EXHIBIT 2

EARTHJUSTICE

ALASKA CALIFORNIA FLORIDA MID-PACIFIC NORTHEAST NORTHERN ROCKIES
NORTHWEST ROCKY MOUNTAIN WASHINGTON, DC INTERNATIONAL

February 18, 2014

Via Email and Overnight Mail

Christy Thurman
Kansas Department of Health & Environment
Bureau of Air
1000 S.W. Jackson, Suite 310
Topeka, KS 66612-1366

Re: Comments on the 2014 Addendum to the Sunflower-Holcomb Air Quality Construction Permit

To Ms. Thurman:

The attached Comments are submitted on behalf of Sierra Club and its members in Kansas and nationwide. Since the Appendices to these Comments are quite extensive and we are unable to email them, we are sending a CD by overnight mail containing the following Appendices:

Appendix A: Dr. Ranajit Sahu's Comments and attachments supporting his Comments;

Appendix B: Declaration of Dr. Ranajit Sahu (Mar. 16, 2012); and

Appendix C: U.S. Environmental Protection Agency's PSD and Title V Permitting Guidance for Greenhouse Gases (Mar. 2011).

If you have any questions, please feel free to contact the undersigned.

Sincerely,

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I. INTRODUCTION

These comments are submitted on behalf of Sierra Club and its members in Kansas and nationwide. The Kansas Department of Health and the Environment ("KDHE") has requested public comment on the proposed "addendum" to the Air Emission Source Construction Permit for the new 895 MW pulverized-coal generating unit which Sunflower Electric Power Corporation is proposing to construct at Holcomb Station. KDHE issued the initial pre-construction air permit to Sunflower in 2010. Sierra Club challenged that permit, and on October 4, 2013, the Kansas Supreme Court reversed KDHE's issuance of the permit and remanded to the agency. KDHE's proposed addendum purports to remedy the deficiencies in the permit identified by the Supreme Court.

KDHE's proposed "addendum" does not adequately address the deficiencies in the permit specifically identified by the Supreme Court and does not comport with the Clean Air Act and Kansas State Implementation Plan, as explained below. Moreover, the permit continues to suffer from the many deficiencies identified in Sierra Club's prior comments on the 2010 permit, submitted to KDHE on October 22, 2010. Sierra Club hereby incorporates those comments, and its associated expert reports and other attachments, by reference. For the reasons set forth in those comments and the additional reasons below, KDHE must deny the permit and addendum.

II. THE EMISSION LIMITS FOR HAZARDOUS AIR POLLUTANTS ARE NOT ADEQUATE.

In its decision reversing and remanding KDHE's issuance of an air emission source construction permit to Sunflower, the Supreme Court explicitly held that, on remand, KDHE must include emission limits in the permit to ensure compliance with the Mercury and Air Toxics Rule. *See Sierra Club v. Moser*, 310 P.3d 360 (2013), slip op. at 45 ("On remand, the KDHE must apply the new HAPs emission limits that are explicitly retroactive to this permit.").

The proposed permit "addendum" fails to respond to this specific direction from the Court. The permit addendum contains a statement noting that the MATS rule applies to the Sunflower plant, but the addendum does not include any modification to the emission limits in the 2010 permit. The emission limits in the earlier permit plainly are not as stringent as the standards in the MATS rule. Moreover, the technology specified in the permit is not adequate to allow the proposed plant to comply with the MATS.

Under the Clean Air Act and the Kansas State Implementation Plan, KDHE must include emission limits in the permit that are stringent enough to meet the MATS standards. *See* Reconsideration of Certain New Source Issues, 78 Fed. Reg. 24,073-24,094 (Apr. 24, 2013); *see also* Mercury and Air Toxics Standards ("MATS"), 77 Fed. Reg. 9304-9513 (Feb. 16, 2012); *see also Sierra Club v. Moser*, 310 P.3d 360, slip op. at 45. The emission limits in the existing permit are not adequate to comply with the MATS standards, however. First, for mercury, the MATS rule requires an emission limit of no more than 0.003 lb/GWh. *See* 78 Fed. Reg. at 24,075-76 (Tables 1 & 2). The current permit for the Holcomb Expansion, however, only includes an emission limit of 0.02 lb/GWh. The limit in the final permit, on its face, allows emissions that are many times higher than the limit required by the MATS rule–limits the Supreme Court has specifically held apply to this permit.

