Message Information

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From "David Bender" <bender@mwbattorneys.com>
To LisaP Jackson/DC/USEPA/US@EPA; James Havard/DC/USEPA/US@EPA
cc <rukeiley@igc.org>; "'James Gignac'" <james.gignac@sierraclub.org>
Subject Title V Petition: East Kentucky Power Cooperative Spurlock Plant

Message Body

Administrator Jackson,

Please see attached petition. A hard copy will be mailed today.

Thank you,

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Spurlock Petition 6.22.10.pdf

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BEFORE THE ADMINISTRATOR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of the Proposed Revised Operating Permit for the East Kentucky Power Cooperative, Inc. Hugh L. Spurlock Generating Station in Maysville, Kentucky.

Source I.D. No. 21-161-00009

Permit No. V-06-007 (Revision 4)

PETITION REQUESTING THAT THE ADMINISTRATOR OBJECT TO THE PROPOSED REVISED STATEMENT OF BASIS FOR THE PROPOSED HUGH L. SPURLOCK GENERATING STATION IN MAYSVILLE, KENTUCKY.

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Date: June 22, 2010

Pursuant to Clean Air Act § 505(b)(2) and 40 CFR § 70.8(d), the Sierra Club hereby petitions the Administrator ("the Administrator") of the United States Environmental Protection Agency ("U.S. EPA") to object to the proposed/revised Title V Operating Permit for the Hugh L. Spurlock Generating Station in Maysville, Kentucky ("Permit"). A copy of the Permit is located here: http://www.air.ky.gov/NR/rdonlyres/C4884EE2-3ADC-45F8-A15A-B32144E2FA10/0/V06007R3Final_42710.pdf.

History of Permitting For Spurlock Unit 4

The history of the permit at issue is long and tortured due, in large part, to Kentucky Department for Environmental Protection Division for Air Quality's (hereinafter "DAQ") repeated failures to abide by the law and the Administrator's prior orders. A brief summary of that history follows.

A proposed a Title V permit revision to U.S. EPA on June 12, 2006. That permit revision included provisions related to the construction and operation of a new circulating fluidized bed ("CFB") electric generating unit known as "Spurlock 4." On August 15, 2006, Sierra Club petitioned the U.S. EPA to object to the revised Title V permit for the Spurlock plant (Petition 1). Following a lawsuit pursuant to 42 U.S.C. § 7604 to compel EPA action, *Sierra Club v. Johnson*, Case No. 1:07CV00414 (RWR) (D.D.C.), the EPA Administrator signed an order granting Petition 1 in part and denying it in part on August 30, 2007. *See In re East Kentucky Power Cooperative, Inc., Hugh L. Spurlock Generating Station*, Order Responding to Petitioner's Request that the Administrator Object to Issuance of State Permit (Adm'r Aug. 30, 2007) (hereinafter "2007 Order").[1] A copy of the Administrator's decision is available here:

[1] EPA filed a lawsuit against East Kentucky Power Cooperative, Inc. ("EKPC"), on January 24, 2003. *U.S. v. East Kentucky Power Coop., Inc.*, Case No. 04-34 (E.D.Ky.). On September 24, 2007, the United States District Court for the Eastern District of Kentucky entered an Order approving a Consent Decree between the United States

http://www.epa.gov/region7/air/title5/petitiondb/petitions/east_kentucky_spurlock_response2006.pdf. The Sixth Circuit upheld EPA's partial denial in *Sierra Club v. Envt'l Protection Agency*, 557 F.3d 401 (6th Cir. 2009).

After the Administrator's Order objecting to the permit for EKPC's Spurlock plant, the Kentucky DAQ began to process a significant permit modification purporting to respond to the Administrator's objection. Kentucky DAQ made a draft of that proposed revision available to the public, upon request, on December 26, 2007. Sierra Club filed a petition regarding that revision on April 28, 2008 (2008 Petition). A copy of that petition is linked here: http://www.epa.gov/region7/air/title5/petitiondb/petitions/spurlock_petition2008.pdf.

