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-AQ

March 15, 2012

Monica Morales, Unit Chief
Air Quality Planning Unit
Air Program
U. S. EPA, Region 8
1595 Wynkoop Street
Denver, Colorado 80202-1129

Dear Monica:

On March 2 and March 5, 2012, we received from the Environmental Protection Agency, Region 8, draft sections of the Regional Haze Federal Implementation Plan for the State of Montana. The U.S. Fish and Wildlife Service (FWS) and National Park Service (NPS) appreciate the opportunity to review and comment on this draft plan prior to public notice. Due to very short time available for review, we are focusing our comments to a limited number of highlighted items. We intend to comment more fully during the public notice period.

Our enclosed comments reflect the discussion we had with you and EPA Region 8 staff on our conference call March 14, 2012. We continue to be concerned that EPA has not defined objective criteria for the determinations of Best Available Retrofit Technology and reasonable progress that support which emissions controls are cost effective and what level of visibility improvement is necessary to justify emission control costs. While our enclosed comments address your analysis of Corette Generating Station, we have concerns about the conclusions drawn for several facilities that are located adjacent to our Class I areas. We also have recommendations on the presentation and interpretation of the emissions inventory and regional modeling data that are the basis of the reasonable progress goals set for Montana Class I areas.

TAKE PRIDE IN AMERICA

We appreciate the opportunity to work closely with EPA Region 8 to improve visibility in our Class I areas. For further information regarding our comments, please contact Tim Allen at (303) 914-3802 or Pat Brewer at (303) 969-2153.

Sincerely,

Sandra V. Silva

Sandra Silva, Chief
Branch of Air Quality
U.S. Fish and Wildlife Service

Carol McCoy, Chief
Air Resources Division
National Park Service

Enclosures

cc: Dave Klemp, Chief
Air Resource Management Bureau
Montana Department of Environmental Quality
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P.O. Box 200901
Helena, MT 59620-0901

Comments to EPA Region 8 on Draft Federal Implementation Plan for Montana
March 14, 2012

The U.S. Fish and Wildlife Service (FWS) and National Park Service (NPS) appreciate the opportunity to comment on the Environmental Protection Agency (EPA) Region 8 draft proposal for the Montana regional haze Federal Implementation Plan (FIP). Due to the very short review time available, we are focusing our initial comments on a limited number of highlighted items. We intend to continue our collaborative review throughout the public comment period.

Organization

In general the proposed FIP contains an accurate summary of the regional technical analyses provided by the Western Regional Air Partnership (WRAP). We recommend that EPA define the state inventory and source contributions at Class I areas in Montana and neighboring states, based on the WRAP regional data, before discussing the source-specific analyses for Best Available Retrofit Technology (BART). This would provide the context for overall contributions before focusing on those specific point sources in Montana. As presented, the emissions inventory and source apportionment data are lost as short sections between detailed discussions of source specific BART and source specific reasonable progress analyses. We suggest moving the first three sections of section D: Long Term Strategies, to become section C: Emissions Inventory and section D: Sources of Visibility Impairment (section D1: Montana Class I areas, section D2: Other States' Class I areas Affected by Montana Emissions). Then continue reordered section E: BART Determinations and reordered section F: Long Term Strategies starting with subsection F1: Visibility Projection Modeling.

Emissions Inventory

We agree with EPA's conclusion, based on WRAP's emissions inventory and source apportionment modeling, to focus on point source emissions of sulfur dioxide (SO_2) and nitrogen oxides (NO_x). Given that point sources are the largest sector for SO_2, EPA should explicitly state that WRAP analyses projected that SO_2 emissions in Montana from this sector would decrease by less than 1 percent by 2018. Please state that WRAP inventory assumptions include both presumptive SO_2 reductions for Colstrip Units 1 and 2 that are subject to BART, and SO_2 increases due to new electric generating capacity by 2018. Please clarify if the projected new facilities are still expected by 2018. If not, please clarify that SO_2 emissions will be reduced more than reported in Table 140.