Second, for filterable particulate matter, the MATS rule requires an emission limit of no more than 0.09 lb/MWh. *See* 78 Fed. Reg. at 24,075-76 (Tables 1 & 2). The final permit for the Holcomb Expansion, however, includes a limit of 0.012 lb/MMBtu, which is equivalent to a limit of 0.1166 lb/MWh, *see* Sahu Decl. ¶ 5, attached as Appendix B (converting permit limits from lb/MMBtu to lb/MWh). As with mercury, the filterable particulate matter emission limit in the final permit is not as stringent as the limit required by the MATS rule, a rule that would apply

to this permit by its own terms but also which the Supreme Court specifically held applies to this permit. The addendum does not modify the relevant permit emission limits to meet the MATS and so does not comply with the Supreme Court's directive, the Clean Air Act, or the Kansas State Implementation Plan.

Not only is the permit inadequate on its face because the emission limits are not stringent enough to ensure compliance with the MATS, but the permit additionally fails to specify control technology that would allow the plant to meet the compliance testing requirements specified in the MATS. For example, as explained in greater detail in the attached technical comments by Dr. Ranajit Sahu, substantial changes to the pollution control technology for mercury would be necessary to enable the plant to meet the MATS mercury limit. *See* Sahu Report and Comments at 1-5, attached as Appendix A. Moreover, such changes may significantly impact the control technology for other pollutants, such as particulate matter. *See id*. Accordingly, Sunflower must submit a new permit application specifying the control technology it will actually use in the proposed facility to comply with MATS, including considering how the specified control technologies for all controlled pollutants will affect other aspects of the plant and other control technologies. KDHE must offer a new public comment period on the new permit application, and only then may KDHE evaluate and decide whether to issue a new permit for this facility.

III. THE ONE-HOUR EMISSION LIMITS ARE NOT BACT

In its decision reversing and remanding KDHE's issuance of an air emission source construction permit to Sunflower, the Supreme Court also held that, on remand, KDHE must include emission limits in the permit to ensure compliance with the one-hour standards for nitrogen oxides and sulfur oxides. *See Sierra Club v. Moser*, 310 P.3d 360, slip op. at 43 ("Because the issuance of the Holcomb 2 PSD permit to Sunflower was based on errors of law under the CAA, we remand the permit to the KDHE for application of the new federal

regulations setting out 1-hour NO_2 and SO_2 standards."). In the proposed permit "addendum," KDHE includes provisions limiting NO_x emissions to "1740 lbs/hour on a one hour block average basis, including during startup and shutdown" and limiting SO_2 emissions to "4089 lbs/hour on a one hour block average basis, including during startup and shutdown." Proposed Addendum at 2. These limits are based on modeling and analysis conducted in association with the 2010 permit. Sierra Club incorporates by reference its 2010 comments on this modeling and the limits based on it. KDHE can and should include more stringent one-hour limits in the permit to protect against the many health risks posed by these pollutants.

IV. A NEW BACT DETERMINATION IS NECESSARY.

KDHE's response to the Supreme Court's reversal of the permit is procedurally inadequate. For several reasons, KDHE must conduct a new permitting process, including a new BACT determination, before issuing a new permit to Sunflower.

The emission limits in the 2010 permit are no longer BACT because they are outdated; more current information demonstrates that lower emission limits can and should be included in the final permit. The 2010 Sunflower permit is based on a 2008 and 2009 permit application, including an analysis of the "best available control technology" (BACT) for regulated pollutants at that time. The BACT requirement is meant to ensure that new facilities are built using state-of-the-art pollution control technology, taking into account the most recent emission levels achieved by other similar sources, and EPA's NSR Manual emphasizes that a BACT determination is not made until a final, complete permit is issued. *See, e.g.*, NSR Manual at B.54-B.55. It has now been five years or longer since the BACT analysis supporting the Sunflower permit was developed, and the information in that analysis is no longer current. As explained in greater detail in the attached expert report by Dr. Sahu, the emission limits for SO_2, NO_x, and PM are not BACT. Even assuming that the control technology selected in the 2010

permit was BACT (it was not, for the reasons discussed in Sierra Club's 2010 comments and appended expert reports), actual emission levels achieved by similar plants in recent years demonstrate that the emission limits for the Sunflower plant should be lower in order to meet the BACT requirement. *See* Sahu Report at 5-7. The fact that similar plants have consistently achieved emission limits far lower than the Sunflower permit limits in the last several years, using the same or similar technology as that which forms the basis for the Sunflower permit, demonstrates that the limits in the permit are now outdated and cannot be supported as BACT.