However, Kentucky DAQ did not publish notice of the draft permit, and begin a 30-day notice and comment period, until January 2, 2008, or later. Kentucky DAQ proposed the revision of the Spurlock Title V permit to EPA on or about March 5, 2008. Because the Kentucky DAQ failed to meet the 90 day period provided by 42 U.S.C. § 7661d(c), following the 2007 Order, Sierra Club served EPA with Sierra Club's Notice of Intent to Sue, pursuant to 42 U.S.C. § 7604, for EPA's failure to assume this permitting responsibility. Sierra Club filed suit and included a claim that EPA also failed to respond to Sierra Club's petition regarding the 2008 permit. Through a settlement, EPA and Sierra Club agreed that EPA would respond to the Sierra Club's 2008 Petition to resolve Sierra Club's claims. *See Sierra Club v. Jackson*, Consent Decree Doc. # 29, Case No. 2:09-cv-85 (E.D.Ky., Oct. 16, 2009).

EPA responded to Sierra Club's 2008 Petition in two orders. First, on September 21, 2009, EPA objected to the 2008 revision because it failed to contain a Maximum Achievable

and EKPC. *U.S. v. East Kentucky Power Coop., Inc.*, Order (Dkt. #180), Case No. 04-34 (E.D.Ky. Sept. 24, 2007). The United States subsequently requested, and the Court approved, a modification to certain provisions of the Consent Decree. *U.S. v. East Kentucky Power Coop., Inc.*, Order (Dkt. #187), Case No. 04-34 (E.D.Ky. April 22, 2008).

Control Technology limit for Hazardous Air Pollutants as required by Clean Air Act section 112(g), 42 U.S.C. § 7412(g). *See In re East Kentucky Power Cooperative, Inc., Hugh L. Spurlock Generating Station*, Petition No. IV-2008-4 (Adm'r, Sept. 21, 2009) ("9/21/09 Order"), available at http://www.epa.gov/region7/air/title5/petitiondb/petitions/spurlock_response2008.pdf. Second, EPA objected in part to the 2008 revision on November 30, 2009, because Kentucky DAQ failed to adequately consider lower sulfur fuel in a top-down BACT analysis for sulfur dioxide in response to comments. *See In re East Kentucky Power Cooperative, Inc., Hugh L. Spurlock Generating Station*, Petition No. IV-2008-4b (Adm'r, Nov. 30, 2009) ("11/30/09 Order"), available at http://www.epa.gov/region7/air/title5/petitiondb/petitions/spurlock_2nd_response2008.pdf.

Kentucky DAQ proposed a revised permit purporting to respond to the Administrator's 9/21/09 Order on December 22, 2009. Sierra Club petitioned for an objection to that revision on April 6, 2010. That petition is still pending.

With no notice to the public and no clarification, Kentucky DAQ surreptitiously revised its Statement of Basis for the permit proposed on December 22, 2009 on April 26, 2010. That "revised" Statement of Basis (2010 SOB) for the first time purports to respond to the Administrator's 11/30/10 Order. The 2010 SOB is available at http://www.air.ky.gov/NR/rdonlyres/94C0F99D-3E0A-4EDF-8504-582F03148273/0/V06007R3Basis_42610.pdf. No opportunity for public comment was provided on the 2010 SOB. Moreover, the Executive Summary dated the same day as the revised 2010 SOB fails to mention the DAQ's response to the Administrator's 11/30/09 Order. See http://www.air.ky.gov/NR/rdonlyres/EA2277D8-46C2-45F8-99F2-6D21D824506C/0/V06007R3ExSum_42610.pdf.[2]

[2] It is not clear what, if anything, was proposed to the EPA as a response to the Administrator's 11/30/09 Order. This petition is submitted in an abundance of caution, but does not waive any argument Sierra Club may have that appropriate procedures, including proposal by DAQ of a permit revised to meet the 11/30/09 objection was timely.

In the mean time, 90 days passed after the Administrator's 11/30/09 Order. Because Kentucky DAQ again failed to meet the 90 day deadline in 42 U.S.C. § 7661d(c), Sierra Club notified the Administrator of its intent to sue on March 15, 2010, to compel the Administrator to issue or deny the permit. That notice is still pending and nothing herein or in any other filing by Sierra Club waives Sierra Club's claim that the Administrator must act to issue or deny the permit for the Spurlock plant.