On page 166, supporting Table 141, EPA explains that the WRAP assumed 23,000 tons of NO_x would be reduced at Colstrip by 2018 due to an enforcement action and additional controls required by the Regional Haze FIP. Please add an explanation what fraction of the 23,000 tons assumed for NO_x emissions reductions at Colstrip will now be required under BART and the enforcement action. Since EPA's proposed reasonable progress goals are based on the WRAP modeling, EPA needs to clarify what reductions are actually being implemented. Also, please address whether WRAP assumptions for new electric generating capacity by 2018 are still valid.

Uncertainties Associated with Oil & Gas Development
The Oil & Gas sector is going through a period of rapid change with large areas of significant growth. This growth has considerable cumulative impact potential to visibility at Class I areas across Montana and at nearby States. The emission inventory utilized by WRAP is severely out of date for this sector and does not represent the full impact potential. We ask that additional discussion be included in the FIP proposal addressing this activity. We also request that this issue be identified as one that will be addressed as part of the upcoming five year review.

Best Available Retrofit Technology (BART)
We request clarification on the criteria used to determine what costs or visibility benefits were considered in evaluating reasonable controls. Through our review, we compared metrics relating costs to emissions controlled, and costs to visibility improvement, and found inconsistencies. A number of States, in establishing their control decisions for BART or RP, have identified consistent criteria for source controls. The draft FIP in some cases found controls not to be cost effective, even when the $/ton was lower than controls on other units that were found to be cost effective. Some controls were found not to be justified by the visibility improvement even though the $/dv cost effectiveness was lower than for controls that are being required. Since some of the review materials are still outstanding, we understand that we may not have the full description of control evaluation at this time. We request your assistance in clarifying this issue.

Cumulative visibility benefits at multiple Class I areas should be considered when evaluating cost effectiveness of control options. EPA presented visibility benefits for all Class I areas in the BART analyses, but compared costs to maximum visibility benefit at a single Class I area.

PPL Montana's J. E. Corette Generating Station
FWS commented in the attached document on the BART determination for the PPL Montana J. E. Corette Generating Station. The confounding factors of a relatively smaller unit size (162 megawatt (MW)) and very low-sulfur coal (Powder River Basin (PRB) 0.3% sulfur content/uncontrolled emission rate of 0.46 lbs/MMBtu) constrain the cost-efficiency of control alternatives. Nevertheless, as discussed in the attachment, there are control alternatives for both SO_2 and NO_x control that we consider to be cost effective, even though EPA eliminated these controls as BART. In the attachment we discuss several examples of BART determinations in the cost range of controls for Corette.

Columbia Falls Aluminum Company
We request that EPA strengthen the discussion of the BART requirements for Columbia Falls in the FIP proposal and provide notice to the company that if the facility were to restart, a BART analysis would be required. The facility shut down in 2009 and is currently not operating, but is negotiating a power service agreement with Bonneville Power to be able to restart at least partially. Columbia Falls is only 10 km from Glacier National Park, and preliminary WRAP modeling using 2002 emissions indicated more than 4 dv visibility impacts at Glacier. If the company will be restarting, a BART analysis to evaluate emissions reductions to reduce visibility impacts should be part of its planning process. The current text is not clear whether the source would be required to perform BART before or after restarting.

Reasonable Progress Analyses
EPA identified point source emissions of SO_2 and NO_x as the most important sector to consider for reasonable progress, and yet required only Devon Energy to reduce emissions. EPA determined that costs are excessive for all sources except Devon Energy, yet the costs that were determined to be excessive are lower than costs determined to be reasonable for BART sources. Please explain.

For the reasonable progress screening criteria, please add clarification to the text (see page 186) that emissions (Q) is annual tons of SO_2 plus NO_x.

