BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF CASH CREEK GENERATION, LLC HENDERSON COUNTY, KENTUCKY TITLE V/PSD AIR QUALITY PERMIT NO. V-09-006 ISSUED BY THE KENTUCKY DIVISION FOR AIR QUALITY	)	PETITION NO. IV-2010-4

ORDER GRANTING IN PART AND DENYING IN PART PETITION FOR OBJECTION TO PERMIT

On June 18, 2010, the United States Environmental Protection Agency (EPA) received a petition from the Environmental Law & Policy Center on behalf of Sierra Club, Ursuline Sisters of Mount Saint Joseph, and Valley Watch (Petitioners) 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 Petition requests that the EPA object to Permit No. V-09-006 issued by the Kentucky Division for Air Quality (KDAQ) on May 5, 2010, to Cash Creek Generation, LLC (Cash Creek) for the proposed Cash Creek Generation Station, Source I.D. No. 21-101-00134. Permit No. V-09-006 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 Cash Creek Generating Station, a new coal gasification facility and co-located natural gas combined cycle plant to be located southwest of Owensboro, Kentucky, in Henderson County.

KDAQ previously issued a permit to Cash Creek Generation, LLC to construct a coal integrated gasification combined cycle (IGCC) electric generation unit at the same location as the proposed facility addressed by Permit No. V-09-006. In an Order dated December 15, 2009, EPA granted in part and denied in part two petitions requesting that the EPA object to that previously issued permit (Permit No. V-07-17). Cash Creek never constructed the facility addressed by Permit No. V-07-017. Upon KDAQ's issuance of the permit addressed by this Order (Permit No. V-09-006), Cash Creek's authority to construct under previously issued Permit No. V-07-17 was deemed null and void and the permit was terminated.

This Order contains EPA's response to Petitioners' request that EPA object to the permit on the basis that: (1) KDAQ failed to provide an opportunity for meaningful public participation, (2) KDAQ's calculation of the proposed facility's potential to emit volatile organic compounds (VOC), hydrogen

sulfide (H_2S) and hazardous air pollutants (HAPs) failed to account for full emissions from active flaring, (3) the permit's source-wide VOC emission limit is not enforceable as a practical matter, (4) the best available control technology (BACT) limits applicable to the flare during startup and steady-state operations are not supported by a proper BACT analysis, (5) the BACT limits applicable to the flare do not cover shutdown and malfunction periods, (6) the applicant incorrectly estimated fugitive emissions from equipment leaks, (7) KDAQ omitted numerous control options and relied on a faulty cost-effectiveness analysis in selecting BACT for equipment leaks, (8) KDAQ improperly determined that the source is minor for HAPs, (9) Cash Creek's calculation of particulate matter emissions from material handling assumed an unreasonably high control efficiency for wet suppression control methods and used an unreasonably low silt loading factor, (10) permit terms and conditions governing material handling are unenforceably vague and do not equate to the assumed control efficiencies, and (11) Cash Creek failed to perform an adequate ozone impacts analysis.

Based on a review of the Petition and other relevant materials, including the Cash Creek permit and permit record, and relevant statutory and regulatory authorities, I grant in part and deny in part the Petition requesting that EPA object to the Cash Creek permit. I grant in whole or in part on issues (1), (2), (3), (5), (9) and (10) above.

I. STATUTORY AND REGULATORY FRAMEWORK

Section 502(d)(1) of the CAA, 42 U.S.C. § 7661a(d)(1), 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[1] 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. 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[2] include the requirement to obtain a preconstruction permit that complies with applicable new source review requirements. Part C of the CAA establishes the PSD program, which is the preconstruction review program that applies to areas of

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

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

the country, such as Henderson County, that are designated as attainment or unclassifiable for the National Ambient Air Quality Standards (NAAQS). *See* CAA §§ 160-169, 42 U.S.C. §§ 7470-7479. New Source Review, or "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 or undertake a modification 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 (C.F.R.) § 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 C.F.R. § 51.166, contains requirements that state PSD programs must meet to be approved as part of a SIP. Kentucky administers a SIP-approved PSD program, which is governed by its PSD rules at 401 KAR 51:017. *See* 40 C.F.R. § 52.920.[3] Thus, the applicable requirements of the Act for new major sources, such as the Cash Creek, include the requirement to comply with PSD requirements under the Kentucky SIP. *See, e.g.,* 40 C.F.R. § 70.2.[4] In the case of Cash Creek, the PSD and title V permits were merged into one permit. 401 KAR 51:017 § 1 (3).

Under CAA section 505(a), 42 U.S.C. § 7661d(a), and the implementing regulations at 40 C.F.R. § 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 70. 40 C.F.R. § 70.8(c). If EPA does not object to a permit on its own initiative, section 505(b)(2) of the Act and 40 C.F.R. § 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. The 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); 40 C.F.R. § 70.8(d). 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

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[3] Revisions to 401 KAR 51:017 are incorporated into the SIP only if they are submitted to and approved by EPA. Prior to approving a SIP revision submitted to EPA by a state, EPA offers an opportunity for public comment. EPA then publishes a *Federal Register* notice announcing its final action on the SIP submission. A list of Kentucky regulations incorporated into Kentucky's SIP is provided at 40 C.F.R. § 52.920. Further information regarding rules incorporated into Kentucky's SIP is available at http://www.epa.gov/region4/air/sips/ky/kytoc.htm. Citations to Kentucky regulations in this Order are to the SIP-approved version of these regulations.

[4] 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 C.F.R. Part 52." 401 KAR 52:001 § 1(34).

compliance with the requirements of the Act. 42 U.S.C. § 7661d(b)(2); 40 C.F.R. § 70.8(c)(1); *see also 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.[5] *MacClarence v. EPA*, 596 F.3d 1123, 1130-33 (9th Cir. 2010); *Sierra Club v. Johnson,* 541 F.3d 1257, 1266-1267 (11th Cir. 2008); *Citizens Against Ruining the Environment v. EPA,* 535 F.3d 670, 677-78 (7th Cir. 2008); *Sierra Club v. EPA,* 557 F.3d 401, 406 (6th 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 C.F.R. §§ 70.7(g)(4) and (5)(i) - (ii), and 40 C.F.R. § 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. 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, 9894-95 (March 3, 2003); 63 Fed. Reg. 13795, 13796-97 (March 23, 1998).

As the permitting authority for the Commonwealth of Kentucky's SIP-approved PSD program, KDAQ has substantial discretion in issuing PSD permits. Given this discretion, 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 Envt'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.[6] *See, e.g., In re Louisville Gas and Electric Company,*

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[5] EPA is granting several claims, as discussed in Section III of this order. EPA notes generally that KDAQ may respond to these grants by improving or justifying certain aspects of the permit or permitting record, as suggested in the order, or by making other appropriate changes that comport with Kentucky's SIP, approved title V program, and applicable federal regulations.

[6] As EPA has previously explained, in reviewing PSD permit determinations in the context of a petition to object to a title V permit, the standard of review applied by the Environmental Appeals Board (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. 1, 10 (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.

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 proposed Cash Creek facility would be located southwest of Owensboro on Kentucky State Highway 1078 in Henderson County, Kentucky. The facility would consist of two production units: a gasification-to-substitute-natural-gas process and a combined cycle power block. The gasification-to-substitute-natural-gas process will use coal and gasifier technology to produce synthetic gas (syngas) that will be converted into pipeline-quality natural gas in a methanation process. The natural gas that is produced by the facility either will be injected into an interstate natural gas pipeline or will be used as fuel for the combined cycle power block. The combined cycle power block will use two natural-gas-fired combustion turbines in combination with heat recovery steam generating units and a steam turbine to produce electricity to support the natural gas plant and for sale. The gasification plant will use four General Electric 900 cubic foot gasifiers. The plant intends to operate three gasifiers simultaneously, with each gasifier producing thirty-three percent of the syngas required to operate the methanation process at maximum capacity. The fourth gasifier will be operated in warm stand-by to provide full capacity during periods of gasifier maintenance and to enhance plant reliability.

Permit History

KDAQ released a draft air quality permit for public review on September 9, 2009, and held a public hearing on October 9, 2009. Due to significant changes made to the draft permit after the October 9, 2009, public hearing, KDAQ released the revised draft permit for public comment on December 15, 2009, and held a second public hearing on January 15, 2010. Petitioners provided KDAQ with several sets of comments during the two public comment periods.[7] KDAQ responded to public comments, and on March 5, 2010, KDAQ submitted a proposed permit to EPA for the required 45-day review period. EPA did not object to the proposed permit within its review period, which ended on April 19, 2010. KDAQ issued the final permit (Permit V-09-006) on May 5, 2010.

Previously, Cash Creek applied for and obtained an air quality permit from KDAQ authorizing it to construct and operate a facility using IGCC technology at the same location. Cash Creek never built the proposed IGCC facility, and the permit (Permit V-07-017) was rendered null and void upon issuance of the permit addressed by this order (Permit V-09-006).

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 §

[7] Petitioners' comments on the initial and revised draft permits include: (a) comments dated October 8, 2009, submitted on behalf of Sierra Club and Valley Watch; (b) comments dated January 14, 2010, submitted on behalf of Sierra Club, Ursuline Sisters of Mount St. Joseph, and Valley Watch; and (c) comments dated January 15, 2010, submitted on behalf of Sierra Club.

165(a)(4), 42 U.S.C. § 7475(a)(4); 40 C.F.R. §§ 51.166(j)(2) and 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 each regulated pollutant 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); *see also* 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. 1, 13-14 (EAB, August 24, 2006). Under the top-down process, 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. As EPA previously explained, an incomplete BACT analysis, including failure to consider all potentially applicable control alternatives, constitutes clear error. *See, e.g., In re Cash Creek Generation, LLC,* Petition Nos. IV-2008-1 & IV-2008-2, Order on Petition (Dec. 15, 2009), at 6; *see also Prairie State,* 13 E.A.D. at 15; *In re Knauf Fiber Glass,* 8 E.A.D. 121, 142 (EAB 1999); *In re Masonite Corp.* 5 E.A.D. 551, 568-569 (EAB 1994). Cash Creek followed this top-down BACT methodology when it submitted its application for the Cash Creek facility, and KDAQ applied this methodology in evaluating the application and issuing its permitting decision. *See* Final Permit Statement of Basis (May 3, 2010) ("SOB") at 20-21.

KDAQ determined that the Cash Creek facility has the potential to emit the following pollutants in significant amounts as defined in 401 KAR 51:001, Section (222)(a): particulate matter (PM); particulate matter with a diameter of ten microns or less (PM_{10}), particulate matter with a diameter of two and a half microns or less ($PM_{2.5}$), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and carbon monoxide (CO). SOB at 7. The permit contains emission limits determined as BACT for each of these pollutants. *Id.* KDAQ determined that a BACT review was not required for volatile organic compounds (VOC), sulfuric acid (H_2SO_4), or hydrogen sulfide (H_2S) because the facility's predicted controlled emissions of these pollutants are below the PSD significance rate. *Id.* at 19. However, the facility's uncontrolled emissions of VOC, H_2SO_4, and H_2S would exceed the significant emission rate. *Id.* Therefore, the permit includes source-wide emission limits equal to ninety percent of the significant emission rate for each of these pollutants. *Id.*

III. EPA DETERMINATIONS

A. Petitioners' Claims Regarding Public Participation

Petitioners contend that EPA must object to the permit because KDAQ did not provide a meaningful opportunity for public participation during the permitting process. Specifically, Petitioners assert that (1) the public notice for the comment period failed to include a calendar "end date" as required by 401 KAR

52:100 § 5(6); and (2) the permit record available during the public comment period omitted certain information that KDAQ was required to make publicly available. Petition at 5-8.

