Patrick R. Day, P.C., Bar No. 5-2246
Mark R. Ruppert, Bar No. 6-3593
HOLLAND & HART LLP
2515 Warren Avenue, Suite 450
P.O. Box 1347
Cheyenne, WY 82003-1347
Telephone: (307) 778-4200
Facsimile: (307) 778-8175

ATTORNEYS FOR BASIN ELECTRIC
POWER COOPERATIVE

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

In the Matter of:	)	
Basin Electric Power Cooperative	)	
Dry Fork Station,	)	Docket No. 07-2801
Air Permit CT – 4631	)	

BASIN ELECTRIC'S MEMORANDUM IN OPPOSITION TO PROTESTANTS' MOTION FOR SUMMARY JUDGMENT

TABLE OF CONTENTS

Protestants seek a declaration that they have standing to prosecute this appeal. Protestants also contend that DEQ erred as a matter of law by: 1) not conducting a separate "BACT" analysis for IGCC and supercritical generating technologies; 2) relying upon EPA's approved $PM_{2.5}$ surrogate policy; 3) relying upon EPA's "*de minimis*" policy to conclude that the Dry Fork Station will not "cause or contribute" to an SO_2 increment violation at the Northern Cheyenne Indian Reservation in Montana; and 4) failing to do a "complete" BACT analysis for mercury.

Protestants' arguments on standing and redefinition of the source seriously misstate the applicable law. With respect to the $PM_{2.5}$ and SO_2 increment issues, Protestants admit DEQ followed applicable EPA guidance, but Protestants disagree with the guidance. However, complaints about the guidance should be directed to the EPA, not DEQ. DEQ is entitled by law to follow EPA guidance. There are important reasons why EPA adopted this guidance and if DEQ disregarded that guidance, as Protestants urge, future economic development in Wyoming would be seriously jeopardized. As to mercury, Protestants are simply wrong in their assertions that no BACT analysis was done and that no valid emission limits have been set.

Because Protestants' Motion for Summary Judgment (Protestants' Motion) is largely a policy disagreement with the EPA, and because Protestants identify no legal errors committed by DEQ, Protestants' Motion should be denied.[1]

---

[1] In response to Protestants' Motion, Basin Electric also hereby incorporates by reference its Brief, Affidavits and exhibits submitted in support of its own Motion for Summary Judgment on the same issues, filed on September 2, 2008.

I. Protestants seriously misstate the law applicable to "redefinition of the source."

Protestants begin their substantive argument by contending that DEQ allowed Basin Electric "to ignore" the possibility of using IGCC technology. Protestants also assert that DEQ never required Basin Electric to "even consider" supercritical generating technologies. Protestants' Motion at 11-12. Nothing could be further from the truth. As explained in Basin Electric's Motion for Summary Judgment, supporting Brief, and attached exhibits, Basin Electric considered both IGCC and supercritical technologies and shared its analysis with DEQ – at DEQ's express direction – during the permitting process.

These technologies are not appropriate for the Dry Fork Station. Despite the long-term potential of IGCC technology, IGCC has never been demonstrated at Wyoming's elevation using sub-bituminous coal and it is not commercially available for projects the size of the Dry Fork Station (385 net megawatts). In addition, IGCC technology has never achieved, anywhere, at any time, the high availability and reliability required (90-95%) for the base load power plant needed to meet the electrical demand to be serviced by Basin Electric. There is no point in spending billions of dollars to build a plant even Protestants' own expert admits would not always be available when needed. *See* Fowler Deposition at 180 (attached as Fowler Depo.) (It "may be true" that IGCC has never yet met a design target of 80-85 % availability); and Exhibit 4, the Williams and Raatz Affidavits, and Exhibit D to Williams Aff., attached to Basin Electric's Memorandum in Support of Motion for Summary Judgment (Basin Electric's Brief).