Reasonable Progress Goals
EPA is proposing reasonable progress goals for the 20% worst visibility days for the Montana Class I areas that are significantly less than (16-51%) the uniform rate of progress (page 284). EPA needs to pay careful attention to the precedent set by justifying the proposed reasonable progress goals. EPA cites the contribution of natural sources and emissions from Canada and outside the modeling domain as the basis for concluding that it is reasonable to rely on existing controls and the BART reductions to demonstrate progress in Montana. EPA again cites costs of controls for non-BART sources as excessive even though the costs are lower than being implemented for BART.

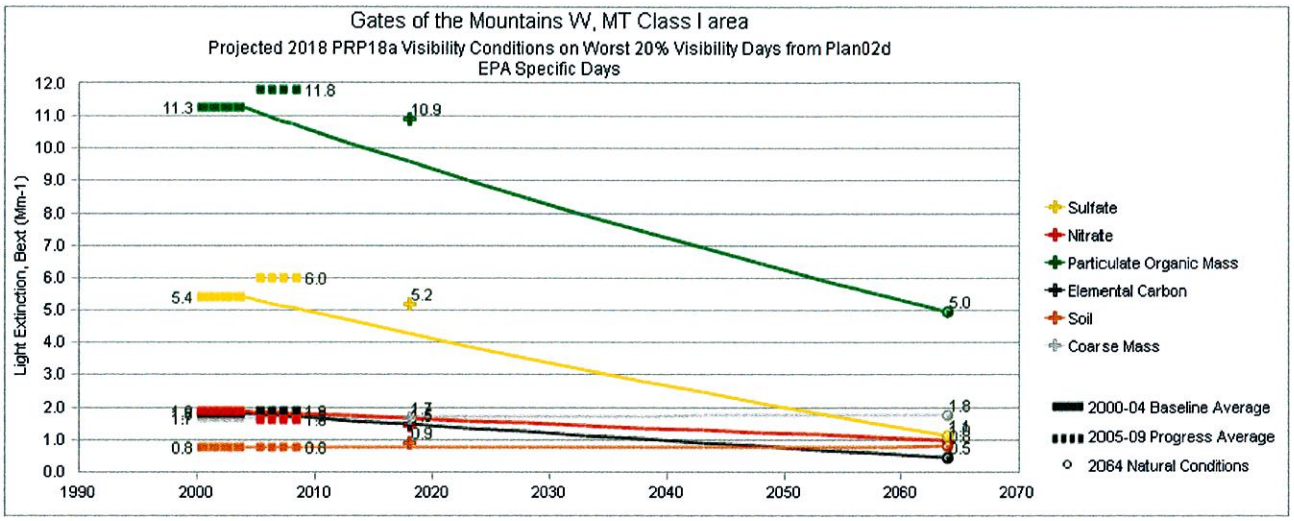
On page 287, EPA would like to state that the emissions reductions under EPA's proposal are greater than the reductions modeled by the WRAP. We agree that EPA needs to reconcile actual requirements with WRAP's assumptions for 2018 emissions in order to demonstrate that emissions reductions in Montana are meeting the implicit commitment to the other WRAP states. It is not likely that the actual rate of progress will be significantly closer to the uniform rate of progress than the WRAP modeling projections, as EPA states on page 287.

