

BEFORE THE ADMINISTRATOR  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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IN THE MATTER OF )  
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CASH CREEK GENERATION, LLC )

PETITION NOS. IV-2008-1 & IV-2008-2

HENDERSON, KENTUCKY )

TITLE V/PSD AIR QUALITY PERMIT )

# V-07-017 )  
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ISSUED BY THE KENTUCKY )

DIVISION FOR AIR QUALITY )

DIVISION )  
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**ORDER RESPONDING TO ISSUES RAISED IN JANUARY 31, 2008 AND FEBRUARY  
13, 2008 PETITIONS, AND DENYING IN PART AND GRANTING IN PART  
REQUESTS FOR OBJECTION TO PERMIT**

The United States Environmental Protection Agency (EPA) received timely petitions from Sierra Club and Valley Watch (Petitioners) dated January 31, 2008, and February 13, 2008, respectively, pursuant to Section 505(b)(2) of the Clean Air Act ("CAA" or "Act"), 42 United States Code (U.S.C.) § 7661d(b)(2) (the January 31, 2008, petition is referred to as "Petition 1" and the February 13, 2008, petition is referred to as "Petition 2"). Both Petitions request that EPA object to Permit #V-07-017 issued by the Kentucky Division for Air Quality ("KDAQ") on January 17, 2008, to Cash Creek Generation, LLC (Cash Creek). Permit #V-07-017 is a merged CAA prevention of significant deterioration (PSD) construction permit and CAA title V operating permit issued pursuant to Kentucky's Administrative Regulations (KAR) at 401 KAR 52:020 (title V regulations) and 51:017 (PSD regulations). The permit is for a new nominal 770 megawatt (MW) electric generating facility using Integrated Gasification Combined Cycle (IGCC) technology at the Cash Creek Generating Station located southwest of Owensboro (Henderson County), Kentucky.

This Order contains EPA's response to Petitioners' request that EPA object to the permit on the basis that: 1) the best available control technology (BACT) analyses did not include natural gas as a clean fuel; 2) the permit lacks the appropriate new source performance standards (NSPS) for the combustion turbines planned for the facility; 3) the permit lacks a PM<sub>2.5</sub> limit; 4) the permit lacks a BACT limit for CO<sub>2</sub>; 5) KDAQ did not consider, and was unresponsive to,

public input regarding an alternatives analysis for the proposed permit; 6) Elm Road sulfuric acid mist (SAM) limits were not considered in the BACT analysis; 7) KDAQ did not respond to comments regarding material handling and storage emissions; and 8) KDAQ did not respond to Valley Watch comments on increased ozone formation due to the emissions from the proposed source.

Based on a review of Petitions 1 and 2 and other relevant materials, including the Cash Creek permit and permit record, and relevant statutory and regulatory authorities, and, as discussed in this Order, I grant in part and deny in part the Petitions requesting that EPA object to the Cash Creek permit. I grant on issues 1, 2, 3, 5, 6 and 8 above.

## **I. STATUTORY AND REGULATORY FRAMEWORK**

Section 502(d)(1) of the CAA calls upon each State to develop and submit to EPA an operating permit program intended to meet the requirements of title V of the CAA. The Commonwealth of Kentucky<sup>1</sup> originally submitted its title V program governing the issuance of operating permits in 1993, and EPA granted full approval on October 31, 2001. 66 *Fed. Reg.* 54953 (October 31, 2001). The program is now incorporated into Kentucky's Administrative Regulations at 401 KAR 52:020. All major stationary sources of air pollution and certain other sources are required to apply for title V operating permits that include emission limitations and other conditions as necessary to assure compliance with applicable requirements of the CAA, including the requirements of the applicable State Implementation Plan (SIP). CAA §§ 502(a) and 504(a), 42 U.S.C. §§ 7661a(a) and 7661c(a).

The title V operating permit program does not generally impose new substantive air quality control requirements (referred to as "applicable requirements"), but does require permits to contain monitoring, recordkeeping, reporting and other conditions to assure sources' compliance with applicable requirements. 57 *Fed. Reg.* 32250, 32251 (July 21, 1992). One purpose of the title V program is to "enable the source, States, EPA, and the public to understand better the requirements to which the source is subject, and whether the source is meeting those requirements." *Id.* Thus, the title V operating permit program is a vehicle for ensuring that air quality control requirements are appropriately applied to facility emission units and for assuring compliance with such requirements.

Applicable requirements for a new major stationary source<sup>2</sup> include the requirement to obtain a preconstruction permit that complies with applicable New Source Review (NSR) requirements (e.g., PSD). Part C of Title I of the CAA establishes the PSD program, the

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<sup>1</sup> The Commonwealth of Kentucky Environmental and Public Protection Cabinet (Kentucky Cabinet), which submitted the title V program, oversees the Kentucky Division for Air Quality (KDAQ) which is the permitting authority for title V and PSD permits in Kentucky.

<sup>2</sup> The proposed Cash Creek facility is a "major stationary source" consistent with the definition of that term in 401 KAR 51:001 § 1(118).

preconstruction review program that applies to areas of the country, such as Henderson County, that are designated as attainment or unclassifiable for National Ambient Air Quality Standards (NAAQS). CAA §§ 160-169, 42 U.S.C. §§ 7470-7479. NSR is the term used to describe both the PSD program as well as the nonattainment NSR program (applicable to areas that are designated as nonattainment with the NAAQS). In attainment areas (such as Henderson County), a major stationary source may not begin construction without first obtaining a PSD permit. CAA § 165(a)(1), 42 U.S.C. § 7475(a)(1). The PSD program analysis must address two primary and fundamental elements (among other requirements) before the permitting authority may issue a permit: (1) an evaluation of the impact of the proposed new or modified major stationary source on ambient air quality in the area, and (2) an analysis ensuring that the proposed facility is subject to BACT for each pollutant subject to regulation under the PSD program. CAA § 165(a)(3), (4), 42 U.S.C. § 7475(a)(3), (4); *see also* 401 KAR 51:017 (Kentucky's PSD program).

EPA has promulgated two largely identical sets of regulations to implement the PSD program. One set, found at 40 Code of Federal Regulations (CFR) § 52.21, contains EPA's own federal PSD program, which applies in areas without a SIP-approved PSD program. The other set of regulations, found at 40 CFR § 51.166, contains requirements that state PSD programs must meet to be approved as part of a SIP. In 1989, EPA approved Kentucky's PSD rules into the SIP as meeting these requirements. 54 *Fed. Reg.* 36307 (September 1, 1989); *see also* 40 CFR § 52.931.<sup>3</sup> Thus, the applicable requirements of the Act for new major sources, such as Cash Creek, include the requirement to comply with PSD requirements under the Kentucky SIP. *See, e.g.*, 40 CFR § 70.2.<sup>4</sup> Kentucky's permit program provides for PSD permitting to occur concurrently with the title V permitting process. 401 KAR 51:017 § 1(3).

Under CAA section 505(a), 42 U.S.C. § 7661d(a), and the implementing regulations at 40 CFR § 70.8(a), states are required to submit each proposed title V permit to EPA for review. Upon receipt of a proposed permit, EPA has 45 days to object to final issuance of the permit if it is determined not to be in compliance with applicable requirements or the requirements of part

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<sup>3</sup> On February 10, 2006, EPA proposed to approve changes made to Kentucky's NSR program consistent with EPA's 2002 NSR Reform Rules. 71 *Fed. Reg.* 6988 (February 10, 2006). On July 11, 2006, EPA took final action approving Kentucky's NSR program incorporating changes made pursuant to EPA's 2002 NSR Reform Rules. 71 *Fed. Reg.* 38990 (July 11, 2006). Kentucky's revisions to its NSR program, consistent with NSR reform, became effective under Kentucky law on July 14, 2004, and were submitted to EPA as a SIP revision for approval in September 2004. For further information about rules incorporated into the Kentucky SIP, see <http://www.epa.gov/region4/air/sips/ky/kytoc.htm>.