1. Petitioners' contention that KDAQ failed to specify a calendar "end date" in the public notice.

Petitioners' Claim: Petitioners contend that the public comment period for the permit was deficient because the public notice for the comment period failed to specify the "end date" of the public comment period. For support, Petitioners cite to 401 KAR 52:100 § 5(6) and (7). Petition at 5. Petitioners explain that the notice instead instructed that "written comments must be postmarked within 30 days following the date of publication of this notice." *Id.* According to Petitioners, the term "date" means a particular day, month and year. Petitioners state that KDAQ's failure to specify the day, month and year on which public comment ended resulted in confusion because it was unclear whether the day that the notice was published counted toward the 30-day comment period. *Id.*

EPA's Response: For the reasons provided below, the Petition is denied with respect to this issue. Pursuant to CAA § 505(b)(2), 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). None of the comments submitted to KDAQ during either of the two public comment periods on the draft permit raised an issue regarding KDAQ's alleged failure to identify a public comment period "end date" in its public notices. Nor did Petitioners demonstrate in their petition that it was impractical to raise such objection within the public comment period. Also, there is no indication that the grounds for the objection arose after the public comment period. Furthermore, regarding the substance of Petitioners' claim, the term "end date" is not defined in Kentucky's SIP. While Petitioners prefer that the term "date" be interpreted as "[t]ime stated in terms of the day, month, and year," KDAQ is not obligated to adopt Petitioners' preferred interpretation. Other possible interpretations of "date" include "the time at which an event occurs,"[8] or "[a] particular point or period of time at which something happened or existed, or is expected to happen."[9] Under these latter definitions, Petitioners have not demonstrated that the language in KDAQ's public notices providing that public comments are due "30 days following the date of publication of this notice" is inconsistent with the applicable requirements, or otherwise inconsistent with title V. Therefore, EPA denies the petition with respect to this issue on procedural grounds, and, in the alternative, on substantive grounds.[10]

2. Petitioners' contention that key information was unavailable during the public comment period.

Petitioners' Claim: Petitioners state that the public was deprived of a meaningful opportunity to comment on the draft permit because KDAQ omitted numerous required analyses and supporting materials from the record available for public review during the public comment period. *See* Petition at 7-8. In particular, Petitioners contend that the following information should have been available:

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[8] Merriam-Webster Dictionary, mw2.Merriam-Webster.com/dictionary/date (last visited Mar. 5, 2012).
[9] American Heritage Dictionary of the English Language, Fourth Ed., Houghton Mifflin, 2009.
[10] EPA notes that Petitioners submitted comments by the deadline and KDAQ considered them in reaching its permitting decision.

1) supporting information for numerous emissions factors VOC and H_2SO_4 from the combustion turbine, and CO, VOC, NO_x, PM and SO_2 from the aspirator, and the same pollutants from the emergency generator;
2) estimates of fugitive emissions from valves, leaks, and flanges, and other similar sources;
3) the leak detection and repair (LDAR) plan to control fugitive emissions, the estimated controlled emissions under that plan and supporting materials for those emissions estimates, and the associated CO BACT analysis;
4) the basis for the assumed heat content of the natural gas burned in the combustion turbines;
5) emissions information and supporting materials pertaining to the BACT analysis;
6) cost-effectiveness analyses to support rejection of lower sulfur coal and dry cooling in the BACT analysis; and
7) a flare operation plan to control flaring emissions.

Id.; *see also id.* at 19-31 (discussing the unavailability during the public comment period of the estimate of fugitive emissions from equipment leaks and the associated CO BACT analysis (including the LDAR requirements selected as BACT) and raising substantive issues regarding the information provided after the close of the comment period); *id.* at 14-15 (further discussion of concerns regarding the unavailability of the operation plan for public review). Petitioners cite to 40 C.F.R. § 70.5(c) as support for the proposition that the above-listed information is required to be included in the permit application and thus should have been available to the public during the public comment period. *See* Petition at 7 (citing *In re WE Energies Oak Creek Power Plant*, Order on Petition (June 12, 2009) at 24, and *In re RockGen Energy Center*, 8 E.A.D. 536, 552-55 (EAB 1999)). Petitioners request that EPA direct KDAQ to make the requested information available to the public and to hold an additional public comment period. *Id.*

Overview of Applicable Legal Framework for Certain Public Participation Claims

EPA's regulations at 40 C.F.R. § 70.7(a)(1) provide that a permit may be issued only if, among other things, the permitting authority "has received a complete application" and "has complied with the requirements for public participation under paragraph (h) of this section." With regard to a permit application, EPA's regulations provide: "An application may not omit information needed to determine the applicability of, or to impose, any applicable requirement . . . ." 40 C.F.R. § 70.5(c); *see also* 40 C.F.R. § 70.5(a)(2) (stating, among other things, that "[i]nformation required under paragraph (c) of this section must be sufficient to evaluate the subject source and its application and to determine all applicable requirements"). The regulations require each title V permit to include, among other things, "[e]mission limits and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance" and "compliance certification, testing, monitoring, reporting and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit." 40 C.F.R. § 70.6(a)(1), (c)(1). Regarding public participation, the regulations require that permit proceedings[11] "provide adequate procedures for public notice including offering an opportunity for public comment and a hearing on the draft permit." 40 C.F.R. § 70.7(h). Finally, the regulations require that public "notice shall identify . . . a person from whom interested persons may obtain additional information, including copies of the permit draft, the

[11] This provision expressly excludes modifications qualifying for minor permit modification procedures and expressly includes initial permit issuance, significant modifications, and renewals. 40 C.F.R. § 70.7(h).

application, all relevant supporting materials . . . and all other materials available to the permitting authority that are relevant to the permit decision." 40 C.F.R. § 70.7(h)(2).

When a title V petition seeks an objection based on the unavailability of information during the public comment period in violation of title V's public participation requirements, the petitioner must demonstrate that the unavailability deprived the public of the opportunity to meaningfully participate during the permitting process.[12] *See In re Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Petition No. II-2000-07, Order on Petition (May 2, 2001) (applying the concepts of meaningful public participation and logical outgrowth to title V); *cf., e.g., In re Murphy Oil USA, Inc., Meraux Refinery*, Petition No. 2500-00001-V5, Order on Petition (Sept. 21, 2011) (discussing a response to significant comments as "an inherent component of any meaningful notice and opportunity for comment" (citing *Home Box Office v. FCC*, 567 F.2d 9, 35 (D.C. Cir. 1977))). To guide this analysis under title V, EPA generally looks to whether the petitioner has demonstrated "that the alleged flaws resulted in, or may have resulted in, a deficiency in the permit's content." *See In re Sirmos Division of Bromante Corp.*, Petition No. II-2002-03, Order on Petition (May 24, 2004). Without such a showing, it may be difficult to conclude that the ability to comment on the information would have been meaningful. In implementing the requirements for public participation under title V, EPA is mindful that the part 70 regulations were promulgated in light of CAA section 502(b)(6)'s pursuit of "[a]dequate, streamlined, and reasonable procedures . . . for public notice, including offering an opportunity for public comment and a hearing." 42 U.S.C. § 7661a(b)(6). EPA also notes that where a permitting authority provides an explanation for its decision not to make something available during the public comment period, the petitioner bears the burden of demonstrating that the permitting authority's explanation is unreasonable.

This analysis about the availability of information during the public comment period is related to the regulatory standard under 40 C.F.R. § 70.5(c) governing information that may not be omitted from a permit application. Specifically, under 40 C.F.R. § 70.5(c), a permit application may not omit information "needed to determine the applicability of, or to impose, any applicable requirement." So an EPA objection to a proposed permit based on a permit application deficiency may be accompanied by an EPA objection based on a resulting flaw in the public participation process because, in many instances, the unavailability during the public comment period of information needed to determine the applicability of or to impose an applicable requirement also may result in a deficiency in the permit's content. *See In re Louisiana Pacific Corporation*, Petition No. V-2006-3, Order on Petition (Nov. 5, 2007); *In re WE Energies Oak Creek Power Plant*, Order on Petition (June 12, 2009); *In re Alliant Energy –WPL Edgewater Generating Station*, Petition No. V-2009-02, Order on Petition (Aug. 17, 2010).

However, the question of whether a permit application is deficient is distinct from the question of whether the public participation process was deficient. For this reason, it is not always the case that a permit application deficiency necessarily results in a deficient public participation process. For example, even if certain required information is omitted from an applicant's permit application, the permitting authority may have added the information to the permit record prior to the start of the public comment period. Another example might be where information submitted by the permit applicant after the close of the public comment period simply confirms assumptions underlying the draft permit conditions. Under both of those circumstances, though the permit application available during the public comment

[12] Where a petitioner claims that a permit is not in compliance with an unambiguous, express procedural requirement of 40 C.F.R. Part 70 (e.g., failure to publish public notice as required by 40 C.F.R. § 70.7(h)(1)), EPA will analyze that argument on its own terms.

period may arguably have lacked required information, the omission of that information may not have impacted the public's opportunity to meaningfully participate in the permitting process.

Additionally, under EPA's regulations, correcting a permit application deficiency does not necessarily involve offering an additional opportunity for public comment. Specifically, under 40 C.F.R. § 70.5(b), "[a]ny applicant who fails to submit any relevant facts or who has submitted incorrect information in a permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information." Nothing in that provision requires that the supplemental information must be provided prior to the public comment period or that an additional public comment period must always be held on the newly submitted information. Likewise, EPA's regulations at 40 C.F.R. § 70.4(a)(1) state that a permitting authority may not issue a final permit unless the permitting authority "has received a complete application." Nothing in that provision indicates that the version of the application made available to the public during the public comment period must contain all of the information required to make the application complete. Thus, even after the close of the public comment period, a permit applicant may come into compliance with the permit application requirements of 40 C.F.R. § 70.5 by supplementing or correcting the permit application. Assuming that the application has been corrected or supplemented prior to submission of the proposed permit to EPA, EPA generally would consider whether the correction or supplement cured inadequacies in the permit application in determining whether to object to the proposed permit on the basis of § 70.5. Nonetheless, depending on the circumstances, EPA may determine that an objection is warranted on the basis that the unavailability of the omitted information during the public comment period contravened 40 C.F.R. § 70.7(h) because the absence of that information deprived the public of the opportunity to meaningfully participate in the permitting process, especially where the missing information resulted in, or may have resulted in, a deficiency in the content of the permit.

EPA's Response: For the reasons provided below, EPA partially grants and partially denies the petition on this issue.[13] The issues on which EPA is granting the petition on public participation grounds are meaningful with respect to KDAQ's PSD determinations in that they pertain to whether the facility's emissions were properly estimated and whether the permit includes appropriate BACT requirements.

Fugitive emissions estimates

Regarding the lack of a public comment opportunity on the estimates of fugitive emissions from valves, leaks, and flanges, EPA grants the petition on this issue. Because Cash Creek supplemented its permit application with this information after the close of the public comment period on the draft permit, Cash Creek's permit application is no longer deficient. However, Petitioners demonstrated that fugitive emissions calculations were unavailable during the public comment period, and further demonstrated that this information was needed to determine whether the proposed source is a major emitter of VOC and HAPs. *See* Petition at 20. Furthermore, the Petitioners raise numerous concerns regarding the fugitive emissions calculation. Due to the unavailability of Cash Creek's fugitive emissions calculation

[13] As a practical matter, EPA notes that the petition does not allege that Petitioners contacted the person identified by KDAQ pursuant to 40 C.F.R. § 70.7(h)(2) in order to request any of the listed information. EPA also reiterates that Kentucky operates a merged process for PSD permitting and title V permitting, and, as a general matter, the same requirements for public involvement apply to both types of permitting in Kentucky.

during the public comment period, Petitioners were unable to raise these concerns with KDAQ, and KDAQ, in turn, did not have an opportunity to respond to these concerns. Any potential errors in Cash Creek's fugitive emissions calculation could have resulted in an incorrect determination that the source is a minor source of VOC and HAP emissions. Therefore, EPA grants the petition on this issue and directs KDAQ to provide an opportunity for public comment on the fugitive emissions calculation.