Additionally, as discussed above and in the attached expert report by Dr. Sahu, the permit does not include emission limits or control technology to ensure compliance with the MATS. Accordingly, Sunflower will have to substantially change the design of the proposed facility to incorporate control technology that will allow the project to meet MATS limits, and these changes will likely necessitate significant changes to other aspects of the project design and specified control technology for other pollutants. For example, adding pollution control technology to reduce mercury emissions to the levels required by the MATS rule may well decrease the efficiency of the pollution control technology for particulate matter, also a controlled pollutant. KDHE and Sunflower will have to consider how the controls for various pollutants will work together and will have to substantially redesign the control technology to ensure all relevant emission limits are met. The Clean Air Act and Kansas SIP require a new permit, new BACT decision, and new permitting process for significant changes such as these.

Finally, KDHE's alleged "stay" is unlawful and without effect. Accordingly, the permit has expired, and Sunflower must apply for a new permit and new BACT determination. Under CAA regulations and the Kansas SIP, a PSD permit becomes invalid after 18 months. 40 C.F.R. § 52.21(r), incorporated by reference in K.A.R. 28-19-350; *see also* K.A.R. 28-19-301(c). EPA

has developed guidance specifically addressing whether and how sources may obtain extensions of this 18-month deadline. *See* Memorandum, Revised Draft Policy on Permit Modifications and Extensions 1, Darryl D. Tyler, Director, EPA Control Programs Development Division (July 5, 1985) ("Tyler Memo"); *see also* Letter, PREPA San Juan Repowering Project, Steven C. Riva, Chief, EPA Region II Permitting Section (June 10, 2002); Memorandum, EPA Region IX Policy on PSD Permit Extensions, Wayne Blackard, Chief, EPA Region IX New Source Section (Sept. 8, 1988) ("Blackard Memo").

As established by EPA's guidance, KDHE may grant extensions of the 18-month deadline for "virtually all good faith applications." Tyler Memo at 26. An application for an extension must include an updated BACT analysis, and the application must be subject to a public comment period. *Id.* at 28-29. The updated BACT analysis must incorporate any new regulatory requirements. Blackard Memo at 3. A new increment consumption analysis and air quality impact analysis are generally not necessary, but may be required in some instances. Tyler Memo at 28. Extensions should generally be granted for no more than 18 months, or less where appropriate. *Id.* at 29.

EPA's guidance notes that a timely BACT determination is particularly critical in new source review. *Id.* at 27. Accordingly, EPA determined that granting extensions to the 18-month deadline without requiring full PSD permit review may be appropriate, but only following a substantive review of such extension requests, including an updated BACT analysis. *Id.* at 26. This position presents a "reasonable compromise" that allows sources the flexibility to gain extensions, where justified, while still "assuring important environmental protection." *Id.* This requirement ensures that if an extension is granted, a new major polluting source will still be subject to the most current pollution control technology and most recent regulations.

Under the approved Kansas SIP, which incorporates the federal requirements, KDHE cannot evade the requirement that an extension include an updated BACT determination by issuing an unlawful "stay." KDHE's "stay" conflicts with the core purposes of the CAA as well as EPA's explicit guidance. Sunflower must apply for a new permit, or at the very least must update its BACT determination to ensure that the plant it constructs incorporates the most current and most protective pollution controls.