<sup>4</sup> Kentucky defines "federally applicable requirement" in relevant part to include a "federally enforceable requirement or standard that applies to a source." 401 KAR 52:001 § 1(15). Kentucky further defines "federally enforceable requirement," as "[s]tandards or requirements in the state implementation plan (SIP) that implement the relevant requirements of the Act, including revisions to that plan promulgated at 40 CFR Part 52." 401 KAR 52:001 § 1(34).

70. 40 CFR § 70.8(c). If EPA does not object to a permit on its own initiative, section 505(b)(2) of the Act and 40 CFR § 70.8(d) provide that any person may petition the Administrator, within 60 days of the expiration of EPA's 45-day review period, to object to the permit. In response to such a petition, the Act requires the Administrator to issue an objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the Act. 42 U.S.C. § 7661d(b)(2); *see also* 40 CFR § 70.8(c)(1); *New York Public Interest Research Group, Inc. (NYPIRG) v. Whitman*, 321 F.3d 316, 333 n.11 (2d Cir. 2003). Under section 505(b)(2) of the Act, the burden is on the petitioner to make the required demonstration to EPA. *Sierra Club v. Johnson*, 541 F.3d 1257, 1266-1267 (11<sup>th</sup> Cir. 2008); *Citizens Against Ruining the Environment v. EPA*, 535 F.3d 670, 677-678 (7<sup>th</sup> Cir. 2008); *Sierra Club v. EPA*, 557 F.3d 401, 406 (6<sup>th</sup> Cir. 2009) (discussing the burden of proof in title V petitions); *see also NYPIRG*, 321 F.3d at 333 n.11. If, in responding to a petition, EPA objects to a permit that has already been issued, EPA or the permitting authority will modify, terminate, or revoke and reissue the permit consistent with the procedures set forth in 40 CFR §§ 70.7(g)(4) and (5)(i) - (ii), and 40 CFR § 70.8(d).

Where a petitioner's request that the Administrator object to the issuance of a title V permit is based in whole, or in part, on a permitting authority's alleged failure to comply with the requirements of its approved PSD program (as with other allegations of inconsistency with the Act), the burden is on the petitioner to demonstrate that the permitting decision was not in compliance with the requirements of the Act, including the requirements of the SIP.<sup>5</sup> Such requirements, as EPA has explained in describing its authority to oversee the implementation of the PSD program in states with approved programs, include the requirements that the permitting authority (1) follow the required procedures in the SIP; (2) make PSD determinations on reasonable grounds properly supported on the record; and (3) describe the determinations in enforceable terms. *See, e.g.*, 68 *Fed. Reg.* 9892, 9894-9895 (March 3, 2003); 63 *Fed. Reg.* 13795, 13796-13797 (March 23, 1998). EPA has approved the PSD programs into the SIPs of most states, including the Commonwealth of Kentucky, and as the permitting authority, Kentucky has substantial discretion in issuing PSD permits. Given this, in reviewing a PSD permitting decision, EPA will not substitute its own judgment for that of Kentucky. Rather, consistent with the decision in *Alaska Dep't of Env't'l Conservation v. EPA*, 540 U.S. 461 (2004), in reviewing a petition to object to a title V permit raising concerns regarding a state's PSD permitting decision, EPA generally will look to see whether the petitioner has shown that the state did not comply with its SIP-approved regulations governing PSD permitting or whether the state's exercise of discretion under such regulations was unreasonable or arbitrary.<sup>6</sup> *See, e.g., In*

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<sup>5</sup> The appeal of federal PSD permits issued pursuant to the federal regulations at 40 CFR § 52.21 is governed by the regulations at 40 CFR § 124.19, and authority to review such permits rests exclusively with the Environmental Appeals Board (EAB). Because of the exclusive authority of the EAB in this area, the Administrator has declined to review the merits of a federal PSD permit in the context of a petition to review a title V permit. *See, e.g., In re Kawaihae Cogeneration Project*, Petition No. 0001-01-C (Order on Petition) (March 10, 1997).

<sup>6</sup> As EPA has previously explained, in reviewing PSD permit determinations in the context of a

*re Louisville Gas and Electric Company*, Petition No. IV-2008-3 (Order on Petition) (August 12, 2009); *In re East Kentucky Power Cooperative, Inc.* (Hugh L. Spurlock Generating Station), Petition No. IV-2006-4 (Order on Petition) (August 30, 2007); *In re Pacific Coast Building Products, Inc.* (Order on Petition) (December 10, 1999); *In re Roosevelt Regional Landfill Regional Disposal Company* (Order on Petition) (May 4, 1999).

## II. BACKGROUND

### Facility

The Cash Creek facility is located southwest of Owensboro on Kentucky State Highway 1078 in Henderson County, Kentucky. The proposed facility would be a new nominal 770 MW electric generating facility using IGCC technology. As proposed, the IGCC process uses coal to produce synthesis gas (syngas) as the primary fuel to fire two combustion turbines in combination with heat recovery steam generating units and a steam turbine to produce electricity. The syngas mainly consists of hydrogen gas and carbon monoxide. The turbines will operate such that heat from the combustion turbines will be recovered in heat recovery steam generators and a steam turbine unit. The proposed permit also authorizes the construction of two gasifiers which convert coal slurry to syngas.

### Permit History

On May 4, 2006, KDAQ received a PSD/title V permit application from Cash Creek to construct a nominal 770 MW electric generating facility using IGCC technology. KDAQ issued a notice of deficiency on June 19, 2006. Cash Creek filed a response on August 9, 2006. A second notice of deficiency was issued by KDAQ on September 20, 2006. Cash Creek responded on October 12 and November 11, 2006. KDAQ determined that the application was administratively complete on March 29, 2007. *See* Cash Creek Permit Revised Statement of Basis (SOB) (November 14, 2007). On May 20, 2007, KDAQ published the first public notice

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petition to object to a title V permit, the standard of review applied by the EAB in reviewing the appeals of federal PSD permits provides a useful analogy. *In re Louisville Gas and Electric Company*, Petition No. IV-2008-3 (Order on Petition) (August 12, 2009) at 5 n.6; *see also In re East Kentucky Power Cooperative, Inc.* (Hugh L. Spurlock Generating Station), Petition No. IV-2006-4 (Order on Petition) (August 30, 2007) at 5. The standard of review applied by the EAB in its review of federal PSD permits is discussed in numerous EAB orders as the "clearly erroneous" standard. *See, e.g., In re Prairie State Generation Company*, 13 E.A.D. \_\_\_, PSD Appeal No. 05-05, slip op. at 13 (EAB, August 24, 2006); *In re Kawaihae Cogeneration*, 7 E.A.D. 107, 114 (EAB, April 28, 1997). In short, in such appeals, the EAB explained that the burden is on a petitioner to demonstrate that review is warranted. Ordinarily, a PSD permit will not be reviewed by the EAB unless the decision of the permitting authority was based on either a clearly erroneous finding of fact or conclusion of law, or involves an important matter of policy or exercise of discretion that warrants review.

providing for a 30-day public comment period and announcing a public hearing on the draft Cash Creek Permit to be held on June 29, 2007. Petitioners submitted comments to KDAQ on June 29, 2007, including one set of comments submitted by Valley Watch, one set of comments submitted by the Cumberland Chapter of the Sierra Club, and a third set of comments submitted jointly by Sierra Club, Valley Watch, and the Environmental Law and Policy Center. KDAQ issued a revised SOB on November 14, 2007, and a Response to Comments (RTC) document on November 28, 2007. EPA did not object to the proposed permit within its 45-day review period which ended on January 14, 2008. KDAQ issued the final permit to Cash Creek on January 17, 2008.

