equipped with SCRs. Ap., p. 4-7. However, Steag's European experience is based on meeting a much higher NOx level than required by BACT in the U.S., generally 100 mg/Nm^3. Thus, we question whether this experience is sufficient to conclude that a lower NOx emission limit is not achievable as BACT in the U.S.

The EPA, after reviewing recent permitting decisions,[13] concurs. SOB, pp. 12-14. Both parties focused on what had been achieved, rather than what was "achievable." Further, neither party cast a wide enough net, even given their erroneous interpretation of the law. The NOx BACT limit must represent the lowest NOx emissions "achievable" by use of the proposed pollution controls. The EPA cannot rely on a retrospective survey of emission limits proposed or achieved in the past.

As discussed in Comment I.A, the BACT emission limit must be only "achievable," not achieved. The record contains no evidence that the EPA and the applicant attempted to determine what was "achievable" for NOx as opposed to what was "achieved." The EPA repeatedly justifies its BACT determination based on what has been permitted. It states that this limit: (1) "is lower than other NOx emissions rates that have been proposed for or achieved by pulverized coal fired boilers recently." (SOB, pp. 12-13); (2) "making the proposed NOx BACT emissions limit for DREF the lowest in an issued PSD permit for a pulverized coal fired boiler." (SOB, p. 14); and (3) "the NOx emission limit of 0.06 lbs/MMBtu as a 24 hour average is lower than any other reported BACT emissions limit." (SOB, p. 14). The record thus indicates that the EPA based its decision on what has been proposed in other permits, rather than what is "achievable" for Desert Rock in November 2006 based on engineering principles. Basing BACT limits on previously permitted limits is a self fulfilling prophecy that contravenes the technology-forcing nature of BACT.

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[13] The EPA asserts that it reviewed trade journals, information from industry conferences and vendor guarantees, but does not cite a single example of any of these. As we discuss in these comments, there are many examples of these latter sources that should have tipped EPA to the fact that lower NOx limits are achievable. The EPA should disclose the specific sources it reviewed so reviewers can judge whether the scope of review was adequate.

I.C.3.b Failure To Establish NOx BACT Based on Maximum Degree Of Reduction

The term "best available control technology" means "an emission limitation based on the maximum degree of reduction of each pollutant..." The EPA ranked the control effectiveness of various NOx control technologies. The top-ranked control technology combination is SCR and low-NOx burners. SOB, p. 8, Table 3. The EPA concluded that BACT is the lowest permitted NOx emission limit based on this technology. SOB, p. 14. This process is not consistent with the definition of BACT or EPA's implementation of this definition using the top-down process. It has led to the wrong result.

The Application and SOB contain no evidence that the proposed NOx BACT limit of 0.06 lb/MMBtu is based on the maximum degree of reduction that is achievable. The Application and SOB do not contain any ranking of control **alternatives** comparable to the examples in the NSR Manual in Tables B-2 and B-3, but rather only rankings of control **technologies**. A control alternative requires an emission limit (*e.g.*, ppm, lb/MMBtu, lb/hr) and a performance level (*e.g.*, percent reduction, emission reduction). NSR Manual, Sec. IV.C.3.

The Application and SOB do not include any performance data, required to prepare such rankings. The boiler outlet NOx (determined by low NOx burner and other combustion control designs in conjunction with coal characteristics) and the SCR design control efficiency are both required to determine the degree of NOx reduction. Neither is reported in the Application or SOB. Thus one is left to guess whether the maximum degree of reduction is required.

It appears that the maximum degree of reduction has not been required. The BACT NOx emission level will be achieved using low-NOx burners and SCRs. Modern low-NOx burners have achieved a NOx outlet of less than 0.20 lb/MMBtu on a wide range of coals, including low sulfur subbituminous coals similar to Desert Rock's. Ex. 8A,[14] 8B.[15] Moderns SCRs routinely achieve NOx removal efficiencies greater than 90%. Ex. 4, pp. 1, 15; Ex. 5, p. 30; Ex. 7, p. 77. Detailed analyses of EPA Clean Air Markets data indicates that "90% removal efficiency is currently being achieved by a significant portion of the coal-fired SCR fleet." Ex. 4, p. 15. Greater than 30 units have achieved greater that 90% NOx reduction. Ex. 4, p. 1. 90% NOx removal was achieved on 10,000 MW of coal-fired generation in 2004. Ex. 7, p. 77. Many coal-fired units have been guaranteed to achieve greater than 90% NOx reduction. Ex. 9. The McIlvaine reports, one of the sources the NSR Manual states should be considered in a BACT analysis (NSR Manual, p. B.12), indicate three of Haldor Topsoe's SCR installations averaged over 95% NOx reduction during the 2005 ozone season. Ex. 17.[16]

The achievable NOx emission limit for Desert Rock would be about 0.02 lb/MMBtu, if the boiler outlet NOx were 0.2 lb/MMBtu (a typical value) and the SCR achieved 90% NOx control (also typical). Assuming a boiler outlet of 0.3 lb/MMBtu, which would be very high for a new supercritical boilers burning Navajo coal, the achievable NOx emission limit would be

[14] NOx Ranking based on EPA Clean Air Markets CEMS Data for 2003.