V. THE PERMIT MUST INCLUDE A BACT DETERMINATION FOR GREENHOUSE GASES.

As explained above, the Sunflower permit must include an updated BACT determination for all pollutants—and in addition, the permit must comply with all applicable standards in effect at the time the permit is issued on remand. Beginning on January 2, 2011, greenhouse gases became a regulated pollutant under the "Tailoring Rule" issued by EPA. *See* ''Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule; Final Rule,'' 75 Fed. Reg. 31514 (June 3, 2010). Since that time EPA has issued additional guidance on greenhouse gas permitting in the context of the PSD program. *See* PSD and Title V Permitting Guidance for Greenhouse Gases, attached as Appendix C. As EPA has made clear, PSD permits must include a BACT determination for greenhouse gases. The proposed Holcomb plant is a major source and subject to this requirement; however, the draft permit and addendum issued by KDHE do not include a BACT determination for greenhouse gases. Accordingly, on remand KDHE must revise the permit to include a BACT determination for greenhouse gases and must allow public comment on its draft determination before issuing a final permit.

APPENDIX A

SUNFLOWER-HOLCOMB 2014 PERMITADDENDUM MERCURY AND BACT COMMENTS

Submitted by Dr. Ranajit Sahu

February 18, 2014

Introduction

The KDHE has recently proposed to reinstate the permit for the Sunflower Holcomb coal-fired power plant via a short addendum to the previous December 2010 permit. The addendum permit (3 pages) and the accompanying explanation document (also 3 pages) are brief and do not contain much technical detail.

We are providing comments on two issues below.

First, it is not clear or certain as to how, as a practical matter, the new unit will meet the now applicable EGU MACT (40 CFR Part 63, Subpart UUUUU) standards—especially the mercury limit of 0.003 lb/GWh, which is over 6 times smaller than the current permit limit of 0.020 lb/GWh. Other than noting that this new standard is now an applicable requirement and must therefore be met, the addendum permit simply does not discuss anything associated with how it will be met.

Second, the addendum leaves the current set of Best Available Control Technology (BACT) limits for various pollutants unchanged as they appear in the December 2010 permit. These limits, which were based on BACT analyses conducted prior to the issuance of the 2010 permit, were improperly set even at the time of issuance over 3 years ago, as the many comments provided previously demonstrate. To leave the BACT limits unchanged means that the KDHE has not considered the now recently demonstrated performance levels of the various control technologies[1] proposed for the new unit, which is a part of the BACT analysis. Assuming that the new unit is built and begins operation, it will not do so for at least several more years—meaning that the BACT limits in the permit, even if they were properly set to begin with, would be based on information that would be at least 10 years old or older. This is improper.

The MACT Mercury Limit

The applicable mercury MACT limit for this new coal-fired unit was finalized on April 24, 2013.[2] We have excerpted the relevant table from the regulations below.

[1] We agree that the major control technologies for NOx and filterable particulate matter, i.e., SCR for NOx control and fabric filter baghouse for control of filterable particulate matter are proper. However, we disagree that the emissions limits that are proposed for these pollutants are proper since the BACT emission levels do not consider the already demonstrated performance levels of these technologies at other operating coal fired power plants. Also, we disagree that the BACT technology (and associated emissions levels) for SO2 should be a dry FGD. Rather, it should be a wet FGD. Of course, a proper BACT analysis is required to go beyond just actual demonstrated performance levels and consider the "achievable" performance levels of these technologies, which have evolved since the last (flawed) BACT analysis was conducted by the applicant and the KDHE prior to December 2010.

[2] FR 78, 24075, April 24, 2013. Reconsideration of Certain New Source Issues: National Emission Standards for Hazardous Air Pollutants From Coal- and Oil-Fired Electric Utility Steam Generating Units and Standards of Performance for Fossil-Fuel-Fired Electric Utility, Industrial-Commercial-Institutional, and Small Industrial-Commercial-Institutional Steam Generating Units, Environmental Protection Agency (EPA), Final rule.

TABLE 1—REVISED EMISSION LIMITATIONS FOR NEW EGUS

Subcategory	Filterable particulate matter, lb/MWh	Hydrogen chloride, lb/MWh	Mercury, lb/GWh
New—Unit not designed for low rank virgin coal	9.0E–2	1.0E–2 [a]	3.0E–3.
New—Unit designed for low rank virgin coal	9.0E–2	1.0E–2 [a]	NR.
New—IGCC	7.0E–2 [b] 9.0E–2 [c]	2.0E–3	3.0E–3.
New—Solid oil-derived	3.0E–2	NR	NR.
New—Liquid oil—continental	3.0E–1	NR	NR.

