Appendix 4.2

US Department of the Interior Comments on the Kansas Regional Haze SIP

United States Department of the Interior

FISH AND WILDLIFE SERVICE
National Wildlife Refuge System
Branch of Air Quality
7333 W. Jefferson Ave., Suite 375
Lakewood, CO 80235-2017

IN REPLY REFER TO:

FWS/ANWS-AR-AQ

December 14, 2007

Dr. Ronald Hammerschmidt
Director, Division of Environment
Kansas Department of Health and Environment
1000 SW Jackson, Suite 400
Topeka, Kansas 66612-1366

Dear Dr. Hammerschmidt:

On November 1, 2007, the State of Kansas submitted a draft implementation plan describing its proposal to improve air quality regional haze impacts at mandatory Class I areas across its region. We appreciate the opportunity to work closely with the State through the initial evaluation, development, and, now, subsequent review of this plan. Cooperative efforts such as these ensure that, together, we will continue to make progress toward our goal of natural visibility conditions at all of our most pristine National Parks and Wilderness Areas for future generations.

This letter acknowledges that the U.S. Department of the Interior, U.S. Fish and Wildlife Service, has received and conducted a substantive review of the State's proposed Regional Haze Rule implementation plan prepared in fulfillment of your requirements under the federal regulations 40 CFR 51.308(i)(2). Please note, however, that this correspondence does not make a determination regarding the document's completeness and, therefore, ability to receive federal approval from the Environmental Protection Agency.

As outlined in a letter to each State dated August 1, 2006, our review focused on eight basic content areas. The content areas reflect priorities for the Federal Land Management agencies. The State of Kansas, in our opinion, has composed a document that is organized and well written, and most importantly is comprehensive in content. In addition, the document does an exemplary job of communicating and documenting the reasoning used to reach the various conclusions outlined in the state implementation plan, including the course of action the State of Kansas will take on the regional haze effort. In general, we are satisfied with the quality of the document, but we would like to offer a few comments specific to Best Available Retrofit Technology for you to consider. Please see the enclosed comments.

Again, we appreciate the opportunity to work closely with the State of Kansas and compliment you and your staff on the hard work and dedication to significant improvement in our nation's air quality related values and visibility. For further information, please contact either me or Tim Allen at (303) 914-3801 and (303) 914-3802, respectively.

Sincerely,

Sandra V. Silva

Sandra V. Silva, Chief
Branch of Air Quality

Enclosure

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Enclosure

Comments of the US Fish & Wildlife Service (FWS) Regarding Kansas Best Available Retrofit Technology (BART) Submittals

The efforts on Best Available Retrofit Technology (BART) of the Kansas Department of Health and Environment (KDHE) and the companies involved are to be commended. The bottom-line results on visibility improvement due to deploying control technology are significant. Our comments are not meant in any way to minimize the significance of the reductions due to the agreed upon emission controls, but rather to suggest areas to maximize the benefits of the final products.

Six emission units in Kansas were determined to be subject to the BART requirements under the Regional Haze Rule. The emission units are as follows:

Unit	**Owned By**
Jeffrey Energy Center Units 1 & 2	Westar Energy (Westar)
Gordon Evans Energy Center Unit 2	Westar Energy
La Cygne Generating Station Units 1 and 2	Kansas City Power & Light (KCPL)
Nearman Unit 1	Kansas City Board of Public Utilities (BPU)

These three companies submitted BART determinations to the KDHE. The KDHE has developed a "Regional Haze Agreement" with each company that serves as a BART consent agreement. The BPU BART determination for the Nearman Unit 1 (Appendix 9.5) could not be located in the Kansas Regional Haze State Implementation Plan submittal. We understand from communications with the State that more information on this unit is forthcoming.

Our general observations are as follows:

1. The companies' BART determinations are generally well done, though they often lack detailed cost information.
2. The Regional Haze Agreements focus on emission limits that reflect the "presumptive" BART limits outlined in the EPA Guidelines for Best Available Retrofit Technology Determinations,[1] rather than the definitive technology chosen by the companies in their BART determinations that yield better than presumptive levels.