[15] T. Whitfield and others, Comparison of NOx Emissions Reductions with PRB and Bituminous Coals in 900 MW Tangentially Fired Boilers, 2003 Mega Symposium.

[16] Utility E-Alert 798, November 2, 2006, page pdf 12.

0.03 lb/MMBtu, half of that picked by the applicant and EPA based on permitted levels. Thus, we urge the EPA to revisit the NOx BACT determination. We also urge EPA to specifically request LNB and SCR design specifications (boiler outlet NOx, SCR NOx control efficiency, type of catalyst, catalyst pitch, number of catalyst layers, catalyst lifetime, pressure drop, SO_2 to SO_3 conversion rate, etc). This information is essential to determine BACT for both NOx and sulfuric acid mist, discussed elsewhere in these comments.

I.D BACT Is Not Required For VOC And CO Emissions From PC Boilers

The EPA concludes that BACT for CO is 0.010 lb/MMBtu (SOB, p. 21) and BACT for VOC is 0.003 lb/MMBtu (SOB, p. 23). These determinations have two problems in common.

First, EPA's BACT determinations for both CO and VOCs report a range of previously permitted CO (0.05-0.15 lb/MMBtu) and VOC (0.002-0.01 lb/MMBtu) limits. SOB, Tables 5 & 6. These tables were copied from the Application. However, the SOB and the Application do not explain why the lowest reported CO and VOC limits do not constitute BACT in this instance.

Second, Desert Rock will use a supercritical boiler. Ap., p. 2-2 and Attach 1. A supercritical boiler is more efficient than a subcritical boiler, or the so-called standard PC boiler, and thus is able to achieve lower emissions, including lower CO and VOC.[17] Ex. 11. Most of the permitted CO and VOC limits relied on by both the applicant and EPA are based on the less efficient subcritical boiler technology. Thus, Desert Rock should be able to meet the lowest reported CO and VOC limits and likely could meet even lower CO and VOC limits than previously permitted and relied on here. The technology forcing nature of BACT requires that EPA lower the VOC and CO BACT limits to address the higher efficiency and thus lower emissions that can be achieved with a supercritical boiler.

I.E BACT Not Required For Particulate Matter Emissions From PC Boilers

I.E.1 BACT Not Required For PM10

The applicant proposed a PM10 (filterable plus condensable) BACT emission limit of 0.02 lb/MMBtu, but requested a 3-year trial period to determine its feasibility. The EPA independently reviewed the applicant's analysis and affirmed the proposed PM10 limit, but concluded that only an 18-month trial was warranted. SOB, pp. 26-27. This comment addresses the fact that BACT for PM10 is lower than 0.02 lb/MMBtu. The next comment addresses the optimization period.

The EPA provides no support for its assertion that BACT for PM10 is an emission limit of 0.020 lb/MMBtu. SOB, p. 27. Lower PM10 limits have been set in recent permits and achieved in stack tests. The following permits have been issued with lower total PM10 limits:

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[17] E.S. Sadlon, Alstom, Application of State-of-the-Art Supercritical Boiler Experience to U.S. Coals – Corrosion Considerations, CoalGen 2004; Tim O'Brien and Steve Pieschl, Black & Veatch, Black & Veatch Advanced Supercritical Pulverized Coal Reference Plant, CoalGen 2005; P. Armstrong and others, Design and Operating Experience of Supercritical Pressurized Coal Fired Plant.