Basin Electric also considered supercritical technologies, but reluctantly eliminated them for the Dry Fork Station because the efficiency gains associated with this technology do not exist at 385 megawatts in an amount sufficient to justify the additional cost. This practical reality is

described in documents upon which Protestants themselves rely. *See, for example*, Protestant's Motion, Exhibit 31 at 40 (at "less than about 500 MW ... the performance improvement [with supercritical] isn't significant and the unit is more expensive than subcritical"). In short, Basin Electric did consider both IGCC and supercritical technologies, and DEQ did require Basin Electric to explain its decision not to employ either of these technologies, and Protestants' suggestion otherwise is simply false. *See* Williams Aff., attached to Basin Electric's Brief.

Protestants' real complaint is that the decision to reject these technologies was not made as part of the "BACT" process, during which DEQ evaluates potential pollution control technologies that can be applied to the emissions source selected by the permit applicant. However, Protestants concede that a permit applicant **cannot** be required by the BACT process to "redesign the source" of its planned project (citing p. B. 13 of EPA's New Source Review Manual), *see* Exhibit 2 to Basin Electric's Brief. Protestants' Motion at 20. Although Protestants ultimately concede this principle, Protestants first obfuscate it by spending the first 20 pages of their Brief arguing why IGCC and supercritical technologies could be considered "production processes" and "innovative fuel combustion techniques" as those terms are used in the BACT statute and regulation. 42 U.S.C. 7479(3); WAQS&R, Ch. 6, Section 4(a). But this argument misses the point. The statutory terms "production processes" and "innovative combustion techniques" cannot be construed or applied in such a fashion as to require the permit applicant to redesign its chosen source technology, so the question before the Council is **not** whether IGCC and supercritical can be described as "production processes" or "innovative fuel combustion techniques," but rather whether these technologies would require Basin Electric to redesign its chosen emissions source. *Sierra Club v. U. S. EPA*, 499 F.3d 653, 654 (7th Cir.

2007) ("*Sierra Club*") (the definition of BACT "does not include redesigning the plant proposed by the permit applicant.")

Factually, it is not disputed that both IGCC and supercritical technologies would require tremendous design changes to the proposed subcritical plant proposed by Basin Electric. In fact, Basin Electric would have to scrap its chosen emissions source and build a different one. Supercritical technologies do not use the same steel alloys, and an IGCC plant has no coal-fired boiler. Exhibit C to Williams Aff. and Sahu Depo. at 62-63, attached to Basin Electric's Brief. Protestants grudgingly acknowledge these fundamental design differences in the technologies. *See* Protestants' Motion at 16, 26 ("[t]o be sure, the pulverized coal and IGCC production processes differ . . . ."; ". . . subcritical and supercritical technology [requires] design modifications that account for the higher temperatures and pressures" of supercritical).

Protestants nevertheless assert that these fundamental differences in the plants and the technologies they employ are legally irrelevant because all three technologies start with the same fuel, coal, and make the same product, electricity, and therefore all are "production processes." *See, e.g*, Protestants' Motion at 26: "supercritical and subcritical boilers are simply two different types of pulverized coal 'production processes.'" However, by trying to reframe the "redefinition of the source" issue as a function of the fuel and the end product produced, and not the plant itself, Protestants eventually arrive at the fundamentally illogical argument that changing from one power plant to a completely different power plant is really not "redefining" the power plant at all. According to Protestants, only when there is a change in fuel does a "redefinition of the source" question arise. *See, for example*, Protestants' Motion at 20 and 21:

> EPA's paradigmatic example of a redefinition of the source is an applicant proposing to construct a coal-fired electric generator

> being forced to consider the construction of a natural gas-fired electric turbine. [cite omitted] Because the raw material would shift from coal to natural gas, this would be an example of an agency forcing the redefinition of the source.
>
> ...
>
> Because consideration of IGCC at Dry Fork Station would not involve any change in the raw material – Powder River Basin coal would be used by an IGCC or pulverized coal plant – Prairie State [a case rejecting efforts to change from one coal to another] does not support DEQ's refusal to require the consideration of IGCC.

(emphasis in original).

The error in this argument is manifest. Protestants' long and complicated legal argument is aimed at morphing the "redefinition of the source" question from whether the proposed technologies would change the design of the proposed **plant** to whether the proposed technologies would require a change in the proposed "fuel" or "raw material." However, the question in a redefinition case is whether the proposed technology would require the permit applicant to redesign its **plant**, not its **fuel**.