There are two issues relating to the second bullet above. First, KDHE states on page 45 of the Regional Haze State Implementation Plan (SIP) that, "In establishing BART, Kansas determined that technological and/or economic considerations may change sufficiently by the time controls are built and the imposition of an emission standard

[1] See 40 CFR Part 51, Appendix Y, Section IV.E.4. The U.S. Environmental Protection Agency finalized it's BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." The section of the Appendix referenced above appeared in the Federal Register at 70 FR 39171, July 6, 2005.

based on a specific technology is infeasible." Given that a source that is subject to BART has only five years after EPA approves the Regional Haze SIP to have BART controls operational,[2] it portends that specific controls be defined in the Regional Haze SIP and not at a later date. If there are extenuating circumstances such as having to concurrently comply with another SIP requirement (e.g., the Kansas City Ozone SIP), these contingencies should be discussed in detail. Reasonable Progress milestones in the Regional Haze SIP will likely be dependent on technologies that are actually deployed.

Second, use of "presumptive" emission limits in the Regional Haze Agreements does not bind the companies to deliver BART technology determined by a full statutory five-factor BART analysis.[3] If the cost of control options that achieve adequate and responsible visibility improvement remains reasonable after presumptive BART is achieved, adequate and responsible visibility improvement should remain an active consideration before the BART analysis is concluded.

Specific comments on each of the BART determinations follow:

Westar Energy, Jeffrey Energy Center Units 1 and 2 (720MW Coal, 720MW Coal)

Westar's BART determination commits to specific control technology that will meet the "presumptive" requirements of the BART guidelines; namely, low NO_x burner systems to control NO_x, rebuild of existing wet scrubbers to control SO_2 and an upgrade of the electrostatic precipitator to control PM_{10}. The KDHE "Regional Haze Agreement" with Westar references the presumptive limits established by 40 CFR 51 Appendix Y, but does not commit the company to follow through on deployment of the committed technologies. The Regional Haze Agreement references its own Appendix A, including specific "Proposed Controls", but the Agreement still references only presumptive limits.

Westar assumed that the rebuild of the existing wet scrubbers for SO_2 control would generate a control efficiency of almost 83%, leading to a 0.15 lb/MMBtu emission rate, even though wet scrubbers have been shown to be up to 95% efficient. More definitive, authoritative information on control efficiency should be documented in the BART demonstration to show why higher control efficiencies cannot be realized. Demonstration of a higher efficiency could allow KDHE to use a lower emission limit to attain further reasonable progress in the Regional Haze SIP.

It would be desirable to have Westar's BART determination include detailed cost information for the chosen control technologies, but it may not be necessary if the controls are the best available technologies as claimed. However, low NO_x burners alone are likely not the best available technology, so a cost analysis for the company's NO_x BART determination is warranted.

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[2] See 40 CFR Part 51, Appendix Y, Section I.E.3.
[3] See 40 CFR Part 51, Appendix Y, Section I.E.2.

Westar Energy, Gordon Evans Energy Center Unit 2 (383 MW #6 Fuel Oil)

The initial choice of low NO_x burners (LNB) and 1% fuel oil as BART for NO_x control was abandoned when the fuel switching alternative of natural gas was selected. A cost analysis should be presented to show why LNB should not continue to be deployed along with the natural gas alternative.

Kansas City Power & Light, La Cygne Generating Station Units 1 and 2 (840 MW Cyclone Coal & 710 MW Opposed-Fired Coal)

The KCP&L BART determination does not select a specific technology for BART. It reserves for a later date selection of wet scrubbers or spray dryer absorbers (SDA) for SO_2 control; and SCR or combustion controls (to possibly accommodate the Kansas City Ozone SIP) for NO_x control. The KDHE Regional Haze Agreement with KCP&L references for SO_2 a 0.10 lb/MMBtu weighted average emission limit for Units 1 and 2 and for NO_x a 0.13 lb/MMBtu weighted average emission limit for Units 1 and 2. The FWS would prefer that specific controls be documented as BART as discussed above, but KDHE's use of better-than-presumptive emission limits is to be commended.