### **Background on PSD and BACT**

The CAA and corresponding PSD regulations require that new major stationary sources employ BACT to minimize emissions of regulated pollutants emitted from the facility in significant amounts. CAA § 165(a)(4), 42 U.S.C. § 7475(a)(4); 40 CFR § 52.21(j)(2); 401 KAR 51:017 § 8(2), (3). BACT is defined to mean:

an emission limitation based on the maximum degree of reduction [of pollutants emitted from the 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 each such pollutant.

CAA § 169(3), 42 U.S.C. § 7479(3); 401 KAR 51:001§ 1(25).

EPA has developed a "top-down" process that permitting authorities can use to ensure that a BACT analysis satisfies the applicable legal criteria. The top-down BACT analysis consists of a five-step process which provides that all available control technologies be ranked in descending order of control effectiveness, beginning with the most stringent. *See In re Prairie State Generation Company*, 13 E.A.D. \_\_\_, PSD Appeal No. 05-05, slip op. at 17-18 (EAB, August 24, 2006). The most stringent control technology is deemed the control necessary to achieve BACT-level emission limits unless the applicant demonstrates, and the permitting authority determines, that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not achievable in that case. An incomplete BACT analysis, including failure to consider all potentially applicable control alternatives, constitutes clear error. *See, e.g., Prairie State*, slip op. at 19; *In re Knauf Fiber Glass, GmbH*, 8 E.A.D. 121, 142 (EAB, February 4, 1999); *In re Masonite Corp.* 5 E.A.D. 551, 568-569 (EAB, November 1, 1994). Cash Creek followed this top-down BACT methodology when it submitted its application for the Cash Creek facility, which KDAQ applied in issuing its permitting decision. SOB at 27-28.

### **III. EPA DETERMINATIONS ON PETITIONS 1 AND 2**

#### **A. Failure to Establish BACT Limits Based on Clean Fuels** (Section I of Petition 1 and Section II of Petition 2)

*Petitioners' Claims.* The permit does not establish BACT limits based on natural gas but instead includes two BACT limits depending on which fuel is used, one for natural gas and one for syngas. Despite the proposed facility being able to burn natural gas and thereby to achieve lower emission rates, KDAQ failed to establish the BACT limits based on the clean fuel - natural gas. Petitioners claim that the use of natural gas would not require a redesign of the facility since the permit record indicates that the facility is capable of burning either syngas or natural gas and that the facility will burn only natural gas for a startup period of six months to one year. Petitioners claim that the burden is on Cash Creek to demonstrate why the use of natural gas is not cost effective.

*EPA's Response.* For the reasons discussed below, EPA is granting the Petitions with respect to this issue on the basis that the record is inadequate. Petitioners have demonstrated that neither KDAQ nor the Applicant considered the possibility of natural gas as an alternative primary fuel source or provided an adequate explanation, considering the record in this case, of why such an analysis is unnecessary. *See* SOB at 14-28 (BACT analysis).

In its RTC on this issue, KDAQ explained that the IGCC process will use coal to produce syngas as the primary fuel and that natural gas is a secondary fuel. RTC at 24. KDAQ also stated the "facility is specifically designed for synthesis gas as the primary fuel alone and not in combination with natural gas." *Id.* The BACT analysis for this permit considers different technologies and fuels at different times in the plant's operation, but the analysis does not specifically include any consideration of using natural gas instead of syngas as the primary fuel.

To meet the applicable legal criteria under the Kentucky SIP, a BACT analysis for each pollutant must consider "application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of that pollutant." 401 KAR 51:001 § 1(25). The Clean Air Act also includes the term "clean fuels" in this part of the definition of BACT after the term "fuel cleaning." 42 U.S.C. § 7479(1). Thus, when a potential pollution control strategy is not evaluated in detail in a BACT analysis, the record should provide a reasoned basis to show why that option is not "available" in a particular instance. EPA has recognized that "available" options for a particular facility do not necessarily have to include options that would fundamentally "redefine" the source proposed by the permit applicant. *See, e.g., In re: Desert Rock Energy Company, LLC*, PSD Appeal No. 08-03 et al, slip op. at 59-65 (EAB, September 24, 2009). However, EPA interprets the Act to require a reasoned justification, based on an analysis of the underlying administrative record for each permit, to support a conclusion that an option is not "available" in a given case on the

grounds that it would fundamentally "redefine the source." *Desert Rock*, slip op. at 63-72, 76.

Based on the record here, KDAQ has not provided a reasoned explanation that demonstrates why the option of using exclusively natural gas is not "available" for this facility. The permit record makes clear that Cash Creek proposes to burn natural gas in its turbines for a startup period of six months to a year and to maintain the option of burning natural gas as a secondary fuel thereafter. KDAQ only made the statement that syngas is the primary fuel and natural gas is the secondary fuel, with a general reference to the specific design of the facility. Since the record here shows that the site has access to a natural gas supply and the applicant actually intends to use that supply for some period of time, KDAQ's cursory response is insufficient to demonstrate that the option of using only natural gas is not available at this facility. If KDAQ believes the option of using natural gas alone is not available because it constitutes "redefining the source" under the circumstances present here, KDAQ must clearly state and provide a rationale for that determination. Alternatively, if KDAQ believes that there are economic, environmental, or energy impacts from the use of only natural gas that weigh against its selection as BACT, KDAQ should include natural gas in the BACT analysis and provide a rationale for its elimination based on those criteria. KDAQ is also not precluded from determining that natural gas should be used more frequently as the fuel source for this facility, so long as KDAQ provides a reasonable basis for this determination in its BACT analysis.

States with SIP-approved PSD programs have independent discretion and are not necessarily required to follow all EPA policies or interpretations. *See, e.g., 57 Fed. Reg.* 28093, 28095 (June 24, 1992). However, states that issue PSD permits under SIP-approved regulations are required to conduct a BACT analysis that is reasoned and faithful to the statutory framework. *See Alaska Dep't of Env't'l Conservation v. EPA*, 540 U.S. 461, 484-91 (2004). When EPA is called on to assess whether a state action is supported by a reasoned basis, it is appropriate for EPA to consider prior decisions of the EAB and the Administrator that reach conclusions regarding the adequacy of particular reasoning. *See In re East Kentucky Power Cooperative, Inc.* (Hugh L. Spurlock Generating Station) Petition No. IV-2006-4 (Order on Petition) (August 30, 2007) at 5; *see also* n.6, *supra*. Even if not controlling precedent in a given state, such decisions provide useful guidelines on how to conduct a reasoned BACT analysis.

In *In re Northern Michigan*, PSD Appeal No. 08-02, slip op. at 17-28 (EAB, February 18, 2009), the EAB considered the BACT analysis for a facility that proposed to use both coal and wood fuel. The EAB remanded the permit because the record failed to provide a justification for why BACT limits for SO<sub>2</sub> in the permit were based predominantly on the combustion of coal and not weighted in favor of greater combustion of the cleaner wood fuel. The EAB also noted the lack of a complete BACT analysis based on the permitting authority's failure to include natural gas as a fuel option, where, similar to the circumstances here, the permit application identified natural gas as a fuel to be used for boiler startup and as a backup fuel source. *Id.* at 20 n.17. Although this decision of the EAB is not necessarily a controlling precedent under the Kentucky SIP, we believe the rationale applied there is equally applicable here and helps illustrate why KDAQ's response to comments lacked sufficient reasoning to demonstrate why greater utilization of natural gas fuel was not considered in the BACT analysis for this facility.



On the question of whether an option may be excluded because it redefines the proposed source, the EAB has developed an analytical framework that EPA uses to assess this issue in its own permitting decisions. *See, e.g., Prairie State*, slip op. at 26-37; *Desert Rock*, slip op. at 59-65. The framework calls for the permitting authority to first determine from the particular record how the permit applicant "defines the proposed facility's end, object, aim, or purpose" (the "basic" or "fundamental" design of the facility). The relevant definition of the facility should reflect "reasons independent of air quality permitting." The next step is for the permitting authority to then take a "hard look" at the applicant's determination in order to "discern which design elements are inherent for the applicant's purpose and which design elements may be changed to achieve pollutant emissions reductions without disrupting the applicant's basic business purpose for the proposed facility." As part of the latter step, the permitting authority should keep in mind that "BACT, in most cases, should not be applied to regulate the applicant's purpose or objective for the proposed facility." *Desert Rock*, slip op. at 64. The initial opinion of the EAB that adopted this analytical framework was upheld on appeal by the Seventh Circuit Court of Appeals. *See Sierra Club v. EPA*, 499 F.3d 653 (7th Cir. 2007).