In *Sierra Club*, for example, Judge Posner specifically approved EPA's formulation of the "definition of the source" issue, which is that BACT "does not include redesigning **the plant** proposed by the permit applicant." *Sierra Club*, 499 F.3d at 655 (emphasis added). Although Protestants argue that the *Prairie State* case appealed to the Seventh Circuit turned on the fact that the petitioners in that case were advocating for a change in fuel, this argument misstates the holding of the case. Protestants' Motion at 21. In fact, the Environmental Appeals Board's (EAB) decision was upheld by the Seventh Circuit because changing the fuel source would require, in Judge Posner's words, the permit applicant to "reconfigure the plant" in order to

accommodate the new fuel, "and this reconfiguration would constitute a redesign." *Sierra Club*, 499 F.3d at 657. Changing fuel is not the issue, redesigning the plant is.

IGCC and supercritical would unquestionably require a complete redesign of Basin Electric's chosen plant, a subcritical pulverized coal boiler. In fact, Basin Electric would have to scrap the current plant boiler altogether and rebuild a new plant all the way down to the basic metallurgy. Applying the correct legal test, therefore, consideration of either IGCC or supercritical technology would require Basin Electric to redefine its proposed plant, which BACT does not require. The DEQ correctly so concluded. [2]

Protestants rely primarily upon the recent state court case of *Friends of the Chattahoochee, Inc. v. Couch*, Docket No. 2008-CV-146398 (Superior Court, Fulton County Georgia). There are two major problems with this case. First, under Georgia law this decision is suspended because it is on appeal. Ga. Stat. Ann. § 9-12-19 ("Where a judgment is entered and, within the time allowed for entering an appeal, an appeal is entered, the judgment shall be suspended."); *Greene v. Transport Ins. Co.*, 313 S.E.2d 761, 763 (Ga. Ct. App. 1984) ("In Georgia a judgment is suspended when an appeal is entered within the time allowed. And the

---

[2] Protestants seek a remand requiring DEQ to do a BACT analysis on IGCC and supercritical technologies. However, even if a BACT analysis were done on remand for these plant redesigns, such analysis will still be unacceptable to Protestants because Protestants' goal is to stop the use of **all** coal technologies, including IGCC and supercritical. *See* "Stopping the Coal Rush" at <http://www.sierraclub.org/environmentallaw/coal/plantlist.asp> listing "Victory!" for 69 coal-fired power plants, including IGCC and supercritical plants, that are not going forward. For example, as to a previously proposed but never permitted IGCC plant in Wyoming, Sierra Club's website boasts, "In yet another important victory in the fight against global warming, on December 6, 2007 PacifiCorp announced that they would scrap their plans to construct their proposed Jim Bridger coal-fired power plant." Basin Electric notes Protestants' public agenda so that the Council appreciates that remand after remand will always be sought by Protestants because they seek to halt the use of all coal technologies.

judgment is not final as long as there is a right to appellate review."). *Friends of the Chattahoochee* is suspended and so it is not legal authority for anything.

Second, the analysis in *Friends of the Chattahoochee* is plainly in error, to the extent the two-page discussion of this issue reflects any analysis at all. The state court judge relied on the federal BACT statute but did not seek to reconcile her analysis to the Seventh Circuit's decision in *Sierra Club*, which is persuasive authority on the interpretation of the federal BACT statute. The Georgia court does not even mention the Seventh Circuit's decision. The Georgia court's decision is also in direct conflict with the controlling interpretation of the BACT statute adopted by EPA, which is the agency with responsibility and authority to construe and apply the statute. This interpretation is entitled to great deference, which the Georgia trial court failed to give. *Lead Indus. Ass'n v. EPA*, 647 F.2d 1130, 1147 (D.C. Cir. 1980) ("EPA's construction of the Clean Air Act has been accorded considerable deference by the courts"), citing *DuPont v. Train*, 430 U.S. 112, 134-35 (1977); other citations omitted).