Kansas City Board of Public Utilities (BPU), Nearman Unit 1 (256 MW Coal)

As mentioned above, the BPU BART determination for the Nearman Unit 1 (Appendix 9.5) could not be located in the Kansas Regional Haze SIP submittal. The FWS would like the opportunity to review this document. Even though Nearman Unit 1 is not subject to presumptive BART control levels due to its 256 MW size, the KDHE Regional Haze Agreement with BPU sets emission limitations for SO_2 at 0.09 lb/MMBtu and for NO_x at 0.23 lb/MMBtu. This is an excellent commitment, but a specific technology commitment is still appropriate. The 0.09 lb/MMBtu SO_2 limit in the KDHE Regional Haze Agreement is based on the achievability of a semi-dry flue gas desulfurization technology, but Table 9.4 of the SIP allows a 0.15 lb/MMBtu SO_2 limit just because it is the "presumptive" level. These two numbers should be made consistent and both should be shown as 0.09 lb/MMBtu.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
National Wildlife Refuge System
Branch of Air Quality
7333 W. Jefferson Ave., Suite 375
Lakewood, CO 80235-2017

IN REPLY REFER TO:
FWS/ANWS-AR-AQ

August 27, 2009

Mr. Douglas Watson
Bureau of Air and Radiation
Kansas Department of Health and Environment
1000 SW Jackson, Suite 310
Topeka, Kansas 66612-1366

Dear Mr. Watson:

The State of Kansas recently announced a public notice period for its proposed revision of the *State of Kansas Implementation Plan for the Attainment and Maintenance of National Ambient Air Quality Standards* (SIP). This plan revision concerns your proposal to improve air quality regional haze impacts at mandatory Class I areas across your region. We appreciate the opportunity to work closely with the State through the initial evaluation, development, and, now, subsequent review of this plan. Cooperative efforts such as these ensure that, together, we will continue to make progress toward our goal of natural visibility conditions at the most pristine National Parks and Wildernesses Areas for future generations.

This letter acknowledges that the U.S. Department of the Interior, U.S. Fish and Wildlife Service has received and conducted a substantive review of your proposed Regional Haze Rule implementation plan in fulfillment of your requirements under the federal regulations 40 CFR 51.308(i)(2). Please note, however, that this correspondence does not make a determination regarding the document's completeness and, therefore, ability to receive federal approval from the Environmental Protection Agency.

On December 14, 2007, we submitted comments for you to consider in the development of the Proposed SIP. The July 2, 2009, proposed SIP revision package includes the State's response to our comments. After reviewing the States' responses and the revised SIP documents, we continue to have some concerns with the Best Available Retrofit Technology (BART) provisions of the SIP. Our concerns are explained in the enclosure to this letter. We ask that these comments be placed in the official public record, and that the State consider the issues as it proceeds with its regulatory process. Even in view of the enclosed comments, the BART efforts presented in the State's SIP are quite commendable.

Overall, the Kansas Regional Haze SIP continues to be a comprehensive, well written plan that serves as a model for other states to follow. Again, we appreciate the opportunity to work closely with the State of Kansas and compliment you on your hard work and dedication to significant improvement in our nation's air quality values and visibility. For further information, please contact Tim Allen at (303) 914-3802.

Sincerely,

for Sandra V. Silva, Chief
Branch of Air Quality

Enclosure (1)

cc:

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Comments of the US Fish & Wildlife Service (FWS)
Regarding the Best Available Retrofit Technology (BART) Section
of the
State of Kansas Air Quality State Implementation Plan – Regional Haze,
July 2, 2009 Volume 1 – Plan Revision

August 27, 2009

The efforts on Best Available Retrofit (BART) of the Kansas Department of Health and Environment (KDHE) and the companies involved are to be commended. The bottom-line results on visibility improvement due to the deployment of control initiatives are significant. Our comments are not meant in any way to minimize the significance of the reductions due to the agreed upon emission controls, but rather to suggest areas to maximize the benefits of the final products.