Note: lb/MWh = pounds pollutant per megawatt-hour electric output (gross).
lb/GWh = pounds pollutant per gigawatt-hour electric output (gross).
NR = limit not opened for reconsideration (77 FR 9304; February 16, 2012).
[a] Beyond-the-floor value.
[b] Duct burners on syngas; based on permit levels in comments received.
[c] Duct burners on natural gas; based on permit levels in comments received.

The proposed Holcomb unit will not use "low rank" coal, which refers to lignite.[3] Thus the applicable mercury limit is 3.0E-03 lb/GWh or 0.003 lb/GWh, as shown in the table above. Condition 2.h of the December 2010 permit states that "[r]egardless of fuel type fired, emissions of mercury for the unit shall not exceed 0.020 lb/GWh as determined on a 12-month rolling average basis."[4] Numerically, the new applicable limit is over 6 times lower than the current applicable limit. The new addendum does not discuss how this more stringent limit is to be met. The December 2010 permit states the following:

> "[E]mission limits will be met by blending various coals, or by the injection of powdered activated carbon (PAC) or other sorbent or both. PAC or sorbent injection equipment will be installed for the H2 steam generator…."[5] and
>
> "[A]ctivated carbon or sorbent injection, other technology, or fuel blending that achieves similar reduction effectiveness is to be used to control mercury emissions…."[6]

None of these vague, non-specific statements (nor anything else in the record) provide any design details or information of how either the older, less stringent limit or the newer, more stringent limit is to be met.

It is also instructive to review the KDHE's previous responses to comments on this issue, provided below, along with the comments.

> **"Comment 56 (Dr. Sahu Comment B(c)) [on Oct. 22, 2010]:**
> On page 3/22, in the context of establishing [sic] mercury limit by a state-only condition, the draft permit notes that the limits (plural) will be met by

[3] Page 5 of the December 2010 permit notes the fuel to be used at the unit: "Fuel is to be Powder River Basin (PRB) subbituminous coal or other western coal." The addendum to the permit does not contemplate any changes to this coal supply.

[4] Condition 2.h, AIR EMISSION SOURCE CONSTRUCTION PERMIT Issued to Source (Holcomb Station) 0550023 on December 16, 2010 by the Kansas Department of Health and Environment (KDHE), p. 10.

[5] December 2010 permit, p. 3.

[6] December 2010 permit, p. 5.

"…blending various coals or by the injection of powdered activated carbon (PAC) or other sorbent or both." What does the reference to "various coals" mean? How is this consistent with the application which states that H2 will "…utilize the same supplies of approximately 0.5% sulfur western bituminous coal…" or even with the draft permit itself which indicates that the boiler will use "PRB … or other western coal." The question that arises is what coal(s) will be combusted in this facility. Similarly, the reference to "PAC or other sorbent" is vague. How could the limit be established without a detailed consideration of what the specific and different types of sorbents can achieve?

KDHE Response **[on Dec. 16, 2010]*:***
Research conducted on H1 confirms that a substantial level of mercury emission reduction can be achieved with a blend of up to about 20 percent Western bituminous coal with PRB coal.

The comment was based on mercury limits that are contained within the draft permit. Flexibility for the control of mercury emissions was intentionally allowed for optimal removal efficiency. Mercury limits will be verified by continuous monitoring."[7]

"Comment 92 (Dr. Sahu Comment C7) [on Oct. 22, 2010]:
The permit should specify the minimum injection rate to achieve a minimum of 90% removal of mercury from what is expected in the coal. There is simply no reason the mercury emission rate should be any greater than the Plant Washington mercury emission rate. Test results provided show irrefutable evidence that lower mercury emission rates than H2's proposed 0.02 lb/GWh mercury limit have been achieved in practice, including as measured by CEMs and on a long term basis. Consequently, H2's proposed mercury limit is unsupportable.

KDHE Response **[on Dec. 16, 2010]*:***
See KDHE Responses to Comments G, 52 and 53. Mercury emissions will be limited by state-only conditions in the Holcomb 2 permit.