Protestants also cite administrative permit cases from Illinois, Michigan and New Mexico, where the permitting agencies chose to consider IGCC and supercritical technologies in the BACT process. However, these cases merely reflect different policy approaches taken by regulators in different states. The different exercise of policy discretion in Illinois, Michigan or New Mexico does not amount to binding law that Wyoming DEQ must follow.[3]

---

[3] In any event, the process in Illinois proved what Basin Electric has been saying all along. After requiring Indeck-Elwood to look at IGCC the Illinois EPA concluded that "[w]hile various claims have been made that the technology is available, they do not survive close scrutiny. While IGCC is expected to be the next generation of technology for coal-fired power plants, it is still a developing technology that is not yet mature. It is not appropriate for the permit to require use of a technology by the proposed plant that is not yet sufficiently developed to be

In fact, Wyoming long ago decided to follow EPA's "redefinition of the source" interpretation of BACT. Both DEQ and Basin Electric relied upon this settled law and policy in Wyoming, as they were entitled to do. As Basin Electric and DEQ both pointed out in their Motions for Summary Judgment, this Council has already held that a permit applicant in Wyoming cannot be required to change from one fundamental coal technology to another under the redefinition of the source rule, for precisely the same reasons articulated by the Seventh Circuit in *Sierra Club*. *In the Matter of a Permit Issued to Black Hills Power & Light Company, Neil Simpson Unit #2*, Permit No. CT-1028, Docket No. 2476-93 at Conclusions of Law ¶ 5 (attached as Exhibit 3 to Basin Electric's Brief).

DEQ acted in accordance with state and federal law when it declined to subject IGCC and supercritical technologies to a BACT analysis. Protestants' argument to the contrary should be rejected.

II. The Dry Fork permit fully addresses $PM_{2.5}$ in accordance with EPA guidance.

A. DEQ is entitled to rely upon EPA guidance.

Protestants admit that EPA has issued formal guidance allowing states like Wyoming to regulate $PM_{2.5}$ emissions for PSD permitting purposes by using PM_{10} as a surrogate for $PM_{2.5}$. Protestants' Motion at 37, 41 (quoting the Seitz Memo articulating the policy and subsequent codification by rulemaking of the surrogate policy on May 16, 2008). Protestants also acknowledge that DEQ followed that guidance in issuing Basin Electric's permit. (Protestants'

---

commercially accepted." IEPA, Responsiveness Summary for Public Questions and Comments on the Construction Permit Application from Indeck-Elwood LLC, Application No. 02030060, October 2003 at 3 (excerpt attached as Exhibit 1).

Statement of Undisputed Facts, ¶ 13). It therefore follows that DEQ followed EPA guidance relating to $PM_{2.5}$ in issuing Basin Electric's permit, and Protestants admit as much.

For this reason, Protestants are left to argue that EPA's guidance was illegal. *See* Protestants' Motion at 42: "EPA's rule exceeds EPA's authority...." In effect, therefore, Protestants are asking this Council to make the legal determination that EPA exceeded its statutory authority under the Clean Air Act and therefore DEQ's lawful reliance on EPA's guidance is illegal as well. But that legal fight does not belong before this Council, which does not adjudicate EPA's statutory authority. As Protestants acknowledge, a lawsuit challenging the codification of the $PM_{2.5}$ surrogate policy is already pending before the D.C. Circuit Court of Appeals in Washington, filed by the Natural Resources Defense Council. Protestants' Motion at 44, n.71. That is the proper forum for challenging EPA's statutory authority, not this Council.