This petition is filed within sixty days following the end of U.S. EPA's 45-day review period following Kentucky DAQ's 2010 SOB. While no public notice was provided and no opportunity for comment was allowed, Sierra Club is treating the 2010 SOB as if it was a proposed permit revision under Clean Air Act ("CAA") § 505(b)(2). Sierra Club does not agree, however, that the actions by the Kentucky DAQ were lawful, especially its failure to notify the public and provide an opportunity for comment. Unless the Administrator issues or denies the permit directly, which Sierra Club maintains is the appropriate procedural step, the Administrator must grant or deny this petition within sixty days after it is filed. If the U.S. EPA Administrator determines that the Permit does not comply with the requirements of the CAA or any "applicable requirement," she must object to issuance of the permit. 42 U.S.C. § 7661b(b); 40 C.F.R. § 70.8(c)(1) ("The [U.S. EPA] Administrator will object to the issuance of any permit determined by the Administrator not to be in compliance with applicable requirements or requirements of this part."). "Applicable requirements" include, *inter alia*, any provision of the Kentucky State Implementation Plan ("SIP"), including Prevention of Significant Deterioration ("PSD") requirements, any term or condition of any preconstruction permit, any standard or requirement under Clean Air Act sections 111, 112, 114(a)(3), or 504, acid rain program requirements. 40 C.F.R. § 70.2.

This petition raises one issue that was an issue in the first and second petitions regarding the Spurlock plant's permit, and which remains an issue due to Kentucky DAQ's failure to comply with the law. Sierra Club's comments in 2006 and 2008 raises the issue of lower-sulfur coal as a basis for establishing best available control technology, as discussed herein. No additional opportunity for comment has been provided by DAQ and, therefore, Sierra Club was able to, nor required to submit comments following the 11/30/09 Order to, yet again, notify DAQ that it failed to correctly address legal requirements. DAQ continues to undertake the same erroneous and incomplete review of cleaner fuel (lower sulfur content coal) that does not comport with the applicable law and EPA policy.

KENTUCKY DAQ ERRONEOUSLY REJECTED USE OF CLEAN FUELS AS BACT FOR SO2.

The Administrator's 11/30/09 Order concluded that EKPC and Kentucky DAQ failed to provide an adequate explanation for rejecting low sulfur coal as not economically viable in a top-down BACT analysis. 11/30/09 Order at 8-10. The Kentucky DAQ purports in its Statement of Basis dated April 26, 2010, to again revise its Statement of Basis in an attempt to justify its pre-determined outcome—finding lower sulfur coal to be economically infeasible. *See* 2010 SOB at 5-8. But yet again, Kentucky DAQ ignores substantive public comments and substantive law. It again erroneously asserts that the incremental cost effectiveness, alone and without mention of the average cost effectiveness, makes low sulfur coal not cost effective. Kentucky DAQ continues to ignore the primary test for top-down BACT analyses-- <u>average cost effectiveness</u> of removing additional SO_2 by using low sulfur coal—which results in a cost between $155 to $427/ton, which is <u>lower</u> than other cost-effectiveness determinations and should be the basis of

BACT for Spurlock Unit 4. This has been repeatedly pointed out in Sierra Club's comments and petitions and Kentucky DAQs continues to hew to its now-obvious predetermined outcome.

A. Background on Cost Effectiveness Considerations In A Top-Down BACT Analysis.

Cost considerations in determining BACT are expressed in one of two ways: average cost effectiveness or incremental cost effectiveness. *New Source Review Workshop Manual* at B.36 (Draft 1990) ("NSR Manual"); *see also In re Inter-Power of New York, Inc.*, 5 E.A.D. 130, 136 (EAB 1994).

Average Cost Effectiveness. The first step in calculating the average cost effectiveness of alternative control options (such as lower-sulfur coal plus scrubber vs. higher sulfur coal plus scrubber), is to correctly define the baseline emission rate. Baseline emission rates are "essentially uncontrolled emissions, calculated using realistic upper boundary operating assumptions," for the applicant's proposed fuel choice. *See NSR Manual* at B.37.[3] Once the baseline is calculated, the cost-per-ton of pollutant controlled is calculated for each control option by dividing the control option's annualized cost by the tons of pollution avoided ("Baseline emissions rate – Control option emission rate"). *In re Steel Dynamics*, 9 E.A.D. 165, 202 n.43 (EAB 1999); *In re Masonite Corp.*, 5 E.A.D. 551, 564 (EAB 1994); *NSR Manual* at B.36-.37.

