SIERRA CLUB PETITION

EXHIBIT 15

BEFORE THE ADMINISTRATOR
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

IN THE MATTER OF: LOUISVILLE GAS AND ELECTRIC COMPANY TRIMBLE COUNTY, KENTUCKY TITLE V/PSD AIR QUALITY PERMIT # V-02-043 REVISIONS 2 AND 3 ISSUED BY THE KENTUCKY DIVISION FOR AIR QUALITY	PETITION NO. IV-2008-3

ORDER RESPONDING TO ISSUES RAISED IN APRIL 28, 2008 AND MARCH 2, 2006 PETITIONS, AND DENYING IN PART AND GRANTING IN PART REQUESTS FOR OBJECTION TO PERMIT

On April 28, 2008, and March 2, 2006, the United States Environmental Protection Agency (EPA) received petitions from Save the Valley, Sierra Club, 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 March 2, 2006, petition is referred to as "Petition 1" and the April 28, 2008, petition is referred to as "Petition 2"). Both Petitions request that EPA object to the merged CAA construction/operating permit issued by the Kentucky Division for Air Quality ("KDAQ" or "Division") on January 4, 2006 (Revision 2), and February 29, 2008 (Revision 3), respectively, to Louisville Gas and Electric Company (LG&E). The permits are for construction of a new 750 megawatt pulverized coal-fired boiler (and other associated modifications) at the Trimble County Generating Station located in Bedford (Trimble County), Kentucky. Permit #V-02-043 is a merged CAA prevention of significant deterioration (PSD) construction permit and a 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).

On September 10, 2008, EPA issued a "Partial Order Responding to March 2, 2006, Petition and Denying in Part and Granting in Part Request for Objection to Permit Revision 2." In the September 2008 Order, EPA explained that some issues raised in Petition 1 were affected by Permit Revision 3 and also discussed in Petition 2. At this time, EPA is addressing all the remaining issues identified by Petitioners in Petitions 1 and 2.

This Order contains EPA's response to Petitioners' request that EPA object to the permit on the basis that: (1) public participation procedures were not adequate; (2) the permit fails to

include requirements for addressing greenhouse gases; (3) BACT for nitrogen oxides (NO_x) and sulfur dioxide (SO_2) is not adequate; (4) BACT for the auxiliary boiler and emergency diesel generator are not adequate; (5) BACT for support operations is not adequate; (6) BACT for particulate matter (PM) and particulate matter with a diameter less than ten micrometers (PM_{10}) are not adequate; (7) BACT for sulfuric acid mist (SAM) is not adequate; (8) the permit fails to consider particulate matter with a diameter less than 2.5 micrometers ($PM_{2.5}$); (9) the permit fails to express limits in an adequate manner; (10) BACT analyses did not include clean fuels; (11) the permit lacks a maximum achievable control technology (MACT) determination for mercury and other hazardous air pollutants (HAP); (12) the SAM limits are not enforceable (compliance assurance monitoring concerns); and (13) the permit improperly relies on manufacturer specifications that are not included in the permit, does not identify test methods, and additional concerns regarding netting.

Based on a review of Petitions 1 and 2 and other relevant materials, including the LG&E permit and permit record, and relevant statutory and regulatory authorities, I grant in part and deny in part the Petitions requesting that EPA object to the LG&E permit. I grant on issues 4 and 8 above.

I. STATUTORY AND REGULATORY FRAMEWORK

Section 502(d)(1) of the Act, 42 U.S.C. § 7661a(d)(1), calls upon each state to develop and submit to EPA an operating permit program 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.* 54,953. 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 (which are referred to as "applicable requirements"), but does require permits to contain monitoring, recordkeeping, reporting, and other conditions to assure sources comply with existing applicable requirements. 57 *Fed. Reg.* 32,250, 32,251 (July 21, 1992) (EPA final action promulgating Part 70 rules). One purpose of the title V program is to enable the source, EPA, states, and the public to better understand the applicable requirements to which the source is subject and whether the source is complying with those requirements. Thus, the title V operating permit program is a vehicle for ensuring that existing air quality control requirements are appropriately applied to facility emission units and that compliance with these requirements is assured.

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

For a major modification of a major stationary source,[2] applicable requirements include the requirement to obtain a preconstruction permit that complies with applicable new source review requirements (e.g., PSD). Part C of the CAA establishes the PSD program, the preconstruction review program that applies to areas of the country, such as Trimble County, that are designated as attainment or unclassifiable for National Ambient Air Quality Standards (NAAQS). 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 Trimble County), a major stationary source may not begin construction or undertake certain modifications 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 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). The BACT analysis is further discussed in Section III.B. of this Order, below.

EPA has promulgated two largely identical sets of regulations to implement the PSD program. One set, found at 40 Code of Federal Regulations (CFR) § 52.21, contains EPA's own federal PSD program, which applies in areas without a SIP-approved PSD program. The other set of regulations, found at 40 CFR § 51.166, contains requirements that state PSD programs must meet to be approved as part of a SIP. In 1989, EPA approved Kentucky's PSD rules into the SIP as meeting these requirements. 54 *Fed. Reg.* 36,307 (September 1, 1989); *see also* 40 CFR § 52.931.[3] Thus, the applicable requirements of the Act for major modifications at major sources, such as at LG&E, include the requirement to comply with PSD requirements under the Kentucky SIP. *See, e.g.*, 40 CFR § 70.2.[4] In this case, the Commonwealth's rules require a

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[2] The proposed addition of a new 750 megawatt coal-fired boiler at LG&E is considered a "major modification," consistent with the definition of "major modification," in 401 KAR 51:001 § 1(116). The existing LG&E facility is a major stationary source, as that term is defined in 401 KAR 51:001 § 1(120).

[3] On February 10, 2006, EPA proposed to approve changes made to Kentucky's New Source Review (NSR) program consistent with EPA's 2002 NSR Reform Rules. 71 *Fed. Reg.* 6,988 (February 10, 2006). On July 11, 2006, EPA took final action approving Kentucky's NSR program incorporating changes made pursuant to EPA's 2002 NSR Reform Rules. 71 *Fed. Reg.* 38,990 (July 11, 2006). Kentucky's revisions to its NSR program consistent with NSR reform, became effective under Kentucky law on July 14, 2004, and were submitted to EPA as a SIP revision for approval in September 2004. For further information about rules incorporated into the Kentucky SIP, see http://www.epa.gov/region4/air/sips/ky/kytoc.htm.

[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 CFR Part 52." 401 KAR 52:001 § 1(34).

source to apply for a PSD permit which is then incorporated into the existing title V permit as a revision to the title V permit. 401 KAR 52:020.

Under section 505(a), 42 U.S.C. § 7661d(a), of the CAA and the relevant implementing regulations (40 CFR § 70.8(a)), states are required to submit each proposed title V permit, and certain revisions to such permits, 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 title V. 40 CFR § 70.8(c). If EPA does not object to a permit on its own initiative, section 505(b)(2) of the CAA provides 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. 42 U.S.C. § 7661d(b)(2), *see also* 40 CFR § 70.8(d). In response to such a petition, the CAA requires the Administrator to issue an objection if a petitioner demonstrates that a permit is not in compliance with the requirements of the CAA. 42 U.S.C. § 7661d(b)(2); *see also* 40 CFR § 70.8(c)(1), *New York Public Interest Research Group (NYPIRG) v. Whitman*, 321 F.3d 316, 333 n.11 (2nd Cir. 2003). Under section 505(b)(2), the burden is on the petitioner to make the required demonstration to EPA. *Sierra Club v. Johnson*, 541 F.3d. 1257, 1266-1267 (11th Cir. 2008); *Citizens Against Ruining the Environment v. EPA*, 535 F.3d 670, 677-678 (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 CFR §§ 70.7(g)(4) and (5)(i) - (ii), and 40 CFR § 70.8(d).

Where a petitioner's request that the Administrator object to the issuance of a title V permit is based in whole, or in part, on a permitting authority's alleged failure to comply with the requirements of its approved PSD program (as with other allegations of inconsistency with the Act) the burden is on the petitioners to demonstrate that the permitting decision was not in compliance with the requirements of the Act, including the requirements of the SIP.[5] 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.* 9,892, 9,894-9,895 (March 3, 2003); 63 *Fed. Reg.* 13,795, 13,796-13,797 (March 23, 1998). EPA has approved the PSD programs into the SIPs of most states, including the Commonwealth of Kentucky, and as the permitting authority, Kentucky has substantial discretion in issuing PSD permits. Given this, in reviewing a PSD permitting decision, EPA will not substitute its own judgment for that of Kentucky. Rather, consistent with the decision in *Alaska Dep't of 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

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

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 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).[7]

II. BACKGROUND

Existing Facility

The LG&E facility in Trimble County, Kentucky, began construction on its existing 500 megawatt (MW) pulverized coal-fired boiler in the late 1970s (Unit 1). The facility has undergone a series of modifications since then, adding not only the support facilities for the original 500 MW boiler, but also, six 160 MW simple cycle natural gas combustion turbines (Units 25-30) in approximately 2001. The existing facility also includes support structures such as a natural draft cooling tower; coal/limestone/ash/gypsum material handling equipment; three auxiliary boilers; an emergency diesel generator; and fuel oil storage tanks. Unit 1 and Units 25-30 previously went through PSD permitting prior to construction. A draft title V permit for the facility was first issued in December 1997, followed by several permit changes eventually resulting in Revision 2. Kentucky issued the title V permit Revision 2 on January 4, 2006, and Revision 3 on February 29, 2008. *See* LG&E Permit Revision 3 Statement of Basis (SOB Revision 3) (July 26, 2007). Both revisions are at issue in the instant Petitions.[8]

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[6] In determining the appropriate standard of review to apply to the review of federal PSD permit determinations in a petition to object to a title V permit, the standard of review applied by the EAB in reviewing the appeals of federal PSD permits provides a useful analogy. The standard of review applied by the EAB in its review of federal PSD permits is discussed in numerous EAB orders as the "clearly erroneous" standard. *See, e.g., In re Prairie State Generation Company,* 13 E.A.D. ___, PSD Appeal No. 05-05, slip op., 2006 EPA App. LEXIS 38 (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.

[7] Section II of Petition 2, "Petition Standard of Review," describes the Petitioners' view of the applicable standard of review. This section of the Petition raises no requests for objection. EPA's articulation of its view on the standard of review in title V petitions is not intended to either agree or disagree with Petitioners' views.

[8] In evaluating the remaining issues in both Petitions, EPA considered the terms of the current permit for the facility (Revision 3). Permit citations are provided for Revision 3 unless the particular citation at issue was different in Revision 2 than Revision 3. For purposes of clarity in this Order, the permits are referred to by revision.

Permit History

In December 2004, LG&E submitted a PSD permit application to KDAQ to include into its title V permit, a PSD construction permit to undertake a major modification to construct a new 750 MW net nominal generating unit that would utilize supercritical pulverized coal (Unit 31).[9] Ancillary equipment for this new unit includes a new linear mechanical draft cooling tower, a coal blending facility, dust collectors and dust suppression equipment on material handling operations, an ash barge loading system/fly ash silos, an auxiliary steam boiler, a backup diesel generator, and an emergency diesel fire water pump engine. The construction of new Unit 31 is also expected to increase utilization of the existing natural draft cooling tower on Unit 1, various material handling equipment, the three auxiliary boilers, emergency diesel generator, and fuel oil storage tanks.