In the interim, DEQ is entitled to rely upon EPA guidance, not simply assume the guidance is illegal. No less an authority than the United States Supreme Court has recognized that the Clean Air Act is a technical statute that requires scientific expertise and broad agency discretion to interpret and administer. *Chevron, U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 844 (1984); s*ee also Lead Indus. Ass'n*, *supra*, 647 F.2d at 1147 ("EPA's construction of the Clean Air Act has been accorded considerable deference by the courts"). More importantly for purposes of this case, federal law is well established that agencies like the EPA may issue interpretative and administrative guidance upon which DEQ and the public are entitled to rely. *Am. Newspaper Publishers Ass'n v. Alexander*, 294 F. Supp. 1100, 1103 (D.D.C. 1968) ("The promulgation of interpretive guidelines is a necessary function of an agency which is entrusted with the duty of administering a statute."); *Prod. Tool Corp. v. Employment and*

Training Admin., U.S. Dept. of Labor, 688 F.2d 1161, 1166 (7th Cir. 1982) ("It is well established that an agency charged with a duty to enforce or administer a statute has inherent authority to issue interpretive rules informing the public of the procedures and standards it intends to apply in exercising its discretion.").

Although Protestants assert that regulation of PM_{10} is not effective to regulate $PM_{2.5}$, and therefore the surrogate policy is invalid, this is a technical and factual assertion about the underlying science of $PM_{2.5}$ that goes far beyond the scope of this permit appeal. Consideration of this issue requires a detailed assessment of particulate emissions, the underlying science and chemistry behind the formation of secondary particulate matter, an understanding of the elements in the atmosphere that form such particles, the efficacy of various technologies to measure $PM_{2.5}$, the efficacy of various technologies to control $PM_{2.5}$, and the location and existing data for other potentially emitting sources. Litigating the truth (or error) of Protestants' assertions that PM_{10} is not a reasonable surrogate is simply not possible in the context of this permit appeal to the Council.[4]

If DEQ and its sister agencies in other states were unable to rely on EPA guidance to carry out their responsibilities it would be virtually impossible for them to operate. Day in and day out, questions present themselves that are not answered in statutes or regulations, so guidance and policy judgments have to be made. Only EPA is positioned, and has the resources,

---

[4] *See* Affidavit of Kenneth Snell which makes clear that: 1) the limited data currently available regarding control of $PM_{2.5}$ emissions from coal-fired boilers is of "below average" or "poor" quality, that such data would not be representative of emission from Dry Fork or suitable for a $PM_{2.5}$ BACT analysis for Dry Fork; and 2) the control technologies for PM_{10} at Dry Fork will have a removal efficiency great than 99.4% and provide good control of $PM_{2.5}$. Affidavit of Kenneth Snell Regarding $PM_{2.5}$ and Mercury (attached as Snell Aff.).

to make reasoned judgments that can be applied consistently across the country. EPA has made the technical assessment that PM_{10} is a reasonable surrogate for insuring compliance with $PM_{2.5}$ pending adoption of final rules for $PM_{2.5}$ and has concluded that use of PM_{10} as a surrogate for $PM_{2.5}$ is adequate on an interim basis to assure compliance with the NAAQS for $PM_{2.5}$. While Protestants are free to challenge the EPA on this issue, this is not the appropriate proceeding for doing so.

Protestants argue that "the Clean Air Act [does not] contain any provision for a transition period [for $PM_{2.5}$] during which noncompliance with standards is allowed," but this argument misses the point. Protestants' Motion at 42. Compliance with the PM_{10} surrogate policy **is** compliance with the standards applicable to $PM_{2.5}$ under EPA's broad authority to determine how compliance with the law is achieved. EPA clearly has authority to issue guidance concerning **how**, during a transition period, compliance with the NAAQS established for $PM_{2.5}$ may be demonstrated. For this reason, the Environmental Appeals Board has already held that EPA may apply the PM_{10} surrogate policy to insure compliance with $PM_{2.5}$ NAAQS pending final adoption of rules related to $PM_{2.5}$. *In re BP Cherry Point*, 12 E.A.D. 209, 222 (EAB 2005).

The bottom line is that EPA is legally empowered to issue guidance, and DEQ is legally authorized to rely upon it. Unless and until a court determines otherwise, the guidance is controlling, and DEQ is entitled to follow it. Protestants' assertion that the guidance is illegal is being litigated elsewhere, and is an issue not appropriate for this Council to adjudicate. DEQ did not err by relying on and following EPA's surrogate policy for regulating $PM_{2.5}$.