Incremental Cost Effectiveness. Incremental cost effectiveness is an optional, secondary, consideration that, if used, must be paired with average cost effectiveness. *NSR Manual* at B.41 ("incremental cost effectiveness should be examined in combination with the total cost effectiveness in order to justify elimination of a control option."), B.43 ("As a precaution, differences in incremental cost among dominant alternatives *cannot be used by itself* to argue one

[3] "The NSPS/NESHAP requirements or the application of controls, including other controls necessary to comply with State or local air pollution regulations, are not considered in calculating the baseline emissions." *NSR Manual* at B.37.

dominant alternative is preferred to another." (emphasis added)). The *NSR Manual* warns that "undue focus on incremental cost effectiveness can give an impression that the cost of a control alternative is unreasonably high, when, in fact, the total cost effectiveness, in terms of dollars per total ton removed, is well within the normal range of acceptable BACT costs." *Id.* at B.45-.46.

The use of incremental cost effectiveness is limited. It is only used to compare "dominant" alternative pollution control options. *NSR Manual* at B.43. This requires plotting all pollution control options to create an "envelope of least-cost alternatives" "depicted by the curvilinear line connecting" the control options. *NSR Manual* at B.41-.43 and Figure B-1. Incremental cost effectiveness is the difference in total annual costs between two contiguous control options that are on the dominant control curve. *Id.* The consideration of incremental cost effectiveness is not to be used to reject an option merely because it costs more—even if it costs twice as much—as the next dominant alternative. *Id.* at B.43.

Determining Cost Effectiveness. When determining if a pollution control option[4] has sufficiently adverse economic impacts to justify rejection of that option and establishment of BACT on a less effective option, a permitting agency must determine that the cost-per-ton of emissions reduced is beyond "the cost borne by other sources of the same type in applying that control alternative." *NSR Manual* at B.44; *see also Steel Dynamics*, 9 E.A.D. at 202; *Inter-Power*, 5 E.A.D. at 135 ("In essence, *if the cost of reducing emissions with the top control alternative, expressed in dollars per ton, is on the same order as the cost previously borne by other sources of the same type in applying that control alternative, the alternative should initially be considered economically achievable, and, therefore, acceptable as BACT.*" (quoting

[4] In a cost-effectiveness determination, the cost of controlling air pollution with a control option (i.e., clean fuel) at the permittee's source must be compared to the cost of controlling pollution with the same option at other facilities. This consideration does not compare the cost-per-ton of air pollution with one pollution control option to the cost-per-ton of a different pollution control option.

NSR Manual at B.44) (emphasis original)). This is consistent with the rule for BACT analyses that the collateral impacts provision (including cost-effectiveness) "operates primarily as a safety valve whenever unusual circumstances *specific to the facility* make it appropriate to use less than the most effective technology." *In re Columbia Gulf Transmission Co.*, 2 E.A.D. 824, 827 (Adm'r 1989) (emphasis added).

In short, cost-effectiveness measures cost differences between facilities applying the same technology or pollution control option. A cost analysis that strays too far from this rule by creating and applying a default cost-per-ton threshold that applies across facilities, control technologies, and time, undermines the premise of the collateral impacts analysis.

In limited circumstances, an applicant can avoid BACT based on a pollution control option that does not have significantly higher costs than incurred at other facilities using the same control option. To do so, however, the source must document that:

(1) the "control alternative has not been required as BACT (or its application has been extremely limited)";

(2) "there is a clear demarcation between recent BACT control costs in that source category and the control costs for sources in that source category which have been driven by other constraining factors (e.g., need to meet a PSD increment or a NAAQS)"; and

(3) the "applicant... demonstrate[s] to the satisfaction of the permitting agency that costs of pollutant removal (e.g., dollars per total ton removed) for the control alternative are disproportionately high when compared to the cost of control for the pollutant in recent BACT determinations."

Only when all three of these criteria are met can a pollution control option be rejected as the basis for BACT without showing a significant difference in cost with other facilities using the same pollution control. *NSR Manual* at B.45; *see also Inter-Power*, 5 E.A.D. at 136 (discussing this secondary average cost-effectiveness consideration, where the control option has never or rarely been applied).

It is also important to note that a pollution control option must be outside the range of costs borne by facilities in the same source category, plus the margin of error, to be determined not cost effective. Cost calculations used in BACT determinations are only assumed to be accurate within 20 to 30 percent. Therefore, EPA's guidance concludes that this uncertainty is resolved in favor of defaulting to the most pollution control:

> Study cost estimates used in BACT are typically accurate to ± 20 to 30 percent. Therefore, control cost options which are within ± 20 to 30 percent of each other should generally be considered to be indistinguishable when comparing costs.