Mercury test data for H1 are relevant because H2 will be very similar to H1 in design and operation. The performance level in the permit is based upon actual reductions in mercury concentration demonstrated at H1 and then extrapolated for highest mean coal mercury concentration.

The permit H2 mercury emissions limitation of 0.020 lb/GWh corresponds to a control efficiency that is better than all but one of the percent reduction levels listed in Table 2 of the commenter's report. This emissions limitation also corresponds to the lowest of the mercury emissions limitations promulgated by EPA for all fuels in its (now vacated) mercury NSPS standard. Under these

[7] Responsiveness Summary, Sunflower Electric Power Corporation Holcomb Expansion, Air Quality Construction Permit Application, Kansas Department of Health and Environment, Bureau of Air, December 2010.

circumstances, there is no basis for any mercury removal efficiency as a permit requirement."[8]

Other than noting "that a substantial level of mercury emission reduction can be achieved with a blend of up to about 20 percent Western bituminous coal with PRB coal..." and relying on experience from the existing H1 unit at the site, the responses to the comments raised previously do not shed any additional light on how compliance will be achieved.

For example, in light of the more stringent requirement and the KDHE's responses previously, will there need to be far greater than 20% blending of the PRB coal with the non-specified "Western bituminous coal"? If so, this will have implications on the operations and design of the boiler and the proposed pollution control train, including design of the SCR (based on the different coal composition and the resultant impacts on the catalysts at the SCR), and the FGD (since the sulfur content of the blend will change as the coal mix changes), and therefore on the emissions of pollutants such as NOx, SO2, acid gases, PM, and others.

In short, how compliance is proposed to be achieved for one pollutant, in this case mercury, will affect the design and operations of the controls that will, in turn, affect the emissions of other pollutants. Moreover, consider that the new mercury limit will be met by using activated carbon injection (ACI) or via the use of "other sorbents" as the December 2010 permit contemplates. This too provides no specificity. There are many different types of ACI on the market and some have even been tested at H1.[9] These tests do not show that the proposed level of 0.003 lb/GWh can be met by the use of ACI. Or, if such a limit was to be met, how much ACI would need to be injected. The previous tests show that injection rates of ACI were already around 5 lb/MMacf of gas flow, presumably to meet the 0.020 lb/GWh limit. Thus, far greater injection rates would likely be required to meet the new, more stringent limit. This means that there will be increased load of the spent-ACI that will need to be managed or controlled by the fabric filter. More loading means greater operational stress on the baghouse, greater emissions from the baghouse, or both. Baghouse design and operations will need to be revisited, yet the addendum provides no discussions of any of this. EPA notes that "[A] full sized baghouse, with an A/C ratio of 4.0, should be specified when the baghouse will be the primary particulate collection device for the fly ash and activated carbon. The lower A/C ratio will provide better bag life with the high inlet particulate loading expected for the single particulate capture device in the process."[10] Of course, the ACI system itself will need to be redesigned, and emissions such as fugitive particulate emissions from the receiving, grinding, and handling of the ACI will also change. As EPA notes, "[W]hen an ACI system is required, the design carbon feed rate will dictate the size

[8] Ibid.

[9] Looney, M., et. al., Overview of Mercury Emissions Control and ACI. Worldwide Pollution Control Association (WPCA)-Duke Energy FF/HAPS Seminar, October 12-13, 2011. See slides 13 and 14, which indicate that, for tests done at H1 using treated carbon, a maximum reduction of around 90% required 4-5 lb/mmacf of ACI (slide 14). Using untreated carbon, a 90% reduction required 5 lb/mmacf (slide 13).

[10] IPM Model – Revisions to Cost and Performance for APC Technologies Mercury Control Cost Development Methodology, Final, March 2011, p. 7. Available at http://www.epa.gov/airmarkets/progsregs/epa-ipm/docs/append5_3.pdf.

of the ACI equipment and the resulting capital costs. The carbon feed rate is a function of required removal, particulate collection device, and in some cases state regulations…."[11]

In addition, the ACI system can be affected by what is happening in other parts of the control system. Take the adverse impacts on ACI by sulfur trioxide or SO3. SO3 can dramatically reduce the effectiveness of mercury reduction via ACI.[12] In fact, as the EPA states, in some cases high mercury removal simply cannot be met via ACI. "[S]ome flue gas constituents, especially SO3, reduce the effectiveness of the ACI. With flue gas SO3 concentrations greater than 5 - 7 ppmv, the carbon feed rate must be increased significantly to meet a high Hg removal and 90% mercury removal may not be feasible in some cases even with ACI."[13]