As explained above, KDAQ is not necessarily required to follow the analytical framework used by EPA to assess whether an option may be excluded from a BACT analysis on "redefining the source" grounds. However, if KDAQ intends to employ a different approach to determine whether an option is not "available" because it would "redefine the source," the State must articulate its intent to do so and provide a statutory foundation for any alternative approach. Since the EAB has articulated such a foundation for its approach that has been upheld by one U.S. Court of Appeals, we strongly recommend that SIP-approved states follow the framework articulated by the EAB for the same reason that we recommend states employ the complete top-down BACT methodology developed by EPA – to ensure states complete a BACT analysis that is faithful to the statutory guides.

Accordingly, the Petitions are granted with respect to this issue. KDAQ and Cash Creek should provide further explanation of and/or analysis regarding the choice of a primary fuel for this facility, and, if necessary, adjust the resulting BACT limits after such analysis. In so doing, EPA is not concluding that the present permit limits do not represent BACT – only that the present permit record does not provide a sufficient rationale to demonstrate the adequacy of the BACT determinations for this facility.

EPA's conclusion here, that KDAQ failed to provide a reasoned explanation for excluding the option of using only natural gas fuel on the record for this permit, should in no way be interpreted as EPA expressing a policy preference for construction of natural-gas fired facilities over IGCC facilities to generate electricity. EPA supports the development and use of a broad range of technologies across the energy sector including those that will enable the sustainable use of coal. The deployment of IGCC technology is one of the important technologies and a positive strategy to reduce emissions from coal-fired electricity generation. Technology that enables the United States to use its appreciable reserves of coal in an environmentally sustainable manner is

critical to achieving the goals of the PSD program and maintaining compliance with the NAAQS by reducing conventional air pollutants. EPA's sole concern in this Order is the adequacy of KDAQ's rationale for excluding the option of using exclusively natural gas fuel. This Order should not be interpreted to establish or imply an EPA position that PSD permitting authorities should conclude, under all circumstances, that BACT for a proposed electricity generating unit is firing such a unit with natural gas.

This Order does not conclude that it is not possible or permissible for the permit applicant or KDAQ to develop a rationale which shows that firing exclusively with natural gas would "redefine the source" or is otherwise not an "available option." This Order finds only that the Cash Creek permit record fails to include such a justification, and that a justification of this nature is needed under the particular circumstances to insure that KDAQ has provided a reasoned analysis that comports with the applicable legal criteria. Furthermore, EPA does not intend to discourage applicants that propose to construct an IGCC facility from seeking to hedge the risk of investing in the successful deployment of IGCC technology by proposing or retaining the option of utilizing natural gas fuel for some period during the construction or operation of an IGCC facility. Again, EPA's concern in this instance is solely the paucity of KDAQ's rationale for failing to consider the option of using exclusively natural gas as an "available" option in the BACT analysis at this proposed source, under the particular circumstances described in the record.

**B. Failure to Apply Subpart KKKK NSPS to Combustion Turbines**  
(Section II of Petition 1 and Section III of Petition 2)

*Petitioners' Claims.* Petitioners claim that the permit fails to include applicable requirements for the combustion turbines based on 40 CFR Part 60, Subpart KKKK. Since Cash Creek intends to run the turbines only on natural gas for the first six months to a year, Petitioners argue that the NSPS requirements for Stationary Combustion Turbines in Subpart KKKK should apply.

*EPA's Response.* As a threshold procedural matter, these issues were not raised during the public comment process for this permit. Petitioners assert that Cash Creek's intention to run the turbines on natural gas for the first six to twelve months only became apparent in Cash Creek's comments on the draft permit. Petition 1 at 9; Petition 2 at 12; RTC at 3. Since a review of the record shows no mention, prior to the issuance of the RTC, of Cash Creek's intention to run the turbines on natural gas for a startup period of six to twelve months, it was impracticable for Petitioners to raise such claims during the public comment period. Thus, Petitioners meet threshold requirements in Section 505(b)(2) of the CAA for issues raised for the first time in a Petition to the Administrator. With respect to the substantive issue raised by Petitioners, EPA grants the Petitions for the following reason.

The NSPS rules in place at the time KDAQ issued this permit specified that Subpart Da applies to "combined cycle gas turbines designed and intended to burn fuels containing 50

percent or more solid-derived fuel not meeting the definition of natural gas on a 12-month rolling basis."<sup>7</sup> 40 CFR § 60.40Da(b)(2); 72 *Fed. Reg.* 32723 (June 13, 2007). In issuing the final permit, KDAQ explained that it was revising the final permit to include the revised Subpart Da standard. RTC at 4. The final permit included a permit limitation stating that in accordance with Subpart Da, "the combined cycle gas turbine shall be designed and intended to burn fuels containing 50 percent (by heat input) or more solid-derived fuel not meeting the definition of natural gas on a 12-month rolling average basis." Permit at 3. However, in the final permit record, Cash Creek stated its intent to burn "natural gas fuel approximately six (6) to twelve (12) months prior to the introduction of synthesis gas from the gasifiers." RTC at 3. Petitioners submit that KDAQ's application of Subpart Da in the permit is incorrect given that the turbines will be firing only natural gas for the first six to twelve months. Petition 1 at 9; Petition 2 at 12. A combustion turbine firing natural gas would ordinarily be subject to the requirements at Subpart KKKK – Standards of Performance for Stationary Combustion Turbines. 40 CFR § 60.4300, *et seq.* In issuing the final permit, KDAQ did not explain why Subpart KKKK would not apply during those times when the turbines would be fueled by natural gas.

Accordingly, the permit record fails to demonstrate that the appropriate NSPS was applied after it became clear that the turbines would be fueled exclusively by natural gas – which contains no synthetic-coal gas – for six to twelve months, and the Petitions are granted with respect to this issue. In responding to this issue, KDAQ could look to the relevant regulatory provisions, *see* 40 CFR §§ 60.40Da(b)(2) and 60.4310(c), guidance provided in the preamble to the proposed NSPS rules, *see* 72 *Fed. Reg.* 6323 (February 9, 2007), or other factors deemed appropriate, to provide a reasoned basis for its approach to addressing NSPS applicability for this source.<sup>8</sup>

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<sup>7</sup> Under the NSPS regulations in place at the time KDAQ issued the draft permit, Subpart Da applied to combined cycle gas turbines burning fuels containing 75 percent or more solid-derived fuel. *See* 71 *Fed. Reg.* 9867 (February 27, 2006). Subpart Da was revised prior to the issuance of the final permit to reduce the percentage of solid-derived fuel required for applicability to 50 percent. 72 *Fed. Reg.* 32722 (June 13, 2007). Subpart Da was revised again in 2009 to "clarify the implementation of the Subpart Da provisions to integrated coal gasification combined cycle electric utility power plants." 74 *Fed. Reg.* 5073 (January 28, 2009). In the 2009 revision, the 50 percent solid-derived fuel requirement was removed from the applicability provisions of Subpart Da and was instead incorporated into the IGCC definition in that Subpart. *See* 40 CFR § 40.61Da (Defining an IGCC electric utility steam generating unit as "an electric utility combined cycle gas turbine that is designed to burn fuels containing 50 percent (by heat input) or more solid-derived fuel not meeting the definition of natural gas. No solid fuel is directly burned in the unit during operation.").

<sup>8</sup> Should KDAQ determine, in the course of addressing Section III.A of this Order, that natural gas should be the primary fuel at this source, KDAQ's review of NSPS applicability would need to consider this change.