NSR Manual at B.44. Therefore, generally a pollution control option must be outside this margin. *i.e.*, be more than 20-30% more expensive than other sources controlling air pollution for a control option to be eliminated in a top-down BACT analysis.

B. Kentucky DAQ's Cost-Effectiveness Analysis for Lower Sulfur Coal.

In its 2010 SOB, DAQ relies on "information from [the applicant] EKPC regarding the data supplied in EKPC's Supplemental BACT analysis dated January 12, 2006." 2010 SOB at 6. That applicant-supplied information was:

Coal Cost Information

Coal	HHV Btu/lb	SO_2 Content lb/MMBtu	Coal Usage (tons)	$/ton	Total Cost	Δ Cost
Design Coal	10,787	9	1,136,924	$26.15	$29,730,565	baseline
Low -S (E. Bit)	12,500	1.2	981,120	$72.00	$70,640,640	$40,910,075
				$60.00[1]	$58,867,200	$29,136,635
				$50.00[1]	$49,056,000	$19,325,435

[1] Lower S ton costs presented for analysis.

SO_2 Cost Analysis Based on Fuels Only

Coal	SO_2 In Coal (tons/yr)	SO_2 Emitted (tons/yr)[1]	Δ Emitted (tons/yr)	Cost Comparison ($/ton)
Design Coal	110,376	1,840	baseline	baseline
Low -S (E. Bit) @ $72.00/ton	14,717	246	1,594	$25,665
@ $60.00/ton	"	"	"	$18,279
@ $50.00/ton	"	"	"	$12,124

[1] 98.33% removal efficiency from CFB combustion plus dry scrubber.

DAQ also states that it "independently researched historical spot and future prices… [and b]ased on historical data… KDAQ believes that it is reasonable to conclude that the long-term cost of low sulfur eastern bituminous coal will not be less than $45.44/ton." 2010 SOB at 7. With these assumptions, KDAQ calculated only the incremental cost-effectiveness of using lower sulfur coal with a scrubber as follows:

> $45.44 ton of coal x 981,120 tons of coal used per year = $44,582,093/year.
> $44,582,093 yr – $29,730,565 baseline coal cost = $14,851,528 year.
> $14,851,528 yr ÷ 1594 additional tons of SO_2 removed/year = $9,317 additional ton of SO_2 removed.

2010 SOB at 8. In other words, DAQ assumes that lower-sulfur coal will cost an additional $14,851,528 per year beyond the cost of "baseline coal" and that using lower-sulfur coal would achieve an additional reduction of 1,594 tons of SO_2 beyond that achieved through higher-sulfur coal and a scrubber. DAQ then compared the resulting incremental cost effectiveness calculation

($9,317/ton) with what DAQ purports to be U.S. EPA's data from "the Response to Public Comments to the Deseret Power Electric Cooperative's Bonanza Power Plant draft permit." 2010 SOB at 8. DAQ concludes that any incremental cost effectiveness above $5,000/ton for SO_2 is "excessive." *Id.*

C. DAQ Failed to Correctly Use Average And Incremental Cost.

Here, DAQ compared the cost of fuel switching (one step) with the reductions achieved by a three-step control regime that includes fuel, limestone addition to the CFB bed, and dry scrubbing. *See* 2010 SOB at 7, note 1 to Table titled "SO2 Cost Analysis Based on Fuels Only" (noting that the emission values used to calculate cost-effectiveness assumed removal efficiency from the CFB boiler plus the scrubber). This is exactly what DAQ did in its prior Statement of Basis, which the Administrator already objected to. DAQ added nothing more to its erroneous analysis despite the Administrator's objection. More specifically, the DAQ provided the following analysis in 2007 and again in 2010:

- First, the 2010 SOB calculates the difference in the annual cost to purchase the design fuel (9 lb SO_2/MMBtu and 10,757 Btu/lb) compared to the cost to purchase low sulfur fuel (1.2 lb SO_2/MMBtu and 12,500 Btu/lb) in dollars per year:

[Annual Cost of Design Coal – Annual Cost of Low S (E. Bit) Coal] (1)

- Second, the 2010 SOB calculates the amount of SO_2 emitted when burning design fuel compared to the amount of SO_2 emitted when burning low sulfur coal in tons per year, assuming 98.33% SO_2 removal in both cases using limestone addition to the CFB bed and a dry scrubber:

[SO_2 Emitted Design Coal – SO_2 Emitted Low S Coal] (2)