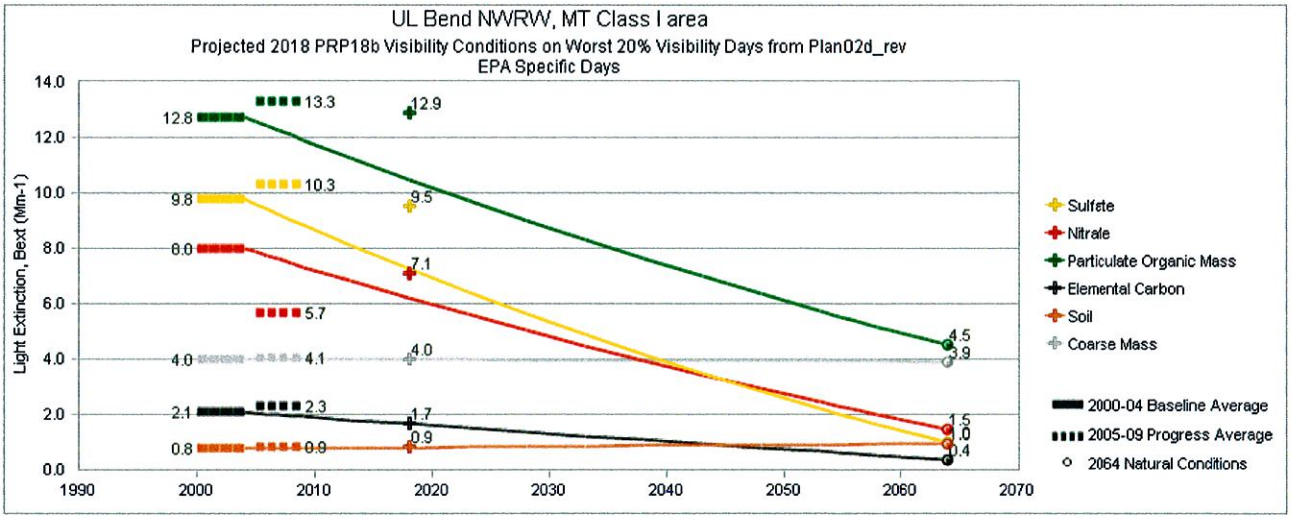
Several western states have used separate glide paths for each visibility impairing pollutant as added weight of evidence to demonstrate that the state is making reasonable progress on the pollutants that are controllable by the states. In the case of Montana, it is hard to make this case when only slight reductions in sulfate are projected by 2018. Results illustrated in enclosed two figures are representative of Montana Class I areas. We would like to discuss this further with EPA.

Additional information on the Montana Smoke Management Plan (SMP)
According to the draft FIP, the State submitted an updated version of its SMP on February 17, 2012. Although not available for review, we are encouraged by the commitment to consider visibility impacts when, "developing, issuing or conditioning permits and making dispersion forecast recommendations." However, it is not clear whether the SMP incorporates best management practices (BMPs), emission tracking, or enhanced practices to minimize impacts, as discussed by the Western Regional Air Partnership (WRAP). More specifically, the draft does not indicate whether Class I areas are considered sensitive receptors. Identifying Class I areas as sensitive receptors in an SMP is an important component in connecting the SMP to the regional haze FIP. We request that you include statements to the proposal indicating whether the SMP addresses these additional attributes.

Consultation

EPA was not able to provide Federal Land Managers sixty days review. We received and reviewed FIP materials within the past three weeks, with substantial portion available for less than a week. Additionally there are outstanding technical questions. We understand the timelines that EPA is facing, and are trying to accommodate as best as possible. However, under the circumstances, we do expect to submit additional, detailed comments during the public review process.





U.S. Fish and Wildlife Service's Comments on Best Available Retrofit Technology (BART) for PPL Montana's J. E. Corette Generating Station (Corette)

Draft March 12, 2012

Subsequent to preparing the following comments regarding the BART Determination for the PPL Montana J. E. Corette Generating Station, the Fish and Wildlife Service has learned of errors in the underlying calculations and analysis provided by EPA Region 8. We understand that the Agency used bituminous coal parameters in its analysis rather than the Powder River Basin (PRB) coal that is combusted at this facility. Our understanding is that correcting this error substantially reduces the cost per ton (on the order of 15% or more) for several of the control options discussed. Furthermore, we have identified discrepancies with waste disposal cost estimates that resolving could further reduce the resulting control costs. These are outlined in the specific sections, below. Additional questions have been raised that have not been addressed in this document.