Five emission units in Kansas were determined to be subject to the Best Available Retrofit Technology (BART) requirements under the Regional Haze Rule. The emission units are as follows:

Unit	**Owned By**
Jeffrey Energy Center Units 1 & 2	Westar Energy (Westar)
Gordon Evans Energy Center Unit 2	Westar Energy
La Cygne Generating Station Units 1 & 2	Kansas City Power & Light (KCPL)

Westar and KCPL submitted BART determinations to the KDHE. The KDHE has developed a "Regional Haze Agreement" with each company that serves as a BART consent agreement. Specific comments on each of the BART determinations follow:

Westar Energy, Jeffrey Energy Center Units 1 and 2 (720MW Coal, 720MW Coal)

Westar's BART determination commits to specific control technology that will meet the "presumptive" BART limits outlined in the EPA Guidelines for Best Available Retrofit Technology Determinations;[1] namely, low NO_x burner systems to control NO_x, rebuild of existing wet scrubbers to control SO_2 and an upgrade of the electrostatic precipitator to control PM_{10}.

The KDHE note in Section 9.3 of the July 2, 2009, Regional Haze Plan Revision states: "If your facility falls in the EGU category described above and you propose control at or beyond these presumptive levels, you need not take into account the remaining statutory factors, as BART will be met." This is not correct. If the cost of control options that

[1] See 40 CFR Part 51, Appendix Y, Section IV.E.4. The U.S. Environmental Protection Agency finalized it's BART Guidelines on June 15, 2005, and published the preamble and final rule text in the Federal Register on July 6, 2005. The rulemaking action added Appendix Y to Part 51, titled "Guidelines for BART Determinations Under the Regional Haze Rule." The section of the Appendix referenced above appeared in the Federal Register at 70 FR 39171, July 6, 2005.

achieve adequate and responsible visibility improvement remains reasonable after presumptive BART is achieved, adequate and responsible visibility improvement should remain an active consideration before the BART analysis is concluded. The Federal Land Managers (FLMs) believe that cost effective control options that result in emission control greater than presumptive BART should be given equal consideration to lower-cost options that achieve presumptive BART.

Westar's NO_x BART determination contrasted only the cost-effectiveness of low NO_x burners (LNB) and Selective Catalytic Reduction (SCR), with SCR being shown as not cost-effective. SCR is capable of a much higher control efficiency than the assumed 0.10 lb/MMBtu when compared to other proposals reviewed by the FLMs (in some cases 0.07 lb/MMBtu). The State has not challenged the company's conclusion that SCR (alone) is not cost-effective, because the cost per deciview metric would likely remain too expensive. However, other combinations of technically feasible NO_x controls should have been considered. Over-fire air (OFA) is often considered along with LNB to be more cost-effective (cost per ton) than LNB alone. SCR combined with LNB and OFA is considered by most sources, rather than SCR alone, since the combination is a far more cost-effective NO_x control option.

Westar assumed that the rebuild of the existing wet scrubbers for SO_2 control would generate a control efficiency of almost 83%, thereby meeting the 0.15 lb/MMBtu presumptive SO_2 emission rate, even though wet scrubbers have been shown to achieve control efficiencies up to 95%. An emission limit of 0.09 lb/MMBtu can commonly be met in such permit limitations. More definitive, authoritative information on control efficiency should be documented in the BART demonstration to show what higher control efficiencies could be realized for the Jeffrey Energy Center units. Demonstration of a higher efficiency (e.g., 0.09 lb/MMBtu) would allow KDHE to insert a more realistic emission limit into Appendix A of the Westar Regional Haze Agreement, so as to more accurately represent the capability of the installed technology, rather than merely using the presumptive emission limit of 0.15 lb/MMBtu.