- Finally, the 2010 SOB divides the incremental annual fuel cost by the incremental amount of SO_2 emitted and calls the results the cost per additional ton of SO2 emitted. As an example, the lower end of the SOB's cost range is calculated as:

[$44,582,093/yr - $29,730,565/yr]/[1840 ton/yr – 246 ton/yr] = ***$9,317/ton***

The numerator (top) and the denominator (bottom) in this calculation are apples to oranges. The numerator is the difference in fuel costs, a single component of the total costs of a pollution control system.[5] The denominator is the difference in tons removed by the entire pollution control. This method is not a recognized economic feasibility metric because it distorts cost effectiveness and substantially penalizes low sulfur fuel by including SO_2 emission reductions achieved by other control options-- limestone addition and scrubbing-- while excluding the relative costs of these other controls.

If the analysis is corrected to remove the bias from the design coal (the benefit but not the cost of scrubbing); so that cost of lower-sulfur coal was compared to the SO_2 reductions from that fuel switch, alone, the emission reduction would be 95,659 tons (from 110,376 tons of SO_2 with the "design coal" to 14,717 tons with lower sulfur coal) at a cost of $155.25 per ton of SO_2 reduction.[6] Alternatively, as set forth below, the full cost of the pollution control train (coal plus CFB limestone and scrubber) is divided by the full SO_2 reduction from each alternative, as required by EPA guidance, clean fuel is also likely cost effective. DAQ has never done this

[5] The control costs for design fuel for the entire control train is higher than for low sulfur coal because a bigger, more efficient scrubber must be used; more limestone must be added to the fluidized bed; more water must be used to cool the flue gases; more solid wastes must be disposed; more electricity must be used to operate the scrubber; and more lime must be injected into the scrubber, among other increased costs incurred for the complete control trains as compared to just low sulfur coal. If the cost of these additional controls were included in both the cost of design coal and the low sulfur option, they would add substantially to the design coal costs and much less so to the low sulfur coal, thus narrowing the incremental cost. For example, for the high-sulfur, "design coal," the limestone bed plus dry scrubber must reduce SO_2 emissions from 110,376 ton/yr to 1,840 ton/yr, or by **108,536 ton/yr**. However, for low sulfur coal, these controls need only reduce SO_2 from 14,717 ton/yr to 246 ton/yr or by **14,471 ton/yr**. 2010 SOB at 7. In other words, less limestone and a smaller scrubber is required with low sulfur coal, resulting in lower scrubber operation costs. The cost to remove **108,536 ton/yr** of SO_2 with limestone injection and a scrubber when burning high-sulfur (design) coal is substantially higher than the cost to remove only **14,471 ton/yr** when burning low sulfur coal. Because DAQ did not consider the cost-effectiveness of the entire control-train together, it failed to account for the economic benefit of controlling less SO2 with less limestone and smaller scrubber when burning lower sulfur coal.

[6] See 2010 SOB at 7-8: ($14,851,528/yr fuel cost difference)/(95,659 ton SO_2/yr different in fuel SO_2 content) = $155.25/yr.

analysis, even though it is required before lower sulfur coal—a higher ranked option—can be rejected as the basis for BACT.

1. DAQ Did Not Calculate Average Cost Effectiveness.

As noted above, cost-effectiveness analysis must include average cost effectiveness. Incremental cost effectiveness is options and can only be used when combined with average cost effectiveness. *NSR Manual* at B.41 ("incremental cost effectiveness should be examined in combination with the total cost effectiveness in order to justify elimination of a control option."), B.43 ("As a precaution, differences in incremental cost among dominant alternatives *cannot be used by itself* to argue one dominant alternative is preferred to another." (emphasis added)). However, DAQ did not calculate average cost effectiveness, which is the ratio of the control option annualized cost divided by the control option annual emission reduction. *NSR Manual* at B.36-B.37. Failure to consider average cost effectiveness, alone, is clearly erroneous and requires objection.

To calculate average cost effectiveness, DAQ would first determined the cost of the entire pollution control train, including fuel. DAQ would have then determined the difference in tons of SO_2 removed by the entire pollution control train. The key here is that the cost of the pollution control train when low sulfur coal is used is substantially smaller as it must remove less sulfur than when high sulfur fuel is used. If DAQ had used the correct method to calculate cost effectiveness of low sulfur coal, it would have determined the full cost of fuel plus scrubbing and divided it by the reduction of the entire pollution control train from the baseline (uncontrolled worst case fuel sulfur content).