LDAR requirements and associated CO BACT analysis

EPA also grants the petition with respect to the lack of a public comment opportunity on the proposed permit's LDAR requirements, which serve as BACT for control of the facility's fugitive CO emissions. As with the fugitive emissions calculation, it is undisputed that the BACT analysis that appeared in the permit application that was made available to the public omitted any discussion of LDAR requirements serving as BACT for fugitive CO emissions. Because Cash Creek supplemented its application to include this information after the close of the public comment period, Cash Creek's permit application is no longer deficient. However, Petitioners demonstrated that the unavailability of this information during the public comment period prevented the public from evaluating and commenting on whether the LDAR requirements included in the proposed permit are sufficient to satisfy BACT requirements. Indeed, Petitioners identify various concerns regarding the adequacy of the LDAR requirements that they were unable to raise in their comments to KDAQ on the draft permit. *See* Petition at 27-31. Petitioners have shown that the unavailability of this information during the public comment period may have resulted in a permit deficiency. EPA grants the petition on this issue and directs KDAQ to provide an opportunity for public comment on the proposed LDAR requirements and associated CO BACT analysis.

Flare operation plan

EPA denies the petition with respect to Petitioners' claim that Cash Creek's flare operation plan should have been available for review during the public comment period on the draft permit. EPA's decision on this issue is based on the role of the operation plan requirement in this particular permit.

In prior orders, EPA has determined that a facility operation plan that must be followed by a source must be included in a permit application and available for public review where the plan's content was needed to impose an applicable requirement or if the plan was relied upon as a compliance assurance measure. *See In re WE Energies Oak Creek Power Plant*, Order on Petition (June 12, 2009); *In re Alliant Energy –WPL Edgewater Generating Station*, Order on Petition, (Aug. 17, 2010). Likewise, in *In re RockGen Energy Ctr*, 8 E.A.D. 536, 552-55 (EAB 1999), the EAB held that a permit condition exempting the facility from BACT limits during startup and shutdown and requiring the post-construction development of a plan for limiting emissions during startup and shutdown violated the requirement that BACT limits be established prior to construction. However, in *In re Power Holdings of Illinois*, PSD Appeal No. 09-04, slip op. (EAB, Aug. 13, 2010), the EAB rejected a challenge to a permit provision that required the permittee to submit a flare minimization plan 90 days prior to startup, and to review and revise the plan annually. In that case, the EAB found that the flare minimization plan was not being employed as a substitute for BACT limits. *See* slip op. at 13-14. Furthermore, though the *Power Holdings* permit identified the flare minimization plan as part of the facility's BACT obligations, the permit contained numerous other requirements designed to ensure adequate control of flaring emissions resulting from startup, shutdown and malfunction events. *Id.* The EAB concluded that nothing in the record demonstrated that the various permit requirements would be insufficient to satisfy BACT, even without the flare minimization plan. *Id.* at 15-16.

In this case, the operation plan required by Cash Creek's permit is not relied upon to impose an applicable requirement or as a compliance assurance measure. *See* Final Cash Creek Permit at 44-45. Unlike the plan at issue in *RockGen*, the operation plan required by Cash Creek's permit is not identified as a substitute for BACT limits; indeed, the permit does not identify the operation plan requirement as relating to Cash Creek's BACT obligations. *See id.* Nor do Petitioners identify any other applicable requirement directing Cash Creek to implement an approved operation plan. Finally, nothing in the proposed permit or in the accompanying statement of basis identifies Cash Creek's implementation of the plan as necessary as a compliance assurance measure. EPA also notes that KDAQ explained in its Response to Comments document why it was unnecessary for the operation plan to be available during the public comment period (*see* KDAQ Response to Comments (March 2010) ("RTC") at B-58), and Petitioners made no attempt to demonstrate in their petition that KDAQ's explanation was unreasonable.

Thus, EPA concludes that Petitioners have not shown that the alleged omission of the operation plan from the permit application and/or the unavailability of this information during the public comment period caused the permit not to be in compliance with applicable requirements or requirements of 40 C.F.R. part 70. However, if in response to EPA objections regarding other issues addressed by this order, KDAQ chooses to rely on implementation of the flare operation plan as BACT or to assure compliance with BACT or another applicable requirement, KDAQ would need to amend the permit to include the parts of the plan that are necessary to assure compliance with the applicable requirement(s), and further, the appropriate plan details would need to be made available for public review and comment.

Other information that Petitioners allege should have been available during the public comment period

With respect to the alleged unavailability during the public comment period of (a) supporting information for emissions factors used to calculate emissions from the combustion turbines, aspirator and emergency generator, (b) the basis for the heat content of natural gas, and (c) a cost-effectiveness analysis to support rejection of lower sulfur coal and dry cooling as BACT, EPA concludes that Petitioners have not met their burden of demonstrating that the alleged omission of this information from the permit application and/or the unavailability of this information during the public comment period caused or may have caused the permit not to be in compliance with applicable requirements or requirements of 40 C.F.R. part 70. In particular, Petitioners made no attempt to demonstrate that omission of this information from the permit application meant that the application lacked information "necessary to determine the applicability of, or to impose, any applicable requirement . . ." *See* 40 C.F.R. § 70.5(c). Nor do Petitioners identify how the alleged unavailability of this information during the public comment period may have resulted in a permit deficiency or otherwise deprived them of meaningful participation. Moreover, EPA notes that KDAQ responded to Petitioners' concerns regarding the unavailability of this information in its Response to Comments document (*see* RTC at B-9 to -14), and Petitioners made no attempt in their petition to demonstrate that KDAQ's explanation was unreasonable. Therefore, EPA denies the petition with respect to the alleged unavailability of this particular information.

Finally, EPA denies the petition with respect to the Petitioners' general allegation regarding the omission of emissions information and supporting materials pertaining to the BACT analysis.[14] The

[14] Petitioners' generalized allegation regarding the unavailability of information supporting KDAQ's BACT analysis is distinct from the more specific allegations discussed above regarding the lack of a

permit application and supporting materials available to the public during the public comment period included extensive discussion regarding the selection of BACT for the proposed source. Petitioners do not specify what additional emissions information and supporting materials for BACT should have been included in the permit application. Nor do petitioners demonstrate how the alleged lack of some information regarding the BACT determination during the public comment period may have resulted in a permit deficiency or otherwise deprived them of meaningful participation. Moreover, EPA notes that KDAQ responded to Petitioners' concerns regarding the lack of support for its BACT analysis in its Response to Comments document (*see* RTC at B-12 to -14), and Petitioners made no attempt to demonstrate in their petition that KDAQ's explanation was unreasonable. Therefore, EPA denies the petition with respect to the alleged unavailability of the additional emissions information and supporting materials pertaining to the BACT analysis during the public comment period.

B. Petitioners' Claims Regarding Flare Emissions

1. Petitioners' contention that calculation of the facility's potential to emit (PTE) for purposes of determining whether the proposed facility will be a major source of VOC, H_2S, and HAPs failed to account for full emissions from active flaring.

Petitioners' Claim: Petitioners contend that KDAQ's determination that Cash Creek is a minor source for VOC, H_2S, and HAPs was based on an underestimation of emissions from the facility's flare. Petition at 8-13. Petitioners contend that KDAQ's PTE calculation improperly omits flare emissions during shutdowns and malfunctions. Petition at 12.

Petitioners assert that PTE must reflect the source's "maximum capacity to emit a pollutant," citing to the definition of PTE in Kentucky's SIP. Petition at 9. According to Petitioners, there is no blanket exception from the PTE definition for emissions resulting from startup, shutdown, and malfunction (SSM). *Id.* Petitioners further contend that flare emissions must be included in the PTE calculation because flares "are emissions units whose purpose is to control release of gases from process units." *Id.* Petitioners point out that determining whether PSD applies to a particular pollutant involves adding together the "potential to emit" of each "emissions unit," and the Kentucky SIP defines "emission unit" broadly as "any part of a stationary source . . . that emits or has the potential to emit a regulated NSR pollutant." *Id.* As support for their position that flares are "emission units," Petitioners cite to *In re ConocoPhillips Co.*, 13 E.A.D. 768, 774 (EAB 2008). Petition at 10.

According to Petitioners, "flares emit pollutants while operating under their design to control emissions from the larger facility, e.g., during periods of the facility's SSM." *See* Petition at 10. Furthermore, Petitioners contend that EPA has already determined that SSM emissions must be included in PTE calculations, citing to *In re BP Products, North America, Inc., Whiting Business Unit*, Order on Petition (Oct. 16, 2009), at 5-7. Petition at 10. Petitioners also cite to EPA comments on a draft PSD permit and a letter from EPA Region 2 to New Jersey. *Id.* Petitioners state that any constraint on emissions that is considered in the PTE calculation "must be explicitly set forth in the permit as a physical or operational limit." *Id.* at 9 (emphasis omitted); *see also id.* at 11-12 (describing requirements relating to the enforceability of PTE limits).

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public comment opportunity on Cash Creek's fugitive emissions calculation as well as the LDAR requirements and associated CO BACT analysis for equipment leaks.

Petitioners explain that in response to their comments on the draft permit, KDAQ stated that PTE excludes malfunctions because malfunctions are not representative of normal operation. Petition at 12. Petitioners dispute KDAQ's claim. *Id.* According to Petitioners, KDAQ's position is contrary to Kentucky's SIP-approved regulations as well EPA's statements on this point, including in the *BP Whiting* Order. *Id.* Petitioners reject KDAQ's claim that *In re Louisville Gas and Electric Company*, Petition No. IV-2008-3, Order on Petition (Oct. 17, 2011) supports KDAQ's position, contending that the language cited by KDAQ is inapposite. *Id.* Petitioners also dispute KDAQ's claim that shutdown (and therefore malfunction) emissions are included in Cash Creek's PTE calculation. *Id.* at 13. Petitioners explain that "[t]he theory backing KDAQ's claim is that the emission reductions from process equipment going offline during SSM will always outweigh increased emissions from the flare during the same events." *Id.* According to Petitioners, "KDAQ fails to back its statements with any quantitative analysis of different malfunctions that could occur, and underestimates flaring emissions during SSM by citing unsupported emission estimates for only one limited shutdown scenario." *Id.* Petitioners contend that other unplanned shutdowns would result in higher emissions, and also contend that system upsets and malfunctions could cause flaring even without other equipment shutting down, resulting in emissions that could significantly exceed those reported for what Petitioners describe as "the single scenario of a planned shutdown." *Id.*

Petitioners contend that these errors in estimating emissions from the flare are significant because KDAQ used the estimates to support its determination that the proposed facility is a minor source of VOC, H_2S, and HAPs. *Id.* at 8-9.

EPA's Response: For the reasons provided below, EPA grants in part and denies in part on this issue. Due to factual differences in the permit record and the way that the permit addresses the three pollutants with respect to which Petitioners raise concerns (VOC, H_2S, and HAPs), EPA's response is different for each pollutant.

<u>VOC</u>

As Petitioners note, under Kentucky's federally approved SIP, the calculation of a facility's PTE for purposes of determining whether the facility triggers PSD requirements for a particular pollutant includes consideration of "[a] physical or operational limitation on the capacity of the source to emit [the] pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, . . . if the limitation or the effect it would have on emissions . . . [i]s federally enforceable." 401 KAR 51:001, § 1 (190) (PTE definition in Kentucky's SIP); *see also* 40 C.F.R. § 52.21(b)(4) (federal PTE definition for PSD applicability); 40 C.F.R § 63.2 (providing substantially the same PTE definition for determining applicability of maximum achievable control technology standards for HAPs); *In re Orange Recycling and Ethanol Production Facility, Pencor-Masada Oxynol, LLC*, Petition No. II-2000-07, Order on Petition (May 2, 2001), at 21.

In other words, if a permit applicant agrees to an enforceable[15] limit that is sufficient to restrict PTE, the facility's PTE is calculated based on that limit. In this case, Cash Creek agreed to accept a source-wide VOC emission limit of 36 tons per year (tpy). *See* Final Permit at 85. Therefore, an EPA objection regarding Cash Creek's VOC PTE determination is warranted if the source-wide VOC limit in the permit is not enforceable.