In the KDHE's response to our original comments regarding its SIP (found in Appendix 4.1 to the July 2, 2009, proposed SIP package), the State explains that its agreement with Westar went beyond the company's BART-eligible units, to include additional measures at several other Westar facilities. The KDHE states: "These additional measures will achieve reductions that go above and beyond those that would be achieved with the identification of a specific BART technology for Jeffrey Units 1 and 2, and Gordan Evans Unit 2. This is a holistic approach that ultimately achieves more reasonable further progress." While we recognize the State's position, in order to satisfy the BART demonstration, this alternative to BART should be analyzed to show that greater benefit to visibility will result.

On page 8-2 of the Westar BART Five Factor Analysis, it was determined that Electrostatic Precipitator (ESP) upgrades were considered to be BART for particulate matter control. However, in Section 9.3 KDHE stated, "In all cases here, added $PM_{2.5}$ controls would help visibility only marginally, and would not be cost effective." This

statement was made without any cost analysis being done by KDHE. Unless cost data is presented by KDHE, ESP upgrades proposed by the company should be accepted by KDHE and should be included in Appendix A of the Westar Regional Haze Agreement.

Westar Energy, Gordon Evans Energy Center Unit 2 (383 MW #6 Fuel Oil)

Our December 14, 2007, comment regarding further analysis of potential NO_x control alternatives for this facility as it is converted to natural gas is still pertinent. The KDHE's responded to that comment saying that, since the fuel switching alternative achieves greater visibility improvements than would have resulted from employing controls it had agreed would be BART for the unit when fired on fuel oil, "no further cost analysis will be required." The KDHE continues, stating: "Should the Wichita Mountains (or other surrounding Class I areas) not show reasonable progress in the next SIP period, KDHE will re-visit this source and evaluate it further as a reasonable progress demonstration. This evaluation would include the costs of low NO_x burners and the visibility benefits such controls would achieve."

We believe that it is prudent to address this analysis now at the time of implementing the fuel switching requirement, as the marginal cost of employing low NO_x burners instead of new traditional natural gas burners should be significantly less than changing out the those new natural gas burners at some future time. The documentation indicates that, after the fuel switch to natural gas is accomplished, there will still be 2,136 lb/hr NO_x emissions for this unit. The low NO_x burner alternative should be required to go through an *additional* cost-effectiveness analysis to determine if the remaining (2,136 lb/hr) NO_x could be cost-effectively reduced.

Kansas City Power & Light, La Cygne Generating Station Units 1 and 2 (840 MW Cyclone Coal & 710 MW Opposed-Fired Coal)

Our December 14, 2007, comments discussed that the BART determination for KCPL's La Cygne Units 1 and 2 did not select a specific technology for SO_2 BART, but rather referenced a 0.10 lb/MMBtu weighted average SO_2 emission limit for the two units, and reserved for a later date selection of the particular control technology for SO_2 control (either wet scrubbers or spray dryer absorbers (SDA)). The KDHE's response stated that: "The emissions limits established for these two units represent what can be achieved with BART controls. The source requested the additional flexibility in choosing how they meet these limits at the time the agreement was signed due to the uncertainties associated with the costs of various control technologies and the engineering analysis needed to employ them. This request is reasonable and the emissions limits that result are what are important for visibility improvements."

We do agree that ultimately, the BART requirement is the resulting emissions limit. However, the limit that has been identified for these units is not the most stringent possible with the range of retrofit technologies available. Wet scrubbers are capable of achieving 0.09 lb/MMBtu, which represents 10% less SO_2 emissions compared to the level that the KDHE is requiring of this facility. We also point out that other facilities

across the country have completed their necessary engineering cost analyses and committed to specific control technologies and BART limits; plus, nearly two years have elapsed since the initial BART decisions were presented with KCPL's request for flexibility. Thus, we stand by our original comment that, to satisfy the required BART demonstration, a detailed cost analysis should be performed on each control alternative to determine the most cost-effective control, together with the actual control efficiency for the most cost-effective alternative. That said, we do commend KDHE's use of better-than-presumptive emission limits for these units.