In late 2004, and separate from the PSD application, LG&E submitted a minor permit revision application to KDAQ for a voluntary creditable decrease in emissions for nitrogen oxides (NO_x) and sulfur dioxide (SO_2) for Unit 1. The creditable decreases were requested to net against the anticipated future increases in emissions from the new Unit 31 for PSD purposes. In January 2005, KDAQ approved the minor permit revision to reduce the NO_x and SO_2 emission limits for Unit 1 (Revision 1, minor modification).

The final draft Revision 2 combined PSD/title V permit for construction of new Unit 31 was opened for public notice and comment in July 2005. Minor changes were made to the permit following public comment and the final Revision 2 Permit was issued on January 4, 2006. The Petitioners administratively appealed the issuance of the Revision 2 Permit by KDAQ, which resulted in a Final Order by the Secretary of the Kentucky Environmental Protection and Public Health Cabinet on September 28, 2007, granting certain claims and denying others. On October 26, 2007, KDAQ issued a revision entitled, "Revision 2 Administrative Amendment," which involved revisions to the permit in response to the Secretary's Final Order. In January 2008, KDAQ further revised the permit (Revision 3).

In issuing Revision 2, KDAQ concluded that the proposed major modifications would result in a significant net increase in emissions of particulate matter (PM) and particulate matter with a diameter of less than ten micrometers (PM_{10}), carbon monoxide (CO), volatile organic compounds (VOC), fluorides, and sulfuric acid mist (SAM). Due to the voluntary creditable decreases in emissions of NO_x and SO_2 at Unit 1, which were approved in Revision 1, KDAQ concluded that the new Unit 31 was not subject to major PSD review for NO_x and SO_2. As presented for Revision 2, the design of Unit 31 involved a suite of control technology including: selective catalytic reduction (SCR); pulse jet fabric filters (PJFF) and hydrated lime injection; wet flue gas desulfurization (WFGD); wet electrostatic precipitator (WESP). These control technologies, in addition to the construction of the new linear mechanical draft cooling tower and other operational limits, were determined by KDAQ as sufficient for the facility to meet BACT requirements that resulted from KDAQ's PSD review of the proposed major modification. KDAQ SOB Revision 2.

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[9] In some permitting information, Unit 31 is also referred to as Unit 2. In this Order, we reference Unit 31 or "the new unit."

On February 13, 2007, LG&E submitted an application for a significant revision to amend the permit to account for permitting redesigns. KDAQ SOB Revision 3 at 1. As part of this revision, the permit was modified to include additional control technology for Unit 31 – a dry electrostatic precipitator (DESP) and powdered activated carbon (PAC) injection and hydrated lime injection. The DESP is intended to ensure that the saleable fly ash is captured prior to potential contamination due to PAC injection which is for mercury control. KDAQ SOB Revision 3 at 2. In addition to these changes, Revision 3 also included permitting changes for the following other changes to operations and/or design at the facility: (1) Unit 32 (auxiliary boiler) changes including increased hours of operation and use of ultra low sulfur fuel; (2) Unit 33 (emergency generator) changes including use of ultra low sulfur fuel and changes to hours of operation; (3) the elimination of three existing auxiliary boilers (Units 7-9) and the emergency diesel firewater pump; (4) the addition of material handling silos (waste ash, hydrated lime and PAC); (5) movement of proposed conveyer transfer points; (6) new conveyer transfer points; (7) an increase in length of haul road; and (8) ash transfer design changes. KDAQ SOB Revision 3 at 2-3. As a result of these changes, KDAQ also reviewed the previous PSD analysis done for the facility and made some changes to emission calculations for the netting associated with Unit 31 (for NO_x and SO_2) as well as revised calculations for the PM emissions from the linear mechanical draft cooling tower (Unit 41). Despite the changes, KDAQ concluded that the facility was still able to use netting to avoid PSD review for NO_x and SO_2 associated with the addition of Unit 31. KDAQ SOB Revision 3 at 3.

At this time, LG&E is engaged in construction of Unit 31 and the associated design changes necessary at the facility to support the new unit. In addition, in mid-January 2009, KDAQ proposed changes to Revision 3 to the permit to respond to EPA's September 10, 2008, Order which granted two petition issues. KDAQ did not receive comments from Petitioners on this revision. On April 21, 2009, KDAQ issued a proposed permit (Revision 4 – although it is not identified by KDAQ in that manner). On June 5, 2009, EPA Region 4 objected to the permit on two grounds. First, that KDAQ "must undertake a Section 112(g) analysis for all hazardous air pollutants with respect to Unit 31 in order to comply with all applicable Clean Air Act requirements." Second, that the startup/shutdown limits added to the permit must be rewritten to more accurately reflect what is presented in the Statement of Basis. EPA did not object to the substance of KDAQ's revised analysis for startup and shutdown (which was required as part of the September 10, 2008, Order). Consistent with the CAA and applicable regulations, KDAQ has ninety days in which to revise the permit pursuant to the June 5, 2009, objection letter.

III. EPA DETERMINATIONS ON PETITIONS 1 AND 2

A. Petitioners' Claims Regarding Public Participation

Petitioners allege that EPA must object to the permit because KDAQ did not comply with applicable public participation requirements during the Revision 2 process in three primary ways. Petitioners allege that KDAQ (1) did not make the entire permit application or all supporting materials available to the Petitioners; (2) was unresponsive to Petitioners' requests for information during the public comment period – thus impacting public participation; and (3) failed to meaningfully extend the public comment period to correct its delays in providing

information to Petitioners. Petition 1 at 6-7. Subsequent to Petition 1, a second public comment period was held for Revision 3 to the permit. Petitioners raised no new public participation concerns following the Revision 3 public comment process. For the reasons discussed below, the Petitions[10] are denied with regard to all public participation issues raised although EPA emphasizes the fundamental importance of public participation and strongly urges KDAQ to revise its procedures.

1. Failure to make entire permit file available and respond to requests for information during public comment period

Petitioners' allegations regarding KDAQ's failure to make the entire permit file available in a timely manner to the public during the public comment period involve three distinct assertions. First, the file viewed by Petitioners during the public comment period did not include a CD-ROM dated November 7, 2005, describing CO air quality monitoring data. Second, the minor permit modification applications (Revision 1), which involved the voluntary creditable decreases of NO_x and SO_2 emissions from Unit 1, were not included in the Revision 2 file. In addition, the file viewed by Petitioners during the public comment period did not include a startup/shutdown plan or operation and maintenance specifications. Third, the files were allegedly disorganized and Petitioners were not able to obtain in a timely manner copies of the relevant files for review.

a. CO air quality monitoring data

Petitioners' Claims. During the public comment period in July 2005, Petitioners sought to view the entirety of the permit file. Petition 1 at 7. In February 2006, as part of discovery during the administrative appeal of Permit Revision 2, KDAQ produced a CD-ROM with CO air quality monitoring data which was dated November 7, 2005. Petitioners claim that the permit record was flawed because it did not contain this CD-ROM. *Id.*

EPA's Response. During the permitting process for a facility like the LG&E facility, KDAQ typically receives a number of submittals from the permittee regarding, among other matters, air quality monitoring data. Petitioners presented no information explaining what the November 7, 2005, CD-ROM contained, whether it was related to Permit Revision 2, or even when it was submitted to KDAQ (i.e., whether it was a part of the permit application or submitted later). Further, Petitioners presented no information indicating that KDAQ relied on that CD-ROM to establish the CO limits or to perform any required analyses. The mere existence of a data set dated after draft permit issuance and the public comment period, with no information supporting its relevance to the decision, is not sufficient to demonstrate that KDAQ failed to comply with a requirement under the Act in issuing the permit. Additionally, Petitioners present no information suggesting that either KDAQ relied on this information in making a permit decision or that review of this information was necessary to meaningfully

[10] These public participation issues were raised in Petition 1, but reiterated in Petition 2. In this section, EPA is addressing all the public participation issues raised (the substance of which is discussed primarily in Petition 1). EPA uses the term "Petitions" because the issues were also referenced in Petition 2.

review the proposed project or permit. *See, e.g., In the matter of Pencor-Masada Oxynol, LLC*, Petition No. II-2000-07 (Order on Petition) (May 2, 2001) at 5 (denying an issue regarding public availability of certain documents).

In addition, we note that Petitioners have had a second opportunity through the Revision 3 changes, to provide KDAQ with any comments concerning the CO data contained in the CD-ROM to the extent that they believe it is pertinent to the permitting decision. Although Petitioners provided comments regarding CO to KDAQ during the Revision 3 public comment period, there is no mention of or reference to the data on the CD-ROM. Petitioners' Exhibit 1 at 16-17. For these reasons, Petitioners failed to demonstrate that the permit is not in compliance with the Act. As a result, the Petitions are denied as to this issue.

b. Permit file missing information such as minor revision applications, startup/shutdown plan, and operation and maintenance information

Petitioners' Claims. Petitioners sought to view the permit file (for Revision 2) at KDAQ offices in Frankfort, Kentucky and were provided with a box of documents. Petitioners allege that applications submitted by LG&E seeking the minor permit revision (Revision 1) involving the voluntary creditable decreases of NO_x and SO_2 emissions at Unit 1 were not included in the permit file for Revision 2. Petitioners further allege that the box did not include the startup/shutdown plan or operation and maintenance materials. Petition 1 at 8-9.

EPA's Response. KDAQ's public participation procedures for PSD and title V permits are found at 401 KAR 52:100. Consistent with Kentucky's PSD rules at 401 KAR 51:017 § 15, the federal public participation rules found at 40 CFR § 51.166(q) also apply. Federal title V rules found at 40 CFR § 70.7(h) also describe public participation procedures although Kentucky's rules are more detailed in their requirements than Section 70.7(h). In pertinent part, 401 KAR 52:100 § 8(1)(a-c), "Public Inspection of Documents," provides that Kentucky shall make available the permit application, the draft permit, and supporting materials. The federal rules further explain that the permitting authority shall "[m]ake available in at least one location in each region in which the proposed source would be constructed a copy of all materials the applicant submitted, a copy of the preliminary determination, and a copy or summary of other materials, if any, considered in making the preliminary determination." 40 CFR § 51.166(q).

Inclusion of a particular document in the permitting file depends in large part on whether the information at issue was relied upon by KDAQ in the permitting decision, and not available in any other documents provided to the public. The SOB for Revision 2 provides an explanation of the voluntary creditable decreases as well as information associated with that permit modification that was relevant to Revision 2.[11] KDAQ SOB Revision 2 at 3-7. In the Response to Comments (RTC) for Revision 2, KDAQ explained that "[a]ppropriate supporting materials

[11] The application for Revision 2 includes the netting calculations and provides significantly more information regarding the netting analysis for Unit 31 than did the minor modification application which did not include the netting analysis at Unit 31, but rather, just the decreases in emissions from Unit 1.

on reductions were provided to the public through the air permit application document, the Statement of Basis netting discussion, and minor permit revision applications supporting the creditable emission decreases..." KDAQ RTC Revision 2 at 13. Thus, according to KDAQ, the permitting record for Revision 2 included the information from the minor modification that KDAQ relied upon in evaluating Revision 2. Further, the netting issues were open for additional public comment as part of Revision 3 to the permit, and Petitioners did not raise any concerns regarding insufficient information at that time. For the reasons discussed above, Petitioners have not demonstrated that any information from the minor permit modification applications that was relied upon by KDAQ was not provided in the permitting record. Therefore, the Petitions are denied as to this issue.