DAQ's analysis is not only inconsistent with the established cost-effectiveness analysis policy of EPA, but it appears designed to prejudice the BACT analysis against cleaner fuels,

contrary to Congress' clear direction that clean fuels be used. 42 U.S.C. § 7479(3) (defining BACT to include consideration of "clean fuels"); see also *Inter-Power of New York*, 5 E.A.D. 130, 134 (1994); *In re Old Dominion Elec. Coop.*, 3 E.A.D. at 794, n. 39 (EAB 1992) ("BACT analysis should include consideration of cleaner forms of the fuel proposed by the source."); *In re Hibbing Taconite Co.*, 2 E.A.D. 838, 842-43 (Adm'r 1989) (remanding a permit because the permitting agency failed to consider burning natural gas as a viable pollution control strategy); Letter from JoAnn Heiman, Chief Air Permitting and Compliance Branch, EPA Region 7, to Clark Duffy, Kansas Department of Health & Environment, Re: Comments on Sunflower Holcomb Station Expansion Project for New Units H2, H3 and H4 (November 9, 2006) (rejecting Kansas' assumption that 1.23 lbs/MMbtu coal should be assumed as the coal sulfur content for BACT and requiring a lower sulfur content).

2. DAQ Failed to Compare The Cost of Lower-Sulfur Coal at Spurlock 4 to the Cost of That Coal At Other Facilities.

As noted above, cost-effectiveness analysis—like each of the collateral impacts analyses in a top-down BACT analysis—is intended to document the differences between use of a pollution control option at the permittee's facility from other facilities where that option is used. *Inter-Power*, 5 E.A.D. at 135 ("In essence, *if the cost of reducing emissions with the top control alternative, expressed in dollars per ton, is on the same order as the cost previously borne by other sources of the same type in applying that control alternative, the alternative should initially be considered economically achievable, and, therefore, acceptable as BACT.*" (quoting *NSR Manual* at B.44) (emphasis original)); *Steel Dynamics*, 9 E.A.D. at 202; *NSR Manual* at B.44 (the permitting agency must determine that the cost-per-ton of emissions reduced is beyond "the cost borne by other sources of the same type in applying that control alternative."); *see also*

Columbia Gulf, 2 E.A.D. at 827 (collateral impacts analysis in BACT "operates primarily as a safety valve whenever unusual circumstances *specific to the facility* make it appropriate to use less than the most effective technology." (emphasis added)). The Administrator's 2007 Objection to the Spurlock permit explicitly noted the lack of such an analysis by DAQ—and yet, three years later DAQ still has not corrected this deficiency. *See In re East Ky. Power Coop., Hugh L. Spurlock Generating Station*, Petition IV-2006-4, Order at 32 (Adm'r, Aug. 30, 2007) (citing Masonite Corp., 5 E.A.D. 551, 564 (EAB 1994) (holding that a control option is cost-effective when within the range of costs borne by other sources using the same option)). The *NSR Manual* also states that "where a control technology has been successfully applied to similar sources in a source category, an applicant should concentrate on documenting significant cost differences, if **any**, between the application of the control technology on those sources and the particular source under review." *NSR Manual* at B. 31 (bold emphasis original, other emphasis added). DAQ's 2010 SOB, in contrast, has the analysis backwards. It does not look to other facilities using lower sulfur coal and document the differences, if any, between those facilities and Spurlock 4. Instead, at most, it looks to other facilities that did not use lower sulfur coal.[7]

3. KDAQ Failed to Use Same-Year Data

DAQ's analysis also improperly compared the cost value the agency calculated, $9,317/ton (which is wrong as set forth above), with the range reported in EPA's 2007 Response

[7] Additionally, DAQ's reliance on an EPA document that purports to summarize other documents omits information that is necessary in making a comparison. *See* 2010 SOB at 8, *citing* U.S. EPA Response to Comments, Deseret Power Electric Cooperative's Bonanza Power Plant. For example, the EPA cost data used are not comparable to the cost of low sulfur coal at Spurlock 4 as the data are based on different assumptions as to capacity factor (Longleaf, for example, assumed 85%), SO_2 control efficiency (Cargil, for example, assumes only 75% SO_2 control efficiency for SDA while others assume 90%+), interest rate, and equipment life, factors that must be constant from plant to plant to be used in a comparative cost analysis. DAQ's analysis fails to recognize, much less account for these differences.

to Comments for the Deseret Bonanza plant. DAQ conducted its calculations with current-year dollars, but used caparisons from old 2004 determinations. For example, by adjusting the 2004 River Hill cost data (based on scrubbers) cited on 2010 SOB page 8, to current dollars, the costs would be at least $2,000/ton greater, making the lower sulfur coal option at Spurlock 4 less costly relative to River Hills.