In their petition, Petitioners identify several concerns regarding the enforceability of Cash Creek's source-wide 36 tpy VOC emission limit. *See* Petition at 14-16. As explained below, EPA concludes that Petitioners met their burden of demonstrating that the VOC limit is not enforceable as a practical matter. *See infra* at 16-19 (providing the basis for EPA's conclusion that the VOC limit is unenforceable). Among other issues, Petitioners demonstrated that KDAQ failed to provide a reasoned explanation for how the compliance demonstration method associated with the VOC emissions limit, which is used to determine compliance with the source-wide VOC limit, accounts for all actual VOC emissions from the flare. *Id.* An emission limit can be relied upon to restrict a source's PTE only if it is legally and practicably enforceable, and KDAQ acknowledges that Cash Creek would be above the significance level for VOC in the absence of an enforceable source-wide VOC limit. EPA is granting the petition regarding Petitioners' claim that the source-wide VOC limit is unenforceable, and, accordingly, that limit cannot be relied upon to determine that the source is below the relevant thresholds for VOC. For this reason, EPA grants the petition on Petitioners' challenge to KDAQ's determination that Cash Creek is below the significance level for VOC. EPA is thus focusing on the method of determining compliance with the source-wide VOC emissions limit, and, therefore, need not reach the separate issues raised in this portion of the petition regarding how the VOC PTE was calculated. KDAQ can respond to this objection by amending the permit to address the enforceability concerns described below. *See infra* at 16-19. Alternatively, KDAQ can respond by making other changes to the permit as appropriate to ensure that the VOC PTE limit is enforceable, by taking other actions to ensure that PSD is not triggered for VOC, or by requiring Cash Creek to comply with the PSD requirements for VOC.

H_2S

Though Petitioners contend in their petition that KDAQ's alleged incomplete assessment of emissions from active flaring affected KDAQ's determination that the proposed facility is a minor source of H_2S for purposes of PSD applicability, this claim was not raised with "reasonable specificity" in public comments on the draft permit as required by section 505(b)(2) of the Act and 40 C.F.R. § 70.8(d), and Petitioners did not demonstrate that it was impracticable to raise such objection during the comment period. Further, there is no indication that the grounds for their objection arose after the public comment period. The only comment on the draft permit addressing the calculation of H_2S emissions from the flare questioned whether unaccounted flare emissions would make the proposed facility's PTE exceed the significance level for HAPs, triggering the applicability of maximum achievable control technology

[15] Although the federal definition of PTE for PSD also includes the term "federally enforceable," following two court decisions, *National Mining Association* v. *EPA,* 59 F.3d 1351 (D.C. Cir.1995) and *Chemical Manufacturers Ass'n* v. *EPA,* No. 89–1514 (D.C. Cir.1995), EPA clarified that the term "federally enforceable" as used in relation to the definition of PTE for the federal PSD program, should be read to mean "federally enforceable or legally and practicably enforceable by a state or local air pollution control agency." John Seitz and Robert Van Heuvelen, "Release of Interim Policy on Federal Enforceability of Limitations on Potential to Emit" (Jan. 22, 1996), at 3. The term "federal enforceability" has also been interpreted to require practical enforceability. *See, e.g., In re Shell Offshore, Inc., Kulluk Drilling Unit and Frontier Discoverer Drilling Unit*, at n.54 (EAB 2007).

(MACT) standards promulgated under CAA § 112.[16] The comment did not raise Petitioners' claim that potential H_2S emissions from the flare are large enough to trigger PSD requirements.[17] Therefore, EPA denies Petitioners' claims regarding KDAQ's alleged failure to consider full emissions from active flaring in determining that the proposed facility is a minor source of H_2S for purposes of PSD applicability.

HAPs

Cash Creek's permit does not include a limit on its emission of total HAPs. *See* SOB at 18. Therefore, the proposed facility's PTE for total HAPs is calculated based on the facility's unlimited potential to emit. In response to concerns raised by Petitioners in their comments on the draft permit regarding KDAQ's alleged failure to fully account for flaring emissions in determining that the proposed facility's PTE is less than the 25 tpy major source threshold for total HAPs, KDAQ pointed to Table 8-1 in Cash Creek's permit application, which, as KDAQ explains, lists the HAPs that the facility will emit during flare standby operation (pilot only) and startup. *See* RTC at B-97. Based on the information provided in that table, KDAQ concluded that "total HAPs emitted by the facility will be below 8.56 tons/yr." *Id.*

Because the table cited by KDAQ in support of its determination that the proposed facility will be below the major source threshold for total HAPs expressly accounts only for flare emissions during flare standby and startup operations, KDAQ's response did not adequately respond to Petitioners' concern that flaring emissions other than those associated with standby and startup operations would cause the facility's PTE for combined HAPs to exceed the major source threshold. Therefore, EPA grants the petition on this issue with respect to HAPs due to KDAQ's failure to provide a reasoned explanation regarding how the PTE calculation for total HAPs accounts for flaring emissions associated with operations other than standby and startup.

2. Petitioners' contention that the VOC potential-to-emit limit applicable to the flare is not enforceable as a practical matter.

Petitioners' Claim: Petitioners contend that the permit lacks enforceable conditions limiting the flare's potential to emit. Petition at 14. Specifically, Petitioners contend that the permit's facility-wide 36 tpy VOC limit is unenforceable because the permit lacks flare minimization requirements needed to ensure the facility's compliance with the limit. *Id.* According to Petitioners, the permit should have required a flare minimization plan, including a required process and/or standards for KDAQ's approval or disapproval of such plan, provisions for public or U.S. EPA review of and comment on the adequacy of the plan, and a process for revising the plan as factors impacting flaring change. *Id.* Petitioners state that the permit should include requirements similar to those in flare minimization rules promulgated by two local air quality management districts in California. *Id.*

Petitioners contend that the compliance determination method associated with the 36 tpy VOC limit (*see* Final Cash Creek Permit at 84-85) is "just a formula without a measurement." Petition at 16. According to Petitioners, the demonstration "contains an unenforceable circular equation that assumes without basis what startup emissions will be per hour, then multipl[ies] 1,328 lbs/hour times the number of hours

[16] *See* Comments by Sierra Club and Valley Watch on Cash Creek Generating Station Draft Permit V-09-006, dated October 8, 2009, at 44.

[17] EPA notes that because H_2S is not a listed HAP under CAA § 112(b), the proposed facility's H_2S emissions are not considered in determining MACT applicability.

times an assumed high destruction efficiency (99.5 percent), and does not measure shutdown at all." *Id.* Further, Petitioners explain that for flare pilot gases, the permit "also contains a formula without measurement of hourly emissions times the number of hours per month." *Id.* Petitioners contend that the permit "provides no way to assure that the 1,328 lbs/hour is met during startup, and no way to assure that the 99.5% destruction efficiency is met." *Id.*

EPA's Response: For the reasons described below, the EPA partially grants and partially denies the petition on this issue.

Flare Minimization Requirements

EPA denies Petitioners' claim that the permit is deficient because it allegedly lacks "flare minimization" requirements. Petitioners did not demonstrate that there is any applicable requirement directing Cash Creek to prepare a "flare minimization plan" or "operating plan" similar to plans required by local California air quality management districts. While the permit must include terms and conditions sufficient to assure compliance with the VOC PTE limit, KDAQ has discretion regarding the exact nature of those compliance assurance requirements.

Lack of Monitoring to Assure Compliance with the Source-Wide VOC Limit

Regarding Petitioners' claim that the permit is deficient in that it lacks monitoring requirements to ensure that flare emissions do not cause the facility to exceed the 36 tpy source-wide VOC limit, and the related claim that the VOC limit is unenforceable because the associated compliance demonstration assumes certain values without measurement, EPA partially grants and partially denies the petition.

Assumed flare combustion efficiency: EPA grants the petition regarding Petitioners' argument that the VOC PTE limit is not enforceable because it simply assumes that the flare will achieve 99.5% combustion efficiency at all times. EPA recognizes that KDAQ indicated in its response to comments on the draft permit that it received confirmation from a flare vendor that this type of flare can achieve 99.5% destruction removal efficiency for VOC (*see* RTC at B-32), and EPA also notes that the petition does not dispute the reasonableness of KDAQ's reliance on the vendor information. Nonetheless, EPA agrees with Petitioners that for the 36 tpy VOC limit to be enforceable, the permit must include conditions that are sufficient to ensure that the flare achieves a combustion efficiency of 99.5% or greater at all times that gases are vented to the flare. *See* Memorandum from Terrell E. Hunt, EPA, "Guidance on Limiting Potential to Emit in New Source Review Permitting" (June 13, 1989), at 7 ("When permits require add-on controls operated at a specified efficiency level, permit writers should include, so that the operating efficiency condition is enforceable as a practical matter, those operating parameters and assumptions which the permitting agency depended upon to determine that the control equipment would have a given efficiency."); *see also id.* at 19-20 (explaining that where a permit relied on fabric filter to be employed and maintained at 99% efficiency to enable the facility to comply with a PTE limit, the permit would either need to include "parameters that allowed the permitting agency to verify the fabric filter's operating efficiency," or would need to require the facility to install and operate continuous opacity monitors). As Petitioners correctly point out, there are no enforceable permit conditions that are designed to assure that the VOC combustion efficiency assumed in the compliance demonstration equation is achieved at all times that gases are vented to the flare. Though this issue was raised in public comments on the draft permit, KDAQ did not identify any permit conditions ensuring that this efficiency actually is achieved at all times that gases are vented to the flare; rather, KDAQ's response focused on vendor information indicating that the flare will be capable of achieving 99.5% destruction efficiency. *See* RTC at B-31 to -33, -36.

EPA recognizes that the permit does contain permit conditions requiring parametric monitoring of the flare for the purpose of assuring the facility's compliance with limits on pollutants other than VOC. *See* Final Cash Creek Permit at 42-46. However, the permit expressly ties this monitoring to Cash Creek's demonstration of compliance with the BACT limits rather than the 36 tpy VOC PTE limit, and the prescribed VOC compliance demonstration equation does not appear to allow consideration of the results of this monitoring in determining compliance with the VOC PTE limit. Moreover, the parametric monitoring required by the permit largely mirrors the flare requirements set forth in the New Source Performance Standards (NSPS), and EPA has never suggested that the flare requirements laid out in 40 C.F.R. 60.18 are sufficient to ensure a continuous combustion efficiency of 99.5%.[18] Although Cash Creek's permit requires development of and compliance with a flare operation plan and compliance assurance monitoring plan, neither KDAQ nor Cash Creek have identified and explained how its specific operational and monitoring requirements will ensure continuous compliance with a combustion efficiency of 99.5% or greater. To address this objection, KDAQ must amend the permit to include enforceable conditions sufficient to ensure that the flare achieves a continuous combustion efficiency of 99.5% or greater. Alternatively, KDAQ may make other changes in the permit as appropriate to ensure that the VOC PTE limit is enforceable, take other measures to ensure that PSD is not triggered for VOC, or require Cash Creek to comply with PSD requirements for VOC.

Assumed uncontrolled flare emissions during startup: EPA denies the petition with respect to Petitioners' claim that the compliance demonstration equation associated with the VOC PTE limit assumes without basis that startup emissions from the flare will be 1,328 lbs/hr. This emission rate was provided by Cash Creek in its permit application and represents what flare emissions would be during startup if they were uncontrolled. *See* December 2009 Cash Creek Permit Application at 6-20. Petitioners offer no information demonstrating that KDAQ's inclusion of this uncontrolled emission rate in the compliance demonstration equation for the VOC PTE limit was unreasonable.

Assumed Hourly Flare Pilot Emissions: EPA denies the petition with respect to Petitioners' claim that the VOC compliance demonstration equation assumes without measurement that the hourly VOC emission rate for the flare pilots will be 0.0109 lb/hr. This number reflects the flare pilots' uncontrolled hourly emission rate and was obtained from Cash Creek's permit application. *See* Cash Creek Permit Application at 6-19. In response to Petitioners' comments on the draft permit, KDAQ explained that the VOC emission factor for the flare pilots came from consultation with a flare vendor and KDAQ appended this information to its Response to Comments document. Petitioners did not demonstrate that KDAQ's reliance on this vendor information was unreasonable or resulted in a flaw in KDAQ's approach to assuring compliance with the source-wide VOC limit.