With regard to the startup/shutdown plan, we note that in the September 10, 2008 EPA Order, we granted the objection in Petition 1 that the permit did not adequately address startup and shutdown emissions as part of the BACT analysis. Thus, the permit record now contains additional information regarding periods of startup and shutdown, and a new public comment period was held specifically on this issue. Petitioners did not submit comments to KDAQ on the most recent permit revisions regarding startup and shutdown. Thus, this issue appears resolved and is now moot.

With regard to the operation and maintenance information, Petitioners make a general assertion that "the operating and maintenance procedures and manufacturer's recommendations for the proposed unit's equipment" were "absent from the file." Petition 1 at 9. LG&E did include some specific operation and maintenance information for certain components as part of the 2004 Application (in Appendix E). Prevention of Significant Deterioration Construction Permit Application and Title V Operating Permit Application Trimble County Unit 2, Louisville Gas & Electric (December 1, 2004) (hereafter referred to as "2004 Application"). Petitioners do not explain what particular information was missing from the file. Further, as a general matter, at the time of issuance of a PSD permit, construction has not yet occurred. In general, companies may not have contracted for construction at the time the permit application is pending because many companies are reluctant to enter into binding contracts without a final preconstruction permit. Although the application and the permit specify the design of the affected units, there are often many manufacturers of the control technologies and other components such that inclusion of all operation and maintenance information in the permit record may not be practical. Petitioners do not demonstrate that the permit record lacked any required operation and maintenance information, and thus the Petition is denied on this issue.

For the above reasons, Petitioners fail to demonstrate that the permit is inconsistent with the Act. As a result, Petitions are denied as to the issues identified above.

c. KDAQ's files were disorganized, inhibiting onsite review; copies were not timely provided to Petitioners

Petitioners' Claims. Petitioners state that the file they received from KDAQ was "jumbled" and "disorganized;" that they had trouble identifying where the file could be viewed (which KDAQ office), which delayed viewing; that the onsite copier was broken; and when

Petitioners' requested copies of the permit file, the copies were provided during the third week of August 2005, two weeks after the close of the comment period. Petition 1 at 8.

EPA's Response. As a procedural threshold matter, Petitioners failed to raise any of these issues during the public comment period. Petitioners' Exhibit A to Petition 1 (Comments (Revised) on the Louisville Gas and Electric Company Proposed Coal-Fired Power Plant (August 9, 2005) at 3). The comment letter raises three public participation issues –that it was not clear when the public comment period began, that KDAQ failed to extend the public comment period, and that some information regarding SO_2 and NO_x was missing from the file at KDAQ's offices. Pursuant to Section 505(b)(2) of the CAA, 42 U.S.C. § 7661d(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." Thus, not only must issues be raised during the public comment period, but they must be raised sufficiently to meet the threshold requirements. The Act does provide for an exception to this threshold requirement if the petitioner "demonstrates in the petition to the Administrator that it was impracticable to raise such objections...or the grounds for such objection arose after such period." *Id.* Neither Petition raises these exceptions.[12] As claims regarding the files being disorganized, and unavailability of copies were not raised during the public comment period, consistent with Section 505(b)(2) of the CAA, such issues may not now be raised in a title V petition. Therefore, these issues are denied for procedural reasons. Nonetheless, in order to promote transparency in government decision-making, below is brief discussion on the issues raised by Petitioners.

Public participation requirements found at 40 CFR § 51.166(q) address only the minimum requirements for what must be included in the permit file. Additional requirements are found in Kentucky's SIP-approved rule (401 KAR 52:100) and specify that certain documents be available for public review. *See, e.g.*, 401 KAR 52:100 § 8(1)(a)(specifying that the permit application, draft permit, and supporting materials be made available to the public); *see also* 40 CFR § 70.7(h)(2) (describing the types of information that must be made available to the public for title V permit review). The permit record indicates that the permit file was available for public review at the required locations. KDAQ SOB Revision 2 12-13. According to the SOB, the documents were also available via the KDAQ Web site which provides instant access for many permitting documents. *Id.*

In addition, Petitioners have not demonstrated that their public participation claims regarding file organization and copies prevented a meaningful assessment of the issues, or a flaw in the permit. *See, e.g., Valero Refining Company*, at 44; *In the matter of Pencor-Masada Oxynol, LLC*, Petition No. II-2000-07 (Order on Petition) (May 2, 2001) at 5-8 (describing

[12] With regard to Petitioners' claim that certain requested documents were not received until after the close of the comment period, we note that they did not raise this concern to Kentucky in the comments they submitted on the Permit, nor did they raise this concern in the requests for an extension of the comment period that they filed with the Kentucky. Petitioners did have access to the file for viewing at the KDAQ office, so the information itself was available to Petitioners. Finally, we note that in neither petition requesting EPA to object to the permit do they attempt to identify concerns with specific information they received after the close of the comment period.

standards for reviewing public participation concerns). Further, as was discussed above, Petitioners did have the benefit of a second public comment period (on Revision 3).

Even though EPA is denying this claim in the Petition because Petitioners have not demonstrated that KDAQ failed to comply with an applicable public participation requirement, EPA has concerns regarding KDAQ's treatment of the Petitioners in their efforts to view the permit file and obtain copies of the file. Consistent with Section 502(b)(8), 42 U.S.C. § 7661a(b)(8), state rules shall provide "reasonable procedures consistent with the need for expeditious action by the permitting authority on permit applications and related matters, to make available to the public" certain permitting information. As a result, EPA strongly urges that KDAQ review its procedures regarding public inspection of its permit files and ensure that such procedures allow for inspection of the entire permit file at the beginning of the public comment period, and that the file is well-organized. Further, if no copier is provided for use by the public, EPA strongly recommends that KDAQ provide the public with a procedure by which copies may be obtained in a timely manner. Such steps will further open and transparent government, which ultimately helps to support government decisions and actions. In the RTC for Revision 2, KDAQ committed to "take under advisement suggestions to improve its public out reach procedures." KDAQ RTC Revision 2 at 13. EPA supports open and transparent government decision-making and is available to further advise KDAQ about improvements in its procedures for ensuring an adequate public participation for PSD and title V permits.

2. KDAQ failed to extend the public comment period

Petitioners' Claims. Petitioners state that KDAQ's failure to extend the comment period was unreasonable because of "gross inadequacies" in the public review process. Petition 1 at 12. Specifically, Petitioners allege that the extension was warranted due to the delays associated with identifying the location of the permit file (*see* Petitioners' Exhibit F (Declaration of Joan S. Lindop, Sierra Club member)), as well as delays associated with obtaining a copy of the permit file. Petition 1 at 12-13. Petitioners cite to a situation in Illinois, which they claim is similar and for which an extension was granted.

EPA's Response. As an initial matter, we believe that this issue is now moot due to the subsequent public comment period on Revision 3. Because Kentucky did not limit the scope of comments that could be submitted on Revision 3, the Petitioners had a second opportunity to submit comments on any issues for which they believed they had an insufficient opportunity to do so on Revision 2. We note that Petitioners took advantage of this opportunity and submitted numerous comments that went beyond the limited scope of the revisions that were the focus of Revision 3 – including raising issues that could have been raised during the Revision 2 process. Thus, to the extent a new or extended comment period may have been warranted, it has already been provided.

Nonetheless, Petitioners have not demonstrated that Kentucky acted inconsistent with applicable requirements or requirements under title V in denying Petitioners' request for an extension of the comment period on Revision 2. Kentucky's regulations at 401 KAR 52:100 do not explicitly require that extensions to public comment periods be granted. Extensions are also not explicitly discussed by applicable federal rules. 40 CFR § 70.7(h)(2), 40 CFR § 51.166(q).

As a general matter, permitting authorities have discretion to extend (or not) a public comment period.

Petitioners describe Ms. Lindop's unfortunate experience in attempting to view and obtain a copy of the LG&E permit file. However, in requesting the extension of time from KDAQ prior to the close of the comment period, Petitioners did not raise any of the concerns raised in the Petition. *See* Petitioners Exhibit G (E-mail from John Blair, Valley Watch, Inc. to John Lyons). Instead, Petitioners stated that an extension was necessary because "so many new sources" were being proposed in Kentucky. *Id.* Petitioners' comment letter also included a request for an extension of time (Petitioners' Exhibit A at 3), but providing little detail in terms of why an extension (or re-opening of the comment period) was warranted. Petitioners have not demonstrated that KDAQ's exercise of its discretion, based on the facts that were presented to it in this circumstance, was arbitrary, capricious or resulted in a flaw in the permit. *See, e.g., Valero Refining Company* at 44. In addition, the matter is now moot. Therefore, the Petitions are denied as to this issue.

B. Petitioners' PSD Related Issues

Background on PSD and BACT Applicable to All PSD/BACT Related Issues Raised in Petition

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

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

CAA § 169(3), 42 U.S.C. § 7479(3).

EPA has developed a "top-down" process that permitting authorities 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 Prairie State,* slip. op. at 17-18. The most stringent control technology is deemed the control necessary to achieve BACT-level emission limits unless the applicant demonstrates, and the permitting authority determines, that technical considerations, or energy, environmental, or economic impacts justify a conclusion that the most stringent technology is not achievable in that case. An incomplete BACT analysis, including failure to consider all potentially applicable control alternatives, constitutes clear error. *See, e.g., Prairie State,* slip op. at 19; *In re Knauf Fiber Glass, GmbH,* 8 E.A.D. 121, 142 (EAB,

February 4, 1999); *In re Masonite Corp.* 5 E.A.D. 551, 568-569 (EAB, November 1, 1994). The five steps in the top-down process are summarized below:

a. Identify all available control technologies;
b. Eliminate technically infeasible options;
c. Rank remaining control technologies by control effectiveness;
d. Evaluate the economic, environmental, and energy impacts of the options; and
e. Select BACT.

Prairie State, slip op. at 17-18. Although EPA regulations do not require application of this top-down process to meet the BACT requirement, this top-down analysis is frequently used by permitting authorities to ensure that a defensible BACT determination, including consideration of all requisite statutory and regulatory criteria, is reached. LG&E followed this top-down BACT methodology when it submitted its application for modifications at the Trimble County facility, which KDAQ applied in issuing its permitting decision. KDAQ SOB Revision 2 at 15.