**C. Failure to Include a PM<sub>2.5</sub> BACT Limit**  
(Section III of Petition 1 and Section IV of Petition 2)

*Petitioners' Claims.* Petitioners claim that KDAQ may no longer use PM<sub>10</sub> standards as surrogates for PM<sub>2.5</sub> standards and that the Cash Creek permit failed to contain a BACT limit for PM<sub>2.5</sub>. Petitioners disagree with the use of the surrogate policy as a general matter and state that the surrogate policy was only intended for use until technical difficulties associated with analysis of PM<sub>2.5</sub> have been resolved.

*EPA's Response.* EPA recently addressed similar issues in *In re Louisville Gas and Electric Co.* (Order on Petition) (August 12, 2009) at 42-46. EPA grants the Petitions on this issue to require further consideration of PM<sub>2.5</sub>. As discussed below, the permit record does not provide an adequate rationale to support the use of the PM<sub>10</sub> surrogate approach for this permit.

*Background on PM<sub>2.5</sub> NAAQS and CAA*

EPA establishes NAAQS for certain pollutants, pursuant to section 109 of the CAA, 42 U.S.C. § 7409. Once a NAAQS is established, the CAA sets forth a process for designating areas in the nation as attainment, nonattainment, or unclassifiable, thus triggering additional requirements consistent with the CAA and its implementing regulations. Following establishment of a NAAQS, EPA also promulgates implementation rules that provide specific details of how states must comply with the NAAQS based on the corresponding designations for areas within the state. Generally, the SIP is the primary means by which states comply with CAA requirements to attain the NAAQS. *See* CAA §§ 110(a) and 171-193, 42 U.S.C. §§ 7410(a) and 7501-7515.

On July 28, 1997, EPA revised the NAAQS for PM to add new standards for "fine" particulates, using PM<sub>2.5</sub> as the indicator. 62 *Fed. Reg.* 39852 (July 28, 1997). On October 17, 2006, EPA revised the NAAQS for both PM<sub>2.5</sub> and PM<sub>10</sub>. 71 *Fed. Reg.* 61236 (October 17, 2006). On October 23, 1997, EPA issued a memorandum from John S. Seitz regarding implementation of the 1997 standards entitled, "*Interim Implementation for the New Source Review Requirements for PM<sub>2.5</sub>*" (Seitz Memorandum). The Seitz Memorandum explained that sources would be allowed to use implementation of a PM<sub>10</sub> program as a surrogate for meeting PM<sub>2.5</sub> NSR requirements until certain technical difficulties were resolved. Seitz Memorandum at 1. On April 5, 2005, EPA issued a second guidance memorandum from Stephen D. Page entitled, "*Implementation of New Source Review Requirements in PM-2.5 Nonattainment Areas*" (Page Memorandum), which re-affirmed the October 23, 1997, Seitz Memorandum. Page Memorandum at 1. On May 16, 2008, EPA promulgated the final rule entitled "Implementation of the New Source Review (NSR) Program for Particulate Matter Less than 2.5 Micrometers (PM<sub>2.5</sub>)" (May 2008 PM<sub>2.5</sub> NSR Implementation Rule). 96 *Fed. Reg.* 28321 (May 16, 2008). In the preamble to that rule, EPA explained the transition to the PM<sub>2.5</sub> NSR requirements beginning on page 28340. Specifically, EPA concluded that, if a SIP-approved state is unable to implement a PSD program for the PM<sub>2.5</sub> NAAQS based on that rule, the state may continue to implement a

PM<sub>10</sub> program as a surrogate to meet the PSD program requirements for PM<sub>2.5</sub> under the PM<sub>10</sub> Surrogate Policy in the Seitz Memorandum.<sup>9</sup> 96 *Fed. Reg.* at 28340-28341.

#### *Use of PM<sub>10</sub> as a Surrogate for PM<sub>2.5</sub>*

When EPA issued the PM<sub>10</sub> Surrogate Policy in 1997, the Agency did not identify criteria to be applied before the policy could be used for satisfying the PM<sub>2.5</sub> requirements. However, courts have issued a number of opinions that are properly read as limiting the use of PM<sub>10</sub> as a surrogate for meeting the PSD requirements for PM<sub>2.5</sub>. Applicants and state permitting authorities seeking to rely on the PM<sub>10</sub> Surrogate Policy should consider these opinions in determining whether PM<sub>10</sub> serves as an adequate surrogate for meeting the PM<sub>2.5</sub> requirements in the case of the specific permit application at issue.

Courts have held that a surrogate may be used only after it has been shown to be reasonable to do so. *See, e.g., Sierra Club v. EPA*, 353 F.3d 976, 982-984 (D.C. Cir. 2004) (stating general principle that EPA may use a surrogate if it is "reasonable" to do so and applying analysis from *National Lime Assoc. v. EPA*, 233 F.3d 625, 637 (D.C. Cir. 2000) that is applicable to determining whether use of a surrogate is reasonable in setting emissions limitations for hazardous air pollutants under Section 112 of the Act); *Mossville Env't'l Action Now v. EPA*, 370 F.3d 1232, 1242-43 (D.C. Cir. 2004) (EPA must explain the correlation between the surrogate and the represented pollutant that provides the basis for the surrogacy); *Bluewater Network v. EPA*, 370 F.3d 1, 18 (D.C. Cir. 2004) ("The Agency reasonably determined that regulating [hydrocarbons] would control PM pollution both because HC itself contributes to such pollution, and because HC provides a good proxy for regulating fine PM emissions"). Though these court decisions do not speak directly to the use of PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub>, EPA believes that the overarching legal principle from these decisions is that a surrogate may be used only after it has been shown to be reasonable (such as where the surrogate is a reasonable proxy for the pollutant or has a predictable correlation to the pollutant). Further, we believe that this case law governs the use of EPA's PM<sub>10</sub> Surrogate Policy, and thus that the legal principle from the case law applies where a permit applicant or state permitting authority seeks to rely upon the PM<sub>10</sub> surrogate policy in lieu of a PM<sub>2.5</sub> analysis to obtain a PSD permit.

With respect to PM surrogacy in particular, there are specific issues raised in the case law that bear on whether PM<sub>10</sub> can be considered a reasonable surrogate for PM<sub>2.5</sub>. The D.C. Circuit has concluded that PM<sub>10</sub> was an arbitrary surrogate for a PM pollutant that is one fraction of PM<sub>10</sub> where the use of PM<sub>10</sub> as a surrogate for that fraction is "inherently confounded" by the presence of the other fraction of PM<sub>10</sub>. *ATA v. EPA*, 175 F.3d 1027, 1054 (D.C. Cir. 1999) (PM<sub>10</sub> is an arbitrary indicator for coarse PM (PM<sub>10-2.5</sub>) because the amount of coarse PM within PM<sub>10</sub> will depend arbitrarily on the amount of fine PM (PM<sub>2.5</sub>)). In another case, however, the D.C. Circuit held that the facts and circumstances in that instance provided a reasonable rationale for using PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub>. *American Farm Bureau v. EPA*, 559 F.3d 512, 534-35

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<sup>9</sup> The Seitz Memorandum is commonly referred to as EPA's 1997 Surrogate Policy.

(D.C. Cir. 2009) (where record demonstrated that (1) PM<sub>2.5</sub> tends to be higher in urban areas than in rural areas, and (2) evidence of health effects from coarse PM in urban areas is stronger, EPA reasoned that setting a single PM<sub>10</sub> standard for both urban and rural areas would tend to require lower coarse PM concentrations in urban areas. The court considered the reasoning from the *ATA* case and accepted that the presence of PM<sub>2.5</sub> in PM<sub>10</sub> will cause the amount of coarse PM in PM<sub>10</sub> to vary, but on the specific facts before it held that such variation was not arbitrary). EPA believes that these cases demonstrate the need for permit applicants and permitting authorities to determine whether PM<sub>10</sub> is a reasonable surrogate for PM<sub>2.5</sub> under the facts and circumstances of the specific permit at issue, and not proceed on a general presumption that PM<sub>10</sub> is always a reasonable surrogate for PM<sub>2.5</sub>.