- 0.0088 lb/MMBtu for Northampton, PA
- 0.010 lb/MMBtu for Seward, PA
- 0.018 lb/MMBtu for Hawthorn, MO
- 0.018 lb/MMBtu for Elm Road, WI
- 0.018 lb/MMBtu for Longview, WV
- 0.018 lb/MMBtu for Thoroughbred, KY
- 0.018 lb/MMBtu for City Utilities, Springfield, MO
- 0.018 lb/MMBtu for Iatan, MO
- 0.018 lb/MMBtu for Plumb Point, AK

We assume that EPA has access to all of these permits, which are available on line. However, if it does not, we can supply copies on request. Two of these facilities are CFBs that burn high sulfur, high ash fuels (Northampton, Seward). These CFBs represent a worst case for PM control at Desert Rock because the fly ash is recirculated, resulting in high baghouse inlet PM concentrations, roughly twice as high as Desert Rock based on a design ash content of 20.5%. Three of these facilities have been built and tested at a lower total PM10 emission rate than proposed for Desert Rock. This test data includes the following:

- 0.0044 lb/MMBtu for Northampton in 2001 (Ex. 13)
- 0.0012 lb/MMBtu for Northampton in 1995 (Ex. 12)
- 0.0041 lb/MMBtu for Seward in 2005 (Ex. 14)
- 0.0114 – 0.0170 lb/MMBtu for Hawthorn in 2001-2004 (Ex. 15)

These stack tests are attached as Exhibits12 to 15.

I.E.2 BACT For PM10 Deferred To Future

The Draft Permit allows EPA to increase the proposed PM10 BACT limit of 0.020 lb/MMBtu based on testing during an 18-month period. Permit, p. 11, Condition IX.T. There are four problems with this after-the-fact BACT analysis.

First, it allows EPA to make a BACT determination outside of public review, off-the-record, and post construction. BACT is a preconstruction requirement that requires public review.

Second, even assuming this off-the-record procedure is legal, the proffered condition does not explain what process would be used or how much data would be required to revise the PM10 limit. Instead, it gives EPA carte blanche to set a new limit based on whatever testing the applicant conducts in a 18-month period.

Third, the condition puts the cart before the horse. The Permit should establish BACT, require that the control system be designed to meet it, and, if uncertainty is demonstrated to exist,

include an optimization study to determine if a lower limit can be met, rather than a grant to raise the limit. A lower limit should be imposed if testing demonstrates it is feasible. If the BACT limit cannot be met in the optimization study based on appropriate design and best efforts, the permit should be reopened to establish a higher limit.

Finally, any increase in the PM10 emission limit would trigger revisions in other PSD requirements, including the visibility, Class I and II, and the additional impact analyses. Thus, EPA cannot allow any increase in PM10 emissions without going through a formal PSD permit revision and without providing public notice and review.

The 18-month optimization condition, if retained, should specify the type and amount of testing required to support a new BACT determination, should clearly state that a decision to revise the limit would reopen the permit and trigger a formal PSD review, should require a top down BACT determination that considers all other PM10 data from other facilities then available, and should state that the proposed PM10 limit will be lowered if testing demonstrates a lower limit is achievable.

I.F No Startup And Shutdown BACT Analysis

The Draft Permit excludes periods of startup and shutdown from the BACT limits. The control equipment required to meet BACT must be operated continuously, except during periods of startup and shutdown. Permit, p. 3, Condition IX.B.7. Separate emission limits are set for SO_2, NOx, and CO during startups and shutdowns. Permit, p. 7, Condition IX.N.1. Further, emissions from startups and shutdowns need only be included in calculations of hourly and annual mass emission rates, *e.g.*, lb/hr, which term excludes limits that are not mass emission rates, *e.g.*, lb/MMBtu, the metric selected for BACT.

It is well established that BACT applies during all periods, including periods of startup and shutdown. *See* Memorandum from John B. Rasnic to Linda Murphy (Jan. 28, 1993); Memorandum from Kathleen Bennett to Regional Administrators re: Policy on Excess Emissions During Startup, Shutdown, Maintenance and Malfunctions (Feb. 15, 1983). *See also In re Tallmadge Generation Station*, Order Denying Review and Remanding in Part, PSD Appeal No. 02-12, Slip Op. (E.A.B. May 21, 2003) ("BACT requirements cannot be waived or otherwise ignored during periods of startup and shutdown"; *In re Indeck-Niles Energy Center*, PSD Permit No. 364-00A, PSD Appeal No. 04-01, 2004 EPA App. Lexis 39 n.9 (EAB Sept. 30, 2004). The Application and SOB are silent as to BACT during periods of startup and shutdown. The Permit explicitly exempts these periods from BACT and other emission limits in Condition IX.B.7 and sets separate limits for SO2, NOx, and CO that apply only during periods of startup and shutdown. Permit, p. 7, Condition IX.N.

The record we reviewed does not contain any support for these alternative startup and shutdown limits, most notably, a top-down BACT analysis explaining their basis. Thus, we further request that EPA explain the basis for the startup and shutdown limits found in Condition IX.N and provide a supporting top-down BACT analysis. Further, the startup and shutdown emissions should be included in the air quality analyses.