B. There are no health risks attributable to $PM_{2.5}$.

Basin Electric nevertheless appreciates that this Council might like some assurance that the use of the surrogate policy by DEQ will not create some discernible risk to health or the environment, particularly in light of Protestants' overheated assertions about "premature mortality" and "heart attacks." Protestants' Motion at 34. Protestants also imply, although they do not support the assertion with direct evidence, that the NAAQS for $PM_{2.5}$ are not going to be met if the Dry Fork Station is allowed to proceed and therefore health and safety issues may exist from the use of the surrogate policy.

This implication is false. The best available evidence demonstrates that $PM_{2.5}$ concentrations in the area, including Dry Fork's minimal contribution, will be far below the most stringent NAAQS standard promulgated by EPA in 2006, which is 35 $\mu g/m^3$. Wyoming has already determined that the entire state is in compliance with this new 24-hour standard for $PM_{2.5}$, including Campbell County. EPA has proposed to approve this finding of statewide attainment, and Protestants acknowledge this. Protestants' Motion at 34-35. Protestants nevertheless unaccountably allege that "[t]he science is clear that $PM_{2.5}$ poses a major health threat to Wyoming's citizens." Protestants' Motion at 45.

But there is absolutely no factual basis for this claim. The only "evidence" advanced by Protestants in support of this assertion is that "very limited monitoring in Wyoming shows that two areas are close to violating the new NAAQS standards," Sheridan and Lander, because "[t]he average monitored ambient levels in Sheridan and Lander were 32 $\mu g/m^3$ and 31 $\mu g/m^3$

respectively[.]"[5] Protestants' Motion at 35, 45. This selective data has no bearing on the Dry Fork Project because Sheridan and Lander are 78 and 196 miles from the Dry Fork Station and thus Dry Fork will have no impact on these numbers.

Protestants conveniently choose to ignore the ambient air quality where Dry Fork actually will be sited. Monitoring results are available from three stations in Campbell County near Dry Fork (50, 21 and 7 miles away) from EPA's AirData website, and these monitoring stations show three-year average 98th percentile 24-hour values that are in the range of 22.2 to 12 $\mu g/m^3$, with the lowest reading nearest Dry Fork. This reading of 12 $\mu g/m^3$ is only 34% of the new NAAQS for $PM_{2.5}$. Affidavit of Robert Pearson Regarding $PM_{2.5}$ (attached as Pearson Aff.). Adding the 4.2 $\mu g/m^3$ modeled 24-hour impact of Dry Fork on PM_{10} ambient concentrations, and conservatively assuming that all of these impacts are 100% $PM_{2.5}$ (which of course they are not), still yields a total ambient concentration of only approximately 16.2 $\mu g/m^3$, or only about 46% the 2006 24-hour $PM_{2.5}$ NAAQS. Protestants' claim that Dry Fork may exceed the NAAQS for $PM_{2.5}$ and thus have a potentially adverse effect on health is not only misleading, it is false. Protestants offer a lot of overwrought speculation, not data.

C. In practice, all reasonable measures are being taken to reduce emissions of $PM_{2.5}$ from Dry Fork.

Not only are there no health risks from $PM_{2.5}$ associated with the Dry Fork Station, Basin Electric has already taken steps that can reasonably be employed to minimize $PM_{2.5}$ emissions.

---

[5] Protestants are also in error in claiming that Wyoming integrated the NAAQS for $PM_{2.5}$ into its air quality regulations. Protestants' Motion at 34. In fact, the Wyoming rules incorporate the 1997 $PM_{2.5}$ NAAQS, but have not yet incorporated the 2006 NAAQS. WAQS&R Chapter 2, § 2(b).

As explained in Basin Electric's Brief, all of the constituents of $PM_{2.5}$ are being controlled with BACT-reviewed technologies: 1) SO_2 and NO_2, the precursors and main components of condensable $PM_{2.5}$ (sulfuric acid mist and hydrogen fluoride) are already subject to extremely strict BACT limits that are among the most stringent in the country for new pulverized coal power plants; 2) direct particulate emissions are subject to strict PM_{10} limits that are among the most stringent in the country for new pulverized coal power plants;[6] and 3) the Dry Fork Station will install the type of fabric filter bags that Protestants' expert says is appropriate for controlling primary $PM_{2.5}$ emissions. Snell Aff. All of this is being accomplished in the context of complying with EPA's PM_{10} surrogate policy, which in large part explains why the surrogate policy is grounded in solid environmental science.