This case law suggests that any person attempting to show that PM<sub>10</sub> is a reasonable surrogate for PM<sub>2.5</sub> would need to address the differences between PM<sub>10</sub> and PM<sub>2.5</sub>. For example, emission controls used to capture coarse particles in some cases may be less effective in controlling for PM<sub>2.5</sub>. 72 *Fed. Reg.* 20586, 20617 (April 25, 2007). As a further example, the particles that make up PM<sub>2.5</sub> may be transported over long distances while coarse particles normally travel only short distances. 70 *Fed. Reg.* 65984, 65997-98 (November 1, 2005). Under the principles in the case law, any person seeking to use the PM<sub>10</sub> Surrogate Policy properly would need to consider these differences between PM<sub>10</sub> and PM<sub>2.5</sub> and demonstrate that PM<sub>10</sub> is nonetheless an adequate surrogate for PM<sub>2.5</sub>.

Finally, the PM<sub>10</sub> Surrogate Policy contains limits. In view of significant technical difficulties that existed in 1997, EPA believed that PM<sub>10</sub> could properly be used as a surrogate for PM<sub>2.5</sub> in meeting NSR requirements "until these difficulties are resolved." Seitz Memorandum at 1. Petitioners point out that the bases for the PM<sub>10</sub> Surrogate Policy no longer exist. Petition 1 at 12; Petition 2 at 15. Petitioners note that EPA stated in the May 2008 PM<sub>2.5</sub> NSR Implementation Rule that difficulties in testing, emission estimating and modeling "have largely been resolved." 73 *Fed. Reg.* 28321, 28340 (May 16, 2008).

In this case, the record for the Cash Creek permit does not provide an adequate rationale to support the use of PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> under the circumstances for this specific permit. Overall, the record does not show how the use of the PM<sub>10</sub> Surrogate Policy is consistent with the case law discussed above in light of the differences between PM<sub>10</sub> and PM<sub>2.5</sub>, and does not demonstrate that the use of the Policy here falls within the limits of the Policy. For these reasons and based on the record now before EPA, the Petitions are granted on the claim that the permit record does not support the use of PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub>.<sup>10</sup>

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<sup>10</sup> In 2007, EPA denied a petition requesting that EPA object to the title V permit for Spurlock for failure to include a BACT limit for PM<sub>2.5</sub> emissions. *In re East Kentucky Power Cooperative*, Petition No. IV-2006-4 at 41-42 (Order on Petition) (August 30, 2007). EPA found that, under the circumstances presented in that matter, KDAQ's use of PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> was appropriate. *Id.* EPA's decision in the present Order reflects the circumstances presented in this Cash Creek matter, including a more comprehensive petition, and an evolving understanding of

#### **D. Failure to Include a CO<sub>2</sub> BACT Limit**

(Section IV of Petition 1 and Section V of Petition 2)

*Petitioners' Claims.* Petitioners claim that EPA must object to the permit because the permit fails to include a BACT analysis for CO<sub>2</sub>. Petitioners maintain that CO<sub>2</sub> is subject to regulation under CAA § 821 and 40 CFR Part 75 and that KDAQ improperly limited BACT to pollutants subject to NAAQS, NSPS or CAA § 602.

*EPA's Response.* In its RTC on this issue, KDAQ explained that the Kentucky PSD regulations did not require a BACT analysis for CO<sub>2</sub> emissions. RTC at 41. KDAQ identified the provision of the Kentucky SIP that requires it to implement the state PSD program in a manner that is no more stringent than the federal PSD program. *Id.* (citing Kentucky Revised Statutes (KRS) 224.10-100(26)). KDAQ then found that there were no federal PSD requirements to control CO<sub>2</sub> at stationary sources.<sup>11</sup> Implicit in KDAQ's conclusion that the permit would not include a CO<sub>2</sub> BACT limit was an understanding that the federal PSD program did not apply to CO<sub>2</sub> emissions at the time the permit was issued. *Id.* As discussed below, Petitioners have failed to demonstrate that KDAQ's reliance on the SIP and its assumptions regarding the federal PSD program requirements led to a permit that is deficient under the CAA.

When KDAQ issued the permit in January 2008, at least one EPA Region and the EPA program office that oversees implementation of the federal PSD permitting program had taken the position that CO<sub>2</sub> emissions were not subject to federal PSD requirements because they believed there was a binding, historic interpretation of the phrase "subject to regulation" in the federal PSD regulations that required PSD regulations to apply only to those pollutants already subject to actual control of emissions under other provisions of the CAA.<sup>12</sup> See EPA Region 8's Response to Petition for Review, *In re: Deseret Power Electric Cooperative*, PSD Appeal No. 07-03 (filed November 2, 2007); Brief of the EPA Office of Air and Radiation, *In re: Christian*

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the technical and legal issues associated with the use of the PM<sub>10</sub> Surrogate Policy.

<sup>11</sup> As Petitioners note, KDAQ did incorrectly state that "there are no federal regulations establishing requirements for CO<sub>2</sub> at stationary sources." RTC at 41. However, given that this sentence directly follows KDAQ's discussion of the SIP requirement to implement their PSD program no more stringently than the federal PSD program, we think this sentence is more appropriately read to say that Kentucky found "there are no federal regulations establishing [PSD] requirements for CO<sub>2</sub> at stationary sources."

<sup>12</sup> Under the federal PSD permitting regulations, only newly constructed or modified major sources that emit one or more "regulated NSR pollutants" are subject to the requirements of the PSD program, including the requirement to install BACT for those regulated NSR pollutants that the facility emits in significant amounts. "Regulated NSR pollutants" include "any pollutant that otherwise is subject to regulation under the Act." 40 CFR § 52.21(b)(50)(vi); see also 401 KAR 51:001 § 1(207).

*County Generation, LLC*, PSD Appeal No. 07-01 (filed September 24, 2007). Accordingly, these EPA offices argued that the regulations in the CAA Acid Rain program that require monitoring of CO<sub>2</sub> at some sources (and which are cited by Petitioners in this matter) did not make CO<sub>2</sub> subject to PSD regulation. *Id.* Thus, it was not implausible for KDAQ to assume that the federal PSD program did not require permits to include limits for CO<sub>2</sub> emission because, at the time KDAQ issued the permit, two EPA offices that implement and interpret the requirements of the federal PSD program had taken that position. Moreover, at that time, no federal permitting authorities had actually imposed PSD requirements for CO<sub>2</sub>; in fact, no federal PSD permit has since issued with CO<sub>2</sub> limits.