All data cited below is as it was provided to us March 5, 2012. EPA has indicated that it is adjusting its technical support information and spreadsheets to correct the errors. That said, our overall conclusions would remain the same, if not be strengthened by lower control costs.

Discussion of SO_2 Controls

There are at least two other similarly-sized installations implementing lime spray drying (LSD) for SO_2 control that justify the positions taken by Region 8 in the Draft Proposed Best Available Retrofit Technology (BART) Determination. In justifying emission limits of small units burning clean coal, Newmont Nevada is a 200 MW plant that attains a 30-day rolling average 0.065 lb/MMBtu SO_2 emission limit with an SO_2 control efficiency of 93.1 percent. Capital cost of LSD units is corroborated by Great River Energy's 188 MW Stanton #1 plant costing $79,514,000.

The capital costs proposed by EPA, Region 8 for dry sorbent injection (DSI) and LSD should be considered as maximums, because the costs should only decrease due to significant curtailment of construction of air pollution control devices during the economic downturn and cancellation or postponement of many coal burning electrical generation units. Quantified estimates of the decreases could provide for firm reductions in the capital cost estimates, but it is agreed that they would be difficult to affirm with confidence at this time.

We note discrepancies with the waste disposal cost figures presented in the various spreadsheets. In the DSI workbook, waste disposal is quoted at $50/ton, the "IPM default," in row 19 of the "O & M Costs" tab, but as $10/ton, citing "Meeting w/ PPL," in row 34 of the "Given/Assume" tab. Please clarify the reasons for this 5-fold difference, and explain which estimate EPA is actually using in its analysis and the reasons the Agency chose that estimate. In addition, the SDA workbook cites waste disposal at $30/ton, the "IPM default for SDA" – while the character of the waste stream is likely different, in view of the discrepancy noted in the DSI workbook, please provide supporting reasoning for the SDA waste disposal rate. Since waste disposal is a

significant portion of the overall control cost calculation, these items have the potential to affect the resulting cost per ton controlled, and cost per deciview improvement.

The paragraph following Table 123 states that EPA, Region 8 considers $4,659 per ton of SO_2 emissions reduction using DSI as reasonable, but that $5,442 per ton for LSD is not cost effective. Other proposed SO_2 BART determinations resulting in cost efficiency in the range of Corette include PacifiCorp's Johnston, WY - $4,743; Northshore Mining's Silver Bay Power, MN - $7,309 and Xcel Energy's Taconite Harbor, MN - $5,300. As stated above, the capital cost of an LSD unit on Great River Energy's 188 MW Stanton #1 plant is $79,514,000. Such a total capital cost incorporated as the cost of LSD at Corette would result in a cost per ton of SO_2 removed of $4,891. The LSD alternative might then also be considered by EPA, Region 8 as being cost effective along with DSI.

Regarding the cost-effectiveness of visibility improvement for SO_2 controls, the second paragraph after Table 123 in the draft proposed BART determination states, ". . . the cost of controls is not justified by the visibility improvement." This proposed conclusion warrants further scrutiny. Implementation of the DSI alternative results in a 0.176 deciview improvement at Washakie Wilderness Area, the highest impacted Class I area, at a cost of $3.4 million per deciview of improvement. This is a very reasonable cost for visibility improvement. The cost of visibility improvement for SO_2 controls proposed in other BART determinations for a single most-impacted Class I area include:

Colorado Springs Utilities, Martin Drake, CO - $49.9 million/deciview (dv)
PacifiCorp, Wyodak, WY - $44.7 million/dv
PacifiCorp, Jim Bridger, WY - $37.1 million/dv
PG&E, Boardman, OR - $35.2 million/dv
Dominion, Brayton Point, MA - $33.9 million/dv
Northshore Mining, Silver Bay Power, MN - $26.2 million/dv
Dominion, Salem Harbor, MA - $25.1 million/dv
Great River Energy, Stanton #1, ND - $21.9 million/dv
PacifiCorp, Naughton, WY - $18.2 million/dv
PacifiCorp, Dave Johnson, WY - $16.7 million/dv

The conclusion from the above is that since the cost per ton of SO_2 removal and the cost per deciview of visibility improvement are both reasonable, DSI should definitely be considered as a feasible and cost-effective SO_2 control alternative and be accepted as BART for the PPL Montana, J. E. Corette Generating Station.