1. Petitioner's Claim that the Permit Fails to Include BACT for Carbon Dioxide
(Section III of Petition 2)

Petitioners' Claims. Petitioners claim that EPA must object to the permit because the permit fails to include requirements addressing emissions of carbon dioxide (CO_2) and other harmful greenhouse gases (GHGs) from Unit 31, specifically a BACT analysis for CO_2. Petition 2 at 5-16. In this portion of the Petition, Petitioners raise the following main concerns: (1) Unit 31 will emit millions of tons of CO_2 and other GHGs; (2) CO_2 is an air pollutant under Kentucky and federal law; (3) CO_2 is subject to regulation under the CAA (Sections 202, 821 and 40 CFR Part 75) and Kentucky law (401 KAR 52:060); (4) the permit cannot issue without the required emissions information for CO_2; and (5) the permit cannot issue without BACT limits for CO_2 (also stating, among other points, that the PSD significance level for CO_2 is "any emissions," and that a BACT analysis should consider carbon capture and sequestration).

EPA's Response. In its response to comment on this issue, KDAQ identified the provision of the Kentucky SIP that requires it to implement the state PSD program in a manner that is no more stringent than the federal PSD program. KDAQ RTC Revision 3 at 13 (citing Kentucky Revised Statutes (KRS) 224.10-100(26)). KDAQ then found that there were no federal PSD requirements to control CO_2 at stationary sources,[13] and KDAQ explained that the Kentucky PSD regulations did not require a BACT analysis for CO_2 emissions in Revision 3. *Id.* Implicit in KDAQ's conclusion that the permit would not include a CO_2 BACT limit was an

[13] As Petitioners note, KDAQ did incorrectly state that there "there are no federal regulations establishing requirements for CO_2 at stationary sources." KDAQ RTC Revision 3 at 13. However, given that this sentence directly follows KDAQ's discussion of the SIP requirement to implement their PSD program no more stringently than the federal PSD program and directly precedes their discussion of state BACT requirements, we think this sentence is more appropriately interpreted to say that Kentucky found there are no federal regulations establishing PSD requirements for CO_2 at stationary sources.

understanding that the federal PSD program did not apply to CO_2 emissions at the time Revision 3 was issued. As discussed below, Petitioners have failed to demonstrate that KDAQ's reliance on the SIP and its assumptions regarding the federal PSD program requirements led to a permit that is deficient under the CAA.[14]

When KDAQ issued permit Revision 3 in January 2008, at least one EPA Region and the EPA program office that oversees implementation of the federal PSD permitting program had taken the position that CO_2 emissions were not subject to federal PSD requirements because they believed there was a binding, historic interpretation of the phrase "subject to regulation" in the federal PSD regulations that required PSD regulations to applied only to those pollutants already subject to actual control of emissions under other provisions of the CAA.[15] *See* EPA Region 7's Response to Petition for Review, *In re: Deseret Power Electric Cooperative*, PSD Appeal No. 07-03 (filed November 2, 2007); Brief of the EPA Office of Air and Radiation, *In re: Christian County Generation, LLC*, PSD Appeal No. 07-01 (filed September 24, 2007). Accordingly, these EPA offices argued that the regulations in the CAA Acid Rain program that require monitoring of CO_2 at some sources (and which are cited by Petitioners in this matter) did not make CO_2 subject to PSD regulation. *Id.* Thus, it was not implausible for KDAQ to assume that the federal PSD program did not require permits to include limits for CO_2 emission because, at the time KDAQ issued Revision 3, two EPA offices that implement and interpret the requirements of the federal PSD program had taken that position. Moreover, at that time, no federal permitting authorities had actually imposed PSD requirements for CO_2; in fact, no federal PSD permit has since issued which included CO_2 limits.

A decision of EPA's Environmental Appeals Board ("EAB") subsequently addressed the position that CO_2 emissions were not subject to PSD regulation. *See In re: Deseret Power Electric Cooperative*, 14 E.A.D. ___, PSD Appeal No. 07-03 (EAB, November 13, 2008). The EAB determined that prior EPA actions were insufficient to establish a historic, binding interpretation that "subject to regulation" for PSD purposes included only those pollutants subject to regulations that require actual control of emissions. However, the EAB did not conclude that such an interpretation was impermissible under the CAA and found "no evidence of a Congressional intent to compel EPA to apply BACT to pollutants that are subject only to monitoring and reporting requirements." *Id.* at 63. Shortly thereafter, in order to address the ambiguity that existed in the federal PSD regulations following the EAB decision, then Administrator Stephen Johnson issued a memorandum setting forth the official EPA interpretation regarding which pollutants were "subject to regulation" for the purposes of the

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[14] Petitioners also included a request for EPA to reopen the LG&E permit to include PSD BACT limits for CO_2 emissions. Petition 2 at 10. In light of the circumstances discussed below, EPA also declines at this time to undertake a discretionary reopening of the LG&E permit to include such limits.

[15] Under the federal PSD permitting regulations, only newly constructed or modified major sources that emit one or more "regulated NSR pollutants" are subject to the requirements of the PSD program, including the requirement to install BACT for those regulated NSR pollutants that the facility emits in significant amounts. "Regulated NSR pollutants" include "any pollutant that otherwise is subject to regulation under the Act." 40 CFR § 52.21(b)(50)(vi); *see also* 401 KAR 51:001 § 1(210).

federal PSD permitting program. Memorandum from Stephen Johnson, EPA Administrator, to EPA Regional Administrators entitled, "*EPA's Interpretation of Regulations that Determine Pollutants Covered by Federal Prevention of Significant Deterioration (PSD) Permit Program*" (December 18, 2008) (Johnson Memo); *see also* 73 *Fed. Reg.* 80,300 (December 31, 2008) (public notice of December 18, 2008 memo). The Johnson Memo established an interpretation of "subject to regulation" within the federal PSD regulations that "exclude[d] pollutants for which EPA regulations only require monitoring or reporting but [] include[d] each pollutant subject to either a provision in the Clean Air Act or regulation adopted by EPA under the Clean Air Act that requires actual control of emissions of that pollutant." Johnson Memo at 1; 73 *Fed. Reg.* at 80,301. EPA received a petition for reconsideration of the position taken in the Johnson Memo, and on February 17, 2009, the new Administrator granted that petition. Letter from Lisa P. Jackson, EPA Administrator, to David Bookbinder, Chief Climate Counsel at Sierra Club (February 17, 2009). In granting reconsideration, Administrator Jackson announced the intent to conduct a rulemaking to take public comment on the issues raised in the memo, but she did not stay the effectiveness of the Johnson memo pending reconsideration.[16]

While KDAQ's implicit assumption at the time Revision 3 was issued – that there was an established federal standard that did not require PSD permits to include limits for CO_2 emissions – was later overturned by the EAB, it does not mean that Petitioners have demonstrated that KDAQ's reliance on this assumption led to a permit that is deficient under the CAA. Petitioners assert that Revision 3 was issued in error because CO_2 "is clearly 'subject to regulation' under the [CAA] and Kentucky law," based on CAA regulations requiring their monitoring and reporting. Petition 2 at 7. Petitioners are essentially arguing that at the time KDAQ issued the permit, the federal PSD program required application of BACT requirements to CO_2 emissions and KDAQ erred by not including such limits. However, this argument fails because the EAB specifically found that there was no established standard regarding whether CO_2 was "subject to regulation" under the federal PSD program and that the position urged by Petitioners – PSD regulation of CO_2 was required given existing monitoring and reporting requirements – is not clearly dictated by the language of the CAA or EPA regulations. *Deseret Power* at 63. Accordingly, Petitioners have not established that KDAQ's failure to require CO_2 emissions limits in this permit was incorrect because they did not show that KDAQ implemented the Kentucky PSD program in a manner less stringent than the existing federal PSD program.[17] Because Petitioners have not demonstrated that Revision 3 is inconsistent with the requirements of the Act, the Petition 2 is denied with respect to this issue.[18]

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

[17] The position taken in KDAQ's permitting decision rests on the interplay of its SIP and the federal PSD program, and that decision is consistent with the EPA's present position regarding which pollutants are subject to federal PSD permitting requirements.

[18] Actions are underway at EPA that could, when finalized, result in the promulgation of final standards controlling the emission of greenhouse gases. In particular, EPA has announced its

2. *Petitioners' Claims that the Permit fails to include air quality monitoring demonstration during periods of startup, shutdown, and maintenance*
(Sections IX and X of Petition 2)

Petitioners' Claims. In Section IX of Petition 2, Petitioners reiterate the issues raised in Section II. E. of Petition 1 that the permit fails to include BACT for periods of startup, shutdown and malfunction. Petition 1 at 24. These issues were already responded to in EPA's September 10, 2008, Partial Order. In Section X, Petitioners comment that KDAQ's failure to consider BACT for periods of startup, shutdown and malfunction also resulted in a failure to demonstrate that Unit 31 "will not cause or contribute to a violation of NAAQS or PSD increment." Petition 2 at 51. Petitioners cite to CO, VOCs and NO_x as pollutants of concern although Petitioners' focus is on VOCs because the VOC potential to emit was estimated at 97.8 tpy, a level that allowed LG&E not to evaluate air quality impacts for ozone. Petitioners suggest that VOC emissions can be higher during periods of startup, shutdown and malfunction, and that such emissions "can be significant in terms of triggering an ambient air quality analysis to assess compliance with ozone NAAQS and increments." Petition 2 at 52.

EPA's Response. Pursuant Section 165 of the CAA, the PSD preconstruction requirements include, among others, an air quality analysis and PSD increment analysis. 42 U.S.C. § 7475. EPA promulgated rules providing details on the air quality and PSD increment analyses, and Kentucky also adopted rules consistent with the CAA and EPA's regulations, which are incorporated into Kentucky's SIP. 401 KAR 51:017 §§ 9-14; *see also* 40 CFR §§ 52.21(c)-(p), (r). Kentucky's rules at 401 KAR 51:017 § 11 describe a PSD permit applicant's obligation to provide to KDAQ an "analysis of ambient air quality in the area that the major stationary source or major modification will affect." *Id.* at (1)(a). The analysis is specific to regulated pollutants for which the major modification will result in a significant net increase – and how those increases might affect the area's ability to maintain the current NAAQS attainment status. 401 KAR § 51:017; *see also* KDAQ SOB Revision 2 at 31. Ozone is treated differently from other pollutants for which there is an established NAAQS because ozone is not emitted directly from sources. As a result, an ozone air quality analysis cannot be performed on a source-by-source basis in the same manner as an analysis for PM or the other NAAQS pollutants. Therefore, air quality impact analyses for ozone focus on ozone precursors, primarily VOCs and NO_x. NO_x is a precursor for ozone although KDAQ's SIP-approved rules have not yet been updated to include NO_x as an ozone precursor.