A decision of EPA's Environmental Appeals Board ("EAB") subsequently addressed the position that CO<sub>2</sub> emissions were not subject to PSD regulation. *See In re: Deseret Power Electric Cooperative*, 14 E.A.D. \_\_\_, PSD Appeal No. 07-03 (EAB, November 13, 2008). The EAB determined that prior EPA actions were insufficient to establish a historic, binding interpretation that "subject to regulation" for PSD purposes included only those pollutants subject to regulations that require actual control of emissions. However, the EAB did not conclude that such an interpretation was impermissible under the CAA and found "no evidence of a Congressional intent to compel EPA to apply BACT to pollutants that are subject only to monitoring and reporting requirements." *Id.* at 63. Shortly thereafter, in order to address the ambiguity that existed in the federal PSD regulations following the EAB decision, then Administrator Stephen Johnson issued a memorandum setting forth the official EPA interpretation regarding which pollutants were "subject to regulation" for the purposes of the federal PSD permitting program. Memorandum from Stephen Johnson, EPA Administrator, to EPA Regional Administrators entitled, "*EPA's Interpretation of Regulations that Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Permit Program*" (December 18, 2008) (Johnson Memo); *see also* 73 *Fed. Reg.* 80300 (December 31, 2008) (public notice of December 18, 2008 memo). The Johnson Memo established an interpretation of "subject to regulation" within the federal PSD regulations that "exclude[d] pollutants for which EPA regulations only require monitoring or reporting but [] include[d] each pollutant subject to either a provision in the Clean Air Act or regulation adopted by EPA under the Clean Air Act that requires actual control of emissions of that pollutant." Johnson Memo at 1; 73 *Fed. Reg.* at 80301. EPA received a petition for reconsideration of the position taken in the Johnson Memo, and on February 17, 2009, the new Administrator granted that petition. Letter from Lisa P. Jackson, EPA Administrator, to David Bookbinder, Chief Climate Counsel at Sierra Club (February 17, 2009). In granting reconsideration, Administrator Jackson announced the intent to conduct a rulemaking to take public comment on the issues raised in the memo, but she did not stay the effectiveness of the Johnson memo pending reconsideration.<sup>13</sup> EPA initiated the public

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<sup>13</sup> The grant of reconsideration also reiterated that states must issue PSD permits "under their own State Implementation Plans." February 17, 2009, letter granting reconsideration at 1; *see also* Johnson Memo at 3 n.1 ("To the extent approved State Implementation Plans contain the same language as used in [the relevant federal PSD regulations], States *may* interpret that language in state regulations in the same manner reflected in this memorandum.") (emphasis



comment process in a notice published in the Federal Register on October 7, 2009. 74 *Fed. Reg.* 51535. This notice summarizes the reasoning of Administrator Johnson's memo and several alternative interpretations that are advocated by citizens in the Petition for Reconsideration of the Johnson Memo and public comments on other EPA actions. While this reconsideration process is ongoing, EPA continues to adhere to the interpretation reflected in Administrator Johnson's memorandum of December 18, 2009. 74 *Fed. Reg.* at 51539.

While KDAQ's implicit assumption at the time the permit was issued – that there was an established federal standard that did not require PSD permits to include limits for CO<sub>2</sub> emissions – was later overturned by the EAB, it does not mean that Petitioners have demonstrated that KDAQ's reliance on this assumption led to a permit that is deficient under the CAA. Petitioners assert that the permit was issued in error because CO<sub>2</sub> "is clearly 'subject to regulation' under the [CAA] and Kentucky law," based on CAA regulations requiring their monitoring and reporting. Petition 1 at 14-17; Petition 2 at 17-20. Petitioners are essentially arguing that, at the time KDAQ issued the permit, the federal PSD program required application of BACT requirements to CO<sub>2</sub> emissions and KDAQ erred by not including such limits. However, this argument fails because the EAB specifically found that there was no established standard regarding whether CO<sub>2</sub> was "subject to regulation" under the federal PSD program and that the position urged by Petitioners – PSD regulation of CO<sub>2</sub> was required given existing monitoring and reporting requirements – is clearly dictated by the language of the CAA or EPA regulations. *Deseret Power*, slip op. at 63. Accordingly, Petitioners have not established that KDAQ's failure to require CO<sub>2</sub> emissions limits in this permit was incorrect because they did not show that KDAQ implemented the Kentucky PSD program in a manner less stringent than the existing federal PSD program.<sup>14</sup> Because Petitioners have not demonstrated that the permit is inconsistent with the requirements of the Act, the Petitions are denied with respect to this issue.<sup>15</sup>

**E. KDAQ Did Not Properly Consider and Did Not Respond to Comments on Alternatives Analysis Submitted by Petitioners.**  
(Section V of Petition 1 and Section VI of Petition 2)

*Petitioners' Claims.* Petitioners claim that KDAQ ignored their comments on alternatives

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added).

<sup>14</sup> The position taken in KDAQ's permitting decision rests on the interplay of its SIP and the federal PSD program, and that decision is consistent with the EPA's present position regarding which pollutants are subject to federal PSD permitting requirements. *See generally* February 17, 2009, letter granting reconsideration; Johnson Memo; Notice of Reconsideration (74 *Fed. Reg.* 51535, October 7, 2009).

<sup>15</sup> Actions are underway at EPA that could, when finalized, result in the promulgation of final standards controlling the emission of greenhouse gases. In particular, EPA has proposed a rule to regulate greenhouse gases from mobile sources under title II of the CAA. 74 *Fed. Reg.* 49454 (September 28, 2009).

to the proposed facility designed to reduce CO<sub>2</sub> impacts and in doing so inappropriately relied on a state law prohibition on implementing the Kyoto Protocol. Petitioners claim that KDAQ's refusal to consider the comments as part of an alternatives analysis pursuant to section 165(a)(2) of the Act is unlawful as section 165 is an applicable requirement for new major source construction under the Act and Kentucky SIP.

*EPA's Response.* As a procedural issue, KDAQ's conclusory response to Petitioners' comments on alternatives to the proposed facility was inadequate. The Cumberland Chapter of the Sierra Club submitted brief comments on alternatives to the proposed facility, including mitigation of CO<sub>2</sub> emissions through carbon capture and sequestration, closure of existing sources of CO<sub>2</sub>, and improved efficiency through co-location with an industry that could utilize the waste heat/steam, which Sierra Club asserted KDAQ was required to consider under CAA Section 165. RTC at 29-30. The Sierra Club also proposed "closing old, inefficient boilers, and investing energy efficiency and clean renewable energy (sic)" to curb CO<sub>2</sub> emissions. RTC at 32. KDAQ's response to the portion of comments on these alternatives referenced section 165(a)(2) of the CAA and stated that "no viable alternatives were presented during the public comment period for consideration by the Cabinet." RTC at 30.

Section 165(a)(2) of the CAA requires a PSD permit to be issued only after "a public hearing with the opportunity for interested persons...to submit written or oral presentations on the air quality impact of such source, alternatives thereto...and other appropriate considerations." 42 U.S.C. § 7475(a)(2). EPA's implementing regulations at 40 CFR 51.166(q)(2)(v) in turn require SIPs to "provide opportunity for a public hearing for interested persons to appear and submit written or oral comments on the air quality impact of the source, alternatives to it, the control technology required, and other appropriate considerations." Kentucky's PSD SIP expressly adopts this EPA PSD regulation. 401 KAR 51:017 § 15. KDAQ is thus obligated by its SIP to implement 40 CFR 51.166(q)(2)(v) which itself implements section 165(a)(2) of the CAA. Accordingly, in determining whether Petitioners have demonstrated that this permit has not been issued in accordance with applicable requirements of the Act, *see* 42 U.S.C. § 7661d(b)(2), it is appropriate for EPA to consider whether KDAQ's response was reasonable in light of CAA section 165(a)(2).

EPA has interpreted the requirements of Section 165(a)(2) to include an obligation by the permitting authority to consider and respond to such comments. *See Prairie State*, slip op. at 40 (stating, with regard to comments submitted under section 165(a)(2), that "the response to comments document must demonstrate that all significant comments were considered"). While the permitting authority is not required to "conduct an independent analysis of available alternatives," *Prairie State*, slip op. at 39, the permitting authority is required to provide a reasoned basis for rejection of the proposed alternatives. *See Prairie State*, slip op. at 40. In *Prairie State*, the EAB pointed to the level of detail provided by the Illinois Environmental Protection Agency (IEPA) in its response to the alternatives suggestions as sufficient given the nature and extent of comments submitted. *Id.* at 40, *citing In Re NE Hub Partners*, 7 E.A.D. 561, 583 (EAB 1998). For example, the IEPA considered each of the alternatives suggested by

commenters in turn in its response to comments and explained why each alternative was not viable. The EAB found that "all of these are sufficient responses to the comments calling for consideration of alternatives." *Id.* at 41. The summary response provided by KDAQ in this instance – simply stating that the alternatives are not "viable" without any explanation for that conclusion – is not sufficient. Accordingly, the Petitions are granted with respect to this issue.