Exclusion of flare emissions during shutdown & malfunction: EPA grants the petition with respect to Petitioners' claim that the equation specified in Section D, paragraph 5 of the permit for use in

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[18] EPA notes that, in responding to Petitioners' comments on the assumption of a 99.5% combustion efficiency, KDAQ cited to the flare vendor's statement that "EPA modified their rules for flares on heat content requirements per 40 C.F.R. 60.18 to exclude flares containing > 8% H_2." RTC at B-32. EPA's decision to exempt high hydrogen flares from the standard regulatory heat content requirement was not intended to suggest that such flares can be assumed to achieve 99.5% destruction efficiency. To the extent that KDAQ relies on that exemption to support its assumption of high combustion efficiencies for Cash Creek's high hydrogen flare at all times, that reliance is unjustified. *See* 63 Fed. Reg. 24436 (May 4, 1998).

demonstrating the facility's compliance with the VOC PTE limit does not appear to account for flare emissions during shutdowns. As noted by Petitioners, the only flare emissions that the equation appears to account for are those that occur while the flare is on standby (pilot emissions) and while gases are vented to the flare during startups. *See* Final Cash Permit, Section D, at 85. Though KDAQ reports that *source-wide* VOC emissions will be lower during shutdowns due to certain reductions in emissions compared to "normal operations" of the gasifiers and one emission point switching to startup mode (*see* RTC at B-35), VOC emissions from the flare during shutdowns cannot be disregarded when calculating the facility's actual emissions to determine compliance with the 36 tpy VOC limit. Rather, all of the facility's VOC emissions, including emissions from the flare during shutdowns, should be considered in determining compliance with the facility's 36 tpy VOC PTE limit. Thus, to make the source-wide VOC PTE limit enforceable as a practical matter, KDAQ must either modify the "Compliance Demonstration" equation associated with the VOC limit to require Cash Creek to include all actual flare emissions, including those during shutdowns, in its calculations to determine compliance with this limit, or must make other appropriate changes to the permit or permit record to ensure that all actual flare emissions count toward Cash Creek's compliance with the VOC limit. Alternatively, KDAQ can respond to this objection by requiring Cash Creek to comply with PSD requirements for VOC.

EPA notes that insofar as malfunctions result in additional VOC emissions, these emissions (like all actual Cash Creek VOC emissions) must be accounted for in demonstrating compliance with the source-wide VOC PTE limit. EPA recognizes that Cash Creek represents that all malfunctions result in shutdown, and, accordingly, inclusion of shutdown emissions in Cash Creek's VOC emissions calculation should also encompass VOC emissions resulting from malfunctions. However, if a malfunction could result in flare emissions without an accompanying shutdown, additional revisions must be made to the compliance demonstration equation to assure that it accounts for such emissions. Alternatively, KDAQ could add permit conditions that create an enforceable restriction prohibiting Cash Creek from venting process gas to the flare unless such venting is associated with a shutdown event or other event for which emissions are explicitly included in the compliance demonstration methodology. *See In re Murphy Oil USA, Inc., Meraux Refinery*, Petition No. VI-2011-02, Order on Petition (Sept. 21, 2011), at 7.

3. Petitioners' contention that the BACT limits applicable to the flare are insufficient.

a. BACT limits applicable to the flare during startup and steady-state operations.

Petitioners' Claim: Petitioners contend that the BACT limits for the flare are insufficient because:
(1) KDAQ should have completed a top-down BACT analysis for the flare, and
(2) KDAQ failed to explain what specific design, operation and maintenance measures are required at the flare, and how these measures ensure the maximum reduction in emissions achievable at the flare consistent with BACT requirement. Petitioners contend that to the extent that KDAQ is relying on the flare operation plan as BACT, that requirement is insufficient.

EPA's Response: Regarding Petitioners' contention that the BACT determination for the flares during standby (normal) and startup operations is deficient because it was not based on a top-down analysis (Petition at 16), EPA denies the petition on this issue. Cash Creek provided a top-down BACT analysis for the flare in its permit application (*see* December 2009 permit application at 4-60 through 4-62) and KDAQ relied on that analysis in selecting BACT for the flare during standby and startup operations. *See*

SOB at 20-21, 41-42. Petitioners do not discuss Cash Creek's analysis in their petition and do not point to any information suggesting that the resulting BACT emission limits selected for the flare during standby and startup operations are inadequate.

While Petitioners state that in selecting BACT for the flare, KDAQ ignored what they consider to be more stringent flare operation plan requirements under the Bay Area Air Quality Management District Regulation (BAAQMD) 12, Rule 12 for Flares at Petroleum Refineries (*see* Petition at 19), this assertion also does not provide a basis for granting the petition because the possibility that the BAAQMD flare monitoring requirements might be BACT for the flare was not raised in public comments and there is no showing that it was not practicable to raise it or that the grounds for this claim arose after the public comment period. Moreover, Petitioners do not make any attempt to demonstrate that application of the BAAQMD flare monitoring requirements would achieve a lower BACT emission limit for flare standby and startup operations than is specified in the permit.[19]

EPA also denies the petition with respect to the contention that KDAQ failed to identify what constitutes proper design, operation and maintenance of the flare for purposes of BACT during standby and startup operations. *See* Petition at 17. Section B of the proposed permit details the design, operation and maintenance requirements applicable to the flare. Specifically, the permit requires that the flare meet the design specifications in 40 C.F.R. § 60.18; requires the permittee to install, operate, and maintain a monitoring system for each vent connected to the flare to measure and record the date and time of a flaring event and the volume of waste gas vented to the flare; and requires the permittee to maintain an array of records demonstrating compliance with the BACT limits. Petitioners do not explain why these permit conditions are insufficient for purposes of defining what constitutes proper design, operation and maintenance of the flare for purposes of BACT during standby and startup operations.

b. BACT limits applicable to the flare during shutdowns and malfunctions.

Petitioners' Claim: Petitioners assert that KDAQ did not make a BACT determination for flare operation during shutdowns and malfunctions, contrary to the requirement that BACT apply during all periods. Petition at 17. Petitioners contend that those permit conditions that appear to apply during shutdown and malfunction are not supported by a top-down analysis and "nothing in the record suggests that most of these limits had any direct connection to BACT." *Id.* at 17-18. Regarding additional operating limits added in response to comments, Petitioners explain: "KDAQ appeared to pick these numbers at random, as there is no supporting information in the record." *Id.* at 18. Petitioners further assert that Cash Creek did not demonstrate that complying with an emission limit during shutdown and malfunction is infeasible, so there is no justification for using a work practice or operating standard in place of an emission limit pursuant to 40 C.F.R. 51.166(b)(12). *Id.* Petitioners add that in any event, KDAQ failed to specify the emission reductions achievable from such work practice or operating standard as required by the Kentucky SIP and federal regulations. *Id.* at 18-19. Petitioners assert that the provisions in the to-be-submitted flare operation plan do not qualify as BACT because these provisions are based on the NSPS for petroleum refineries and NSPS is only the floor for BACT determinations. *Id.* at 19. Finally, Petitioners explained that KDAQ should have considered the more stringent flare operation plan requirements under the BAAQMD regulation in determining what constitutes BACT for the flare. *Id.*

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[19] Petitioners do not contend that the BAAQMD flare operation requirements apply directly to the Cash Creek facility, but that KDAQ should have considered these requirements in determining what constitutes best available control technology for Cash Creek's flare.

EPA's Response: EPA grants the petition on this issue due to KDAQ's failure to provide a reasoned response to public comments regarding the apparent exclusion of flaring emissions during shutdown and malfunction events from the permit's BACT limits. In particular, though KDAQ's Response to Comments document acknowledges Petitioners' comment regarding the absence of conditions in the permit establishing BACT limits for the flare during shutdown and malfunction events (*see* RTC at B-54), KDAQ did not respond to the comment. Instead, KDAQ simply referred the commenters to its response to the comments pertaining to the consideration of shutdown emissions in the calculation of the facility's PTE. However, nothing in that response addressed whether any BACT limit applies to the flare during shutdown and malfunction events or whether KDAQ intended to establish a work practice standard to meet the BACT requirement during these periods. Furthermore, based on a review of the proposed permit and the accompanying statement of basis, it does not appear that the permit contains a BACT limit applicable to flare emissions during shutdown and malfunction events.[20]

KDAQ has an obligation to adequately respond to significant comments on a draft title V permit. Under section 502(b)(6) of the Act, 42 U.S.C. § 7661a(b)(6), all title V permit programs must include adequate procedures for public notice regarding the issuance of title V operating permits, "including offering an opportunity for public comment." *See also* 40 C.F.R. § 70.7(h). It is a general principle of administrative law that an inherent component of any meaningful notice and opportunity for comment is a response by the regulatory authority to significant comments. *Home Box Office v. FCC*, 567 F.2d 9, 35 (D.C. Cir. 1977) ("the opportunity to comment is meaningless unless the agency responds to significant points raised by the public."). *See also, e.g., In re Louisiana Pacific Corporation*, Petition V-2006-3, at 4-5 (Nov. 5, 2007). Petitioners' comment regarding the apparent lack of a BACT limit governing flare emissions during shutdown and malfunction emissions was significant because it pertains to whether the BACT limits applicable to the proposed facility apply continuously.

EPA previously has interpreted sections 165(a)(4) and 169(3) of the Act to require that a PSD permit assure that compliance with BACT limits is required at all times and cannot be waived. *See In re Louisville Gas and Electric Co.*, Order on Petition (Sept. 10, 2008), at 10 ("LG&E Order") (stating that "[a] PSD BACT limit must apply at all times"); *In re Prairie State Generating Co.*, 13 E.A.D. 1, 87-88 & n.93 (EAB 2006) (explaining that a PSD permit cannot exclude emissions from meeting BACT limits, and listing various EPA guidance documents discussing the applicability of emissions limitations during start-up, shutdown, and malfunction); *see also In re Indeck-Elwood, LLC*, 13 E.A.D. 126, 174 (EAB 2006) (stating that it is "well established that BACT requirements cannot be waived or otherwise ignored during periods of startup and shutdowns."); *In re Tallmadge Generating Station,* PSD Appeal No. 0-12, at 24 (EAB 2003) (stating that "BACT requirements cannot be waived or otherwise ignored during periods of startup and shutdown"); *In re RockGen Energy Center*, 8 E.A.D. 536, 553-55 (EAB 1999) (holding that PSD permits may not contain blanket exemptions from BACT limits during startup and shutdown). Thus, it is incumbent upon KDAQ to explain how the proposed permit assures that BACT limitations apply at all times in response to public comment regarding the apparent exclusion of shutdown and malfunction events from the permit's BACT limits.

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[20] EPA notes that unlike with respect to VOC, the permit does not include limits intended to restrict the facility's actual emissions of PM, PM_{10}, $PM_{2.5}$, NO_X, SO_2, and CO below the PSD applicability threshold. SOB at 7. KDAQ determined that the proposed facility has the potential to emit PM, PM_{10}, $PM_{2.5}$, NO_X, SO_2, and CO in significant amounts, and a BACT analysis was performed for these pollutants. *Id.* The permit includes one set of BACT limits for the flare during standby operations (pilot gas combustion emissions) and a second set of BACT limits for the flare during startup operations (while the gasifiers are preheated using methanol as fuel). Permit at 42.