In the Revision 2 SOB, KDAQ explained that LG&E provided the information required by Kentucky rules for the ambient air quality analysis. KDAQ SOB Revision 2 at 31-32. Pursuant to Kentucky rules (which are consistent with federal rules), KDAQ may exempt a project from an ambient air impact analysis if the project would result in a net emissions increase of less than the amounts listed in the table in 401 KAR 51:017 § 7(5)(a). Petitioners raise specific concerns regarding VOCs and ozone. For ozone, 401 KAR 51:017 § 7(5)(a) explains

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intention to propose a rule regulating greenhouse gas emissions from light-duty vehicles; that rule would control the emission of greenhouse gases within the meaning of the Johnson Memo.

that, "No de minimis air quality level is provided for ozone. However, a net increase of 100 tpy or more of VOCs subject to this administrative regulation is required to perform an ambient impact analysis including the gathering of ambient air quality data." *Id.* LG&E's 2004 Application explains the origin of LG&E's determination that the net emissions increase for VOCs would be 97.5 tpy (thus allowing KDAQ to exclude the source from ozone related air quality analyses). 2004 Application at 2-11-2-15. Specifically, LG&E evaluated emissions from 9 emissions sources associated with the Unit 31 modification. *Id.* at 2-11. The emissions from these sources were based on projected fuel burn rates, engineering design estimates, and EPA AP-42 emissions factors.[19] *Id.* In addition, LG&E explained that "combustion calculations were performed to develop representative stack parameters and emission rates..." *Id.* For Unit 31, LG&E explained that "emissions and stack parameters were developed for unit loads of 100, 75, and 50 percent of maximum capacity over a range of representative ambient temperatures...as well as for three potential coal fuels." *Id.* These analyses were then used to determine the potential-to-emit resulting from the modifications, and then compared with previous emissions to determine the net emissions increase pursuant to Kentucky's SIP-approved rules at 401 KAR 51:017.[20]

The result of these analyses was a projected net emissions increase of 97.8 tpy for VOCs. KDAQ SOB Revision 2 at 3-6. In the Revision 3 analysis, this number was revised to 97.5 tpy for VOCs, but the substance of the analysis remained unchanged. KDAQ SOB Revision 3 at 3. Because the projected net emissions increase was below 100 tpy, Kentucky concluded that LG&E was not required to conduct an ambient air analysis for ozone. 401 KAR 51:017 § 7(5)(a); see also 2004 Application at 4-35 (requesting the §7(5)(a) exemption).

Petitioners do not identify any specific flaws in the analysis performed by LG&E or KDAQ with regard to CO, VOCs, or NO_x. Rather, Petitioners seem to rely on a presumption that emissions during startup and shutdown periods can be higher than during other operating periods. Petition 2 at 52. With regard to CO and NO_x, Petitioners provide no specific information demonstrating any flaw in the analyses performed by LG&E and KDAQ. Slightly

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[19] 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. These factors are usually expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (e.g., kilograms of particulate emitted per megagram of coal burned). Such factors facilitate estimation of emissions from various sources of air pollution. In most cases, these factors are simply averages of all available data of acceptable quality, and are generally assumed to be representative of long-term averages for all facilities in the source category. For more information on AP-42 and emissions factors, see http://www.epa.gov/ttn/chief/ap42/index.html.

[20] In determining the actual emissions for evaluating an increase associated with a modification, the rules require that sources consider emissions that are "representative of normal source operations." 401 KAR 51:001 § 1(2)(a). Neither federal law nor Kentucky rules require that sources consider a malfunction as representative of normal source operations. In addition, the nature of malfunctions is such that they are not anticipated events. Petitioners fail to demonstrate that malfunction emissions from this unit will result in an increase of VOC emissions such that the 100 tpy threshold will be met.

more detail is provided for VOCs. With regard to VOCs, Petitioners suggest that because 97.5 tpy is close to the 100 tpy threshold, and because "any increase in VOCs – such as those from startup, shutdown and maintenance – can be significant," that LG&E should have conducted an air quality impact analysis for ozone. Petition 2 at 52.[21] Petitioners provide no information demonstrating that emissions from startup, shutdown can be "significant," or result in an increase that would push LG&E over the 100 tpy threshold. Further, Petitioners fail to identify any specific portion of LG&E's analyses described in its 2004 or 2007 Applications where LG&E's analysis is not consistent with applicable law. As explained by LG&E, the emissions analyses were based on several scenarios, including unit loads of 100% (which are significantly greater than unit loads that would exist during a period of shutdown or startup). 2004 Application at 2-11. These emissions increases were then compared with previous emissions, consistent with the SIP-approved Kentucky rules, to determine whether such increases were "significant."

The Petitioners rely primarily on the assumption that emissions will increase during periods of startup and shutdown, as opposed to specific flaws in the analyses performed by LG&E and KDAQ. *See, e.g.,* KDAQ SOB Revision 2 at 3-5; 2004 Application at 2-11-2-15 and Appendix E; LG&E February 13, 2007, Application (Revision 3) at Appendix D (Emission Calculations); and Kentucky Cabinet Hearing Officer's Report and Recommended Secretary's Order (Hearing Officer's Report), File No. DAQ-27602-042 (June 13, 2007) at 163-164 (*aff'd* by Secretary on September 28, 2007). While it is generally true that not all control technology will be fully operational during periods of startup and shutdown (such as SCR which requires a certain temperature for the catalyst to function), this does not necessarily correlate to increased emissions during periods of startup and shutdown. As noted above, typically the units are not operating at full loads during such periods either. Petitioners cite to no evidence supporting their allegation on this point that emissions would be greater during these periods than they would be during operation at full-load. VOC emissions at LG&E are related to combustion generally – hence the focus of the analysis on combustion calculations and unit loads. 2004 Application at 2-11-2-15. As noted in the Hearing Officer's Report, Unit 31 would not be expected to be operating at "full load/full capacity" during periods of startup and shutdown; thus, the emissions are expected to be significantly less than those measured by LG&E which assumed maximum capacity loads 365 days a year. KDAQ RTC Revision 2 at 25; *see also* Hearing Officer's Report at 163-164; 2004 Application at 2-11-2-15. In addition, facilities such as LG&E will typically try to minimize emissions during startup by using alternative fuels during startup (such as natural gas). KDAQ RTC Revision 2 at 25; Hearing Officer's Report at 163-164.

Petitioners do not identify any specific step in the analytical process where LG&E's evaluation was not consistent with applicable law. There is no information in the record indicating that the VOC emissions are expected to exceed 100 tpy. Thus, for the reasons described above, Petitioners have not demonstrated that KDAQ's evaluation was unreasonable or resulted in a flaw in the permit. As a result, the Petitions are denied on these issues.

3. *Petitioners' Claims Regarding BACT for NO_x and SO_2*
(Section II. B. Petition 1; Section V.b Petition 2)

[21] Petitioners also make a vague reference to a failure to evaluate "PSD increment;" however, there is no PSD increment for ozone.

Background on PSD Program and Netting

The PSD program applies to NAAQS pollutants and precursors for which an area has been designated attainment or unclassifiable, *see* CAA §§ 160-169, 42 U.S.C. § 7470-7479, as well as any other "regulated NSR pollutant" as defined in 40 CFR § 52.21(b)(50). The PSD program describes a set of preconstruction requirements applicable to new major emitting facilities (also called major stationary sources), and those undergoing a major modification that triggers PSD review. *See* 42 U.S.C. § 7475. Pursuant to federal rules, a major modification means "any physical change in or change in the method of operation of a major stationary source that would result in: a significant emissions increase....of a regulated NSR pollutant...and a significant net emissions increase of that pollutant from the major stationary source." 40 CFR § 51.166(b)(2)(i); *see also* Kentucky's SIP-approved rules at 401 KAR 51:017 § 1(116). The term "significant" is defined in 40 CFR § 51.166(b)(23) and includes specific emission rates for certain pollutants. *See also*, 401 KAR 51:017 § 1(221). With regard to pollutants for which the CAA does not set a specific emission rate, "significant" is defined as "any net emissions increase" associated with a major modification for those pollutants. 40 CFR 51.166(b)(23).[22]

Netting is a term that refers to the process of considering certain previous and prospective emissions changes at an existing major source to determine if a "net emissions increase" of a pollutant will result from a proposed physical change or change in method of operation. *See* 40 CFR § 51.166(b)(3)(i) (definition of "net emissions increase"), 401 KAR 51:017 § 1(146). The PSD definition of a net emissions increase found in 40 CFR § 51.166(b)(3)(i) (and 401 KAR 51:017 § 1(146)(a)) consists of two components: (a) any increases in actual emissions from a particular physical change or change in method of operation at a stationary source; and (b) any other increases and decreases in actual emissions at the source that are contemporaneous with the particular change and are otherwise creditable. The first component narrowly includes only the emissions increases associated with a particular change at the source. The second component more broadly includes all contemporaneous, source-wide (occurring anywhere at the entire source), creditable emission increases and decreases. *Id.* The netting analysis is reviewed on the basis of changes in annual (tons per year) emissions. *See* 40 CFR § 51.166(b)(23); *see also Environmental Defense v. Duke Energy Corp.*, 127 S. Ct. 1423 (2007) (upholding EPA's interpretation of modification based upon tons per year of emissions).

Pursuant to federal rules and Kentucky's SIP-approved rules, an increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if it occurs between the date five years before construction on the particular change commences and the date that the emissions increase from the particular change occurs. 40 CFR § 52.21(b)(3)(ii)(a)-(b), 401 KAR 51:017 § 1(146)(b)(2). Applicable rules also describe when an increase or decrease in actual emissions is "creditable." 40 CFR § 52.21(3)(iii); 401 KAR 51:017 § 1(146)(c)-(f). Generally, to be creditable, a contemporaneous reduction must be

[22] The concept of a "net" emissions increase was challenged following EPA's promulgation of the NSR rules in 1978 (43 *Fed. Reg.* 26,380, June 19, 1978) and upheld by the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit). *See, e g., Alabama Power Co. v. Costle*, 636 F.2d 323 at 402-403 (D.C. Cir. 1979).

enforceable on and after the date construction on the proposed modification begins. The actual reduction must take place before the date that the emissions increase from any of the new or modified emissions units occurs. In addition, the permitting agency must ensure that the source has maintained any contemporaneous decrease which the source claims has occurred in the past. The source must either demonstrate that the decrease was enforceable at the time the source claims it occurred, or it must otherwise demonstrate that the decrease was maintained until the present time and will continue until it becomes enforceable. An emissions decrease cannot occur at, and therefore, cannot be credited from an emissions unit which was never constructed or operated, including units that received a PSD permit. In addition, reductions must be of the same pollutant as the emissions increase from the proposed modification and must be qualitatively equivalent in their effects on public health and welfare to the effects attributable to the proposed increase. *Id.*, *see also* 45 *Fed. Reg.* 52,676, 52,698-52,699 (August 7, 1980) (explaining contemporaneous and creditable in the preamble to the rule promulgating EPA's 1980 NSR rule revisions).

For emissions decreases occurring at the same facility, of the same pollutant, within the applicable contemporaneous time period, KDAQ adopted an approach explained in the RTC Revision 2. KDAQ RTC Revision 2 at 18. Under this approach, there exists a presumption that the emissions decrease will have approximately the same qualitative significance for public health and welfare as that attributed to the related increase, unless the permitting agency has reason to believe that the reduction in ambient concentrations from the emissions decrease will not be sufficient to prevent the proposed emissions increase from causing or contributing to a violation of any NAAQS or PSD increment. The language regarding qualitative significance for public health and welfare stems from the purpose of the Act in Section 101(b)(1), 42 U.S.C. § 7401(b)(1). As in the case of LG&E, in order to ensure that the emissions reductions are contemporaneous and creditable for netting purposes, a regulated entity may seek a voluntary reduction in emissions not associated with any other change at the facility.