In addition, for the three SO_2 control alternatives, Region 8 made judgments on cost per deciview based on only the most impacted Class I area, Washakie Wilderness Area. We continue to believe that it is appropriate to consider both the degree of visibility improvement in a given Class I area as well as the cumulative effects of improving visibility across all of the Class I areas affected. It simply does not make sense to use the same metric to evaluate the effects of reducing emissions from a BART source that impacts only one Class I area as for a BART source that impacts multiple Class I areas. And, it does not make sense to evaluate impacts at one Class I area, while ignoring others that are similarly significantly impaired. If

emissions from Corette are reduced, the benefits will be spread well beyond only the most impacted Class I area, and this must be accounted for.

In this context for the LSD SO_2 control alternative the cumulative Class I area impact is $12.7 million per deciview of visibility improvement and as shown above a cost per ton of SO_2 removed of $4,891 could be reasonably construed. *This position may cause LSD to be considered as being a viable candidate for BART for the PPL Montana, J. E. Corette Generating Station.*

Discussion of NO_x Controls

The discussion regarding NO_x control alternatives and a selection of BART will be similar to the discussion above for SO_2 control, since there would seem to be NO_x alternatives that are cost-effective in terms of cost per ton of NO_x reduced as well as cost per deciview of visibility improvement. In the draft proposed BART determination the paragraph after Table 109 states that no new BART controls will be added. The paragraph after Table 110 states that all three NO_x control alternatives are cost-effective, but the second paragraph after Table 110 states that the cost of controls is not justified by the visibility improvement.

Table 110 states the visibility improvement associated with each of the three NO_x control alternatives. By dividing respective Total Annual Costs by their visibility improvements, they result in cost per deciview of visibility improvement from $16.7 million to $17.8 million at the Washakie Wilderness Area, the highest impacted Class I area. When these values are compared to the single Class I area impacts for some other NO_x BART proposals as summarized below, it would indicate that they each could be considered as reasonable:

Great River Energy, Stanton #1, ND - $41.0 million/deciview (dv).
Arizona Public Service, Navajo Nation, AZ - $39.9 million/dv
Xcel Energy, Sherburne County Generating Station, MN - $33.1 million/dv
Nevada Energy, Ft. Churchill, NV - $27.4 million/dv
PacifiCorp, Laramie River, WY - $27.4 million/dv
Basin Electric, Leland Olds, ND - $27.2 million/dv
PacifiCorp, Naughton, WY - $22.8 million/dv
PacifiCorp, Jim Bridger, WY - $18.5 million/dv
Minnkota, Power M R Young, ND - $16.1 million/dv

When Total Annual Cost for each of the three NO_x control alternatives is divided by the respective visibility improvement for *all* affected Class I areas (as discussed above for SO_2) they result in cost per deciview of visibility improvement from $4.7 million to $5.0 million, which is a very reasonable visibility cost.

The conclusion from the above is that since the cost per ton of NO_x removal and the cost per deciview of visibility improvement are both reasonable, at least the Separated Over-fire Air (SOFA)-only or, preferably SOFA plus Selective Non-Catalytic Reduction (SNCR) should definitely be considered as feasible and cost-effective NO_x control alternatives and be accepted as BART for the PPL Montana, J. E. Corette Generating Station.

On page 36 of the draft proposed BART determination regarding BART-eligible sources, the 2nd and 4th paragraphs of narrative do not include Corette, but then Corette does appear as item 7 in both Table 8 and Table 9. It is unclear why Corette was not included in the narrative, but was rightfully included in the tables.