Thus, EPA is granting the Petition on this claim because KDAQ did not adequately explain in response to comments whether the permit's BACT limits apply to the flare during shutdown and malfunction events. In response to this objection, KDAQ must explain whether the permit's BACT limits apply to the flare during shutdowns and malfunctions. If KDAQ concludes upon further consideration that flaring emissions during shutdowns and malfunctions are in fact excluded from the permit's BACT limits, KDAQ must revise the permit to address that deficiency. Insofar as KDAQ intends to utilize a work practice standard in lieu of an emission limit for any operating scenario that is not covered by the permit's emission limits, KDAQ must demonstrate "that technological or economic limitations on the application of measurement methodology...would make the imposition of an emissions standard infeasible" for that operating scenario. *See* 401 KAR 51:001 § 1(25)(c); 40 C.F.R. § 51.166(b)(12); *see also* LG&E Order at 10. KDAQ must include any such demonstration in the permit record and provide the public with an opportunity to comment. In addition, KDAQ must specify (and provide a public comment opportunity on) the "design, equipment, work practice, operational standard or combination thereof" required of the proposed facility in lieu of a numeric emissions standard. *See* 401 KAR 51:001 Section 1(25)(c); 40 C.F.R. § 51.166(b)(12). Finally, in accordance with federal regulations and Kentucky's SIP, if KDAQ utilizes a work practice standard in lieu of an emission limit, KDAQ must, "to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice, or operation, and shall provide for compliance by means which achieve equivalent results." *Id.*

C. Petitioners' Claims Regarding Fugitive Emissions from Equipment Leaks

Petitioners raise numerous issues regarding Cash Creek's estimate of fugitive emissions from equipment leaks and the associated CO BACT analysis, which resulted in the selection of LDAR requirements as BACT. *See* Petition at 19-31. Petitioners point out that Cash Creek's estimate of fugitive emissions from equipment leaks and the associated CO BACT analysis was not available to the public during the public comment period, but was instead produced by Cash Creek in response to public comments identifying the omission. *See* Petition at 20. Petitioners explain that the final permit included several new conditions (also not subject to public comment) relating to implementation of LDAR requirements and inclusion of fugitive VOC and H_2S emissions in the equation used to determine Cash Creek's compliance with the source-wide VOC and H_2S PTE limits. *See* Petition at 20. Petitioners' concerns regarding the fugitive emissions calculation and CO BACT analysis are described below, along with EPA's response.

1. Petitioners' contention that KDAQ's determination that the source is minor for VOC and HAPs was based on a flawed estimate of fugitive emissions from equipment leaks.

Petitioners' Claim: Petitioners contend that the post-hoc fugitive emissions analysis underestimates the facility's VOC and H2S HAP emissions. In particular, Petitioners claim that Cash Creek relied on inaccurate emission factors in calculating fugitive emissions. In addition, Petitioners contend that the permit improperly allows Cash Creek to demonstrate compliance with the PTE limit for fugitive emissions using the assumed emission factors without confirmation through source testing. *See* Petition at 22.

Regarding the selected emission factors, Petitioners take issue with Cash Creek's use of Synthetic Organic Chemical Manufacturing Industry (SOCMI) emission factors without ethylene. Petitioners contend that Cash Creek should have used EPA's refinery emission factors, instead. Petitioners assert, without providing support, that the refinery emission factors are more appropriate because a coal

gasification facility's gas streams are more similar to refineries than to chemical manufacturing plants. Petitioners state that KDAQ failed to provide any technical background regarding the percentages or types of different chemicals in each process stream, and contend that, based on a comparison to another facility's permit application, the process stream likely includes chemicals not identified by Cash Creek. Petitioners further state that KDAQ failed to explain why it is appropriate to use the SOCMI without ethylene factors instead of the higher average SOCMI factors. *See* Petition at 23-25.

Petitioners further contend that the fugitive leak estimates are erroneous because they fail to account for components where control of leaks is non-existent, limited, or delayed. Petitioners explain that the estimates assume exceedingly high levels of control associated with the proposed LDAR program, and do not account for any non-accessible, difficult-to-monitor, or unsafe-to-monitor components. Petitioners state that additional fugitive emissions will result from repair delays because the permit provides a process where delay of leak repair is allowed and sets no limit on mass emissions from delay of repair. *See* Petition at 25-26.

Regarding the permit conditions applicable to fugitive emissions, Petitioners assert that the permit is flawed because it does not require monitoring or process sampling to confirm the low percentages of individual compounds in the process streams assumed by Cash Creek in selecting its emission factors. Petitioners further contend that the PTE limit for fugitive emissions is ineffective because compliance with the limit is determined by calculating emissions based on the same flawed emission factors without requiring monitoring to confirm the accuracy of those factors. *See* Petition at 26-27.

EPA's Response: EPA denies as premature the petition on this issue. As explained above, EPA is granting the petition on the issue of the unavailability during the public comment period of Cash Creek's calculation of fugitive emissions from equipment leaks. To address EPA's objection, KDAQ will need to submit the fugitive emissions calculation for public comment and provide an adequate response to any public comments received. Because KDAQ has not yet submitted the fugitive emissions calculation for public review, Petitioners' concerns regarding potential errors in that calculation are not ripe for EPA review. Therefore, EPA denies the petition as premature with respect to Petitioners' substantive concerns regarding Cash Creek's fugitive emissions calculation.

2. Petitioners' allegation that KDAQ omitted numerous control options and relied on a faulty cost-effectiveness analysis in selecting CO BACT for fugitive equipment leaks.

Petitioners' Claim: Petitioners contend that KDAQ's BACT analysis for fugitive equipment leaks should have considered more stringent LDAR programs in use at chemical plants and refineries such as the one required by BAAQMD regulations. *See* Petition at 28-29. Second, Petitioners contend that KDAQ's analysis of the cost-effectiveness of requiring Cash Creek to utilize leakless components was flawed because KDAQ only considered a facility design employing *entirely* leakless components. Petitioners point out that EPA has required consideration/use of *some* leakless and/or certified low leak components in consent decrees for similar facilities (providing examples) and contend that the BACT analysis should have considered a control option consisting of less than all leakless components. *See* Petition at 30. Third, Petitioners contend that KDAQ's BACT analysis was flawed because KDAQ deemed use of entirely leakless components not to be cost-effective based solely on incremental cost, and that incremental cost effectiveness is an optional consideration that must always be paired with average cost effectiveness. *See* Petition at 30-31.

EPA's Response: EPA denies as premature the petition on this issue. As noted above, EPA is granting the petition with respect to KDAQ's failure to submit the CO BACT analysis for fugitive emissions from equipment leaks for public comment. Because KDAQ will need to submit the CO BACT analysis for public comment and respond to any significant public comments, it is premature for EPA to respond to the Petitioners' substantive concerns regarding the CO BACT determination for fugitive emissions.

D. Petitioners Claim that the Proposed Facility is a Major Source of Hazardous Air Pollutants

Petitioners' Claim: Petitioners state that the Cash Creek facility will be a major source of hazardous air pollutants and should be subject to appropriate case-by-case MACT determinations for HAPs under Clean Air Act § 112. Petition at 31. This claim relates to issues B.1 (alleging that the HAP PTE calculation does not fully account for flaring emissions) and C.1 (alleging that the PTE calculation did not adequately account for fugitive emissions from equipment leaks).

EPA's Response: The EPA denies as premature the Petition on this issue based on the current record. As explained above, EPA is in this Order objecting to Cash Creek's permit on the basis that KDAQ failed to provide a reasoned explanation in response to public comments questioning whether the PTE calculation for HAPs included consideration of flaring emissions that will occur at times other than during startup and standby (flare pilot) operations, and on the basis that KDAQ did not comply with public comment procedures with respect to the calculation of fugitive emissions (including HAPs) from equipment leaks. In response to this objection, KDAQ will need to explain how (and if) the PTE calculation for HAPs accounts for flaring emissions other than during standby and startup operations, and must subject the equipment leak emissions calculation for public comment. Until KDAQ provides the required explanation and additional public process, Petitioners' claim that Cash Creek is a major HAP source that should be subject to a case-by-case MACT standard is not yet ripe for EPA's review.

E. Petitioners' Claims Regarding Fugitive Particulate Matter Emissions from Material Handling

Petitioners raise numerous issues regarding fugitive particulate matter emissions from material handling. These are summarized as follows and more specifically identified and responded to below. As a general matter, Petitioners contend that KDAQ failed to estimate and model the full fugitive PM_{10} and $PM_{2.5}$ emissions (collectively referred to as "PM emissions") from material handling allowed under the permit, including fugitive emissions from paved and unpaved haul roads, coal piles, and slag landfills. *See* Petition at 32. As a result, according to Petitioners, Cash Creek has not demonstrated that the proposed facility will not cause or contribute to a violation of the PM_{10} and $PM_{2.5}$ NAAQS or the PSD increments as required by CAA § 165(a)(3), 42 U.S.C. § 7475(a)(3). *Id.* Petitioners explain that if Cash Creek calculated material handling emissions correctly, projected PM emissions would be high enough to require that Cash Creek conduct a full NAAQS and PSD increment modeling analysis for PM_{10} and $PM_{2.5}$. *Id.* at 37.

1. Petitioners' contention that the permit applicant utilized unreasonably high and unsupported control efficiency for methods used to control fugitive PM emissions from haul roads and coal and slag piles.

Petitioners' Claim: Petitioners take issue with Cash Creek's assumption in its modeling that the measures specified in the permit for controlling PM emissions from haul roads and coal and slag piles

will achieve 90% control efficiency. Petition at 32-35. Petitioners reference their comments on the draft permit (attached to the petition), in which they cite various sources that contradict the assumed 90% control efficiency. *Id.* at 33. Petitioners further contend that the permit conditions governing control of PM emissions from material handling are vague and unenforceable and therefore do not ensure that Cash Creek's control measures will achieve 90% control efficiency. *Id.* at 38-39. According to Petitioners, it would be more realistic to assume 75% control efficiency for haul roads, and 60% control efficiency for coal and slag piles. *Id.* at 33. Petitioners state that Cash Creek's fugitive PM emissions are significantly higher when recalculated using these more realistic control efficiencies. *Id.* at 33. Petitioners also contend that Cash Creek erred by calculating 24-hour average PM_{10} emissions using an equation that includes an emission reduction factor based on the number of days of rain per year. *Id.* at 34. Citing to AP-42 Chapter 13.2.2 Unpaved Roads,[21] Petitioners state that this strategy is not applicable to short-term emission rate calculations. Specifically, Petitioners explain that it may not rain for many days in a row, and, thus, rainfall will not be a mitigating factor when calculating 24-hour PM_{10} emission rates during that period. *Id.* Petitioners state that Cash Creek's daily and hourly emission estimates must be recalculated without the use of any rainfall correction factor. *Id.* at 35.

EPA's Response: For the reasons provided below, EPA grants the petition on this issue. The permitting record does not indicate that KDAQ provided a reasoned justification for its fugitive emissions estimates.

EPA's AP-42 document describes various approaches to emissions estimation and depicts them in a hierarchical format. Where data are lacking and other preferred approaches are not available, emissions factors may be used to estimate emissions in permitting and other applications. AP-42, Introduction, at 1-2. An emissions factor is a representative value that attempts to relate the quantity of a pollutant released to the atmosphere with an activity associated with the release of that pollutant. Before using an emission factor compiled in AP-42, EPA advises users to exercise professional judgment to verify that a particular emission factor is sufficiently representative of emissions from the particular activity or source to which it is to be applied. For example, AP-42 states the following:

> Before simply applying AP-42 emission factors to predict emissions from new or proposed sources, or to make other source-specific emission assessments, the user should review the latest literature and technology to be aware of circumstances that might cause such sources to exhibit emission characteristics different from those of other, typical existing sources. Care should be taken to assure that the subject source type and design, controls, and raw material input are those of the source(s) analyzed to produce the emission factor.

Id. at 4. In this case, Petitioners have demonstrated that KDAQ has failed to adequately consider several relevant factors and, thus, KDAQ has not demonstrated that it is appropriate to apply the emissions factors from AP-42 in the manner that they were used in this case to estimate fugitive emissions.

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[21] AP-42, *Compilation of Air Pollutant Emission Factors*, has been published since 1972 as the primary compilation of EPA's emission factor information. It contains emission factors and process information for more than 200 air pollution source categories. A source category is a specific industry sector or group of similar emitting sources. The emission factors have been developed and compiled from source test data, material balance studies, and engineering estimates. The Fifth Edition of AP-42 was published in January 1995. Since then EPA has published supplements and updates to the fifteen chapters available in *Volume I, Stationary Point and Area Sources.* AP-42 is available on EPA's website at http://www.epa.gov/ttn/chief/ap42/index.html#toc.