In summary, the netting analysis performed by a permitting authority tends to follow a six-step process: (1) determine emission increases from the proposed project; (2) determine the beginning and ending dates of the contemporaneous period as it relates to the proposed modification; (3) determine which emission units at the source have experienced an increase or decrease in emissions during the contemporaneous period; (4) determine which emissions changes are creditable; (5) determine, on a pollutant-by-pollutant basis, the amount of each contemporaneous and creditable emissions increase and decrease; and (6) sum all contemporaneous and creditable increases and decreases with the increase from the proposed modification to determine if a significant net emissions increase will occur. 45 *Fed. Reg.* at 52,698; *see also* Memorandum entitled, "*Proposed Netting for Modifications at Cyprus Northshore Mining Corporation, Silver Bay, Minnesota,*" from John Calcagni to David Kee (August 11, 1992) at 3-6. At the conclusion of the netting analysis, the permitting authority can then determine the specific pollutants for which there is a significant net increase in emissions, and thus, would be subject to PSD review. *See, e.g., In re Hawaii Electric Light Company, Inc.*, 8 E.A.D. 66 (EAB, November 25, 1988) (discussing elements of the netting analysis).

Background on KDAQ Netting Analysis for LG&E

In November and December of 2004, LG&E submitted to KDAQ two minor permit revisions for voluntary creditable decreases in emissions of NO_x and SO_2 from the already existing and permitted Unit 1, in anticipation of future construction of Unit 31. KDAQ SOB Revision 1 Minor Modification (January 20, 2005). KDAQ's review of the voluntary decrease in emissions was completed consistent with Kentucky's PSD rules.[23] As part of its permit application to reduce emissions, LG&E explained its intention to use the emission decreases of NO_x and SO_2 in its netting calculations for the forthcoming modification. KDAQ SOB (Revision 1 – Minor Modification); *see also* KDAQ SOB (Revision 2) at 3, 6. The Revision 2 SOB explained that for NO_x, LG&E would reduce the emissions through a combination of increased removal efficiency and increased SCR operating time. KDAQ SOB Revision 2 at 5, 6. For SO_2, KDAQ explained that the reductions would be achieved through capital investments to increase overall WFGC removal efficiency. *Id.* In Revision 3, KDAQ noted that there were some adjustments to the emissions for NO_x and SO_2, but concluded that LG&E was still able to net-out of PSD for NO_x and SO_2. KDAQ SOB Revision 3 at 3. In the February 13, 2007 Amendment to Air Construction Permit (Revision 3 Application), LG&E explains the emissions changes associated with the modifications as well as presenting the specific emissions calculations. Revision 3 Application at Section 3.0 and Appendices. Generally, the facts of the LG&E netting involve the situation contemplated by EPA in promulgating its regulations in 1980 – that facilities would upgrade older equipment to reduce emissions and that this may result in creditable emissions decreases. 45 *Fed. Reg.* at 52,700.

These netting issues were raised by Petitioners in their state permit appeal, for which a final order was issued on September 28, 2007. Kentucky Cabinet Secretary's Final Order File No. DAQ-27602-042 (September 28, 2007); *see also*, Kentucky Cabinet Hearing Officer's Report at 67-105. As part of Revision 3 to the permit, KDAQ revised the netting analysis, although the ultimate result was that KDAQ still concluded that the modification satisfied the netting requirements and was able to "net-out" of PSD review for NO_x and SO_2. As explained by KDAQ, the additional control equipment required by KDAQ as part of the permit had the effect of reducing the net emissions increase for NO_x and SO_2 by 2.9 tpy and 0.9 tpy, respectively. KDAQ SOB Revision 3 at 4. KDAQ also noted that even with some increases from emission units such as the auxiliary boiler, there were "no changes to the project's applicability under the original PSD review process from what was determined for the 2004 Application." KDAQ SOB Revision 3 at 3.

Petitioners' Claims. Petitioners raised a number of concerns regarding the netting in Petition 1. Petitioners raised some new concerns in Petition 2. All are outlined in this paragraph and discussed below. In Petition 1, Petitioners state that the netting analysis for NO_x and SO_2 was erroneous, and thus, it was incorrect for KDAQ to allow Unit 31 to avoid full PSD review for NO_x and SO_2 (i.e., a full BACT analysis). In Petition 1, Petitioners' issues stem from two

[23] These rules became effective as a matter of State law on July 14, 2004. At the time that these rules were relied upon by KDAQ, they had been submitted to EPA for approval into the SIP. The rules reflected changes made by EPA to the federal NSR rules – the 2002 NSR Reform Rules. EPA subsequently approved these rules into the Kentucky SIP. 71 *Fed. Reg.* 38,990 (July 11, 2006). The delay was associated with litigation on the 2002 NSR Reform Rules that did not impact any issues raised by Petitioners.

basic concerns – that the reductions in NO_x and SO_2 were neither creditable nor contemporaneous. Petition 1 at 14-18. Petitioners claim in Petition 1 that the emission decreases at Unit 1 were not "creditable" for use at Unit 31 because KDAQ did not: (1) properly determine that the decreases had the same qualitative significance for public health and welfare as the increase in emissions at Unit 31; (2) consider that the SCR on Unit 1 was installed as a result of the NO_x SIP Call or other SIP requirements and thus any decreases in emissions cannot be used for netting; and (3) properly consider the timing of the increases per the ozone season. Petitioners claim in Petition 1 that the emission decreases at Unit 1 were not "contemporaneous" because KDAQ: (1) used "baseline emissions" instead of "actual emissions" for the netting calculations; (2) only the two prior consecutive years may be used for determining actual emissions; and (3) the SO_2 reductions at Unit 1 were required by another regulatory program (the CAA title IV program) and thus were not available for netting under the NSR program.

In Petition 2, Petitioners raise two additional concerns. Petition 2 at 28-29. First is the claim that LG&E did not properly document its emissions calculations for NO_x associated with the increase in size and operation of the auxiliary boiler. Second is the claim that LG&E did not properly document its emissions for NO_x associated with the emergency diesel generator. *Id.*

EPA's Response to Petition 1 Netting Issues

a. Concerns regarding whether decreases were creditable

Petitioners allege that the netting analysis fails to apply the requirement that the creditable decreases be of the same qualitative significance for public health and welfare as the increases for both NO_x and SO_2, with an emphasis on the NO_x emissions. Petition 1 at 14-16. For emissions decreases occurring at the same facility, of the same pollutant, within the applicable contemporaneous time period, KDAQ adopted an approach explained in the RTC Revision 2. KDAQ RTC Revision 2 at 18. Under this approach, there exists a presumption that the emissions decrease will have approximately the same qualitative significance for public health and welfare as that attributed to the related increase, unless the permitting agency has reason to believe that the reduction in ambient concentrations from the emissions decrease will not be sufficient to prevent the proposed emissions increase from causing or contributing to a violation of any NAAQS or PSD increment. Neither the federal rules, nor Kentucky's SIP-approved rules, articulate that the evaluation of qualitative significance be akin to a formal 'determination' process as Petitioners appear to suggest. Rather, the permitting agency will typically evaluate the emissions decreases and increases per the elements enumerated above, and so long as those elements are met, the netting analysis is sufficient. The 2004 Application describes the creditable emissions reductions (at 2-14 - 2-15), as does KDAQ's SOB for Revision 2 at 3-6. *See also* KDAQ RTC Revision 2 at 18. Therefore, the requisite analysis for determining credibility was completed by KDAQ.

As noted by Petitioners, during the public comment period, EPA submitted a comment to KDAQ on the issue of qualitative significance. EPA's comment to KDAQ underscores the key issue associated with the qualitative significance analysis. Notably, EPA commented that the qualitative significance analysis needs to "take into account the dispersion characteristics of Unit 1 in comparison with the dispersion characteristics of the proposed new NO_x and SO_2 emissions

units." Petition 1 at 15 (quoting EPA comments on draft permit). In this sense, the qualitative analysis may be a simple one. For example, one issue associated with evaluating the qualitative relationship of emissions may be comparing stack heights of different units. If, for example, decreases in emissions are taken through a stack that is 500 feet tall and the increases are emitted by a stack that is only 15 feet tall, these emissions may not have the same qualitative significance because the emissions from the lower stack may have a greater impact on ground level pollutants than the emissions from the higher stack. This is not to say that such impact is a certainty, but rather, that it would need to be evaluated as part of the netting analysis. EPA's comment to KDAQ was just a reminder that KDAQ conduct this type of analysis if the dispersion characteristics of the new unit, as compared with the existing unit, significantly differed. EPA typically includes this reminder in draft permit comments that include netting, and EPA's comment is not an indication that KDAQ had not properly undertaken the netting analysis. Petitioners make no allegations regarding any physical characteristic of Unit 1 versus Unit 31 that implicates concerns regarding the qualitative significance of the emissions. They are two similar emission units (Unit 1 is a 500 MW unit and Unit 31 will be a 750 MW unit), located at the same facility, with similar technical features such as emission points, and the decreases/increases occurred within the appropriate time period. KDAQ SOB Revision 2 at 3-7. Thus, Petitioners are incorrect in claiming that EPA's comment demonstrates a flaw in KDAQ's qualitative significance analysis.

Petitioners also allege that KDAQ "failed to examine all of the reasons for Trimble reducing NO_x emissions and assessing whether those reasons preclude use of the reductions in a netting calculation." Petition 1 at 16. Petitioners cite to possible use of the same reductions to satisfy the NO_x SIP Call[24] or other ozone SIP obligations. Petition 1 at 15-16. The minor modification sought by LG&E for netting purposes was to achieve greater NOx reductions than already required. 2004 Application at 2-16 (explaining that creditable NOx reductions from Unit 1 were achieved through a combination of increased removal efficiency and/or increased SCR operating time); see also, KDAQ SOB Revision 1 (Minor Modification) at 1; KDAQ RTC Revision 2 at 17. The creditable emissions decreases for NO_x resulted from LG&E voluntarily reducing the annual limit for NO_x to 0.45 lbs/mmBTU from 0.7 lbs/mmBTU. *Id.* Petitioners state that as a result of the NO_x SIP Call, the facility generated reductions of NO_x emissions (Petition 1 at 15); however, Petitioners do not explain how those reductions relate to or implicate reductions obtained by LG&E for netting purposes. The Permit Revision 3 includes a section on

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[24] On October 27, 1998, EPA finalized the "Finding of Significant Contribution and Rulemaking for Certain States in the Ozone Transport Assessment Group Region for Purposes of Reducing Regional Transport of Ozone"— commonly called the "NO_x SIP Call." 63 *Fed. Reg.* 57,356. The NO_x SIP Call was designed to mitigate significant transport of NO_x, one of the precursors of ozone. For those states opting to meet the obligations of the NO_x SIP Call through a cap-and-trade program, EPA included a model NO_x Budget Trading Program rule in 40 CFR Part 96. Kentucky is included in the NO_x SIP Call and implements the program through 401 KAR 51:001, 51:160 (for utilities), 51:180, 51:190, and 51:195. EPA approved Kentucky's NO_x SIP Call rules into the SIP on April 11, 2002. 67 *Fed. Reg.* 17,624.

the NO_x SIP Call (Section K).[25] KDAQ responded to Petitioners' comments on the NO_x SIP Call, explaining why Petitioners were not correct about the emissions used for the LG&E netting analysis. KDAQ RTC Revision 2 at 17. In Petition 1, Petitioners do not address specific concerns with KDAQ's RTC, or explain why it was not correct. KDAQ's evaluation on this issue is consistent with applicable requirements and Petitioners have not demonstrated that the netting analysis was flawed.