We note that it appears KDAQ may have considered some of the alternatives raised in comments by Petitioners in the context of the BACT analysis. If so, KDAQ's obligations under section 165(a)(2) may be fulfilled by explaining that KDAQ does not consider the options viable for the same reasons they were eliminated from the BACT analysis. However, KDAQ's response does not in fact provide that explanation. Going forward, KDAQ should consider each alternative presented in the comments and provide a reasoned explanation for rejecting (or accepting) each of the alternatives proposed instead of relying on a conclusory statement that no viable alternatives were presented.

**F. Sulfuric Acid Mist (SAM) Limits at Elm Road Facility were not Considered in BACT Analysis**

(Section VI of Petition 1 and Section VII of Petition 2)

*Petitioners' Claims.* Petitioners claim that the BACT analysis for SAM emission limits was flawed because it did not include the SAM limit permitted at the Elm Road facility in Wisconsin. The Elm Road IGCC unit has a SAM BACT limit of 0.0005 lb/MMBtu. The Cash Creek units have a proposed SAM BACT limit of 0.0035 lb/MMBtu. Petitioners state that neither Cash Creek nor KDAQ have offered evidence refuting that the Cash Creek units can achieve the lower BACT limit for SAM.

*EPA's Response.* As discussed *supra*, a BACT analysis culminates in an emission limit for each regulated pollutant that a facility has the potential to emit in significant amounts. In selecting the emission limits, the permitting authority is not required to use the lowest emissions limit found at a similar facility. *In re Cardinal FG Company*, 12 E.A.D. 153 at 170 (EAB, March 22, 2005). However, the BACT analysis should include a comparison of limits identified at similar facilities and provide an explanation for any differences between those limits and the ultimate BACT limit selected for the facility at issue. *Knauf Fiber Glass* at 143.

KDAQ in its RTC states that the "Elm Road facility is a circulating fluidized bed (CFB), not a gasifier, and is not an appropriate 'like facility' for consideration of appropriate emissions from Cash Creek." RTC at 54. However, KDAQ failed to recognize that, while the Elm Road facility may primarily utilize CFB technology, it does have one IGCC unit, a fact noted in the Cash Creek Statement of Basis. SOB at 18. Accordingly, KDAQ's PSD analysis was unreasonable because it failed to consider similar SAM limits identified for such units in determining BACT. Cash Creek and KDAQ have not provided an explanation for the exclusion of the Elm Road IGCC unit's SAM emission limit as BACT, and, therefore, the Petitions are granted with respect to this issue.

### **G. KDAQ Did Not Respond to Comments Regarding Material Handling and Storage Emissions**

(Section VII of Petition 1 and Section VIII of Petition 2)

*Petitioners' Claims.* Petitioners maintain that KDAQ failed to use the maximum theoretical throughput for coal handling and maximum emissions for coal pile wind erosion in its modeling for compliance with the 24 hour PM standards. Petitioners also contend that KDAQ failed to respond to the comment on this point.

*EPA's Response.* As discussed below, these objections to the permit were not raised with reasonable specificity during the comment period. Therefore, the Petitions are denied with respect to this issue.

Pursuant to section 505(b)(2) of the Act, a petition "shall be based only on objections to the permit that were raised with reasonable specificity during the public comment period provided by the permitting agency (unless the petitioner demonstrates in the petition to the Administrator that it was impracticable to raise such objections within such period or unless the grounds for such objection arose after such period)." 42 U.S.C. § 7661d(b)(2).

Petitioners note in their comments that they did not have time during the comment period to review the emissions modeling but stated, "[i]f the modeling did not use the maximum theoretical emission rate for each source, the agency must reject the modeling demonstration and require the applicant to resubmit proper modeling." Comments of Sierra Club, Valley Watch, and Environmental Law and Policy Center at 13, RTC at 49 (emphasis added). Notably, the comment never refers to any applicable requirement that was lacking, only the *possible* failure to use "the maximum theoretical emission rate" in modeling. The comments cite to the Draft NSR Manual, but the citation refers to emissions from point source emission units, not fugitive emission sources of the type addressed in the comments. The comments do not mention any particular emission source of the nine emission sources in the permit or any particular emission rate or pollutant. Moreover, these general unsupported statements in the comments do not allege any particular error on KDAQ's part. See *In re Sutter Power Plant*, 8 E.A.D. 680, 691 (EAB, December 2, 1999). In lieu of identifying specific flaws in the permit, the comments included what amounts to a placeholder for a possible objection in a later petition. No other commenter mentioned this issue. Accordingly, given the nature of the underlying comments, the Petitions are denied on this issue because the Petitions do not satisfy the requirement in CAA section 505(b)(2) that a petition be based on objections raised with reasonable specificity during the comment period.<sup>16</sup>

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<sup>16</sup> EPA notes that, in the spirit of transparency, KDAQ could have included in its RTC an acknowledgment of the comment.

## **H. KDAQ Failed to Consider Valley Watch Comments Related to Increased Ozone Formation**

(Section I of Petition 2)

*Petitioner's Claims.* KDAQ failed to consider and respond to Valley Watch's comments related to increased ozone formation due to NOx and VOC emissions from the proposed source. Petitioners assert that KDAQ should require Cash Creek to undertake an air quality analysis for ozone.

*EPA's Response.* Petitioner raised comments about increased ozone formation in a letter dated June 29, 2007, from John Blair, President of Valley Watch, Inc. (Valley Watch letter). Valley Watch also joined comments submitted in a June 29, 2007, letter signed by Meleah A. Geertsma (Geertsma letter), on behalf of Sierra Club, Valley Watch, and the Environmental Law and Policy Center. While many of the comments submitted in the Valley Watch letter and the Geertsma letter are similar or the same, the issue of increased ozone formation only appears in the Valley Watch letter. KDAQ responded to the comments raised in the Geertsma letter in Attachment H of the RTC and also responded to a separate submittal by the Cumberland Chapter of the Sierra Club in Attachment C of the RTC. However, in its RTC, KDAQ does not include a response to the comments in the Valley Watch letter and, therefore, does not appear to have considered them. While KDAQ did address a general comment from a public hearing regarding the lack of an ozone analysis, *see* RTC at 173, KDAQ's RTC does not appear to give any consideration to the more detailed comments from the Valley Watch letter, including the request to conduct an air quality analysis addressing NOx emissions and accumulated emissions from nearby facilities.

40 CFR Part 70.7(h) provides for public notice and comment for all title V permit proceedings. It is clear that "an inherent component of any meaningful notice and opportunity for public comment is a response by the regulatory authority to significant comments." *In re Consolidated Edison Co., Hudson Ave. Generating Station*, Petition No. II-2002-10 at 8 (September 30, 2003); *see also Home Box Office v. FCC*, 567 F.2d 9, 35 (D.C. Cir. 1977). KDAQ is required to respond to significant public comments and failed to do so with regard to the ozone air quality analysis comments raised in the Valley Watch letter. Accordingly, the Petition is granted with respect to this issue.<sup>17</sup>


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<sup>17</sup> In granting the petition in this regard, we are not reaching the substantive issues raised in the comment regarding increased ozone formation as a result of NOx and VOCs from the project or Petitioner's assertion that an air quality analysis for ozone should be completed. We note that KDAQ has not yet revised its SIP to reflect the current federal requirement to address NOx as a precursor to ozone. To rectify this situation, KDAQ has issued emergency regulations requiring major sources emitting more than 100 tons per year of NOx to conduct an ambient air quality analysis for ozone and has submitted a SIP revision to the same effect for EPA review.

#### IV. CONCLUSION

For the reasons set forth above and pursuant to section 505(b)(2) of the CAA and 40 CFR § 70.8(d), I hereby grant in part and deny in part the issues in the Petitions dated January 31, 2008, and February 13, 2008.

12/15/09  
Date:

  
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Lisa P. Jackson  
Administrator