Protestants' complaints are therefore not supported by health concerns, or by a lack of effective controls for $PM_{2.5}$. They are driven instead by a desire to halt coal-fired technology altogether, a political agenda that they seek to be accomplish by litigation. Fundamentally, their real complaint is with EPA's PM_{10} surrogate policy. That fight is pending in the D.C. Circuit Court and does not belong here.

Contrary to Protestants' claims, neither Basin Electric nor DEQ has failed to comply with PSD requirements for $PM_{2.5}$ and DEQ is not "avoid[ing] these legal requirements." Protestants' Motion at 36. Compliance with $PM_{2.5}$ has been demonstrated by demonstrating compliance with PM_{10} as a surrogate, consistent with EPA guidance and policy. The DEQ has consistently applied the EPA's PM_{10} surrogate policy since 1997, and it is established practice in Wyoming

---

[6] Mr. Snell's Affidavit notes that the Dry Fork PM_{10} BACT emission limit is among the most stringent PM_{10} limits in the country for a pulverized coal-fired unit.

upon which both Basin Electric and DEQ have relied. *See* Affidavit of Chad Schlichtemeier, ¶ 48, attached as Exhibit 1 to the DEQ's Motion for Partial Summary Judgment.

The tone of Protestants' argument infers that EPA's surrogate policy is letting sources get away with something. That makes no sense. **It was EPA that adopted the more stringent 2006 NAAQS in the first place**—why do that if it intended to let people off the hook? For now, the surrogate policy is the most effective way to address $PM_{2.5}$ in the PSD program. In addition, it is important to keep in mind that the PSD program is not the primary means for achieving compliance with the $PM_{2.5}$ NAAQS. That is done principally by the Clean Air Act process of designating areas that are not achieving compliance and requiring states to develop implementation plans (SIPs) to bring these areas in compliance. EPA will soon designate nonattainment areas and states will proceed to develop $PM_{2.5}$ SIPs.

Moreover, the regulatory tools to separately regulate $PM_{2.5}$ without the surrogate policy do not yet exist, so abandoning the surrogate policy would leave Wyoming without the legal infrastructure to regulate the pollutant, thereby frustrating commercial development of any new major emitting source. As Protestants acknowledge, there are still no promulgated $PM_{2.5}$ increments, SILs or significant monitoring levels. Protestants' Motion at 41, n.26. Wyoming has not yet adopted necessary $PM_{2.5}$ regulations to enable it to carry out EPA's recently-adopted implementation rules, and it has until 2011 to adopt those rules. Without properly adopted rules, there has been no consideration of the issue by the Air Quality Advisory Board and no public notice and comment on any regulatory structure for $PM_{2.5}$. There is still very little emissions data from existing and new sources, which would make modeling an exercise in speculation. Snell Aff.

Finally, Protestants argue that "numerous states" now recognize the surrogate policy is no longer valid. Protestants' Motion at 39-40. However, the only examples cited are a ruling of the Montana Board of Environmental Review, a guidance memo from the Connecticut Department of Environmental Protection,[7] and a suspended ruling of a trial court in Georgia. Everyone else continues to follow EPA's surrogate policy. DEQ did not err by relying on the surrogate policy, which it had the legal right to do.

III. The Dry Fork Station will not cause or contribute to any violation of the SO_2 increment at the Northern Cheyenne Indian Reservation.