In addition, Petitioners suggest that the NO_x reductions associated with LG&E's minor modification were also used as part of Kentucky's plan to achieve compliance with the NAAQS. Petition 1 at 15. Petitioners do not identify any specific attainment demonstration or maintenance plan that included source-specific requirements for LG&E's Trimble County facility. As described in 40 CFR Part 81, Trimble County is designated as attainment for all the NAAQS. Although other areas in Kentucky are designated as nonattainment, there is no information indicating that emission reduction requirements for LG&E's Trimble County facility are relied upon as part of a SIP for the areas designated as nonattainment in Kentucky. There is nothing in the record that indicates that the reductions that LG&E requested from KDAQ were for any other purpose but netting. KDAQ SOB (Revision 2) at 3-6; KDAQ RTC at 5, 14-15, and 17-18. One result of the numerous applicable requirements for NO_x and SO_2, among other pollutants, is that facilities seeking creditable and contemporaneous emission decreases for netting will have to achieve emission reductions that have *some* relationship to other reductions required by law. Applicable requirements do not prohibit netting simply because the emissions reductions bear some relationship to a reduction requirement. *See, e.g.*, 40 CFR § 52.21 (b)(3)(iii); 401 KAR 51:100 § 1(146)(f). Thus, Petitioners have failed to demonstrate that KDAQ's analysis for LG&E's netting failed to meet any applicable requirement either federal regulations or Kentucky's SIP-approved rules.

Lastly, Petitioners appear to suggest that the "same qualitative significance for public health and welfare" means that the "increases from the project should be offset by decreases that occur in the same amount and at the same time." Petition 1 at 15. Petitioners seem to suggest that the creditable decreases will actually result in an increase of NO_x emissions during the ozone season. Petition 1 at 16. In responding to Petitioners' comments on this point, KDAQ explained its position on qualitative significance and applied the LG&E facts to that stated framework. KDAQ RTC Revision 2 at 18. Petitioners fail to explain why the interpretation adopted by KDAQ was inappropriate. Thus, Petitioners failed to demonstrate that KDAQ's analysis was flawed.

Additionally, the applicable requirements do not require that the exact amount of emissions increased must be decreased to qualify for netting (i.e., net zero emissions). Rather, so long as the "net emissions increase" is below the *significance threshold* for listed pollutants (which includes NO_x and SO_2), then the major modification is not subject to PSD review for those pollutants. 40 CFR § 51.166(b)(23)(i) (definition of "significant"); *see also* 401 KAR

[25] As noted by KDAQ in the RTC, the NOx SIP Call program includes a trading component. As a result, the mere existence of the NOx SIP Call does not mean that every electric generating facility in a NOx SIP Call state would have to install controls and/or operate the facility to meet certain limits. KDAQ RTC Revision 2 at 17.

51:100 § 1(221). Therefore, there is no requirement that a facility have a net zero increase of emissions due to creditable decreases. Netting is established by evaluating emissions on a tons per year basis – not simply evaluating emissions during a portion of the year (e.g., ozone season versus non-ozone season). *See, e.g.*, 40 CFR § 52.21(b)(23)(i) (noting significant rates in tpy); 401 KAR 51:001 § 1(221). In order to effectuate the voluntary, creditable decrease in NO_x emissions, Permit Revision 3 establishes several different NO_x emission limits for Unit 1 including a 0.7 lb/mmBTU (3-hour rolling average); 5,559 tpy (12-month rolling total); and 0.45 lb/mmBTU (annual basis). Permit Revision 3 at 3 (Section B.2 (d)-(f)). These limits ensure that on both a short-term (3-hour average) and a long-term (12-month average) basis, NO_x emissions stay below a specific limit. These limits apply at all times – i.e., both during the ozone season as well as outside of the ozone season.

While Petitioners appear to disagree with KDAQ's analysis with regard to netting, Petitioners fail to provide any information demonstrating that KDAQ failed to adhere to the federal or Kentucky rules regarding the netting analysis, or that the permit fails to include an applicable requirement with regard to netting. Therefore, the Petitions are denied as to these issues.

b. Concerns regarding contemporaneous nature of emissions

With regard to the requirement that emissions increases and decreases be "contemporaneous," Petitioners raise three main concerns. First, that KDAQ used baseline emissions instead of actual emissions. Second, that the SO_2 reductions were required by title IV of the CAA (the acid rain program). And third, that only the two years immediately prior may be used for netting purposes. Petition 1 at 17. In this discussion, Petitioners define "actual emissions" as "those that occur either immediately prior or in the two years prior to" a new limit. Petition 1 at 17.

Petitioners appear to raise two arguments regarding the applicable emissions calculations for determining contemporaneous emissions – one regards the Kentucky rules that are currently SIP-approved, and one regards the Kentucky rule that were SIP-approved at the time of the permitting action. Consistent with federal rules and Kentucky's current SIP-approved rules regarding contemporaneous emissions for netting purposes, "baseline actual emissions" are used for calculating increases and decreases to evaluate the contemporaneous nature of the emissions changes. 401 KAR 51:001 §1(2)(d)(1) (excluding the use of "actual emissions" for calculating a significant emissions increase); 40 CFR § 52.21(3)(i)(b); 401 KAR 51:001 §1(146).[26] These rules explain that facilities like LG&E may choose any consecutive 24-month period within the five year look-back period. 401 KAR § 51:001 §1(20)(a); 40 CFR § 52.21(b)(48) (definitions of "baseline actual emissions"). Applicable requirements explain that the "increase or decrease in actual emissions is contemporaneous with the increase from the particular change only if ... [f]or construction that commences on and after January 6, 2002, the change occurs between the date five (5) years before construction on the change commences, and the date that the increase from the change occurs." 401 KAR 51:001 § 1(146)(b); 40 CFR § 52.21(b)(3)(ii). In Kentucky's

[26] Petitioners suggest that "actual emissions" should have been used instead; however, the rules specify that "baseline actual emissions" be utilized for this purpose.

current rules, baseline actual emissions for calculating increases and decreases in emissions for netting purposes are be determined consistent with the definition of "baseline actual emissions." 40 CFR § 52.21(b)(48); 401 KAR 51:001 § 1(20); *see also* 67 *Fed. Reg.* at 80,202/2-3. Consistent with the definition of baseline actual emissions, any consecutive twenty-four month period within the five years preceding a major modification may be used to calculate baseline actual emissions. *Id.* Further, under existing regulations, different twenty-four month periods (for baseline actual emissions) allowed for different NSR regulated pollutants. 40 CFR § 52.21(b)(48)(ii)(d); 401 KAR 51:001 § 1(20)(b)(2); *see also*, Memorandum entitled, "*Request for Clarification on Policy Regarding the 'Net Emissions Increase,'*" from John Calcagni to William B. Hathaway (September 18, 1989) at 3.

KDAQ described its netting analysis in the SOB for Revision 2 (at 4-6). See also, KDAQ RTC Revision 2 at 14-15. In the instant case, in order to complete the netting calculation, one calculation was completed to determine if the emission decreases at Unit 1 were creditable and contemporaneous, and another calculation was completed to determine the emissions increases at Unit 31. *Id.* These two numbers were then added to determine if there was a 'net emissions increase' of the pollutants at issue. For this calculation, LG&E chose January 2001-December 2002 as the consecutive 24-month period for SO_2, and January 2000 to December 2001 as the consecutive 24-month period for NO_x. KDAQ SOB Revision 2 at 5. The emission decreases were permitted in January 2005 (Revision 1 – Minor Modification). LG&E's 2004 Application was submitted in December 2004, and Revision 2 was issued in January 2006. EPA understands that construction commenced sometime between January 2006 and September 2008. Thus, the chosen consecutive twenty-four month periods were within the contemporaneous time period required by Kentucky's rules (i.e., 5 years as explained above).

Petitioners argue that KDAQ's netting analysis was performed pursuant to NSR rules effective in Kentucky at the time of the analysis, but not yet SIP-approved. Petition at 17. Petitioners suggest that had Kentucky followed its SIP-approved rule, the netting analysis would have been different because it would have used "actual emission" as opposed to "baseline actual emissions." Kentucky's 2003 rules define "actual emissions" as "[a]ctual emissions as of a particular date shall equal the average rate, in tons per year, at which the unit actually emitted the pollutant during the two (2) year period which precedes the particular date and is representative of normal source operation. The cabinet may allow the use of a different time period upon a determination that it is more representative of normal source operation." 401 KAR 51:017(1)(b)(2003). Thus, KDAQ had the authority under the SIP-approved rules (or the state-effective reform rules) to use any two year period so long as it was more representative of normal source operation. Petitioners have not demonstrated that the two years selected by KDAQ were not 'more representative' or that KDAQ's analysis in choosing those two years was flawed.

Petitioners also raise the concern that the SO_2 reductions used for the netting were required by the CAA title IV Acid Rain Program. Petition 1 at 17. To support this claim, Petitioners point to data indicating that SO_2 emissions from Unit 1 "have consistently declined since 1999...to comply with the Acid Rain Program." Petition 1 at 17. Petitioners overlook, however, that LG&E sought a specific *further* reduction in emissions than was previously required by applicable requirements (as articulated in its title V operating permit), in order to

utilize the netting option for the anticipated construction of Unit 31. KDAQ SOB Revision 1 (Minor Modification) at 1. LG&E's current title V permit also contains numerous provisions consistent with title IV, found in Section J (Acid Rain) of the permit. Further, consistent with EPA's interpretation of the federal PSD netting rules, reductions obtained through either title IV (Acid Rain) requirements or other programs, like the NOx SIP Call, may also be used for PSD netting. *See, e.g.*, 57 *Fed. Reg.* 55620, 55626 (November 25, 1992) ("Emission reductions at title IV boilers which are part of an approved title IV averaging group are creditable for purposes of banking, bubbling or netting under title I only to the extent that the emissions reductions at any boiler, subgroup of boilers or the entire group of boilers are surplus to their individual and combined title I emission limitations, enforceable, quantifiable and permanent and take place in a single attainment or nonattainment area"); *see also* Letter from Stephen Rothblatt (EPA Region 5) to Timothy J. Method (Indiana Department of Environmental Management) at 2 (March 29, 1994). Thus, Petitioners failed to demonstrate that the netting performed by LG&E was not consistent with applicable requirements.