Regarding the assumed 90% control efficiency, in response to public comments KDAQ explained that the 90% control efficiency accounts for wet suppression in combination with other control methods. *See* RTC at B-22 to -23. Specifically, for paved roads, in addition to wet suppression, the permit requires silt fences, speed restrictions of 20 miles per hour, and chemical suppression. *Id.* For unpaved roads, wet suppression is supplemented with silt fences, speed restrictions of 20 miles per hour, and the use of gravel. *See* RTC at B-20 to -21. According to KDAQ, AP-42 indicates that it is possible to attain 90% control efficiency with only wet suppression; thus, KDAQ explains that it is reasonable to assume that wet suppression combined with the supplemental measures will achieve 90% control efficiency. *See* RTC at B-22 to -23.

While AP-42 reports that some sources using wet suppression have achieved 90% control efficiency, this is one of the highest achievable control efficiencies for wet suppression methods. *See* AP-42, Section 13.2.2, Figure 13.2.2-2 (Watering control effectiveness for unpaved travel surfaces). The control efficiency achieved by wet suppression depends heavily on how frequently it is applied. *See* AP-42, Section 13.2.2.3, at 8 (explaining that watering and chemical suppressants "require frequent reapplication to maintain an acceptable level of control."); *see also* Air & Waste Management Association, *Air Pollution Engineering Manual*, 131 (2d ed. 2000) (explaining that "[t]he effectiveness of controls depends on the specific situations as well as the diligence to which it is applied"). To attain 90% control efficiency, the wetting agent must be applied frequently and in large amounts. For example, AP-42 reports that up to 90% control efficiency of PM emissions from storage piles and associated roadways can be achieved through "[c]ontinuous chemical treating of material loaded onto piles, coupled with watering or treatment of roadways." *See* AP-42, Section 13.2.4.4, at 5. Likewise, the effectiveness of Cash Creek's supplemental control measures depends on how they are implemented, in combination with other site-specific factors. *See* Air & Waste Management Association, *Air Pollution Engineering Manual*, 127-131 (2d ed. 2000). As Petitioners point out, other than instructing Cash Creek to utilize the specified methods for controlling fugitive PM emissions, Cash Creek's permit provides no details regarding Cash Creek's implementation of these methods. *See* Final Cash Creek Permit at 75. For example, the permit lacks any requirement governing how frequently wet suppression must be applied, the atmospheric and operational conditions under which wet or chemical suppression should be applied, the time of day that wet or chemical suppression should be applied, or the amount that should be applied. Rather, the permit simply states that "gravel, silt fences, and wet suppression" shall be used on unpaved roadways, "silt fences, and chemical and/or wet suppression" shall be used on paved roadways, and "silt fences, compaction, chemical and/or wet suppression, and telescopic chutes and stacking tubes" shall be used on the coal storage pile and slag landfill. *See* Final Cash Creek Permit at 75.

To make a reasoned demonstration that a proposed new source will not cause or contribute to a violation of any NAAQS or applicable PSD increment, the permit applicant and permitting authority should consider the emission rate that reflects the maximum allowable operating conditions allowed under the facility's permit as expressed by the enforceable emissions limit, operating level, and operating factor for each applicable pollutant. *See* 40 C.F.R. part 51, Appendix W, Table 8-2. Given the lack of specificity in the permit regarding Cash Creek's fugitive PM control obligations, EPA finds that Petitioners have demonstrated that KDAQ did not provide a reasoned basis for assuming that the combined fugitive PM control measures will achieve 90% control efficiency. To justify the assumed 90% control efficiency, KDAQ needs to provide a reasoned explanation for the control efficiency expected from the combined measures that reflects the enforceable permit conditions governing implementation of each measure (e.g., sufficient permit requirements governing wet suppression justify the assumed control efficiency).

EPA notes that two of the control measures identified by KDAQ as supporting the assumed 90% control efficiency—speed limits and the application of gravel to unpaved roads—do not appear to be relevant to the control efficiency parameter that is used to calculate controlled fugitive PM emissions from roadways. Although vehicle speed is a factor for road emissions, a range of vehicle speeds was included in the data used in developing the AP-42 equations for estimating uncontrolled fugitive PM emissions from paved and unpaved roads. *See* AP-42, Section 13.2.1.3, at 5 (paved roads); *id.* at Section 13.2.2, at 5 (unpaved roads). Likewise, while the application of gravel to unpaved roads reduces fugitive PM emissions, the impact of gravel application is captured by the AP-42 equation in the variable representing "surface material silt content" (i.e., the application of gravel lowers silt content). *See id.* at Section 13.2.2.2, at 4 (unpaved roads). Thus, the effect of speed limits and gravel should already be accounted for in the AP-42 equations used to estimate the uncontrolled PM emissions. After the uncontrolled emissions rate is determined using the AP-42 equations, the control efficiency of fugitive PM controls is applied to the uncontrolled emissions rate to arrive at the projected controlled emissions rate. Because the AP-42 equations used to calculate the uncontrolled PM emissions rate appear to account for the effect of vehicle speed and gravel, KDAQ's reliance on these measures to support the assumed 90% control efficiency lacks a reasoned basis.

Finally, EPA finds that Petitioners have demonstrated that KDAQ erred in approving Cash Creek's use of an equation that includes a rainfall correction factor to calculate 24-hour average fugitive PM emissions. As indicated in AP-42, the equation for estimating particulate matter emissions from roadways that considers precipitation (i.e., natural mitigation) is appropriate for annual or other long-term applications. To assess compliance with short-term ambient standards, the potential maximum short-term emission factor associated with the project's industrial road conditions should be used. Because of the possibility of having no rain during many days in an annual period, the maximum short-term particulate emission factor would not include natural mitigation. In response to this petition, KDAQ needs to ensure that Cash Creek does not include a rainfall correction factor in its 24-hour average fugitive PM emissions calculation.

2. Petitioners' contention that the applicant utilized an unreasonably low silt loading factor for paved roads.

Petitioners' Claim: Petitioners take issue with Cash Creek's use of a 0.4 grams per meter squared (g/m^2) silt loading factor derived from measurements from the iron and steel industry in calculating PM emissions from paved roads. Petition at 35-37. Petitioners explain that this silt loading factor is from the low end of the range reported in AP-42 (which ranges from 0.09 to 79 g/m^2 for the selected industry category) and should not be considered representative of worst-case emissions. *Id.* at 36. Petitioners note that AP-42 highly recommends the collection and use of site-specific silt loading data, and assert that Cash Creek should have attempted to obtain site-specific silt data from similar sources rather than rely on AP-42 data. *Id.* at 35. In addition, Petitioners point to a statement in AP-42 indicating that where a source cannot obtain site-specific data, an appropriate mean value should be selected from a table listing silt loadings that were experimentally determined for a variety of industrial roads. *Id.* at 36. They explain that AP-42's industrial roadway table provides a range of mean silt values from 7.4 to 292 g/m^2. *Id.* Petitioners also point to an EPA statement that "AP-42 emissions factors . . . are not precise enough for regulatory applicability determination" and to an EPA statement recommending that if AP-42 factors are relied upon for applicability determinations, the maximum value in the range of reported values should be used. *Id.* at 36 (citing U.S. EPA, Appendix D: Preliminary Emissions Factors Program Improvement Option Paper 4 Providing Guidance Regarding the Use of Emissions Factors for Purposes Other than Emissions Inventories, at 4-3 tbl.4.1 & at 4-11 tbl.4.4). Petitioners state that KDAQ did not

explain why the worst-case silt conditions at the Cash Creek facility would be consistent with the low end of the AP-42 range, and did not explain why the iron and steel industry is the most analogous industry for the paved roads at the Cash Creek facility. *Id.* at 37. Finally, Petitioners contend that the permit lacks conditions limiting the silt on the paved roads on a continuous basis to the 0.4 g/m^2 assumed in the calculations. *Id.*

EPA's Response: For the reasons stated below, EPA grants the petition on this issue. Petitioners demonstrated that the permit and permit record lack sufficient support for the assumption of a 0.4 g/m^2 silt loading factor for the facility's paved haul roads, which is one of the lowest silt loading factors reported in AP-42 for an industrial facility of any kind. *See* AP-42 for Paved Roads, at 13.2.1-10, Table 13.2.1-3 (Jan. 2011). As KDAQ acknowledged in response to Petitioners' comments on the draft permit, AP-42 reports a wide range of silt loading factors for the iron and steel manufacturing industry: 0.09 g/m^2 to 79 g/m^2.[22] RTC at B-23. As Petitioners explain, due to this wide range of reported silt loading values, AP-42 explains: "the collection and use of site specific silt loading data is preferred and is highly recommended." AP-42 for Paved Roads, at 13.2.1-9 (Jan. 2011).[23] Furthermore, Petitioners are correct that where site-specific silt loading data cannot be obtained, AP-42 recommends selecting "an appropriate value for an industrial road . . . from the *mean* values given in Table 13.2.1-3." *Id.* (emphasis added).[24] The mean value reported for the iron and steel manufacturing industry is 9.7 g/m^2—which is significantly higher than the 0.4 g/m^2 value used by Cash Creek. Moreover, Petitioners correctly point out that the mean values for other industrial sectors range from 7.4 g/m^2 all the way to 292 g/m^2.

Petitioners demonstrated that KDAQ offered no explanation for why the reported values for the iron and steel manufacturing industry are more relevant to silt loading at the proposed facility than the values reported for other industries. Rather, in response to comments on the draft permit, KDAQ stated that the iron and steel manufacturing industry had the largest number of sites tested and the largest sample set reported in AP-42. *See* RTC at B-22 to -23. Furthermore, even if it is reasonable for KDAQ to rely on the iron and steel manufacturing industry values, KDAQ failed to provide a reasoned explanation in support of its selection of a silt loading value that is significantly below the mean for that industry. While there may be some merit to KDAQ's explanation that silt loading will be low because the material being transported will consist of moist slag from the gasifiers, a more detailed analysis is needed to justify use of one of the lowest reported silt loading factors from another industry type.

To address this objection, KDAQ needs to provide a reasonable explanation in the Statement of Basis and/or Response to Comments document for why the assumed 0.4 g/m^2 silt loading factor is appropriate for Cash Creek, or use a different approach based on a reasoned analysis. If KDAQ concludes that a different silt loading factor should be used, KDAQ needs to explain why the alternative factor is appropriate and, if a higher factor is used, instruct Cash Creek to remodel its PM emissions using that factor.

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[22] EPA published an update to the AP-42 chapter on Paved Roads in January 2011. The updated chapter reports the same silt loading factor range for the iron and steel manufacturing industry that was reported in the 2006 version of AP-42-Paved Roads. *See* http://www.epa.gov/ttn/chief/ap42/ch13/final/c13s0201.pdf

[23] This statement also appeared in the 2006 version of AP-42 for Paved Roads that was in effect at the time the Cash Creek permit was drafted.

[24] This statement also appeared in the 2006 version of AP-42 for Paved Roads that was in effect at the time the Cash Creek permit was drafted.

3. Petitioners' contention that remodeled emissions exceed the significant impact levels used by KDAQ to determine when a full cumulative PM air impact analysis is required.

Petitioners' Claim: Petitioners explain that they remodeled the facility's PM_{10} and $PM_{2.5}$ impacts based on what they consider to be the correct material handling estimates, and that their modeling shows that the facility's PM emissions will exceed the PM significant impact levels used by KDAQ as a screening threshold. Petition at 37. As such, Cash Creek should undertake a full NAAQS and PSD increment ambient air quality analysis. *Id.*

EPA's Response: EPA denies as premature the petition on this issue. As explained above, EPA is granting the petition on the issue of KDAQ's failure to provide a reasoned explanation based on the permit record for Cash Creek's assumption of 90% control efficiency for fugitive particulate matter control methods to be used on the facility's haul roads and coal and slag piles, and for its assumption of a 0.4% silt loading factor for the facility's paved haul roads. It is possible that in response to EPA's objection, KDAQ will provide the additional explanation for why Cash Creek's assumptions were appropriate. Thus, it is premature for EPA to conclude that Cash Creek should undertake a full NAAQS and PSD increment ambient air quality analysis for PM_{10} and $PM_{2.5}$ to make the demonstration required under PSD permitting requirements.