4. A Correct BACT Analysis Must Consider Cumulative Pollution Reduction.

DAQ's analysis also erred by looking solely at SO2 emission reductions achievable with lower-sulfur coal. 2010 SOB at 7-8. However, it is likely that sulfur acid mist would also be reduced through the use of lower sulfur coal since sulfuric acid mist is created by SO_2 conversion to SO_3, which combines with water to form H_2SO_4.

When calculating the cost of a control option, such as clean fuel, which reduces emissions of numerous pollutants at the same time, the cost of that control option must be divided between the overall reduction in all pollutant emissions. EPA guidance states that when a control option controls multiple pollutants the costs are to be apportioned to each pollutant before the $/ton is figured for cost effectiveness. *See* Ltr. from Brian L. Beals, Chief Preconstruction/HAP Section, USEPA Air and Radiation Technology Branch, to Edward Cutrer, Jr., Program Manager, Georgia Dept. Natl Resources (March 24, 1997), available at http://www.epa.gov/region07/air/nsr/nsrmemos/gacost.pdf. Responding to a question by Georgia permitting authorities of how to account for a control device that reduces both VOC and CO, EPA agreed with the Georgia agency's interpretation that the cost effectiveness should be calculated by "dividing the annualized cost of the control device by the total of the CO and VOC emissions reduced by said device." *Id.* Thus, in this case, the cost of lower sulfur coal must be

divided by the total reduction of all pollutants reduced with lower sulfur coal. DAQ did not do so here.

Conclusion

The Administrator must object to the still-deficient Spurlock permit. Although twice ordered to correctly analyze clean fuel (lower sulfur coal) as part of the controls for establishing BACT for the Spurlock 4 unit, DAQ has nevertheless erred once again by failing to adequately do so. DAQ has not yet responded to the substance of the comments Sierra Club submitted in 2007. DAQ has also: (1) biased consideration of lower cost fuel by falsely attributing the benefit of a scrubber to high sulfur coal without attributing its cost; (2) failed to look at average cost-effectiveness and relied solely on incremental cost effectiveness, which is clearly prohibited; (3) failed to compare the cost of using lower sulfur coal at those plants currently using it to determine if use at Spurlock would be outside the range incurred elsewhere; (4) failed to use same-year dollars in making comparisons; and (5) failed to account for all pollutant reductions achieved by use of a clean fuel control option. The result is a BACT limit insufficiently protective of air quality.

Dated this 22th day of June, 2010.

Attorneys for Sierra Club

McGillivray Westerberg & Bender LLC

David C. Bender

BEFORE THE ADMINISTRATOR

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

In the Matter of the Proposed Revised Operating Permit for the East Kentucky Power Cooperative, Inc. Hugh L. Spurlock Generating Station in Maysville, Kentucky.

Source I.D. No. 21-161-00009

Permit No. V-06-007 (Revision 4)

CERTIFICATE OF SERVICE

STATE OF WISCONSIN)
) ss
COUNTY OF DANE)

I make this statement under oath and based on personal knowledge. On this day I caused to be served upon the following persons a copy of Sierra Club's Petition to the United States Environmental Protection Agency In the Matter of the Proposed Revised Operating Permit for the East Kentucky Power Cooperative, Inc. Hugh L. Spurlock Generating Station in Maysville, Kentucky, via electronic mail to:

Jackson.lisa@epa.gov

havard.james@epa.gov

And via Certified Mail, Return Receipt Requested to:

Lisa Jackson
US EPA Administrator
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, DC 20460

Energy and Environment Cabinet
Department for Environmental Protection
Division of Air Quality
200 Fair Oaks Lane
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East Kentucky Power Cooperative, Inc.
Hugh L. Spurlock Generating Station
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East Kentucky Power Cooperative, Inc.
Hugh L. Spurlock Generating Station
1301 West 2nd Street
Maysville, KY 41056

Dated : June 22, 2010

David Bender

Signed and sworn to before me
This 22nd day of June, 2010.

Notary Public, State of Wisconsin
My commission is permanent.