EPA's Response to Petition 2 Netting Issues[27]

In Petition 2, Petitioners raise two additional concerns regarding netting. Petition 2 at 28-29. First is the claim that LG&E did not properly document its emissions calculations associated with the increase in size and operation of the auxiliary boiler. Second is the claim that LG&E did not properly document its emissions associated with the emergency diesel generator. *Id.*

The 2007 Application explains LG&E's emissions calculations associated with the changes made to the auxiliary boiler and the emergency diesel generator. 2007 Application at Chapter 3.0 and 4-1. Specifically, LG&E explains:

> Some emissions from the auxiliary boiler increased due to the 1,000 hours of additional operation. However, the sulfur dioxide and sulfuric acid mist emissions decreased due to the switch to ultra low sulfur diesel fuel oil in the new auxiliary boiler. The emissions from the emergency [diesel] generator also changed as a result of the proposed change to ultra low sulfur diesel fuel oil along with the proposed change in the number of hours of operation on an annual basis. Since the optimized design suggests that the emergency diesel fire water pump is not required, the emissions from this source will cause a decrease in the overall [potential-to-emit] summary.

2007 Application at 3-1. Additional emissions information is provided in Appendices C and D to the 2007 Application. In reviewing the information provided, KDAQ adopted LG&E's analysis of the emissions impacts of the proposed changes. Petitioners argue that the application and the SOB do not include the specific calculations. Petition 2 at 29. However, when reviewed in conjunction with the 2004 Application and permitting documents (i.e., KDAQ SOB Revision

[27] In Petition 2, Petitioners note, "their continuing concerns with the insufficiency of the original netting demonstrations" and cite to briefs submitted during the permit appeal through the Kentucky administrative process. Petition 2 at 28. EPA considered Petitioners' netting concerns described in the Petitions and a response to those concerns are included in this Order.

2), all the requisite information is provided. The emissions information provided, and the conclusions reached, are reasonable in light of the totality of the changes. Petitioners do not claim that the end result was incorrect, but rather, that the application failed to contain the requisite information. When taken together, the 2004 and 2007 Applications provide all the information required by applicable regulations – and do provide specific emissions information for the changes described in Revision 3. 2007 Application at 3-5; *see also* KDAQ RTC Revision 3 at 14. Thus, Petitioners have failed to demonstrate that the permit is not in compliance with the Act.

For all the reasons discussed above, Petitioners have failed to demonstrate that KDAQ's analysis for LG&E's netting (including determinations regarding the creditable and contemporaneous nature of the emissions) did not meet a requirement under the CAA. Therefore, EPA is denying Petitioners' request to object to the permit for the netting concerns raised in both Petitions.

4. *Petitioners' Claims Regarding BACT for the Auxiliary Boiler*
(Section II.F. of Petition 1 and Sections V.b.i and ii of Petition 2)

Petitioners' Claims. In Petition 1, Petitioners state that the BACT analysis for the auxiliary boiler should have included consideration of low-sulfur coal, coal blend, or natural gas. Petition 1 at 26-27. In Petition 2, Petitioners state that a revised BACT analysis was required for the auxiliary boiler, including the consideration of add-on controls. Petition 2 at 34-35. Petitioners have two main concerns. First, Petitioners suggest that KDAQ did not undertake a new BACT determination for the auxiliary boiler, which increased in size and will operate significantly more hours under Revision 3, and instead relied on the Revision 2 determination. Petition 2 at 35. Second, Petitioners argue that a proper BACT determination for the auxiliary boiler must at least consider add-on controls, such as an oxidation catalyst. Petition 2 at 36. Petitioners identify a facility in California (the Crockett Cogeneration Facility) where Petitioner's believe an oxidation catalyst was used. *Id.*

EPA's Response. For the reasons discussed below, EPA is granting the Petition with regard to Petitioners' claims that the BACT analysis for the auxiliary boiler in Revision 3 was not adequate.

In Revision 2, LG&E planned for the facility to maintain the three existing auxiliary boilers, and as part of the construction of Unit 31, to add a new auxiliary boiler. KDAQ SOB Revision 2 at 1. The new auxiliary boiler was included as part of LG&E and KDAQ's BACT analyses for the construction of the new unit. KDAQ SOB Revision 2 at 23; *see also* 2004 Application at Appendix I-54 - I-57. KDAQ concluded that "BACT" for the auxiliary boiler was represented by operational limits on the auxiliary boiler in terms of both fuel content and operating time. *Id.*; Permit Revision 3 at 7. In its response to Petitioners' comments on this issue, KDAQ explained that the construction of the new auxiliary boiler was not subject to a major PSD/BACT analysis for NO_x and SO_2 because of the netting for those pollutants. KDAQ RTC Revision 2 at 25. LG&E also articulated this point in the 2004 Application. 2004 Application at I-54. KDAQ also explained that for this size boiler, there is only a "negligible"

difference in emissions for natural gas versus low-sulfur oil for the pollutants subject to BACT – PM, VOC, and CO. KDAQ RTC Revision 2 at 25.

In Revision 3, LG&E determined that the existing three auxiliary boilers were not necessary due to the revised design of the new auxiliary boiler. 2007 Application at 2-1. LG&E explained that the size of the auxiliary boiler would increase, as would the operating times. *Id.* Specifically, the changes to the auxiliary boiler in Revision 3 included increasing the size from 40 million British Thermal Units (mmBTU)/hour to 100 mmBTU/hour and the annual operating hours from 1,000 to 2,000 per year. KDAQ SOB Revision 3 at 2 and 13. As a result of the changes, LG&E conducted a revised BACT analysis for the auxiliary boiler for PM/PM_{10}, CO, VOC, and SAM. LG&E did not conduct BACT analyses for NO_x or SO_2 due to its determination that LG&E netted out of BACT for the major modification project as a whole. As part of the Revision 3 changes, the permit was modified to require the use of ultra low-sulfur diesel fuel and low NO_x burners (Revision 2 required use of low-sulfur fuel oil). *Id.* KDAQ determined that these were "BACT-level" controls. Permit Revision 3 at 37; KDAQ SOB Revision 3 at 13. With regard to emissions resulting from the Revision 3 changes, KDAQ explained that emissions of all pollutants with the exception of CO, lead, and fluorides decreased as a result of the proposed changes. KDAQ SOB Revision 3 at 6. The SOB explains that the net emissions increase for CO for the Revision 3 modifications is 9.4 tpy. KDAQ SOB Revision 3 at 5. As part of KDAQ's Revision 3 review, "[t]he Division reevaluated BACT for the project revisions and [sic] determined that the BACT emission limits established in the January 2006 permit remain unchanged." KDAQ SOB Revision 3 at 10. The SOB includes more specific information for the revised BACT analysis for the affected units and pollutants. KDAQ SOB Revision 3 at 11-15.

In Petition 1, Petitioners raise concerns that the BACT analysis for the auxiliary boiler should have included consideration of low-sulfur coal, coal blend, or natural gas (as opposed to fuel oil). The auxiliary boiler is not burning coal; thus, Petitioners' statements regarding coal are misplaced because coal would typically result in higher emissions than fuel oil (particularly the proposed Grade No. 2-D S15 or equivalent fuel oil). *See, e.g.*, AP-42 Compilation of Air Pollutant Emission Factors, Stationary Point and Area Sources, Fifth Edition, at Chapter 1, Tables 1.1-3 (coal), 1.3-1 (oil), and Appendix A-6 (heating values). Petitioners fail to provide any information supporting why low-sulfur coal should be part of the BACT analysis for the auxiliary boiler.[28] Petition 1 at 26-27. As a result, Petitioners have not demonstrated that the BACT analysis for the auxiliary boiler was required to consider coal options. In response to Petitioners' comments regarding natural gas, KDAQ responded that, "[t]here is a negligible difference in PM, VOC, and CO emissions from a 40 mmBTU/hour boiler firing natural gas versus one firing oil." KDAQ RTC Revision 2 at 25. KDAQ explained the basis of the "negligible difference" as stemming from AP-42 emissions factors, noting that such factors do not take into consideration use of low-sulfur fuel and operational limits (i.e., the 1,000 hour annual operating limit contained in Revision 2). *Id.*

In Petition 2, Petitioners claim that the changes made as part of Revision 3 (increasing the size and hours of operation) required a revised BACT analysis for the auxiliary boiler. The only

[28] In addition, coal blends for the auxiliary boiler were not a part of the LG&E application.

PSD pollutant that was increased as a result of the Revision 3 changes was CO. In the response to comments for Revision 3, KDAQ explains, "The prior BACT determination was based on a top down BACT analyses for carbon monoxide (CO). The proposed design and operation of the [auxiliary] boiler continues to constitute BACT." KDAQ RTC Revision 3 at 18. However, this statement is not consistent with KDAQ's response to comments on Revision 2, wherein the BACT analysis for CO emissions from the auxiliary boiler was specifically based on the size and operating hours of the auxiliary boiler. KDAQ RTC Revision 2 at 25. While EPA appreciates that a 100 mmBTU/hour boiler is a small industrial boiler, KDAQ's reliance on the 40 mmBTU/hour boiler size and a limit of 1,000 annual operating hours as a basis to support the Revision 2 BACT analysis raises questions concerning KDAQ's reliance on the Revision 2 BACT analysis to support the Revision 3 changes, because those changes included increases to both the boiler size and the operating hours.

Thus, EPA is granting Petitioners' request with regard to the auxiliary boiler and requiring KDAQ to perform a revised BACT analysis for the Revision 3 changes, including the increase in size and operating hours. As noted earlier, KDAQ's Revision 2 BACT analysis indicated a "negligible" difference in the use of natural gas for certain pollutants, so whether a "negligible" difference would still exist in light of the Revision 3 changes should be addressed as part of KDAQ's revised BACT analysis. This analysis should be documented in the SOB. Should any changes to permit conditions be necessary following the revised analysis, a permit revision will be necessary to incorporate those changes.

5. *Petitioners' Claims Regarding the BACT Analysis for Support Operations at the Facility*

(Section II.H. of Petition 1 – Partial Response)

Petitioners' Claims. Petitioners allege that EPA must object to the permit because the limits set for "various pollutants at various facilities" are not BACT. Petition 1 at 27. For this proposition, Petitioners cite to 401 KAR 51:017 § 8 ("Control Technology Review"). This allegation is followed by a bulleted list of three one-sentence statements alleging that (1) permit limits for various support facilities at the Trimble County facility are not BACT; (2) permit limits for fluorides (HF) are not BACT; and (3) permit limits for SAM are not BACT. Petition 1 at 27-28. Petition 1 is not clear whether issues 2 and 3 are related to the proposed new unit or the support facilities listed in the first bullet (coal blending, material handling operations, ash barge loading, fly ash silos, backup diesel generator, and the emergency diesel fire water pump). Because the one-sentence introducing the bulleted list refers to "various pollutants at various facilities," coupled with the prior independent sections specific to the proposed new unit, EPA concludes that Petitioners' claims in the bulleted list all regard the support facilities listed in the first bullet. In an Order issued on September 10, 2008, EPA responded to all the issues except those relating to the backup diesel generator and the emergency diesel fire water pump because those support facilities were affected by Revision 3. *See* Order 1 at 11-12. We respond to these remaining issues below.

EPA's Response. As a threshold procedural matter, these issues were not raised during the public comment process for this permit. Petitioners' Exhibit A. Nor do Petitioners claim that it was impracticable to raise such claims during the public comment period or that the grounds