Along with being generated in the boiler (which, in turn, depends on the coal-mix, as discussed previously), SO3 can also be generated by the SCR catalyst. As EPA notes, "[T]he catalyst used in SCR systems is designed to facilitate the conversion of NOx to N2 and H2O. The active ingredient used in SCR catalysts is vanadium pentoxide, which oxidizes sulfur dioxide (SO2) to sulfur trioxide (SO3) as well as elemental mercury to ionic mercury."[14]

For all of the reasons noted above and the various interactions between mercury removal strategies/options and their implications on the design and operations of other pollution control equipment (and therefore the emission rates of other pollutants), the KDHE's addendum is woefully inadequate in that it simply omits any discussions of how the more stringent mercury limit will be met.

The Current BACT Limits Are Outdated

While all of the BACT limits need to be revisited, we provide examples considering three pollutants: NOx, SO2, and filterable particulate matter or fPM.

The December 2010 permit specifies the following limits for these pollutants:

"The owner or operator shall not emit or cause to be emitted NOx emissions exceeding 0.05 pounds per million BTU heat input (lb/mmBtu) on a 30-day·rolling average basis, excluding periods of startup and shutdown."[15]

"The owner or operator shall not emit or cause to be emitted S02 emissions, as determined on a 30-day rolling average basis, in excess of the emission limitations over a 30-day period which is the rolling average of the following emission limitations:

[11] Ibid., p. 6.

[12] Looney, et. al., slides 17-20.

[13] IPM Model, p. 4.

[14] IPM Model, p. 4.

[15] AIR EMISSION SOURCE CONSTRUCTION PERMIT Issued to Source (Holcomb Station) 0550023 on December 16, 2010 by the Kansas Department of Health and Environment (KDHE), Condition 2.a, p. 7.

i. . 0.085 lb/mmBtu when scrubber inlet S02 is equal to or greater than 0.9 lb/mmBtu;
ii. 0.060 lb/mmBtu when scrubber inlet S02 is less than 0.9 lb/mmBtu."[16]

"The owner or operator shall not emit or cause to be emitted filterable particulate matter (PM, filterable PMIO and filterable PM2,s) emissions exceeding 0.012 lb/mmBtu on a 30-day rolling average basis."[17]

While we stress that a new BACT analysis must focus on what limits are "achievable", it is instructive to review what is already being achieved in practice (especially for a unit that will emit these pollutant years from now) at operational coal-fired power plants across the United States.

Table 1, attached, shows the NOx levels on a monthly basis (i.e., similar to the averaging time in the December 2010 permit) for several coal units in the US, all of which are achieving better than 0.05 lb/MMBtu on a consistent basis during the period 2011-2013, i.e., after the issuance of the December 2010 permit. The data is taken from EPA's Air Markets available at www.epa.gov/ampd. The KDHE could not have considered this data in its previous BACT determinations, and it now has an obligation to do so.

Similarly, for SO2, we provide 2011-2013 actual performance data in Table 2 for many US coal units that are consistently achieving better than 0.06 lb/MMBtu, which is the more stringent of the two SO2 limits specified in the permit. The number of units meeting the 0.085 lb/MMBtu limit specified in the permit are far greater. The data is taken from EPA's Air Markets available at www.epa.gov/ampd. The KDHE could not have considered this data in its previous BACT determinations, and it now has an obligation to do so.

Lastly, in Table 3, we show actual performance data for filterable particulate matter from over 100 units, all of which are better than the limit of 0.012 lb/MMBtu. This data was collected by EPA as part of its MACT rulemaking and was not readily available to the KDHE at the time of the December 2010 permit issuance. As a result, the KDHE could not have considered it in its previous permit issuance. It now has an obligation to do so.

[16] Ibid., Condition 2.b, p. 8. The more stringent of the two SO2 limits is 0.06 lb/MMBtu, on a 30-day averaging basis.

[17] Ibid., Condition 2.c., p. 9.