4. Petitioners' contention that the permit contains unenforceable vague terms and conditions for material handling that do not equate to control efficiencies.

Petitioners' Claim: Petitioners contend that various operating conditions applicable to paved and unpaved roads, as well as coal piles and slag landfills, are too vague to be enforceable and therefore do not constitute proper limitations on potential to emit from material handling sources sufficient to support the high control efficiencies assumed in the PM modeling. Petition at 38-39. Petitioners explain that the permit fails to specify the frequency with which wet suppression must be applied to roads, the atmospheric and operational conditions under which wet suppression must be applied, how to determine whether to apply water sprays or "other measures," etc. *Id.*

EPA's Response: EPA grants the petition on this issue. As explained above, Petitioners demonstrated that KDAQ did not provide a reasoned basis for assuming that the permit requirements governing control of fugitive PM from haul roads, coal piles and slag landfills are sufficiently specific and stringent to equate to the 90% control efficiency assumed in Cash Creek's emission calculations. *See supra* at 25-27. Specifically, other than generally instructing Cash Creek to utilize the selected control methods, the permit provides no details regarding Cash Creek's implementation of these methods. To justify the assumed 90% control efficiency, which is at the high end of reported fugitive PM control efficiencies, KDAQ needs to provide a reasoned explanation for the control efficiency expected from the combined measures that reflects the enforceable permit conditions governing implementation of each measure (e.g., more specific permit requirements governing wet suppression are needed to justify a higher assumed control efficiency) or take an alternate approach based on a reasoned analysis and make any necessary changes to the permit record and permit.

F. Petitioners' Claim that that the Ozone Impact Analysis was Inadequate

Petitioners' Claim: Petitioners claim that Cash Creek and KDAQ failed to demonstrate that the proposed source will not cause or contribute to violations of ozone air quality standards, as required by CAA § 165(a)(3), 42 U.S.C. § 7475(a)(3). Petition at 39-46. First, Petitioners contend that Cash Creek's ozone impact analysis was flawed because it did not involve source-specific single-source modeling as required by the CAA, 42 U.S.C. § 7475(e)(3)(D), Kentucky's regulations, 401 KAR 51:017 § 10, and 40 C.F.R. Part 51, Appendix W, *Guidelines on Air Quality Models* (2003). *Id.* at 39-40. Petitioners cite to 42 U.S.C. § 7475(e)(3)(D), arguing for the proposition that states and applicants are not to undertake their own independent adjustments of modeling approaches, but must seek federal approval of deviations from federal regulatory guidelines. *Id.* at 40.

Petitioners acknowledge the language in Subsection 5.2.1.c of Appendix W titled, "Estimating the Impact of Individual Sources," which states that for ozone the method used to assess an individual source's impact "depends on the nature of the source and its emissions," and that "model users should consult with the [EPA] Regional Office to determine the most suitable approach on a case-by-case basis." *Id.* at 40-41. However, Petitioners contend that this language does not exempt a source from the ozone modeling requirement; rather, "the quoted passage must be read in context to mean that a case-by-case approach should be taken for individual source modeling methods for ozone impacts." *Id.* at 41.

Petitioners assert that there is no evidence in the record that EPA Region 4 approved Cash Creek's method for assessing ozone impacts. *Id.* at 40-41. Petitioners acknowledge that Cash Creek's permit application cites to a December 2000 letter from EPA Region 4 to the Georgia Environmental Protection Division indicating that "ozone impact modeling is not normally required for single sources," and that "information on current ozone levels in the area should be cited to provide qualitative assurance that the increased [emissions] from facility operation will not cause or contribute to" an ozone violation. *Id.* at 41. According to Petitioners, EPA Region 4's letter to Georgia does not constitute regional approval of the Cash Creek's methodology because regional approval must be granted on a case-by-case basis. *Id.* Petitioners further note that EPA's letter to Georgia is nine years old and assert that it is extremely dated with respect to ozone modeling capabilities. *Id.* Citing various examples, Petitioners contend that single-source ozone modeling is both technically and economically feasible, and that there are several sources of inventory information that KDAQ could use for such modeling. *Id.* at 45-46.

Petitioners further contend that even if a qualitative approach to assessing ozone impacts could be considered "modeling," the approach utilized by Cash Creek was inadequate to demonstrate protection of the ozone NAAQS. They argue the approach was unsuitable because it does not "provide[ ] the most accurate representation of atmospheric transport, dispersion, and chemical transformations in the area of interest." *Id.* at 42-43 (quoting Appendix W Subsection 1.e). In particular, Cash Creek estimated ozone increases associated with the facility's NO_x emissions by scaling the results from modeling sensitivity studies conducted by Georgia Environmental Protection [Division] (EPD) in support of their 8-hr ozone SIP development. 2010 SOB at 46. Petitioners state that Cash Creek and KDAQ made little to no effort to demonstrate that Georgia's ozone sensitivity modeling is appropriate for Kentucky based on similarities in atmospheric transport, dispersion, and chemical transformations in the region surrounding the proposed facility. Petition at 43. Petitioners identify various differences between the counties surrounding Atlanta that were the subject of Georgia's modeling and the area of Kentucky where the Cash Creek facility would be located, including differences in terrain, land use, atmospheric conditions and relative source contribution. *Id.* According to Petitioners, KDAQ failed to adequately address these concerns in its response to Petitioners' comments on the draft permit.

Petitioners point to a December 2001 modeling study by Kentucky Natural Resources and Environmental Protection Cabinet indicating that new power plants in Kentucky can generate large ozone increases, and that Henderson County has the second largest daily total of NO_x emissions from new power plants. Petition at 44. Petitioners also note that ozone monitoring data in Henderson County have exceeded the 2008 ambient air quality standard of 0.075 parts per million (ppm), and that in March 2009 KDAQ proposed Henderson County to be designated as in nonattainment with the 0.075 ppm standard. *Id.* at 44-45.

EPA's Response: With respect to Petitioners' contention that Cash Creek was legally required to perform modeling to assess the proposed new facility's impacts on ambient ozone levels, the petition is denied. While Kentucky's SIP requires that all applications of air quality modeling used in PSD permitting "shall be based on the applicable models, databases, and other requirements" specified in Appendix W of 40 C.F.R. part 51, Appendix W does not specify a particular model for use in analyzing an individual source's impacts on ambient ozone levels in PSD permitting. Rather, Appendix W Section 5.2.1.c explains: "Choice of methods used to assess the impact of an individual source depends on the nature of the source and its emissions." It further states that model users "should consult with the [EPA] Regional Office to determine the most suitable approach [for analyzing ozone impacts] on a case-by-case basis." Appendix W Section 5.2.1.c. As EPA Region 4 explained in another context, depending on the nature of the source, its emissions and background ozone concentrations, "an ozone impact analysis other than modeling may be required." 76 *Fed. Reg.* 41100, 41108 (July 13, 2011).

EPA also denies the petition with respect to Petitioners' contention that Cash Creek's qualitative analysis is insufficient to demonstrate that the proposed facility will not cause or contribute to an ozone NAAQS violation. In this case, Cash Creek analyzed (1) current and anticipated background ozone concentrations at the location of the proposed facility based on data obtained from a representative regional monitor and from photochemical modeling conducted for the Visibility Improvement State and Tribal Association of the Southeast–Southeastern States Air Resource Managers (VISTAS–SESARM), and (2) the relationship between the proposed facility's emissions of ozone precursors (NO_x and VOC) and the emissions of those same ozone precursors from other sources in the area. *See* Cash Creek Permit Application, Appendix A (Nov. 2009). Cash Creek acknowledged that the 2006-2008 average of the Henderson County monitoring station data was 0.076 ppm, slightly above the 8-hour ozone standard of 0.075 ppm. However, Cash Creek explained that the VISTAS-SESARM data showed a range of predicted 2009 8-hour ozone design values in Henderson County of 0.065 ppm to 0.074 ppm, and that the average of the most recent 2009 data showed an ozone value of 0.071 ppm. Furthermore, Cash Creek reported that data show a large decrease in ozone concentration from 2007 to 2009, which, combined with the VISTAS-SESARM modeling data, suggests that Henderson County will be below the 0.075 ppm 8-hour ozone NAAQS when the facility commences operation in 2014. Finally, Cash Creek noted that use of the Henderson County monitoring station data resulted in a conservative assessment of the proposed facility's anticipated ozone impacts because the monitor is located in a more urban area (with greater vehicular emissions) than the area where the facility would be located. Based on all of these considerations, KDAQ concluded that emissions from the facility would not cause or contribute to an ozone NAAQS violation. *Id.*

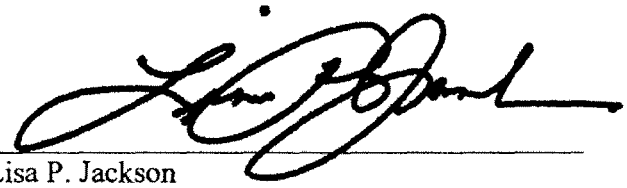
While the Petitioners are correct that Cash Creek did not attempt to demonstrate that Georgia's ozone sensitivity modeling is representative of the Kentucky project location, the analysis based on Georgia's modeling merely supplements Cash Creek's overall analysis of the proposed facility's anticipated ozone impacts. Significantly, Cash Creek did not submit the analysis as a definitive demonstration of the effect

that the proposed source will have on ambient ozone levels. Rather, recognizing that there may be differences between Georgia and Kentucky with respect to ozone formation, Cash Creek simply offered the analysis in further support of its conclusion—made based on consideration of the other factors described above—that the proposed facility will not cause or contribute to a violation of the ozone NAAQS. KDAQ explained in response to comments on the draft permit that use of the Georgia modeling results to help assess the potential ozone impacts of the proposed source likely leads to a conservative ozone impacts analysis given the fact that the Georgia modeling addressed an urban area whereas the location of the proposed source is predominantly rural. RTC at B-107. Regardless of the relevance of the Georgia modeling, however, Petitioners have not demonstrated that the totality of Cash Creek's analysis is insufficient to demonstrate that the proposed facility will not cause or contribute to an ozone NAAQS violation.

Finally, EPA denies the petition with respect to Petitioners' contention that KDAQ failed to consult with EPA Region 4 regarding the method used to assess the proposed facility's ozone impacts. KDAQ's approach was consistent with general guidance provided by EPA Region 4 to KDAQ in presentations and discussions, and with communications between Region 4 and the KDAQ modeler handling the Cash Creek application. The method was selected based on a case-by-case review of the magnitude of the project's emissions, the projected ambient background ozone levels during operation, the levels of existing emissions of ozone precursors in the region, and the available modeling systems and other approaches to analyzing single source ozone impacts. Petitioners have not demonstrated that section 5.2.1.c of Appendix W requires explicit written EPA approval of the methods used on a case-by-case basis for each individual permit, particularly in a situation like this where a qualitative approach was used for the ozone impacts analysis. Nor have Petitioners pointed to any prior EPA statements adopting such an interpretation. EPA has not previously established specific guidelines for documenting for the record a consultation with EPA Regional offices under section 5.2.1.c. Given the lack of specificity in EPA's guidelines and the fact that KDAQ's approach was consistent with prior Region 4 guidance, Petitioners have not demonstrated that KDAQ's approach in this case was unreasonable or inconsistent with the guidelines in section 5.2.1.c of Appendix W. EPA agrees that it is preferable for permitting authorities to provide clear documentation that they have consulted with an EPA Regional office regarding an ozone impacts analysis section 5.2.1.c., but, under the circumstances of this case, Petitioners have not demonstrated that KDAQ's approach is inconsistent with any relevant applicable requirement.

IV. CONCLUSION

For the reasons set forth above and pursuant to section 505(b)(2) of the CAA and 40 C.F.R. § 70.8(d), I hereby grant in part and deny in part the issues in the Petition dated June 18, 2010.



Date

Lisa P. Jackson
Administrator