A. DEQ relied on the *de minimis* exception to the meaning of "cause or contribute."

Protestants urge the Council to deny Basin Electric a permit on the grounds that the Dry Fork Station will "cause or contribute" to an SO_2 increment violation in the Class I area covering the Northern Cheyenne Indian Reservation (NCIR) in Montana. At times Protestants' Motion seems to suggest that the permit must be denied even if the Dry Fork Station will not impact the Class I area at all. But that is not the law. To deny a permit based on PSD increments there must be not only a violation of an increment but the permitted source must also **cause or contribute** to that violation. *See* Basin Electric's Brief at 41, 44-47; WAQS&R Chapter 6, § 2(c) (expressly listing significance levels that will be "considered to cause or contribute" to a violation ; *id.* at § 4(b)(i)(A) (which specifically concerns PSD permits and refers back to and requires

---

[7] Unlike Wyoming, Montana (Lincoln County) and Connecticut (Fairfield and New Haven Counties) already have areas designated as non-attainment for $PM_{2.5}$ or EPA recommendations for non-attainment designations. *See, e.g.*, Ex. 35 to Protestants' Motion. Thus, those states may have a different reason and policy to try to address $PM_{2.5}$ before EPA does. Even so, Connecticut still recognizes that "A permit applicant may assume $PM_{2.5}$ emissions are equivalent to PM_{10} emissions." *Id.*

compliance with Section 2, including the cause or contribute provisions); *id.* at § 4(b)(v) (providing that where a federal official notifies the state that emissions from a proposed source might cause or contribute to a change in the air quality in a Class I area, "a permit shall not be issued unless the owner or operator of such source demonstrates to the satisfaction of the [DEQ] that emissions of particulate matter, sulfur dioxide, and nitrogen oxides will not cause or contribute to concentrations which exceed the maximum allowable increases [increments] for the Class I Area in question.").

The question is what "cause or contribute" means. As explained in Basin Electric's Brief, EPA policy and the law is settled that a source does not "cause or contribute" to an increment violation if its contribution to the increment is below the "significant impact level" or "SIL" for that pollutant. *See* Basin Electric's Brief at 48-50. This approach is grounded in the common sense idea that the law does not concern itself with "trifling matters":

> Categorical exemptions may also be permissible as an exercise of agency power, inherent in most statutory schemes, to overlook circumstances that in context may fairly be considered *de minimis*. It is commonplace, of course, that **the law does not concern itself with trifling matters**, and this principle has often found application in the administrative context. **Courts should be reluctant to apply the literal terms of a statute to mandate pointless expenditures of effort**. As we wrote in *District of Columbia v. Orleans*, 132 U.S.App.D.C. 139, 141, 406 F.2d 957, 959 (1968), "(t)he '*de minimis*' doctrine that was developed to prevent trivial items from draining the time of the courts has room for sound application to administration by the Government of its regulatory programs . . ." **The ability, which we describe here, to exempt *de minimis* situations from a statutory command is not an ability to depart from the statute, but rather a tool to be used in implementing the legislative design**. Determination of when matters are truly *de minimis* naturally will turn on the assessment of particular circumstances, and the agency will bear the burden of making the required showing. But we think most

> regulatory statutes, including the Clean Air Act, permit such agency showings in appropriate cases."

Alabama Power Co. v. Costle, 636 F.2d 323, 360 (D.C. Cir. 1979) (citations omitted) (emphasis added). "Unless a statute or regulation employs 'extraordinarily rigid' language, courts recognize an administrative law principle that allows agencies to create unwritten exceptions to a statute or rule for '*de minimis*' matters." *Kentucky Waterways Alliance v. Johnson*, 2008 WL 4057140, *21 (6th Cir. Sept. 3, 2008) (quoting *Greenbaum v. EPA*, 370 F.3d 527, 534 (6th Cir. 2004).

Here, Protestants do not dispute that the modeling confirms that the Dry Fork Station will **never** have an impact on any SO_2 increment violation that exceed the SILs for SO_2. Thus, as a matter of law, Dry Fork Station's impact is never more than *de minimis* and thus **never** "causes or contributes" to an increment violation. While the Class I SILs, applied in this case by the DEQ have not been formally adopted in regulations, they were proposed as EPA regulations in 1996 and have been widely used as a *de minimis* standard by air permitting agencies all over the country since then and have been widely endorsed in EPA memos and guidance and decisions of courts and the Environmental Appeals Board. Basin Electric's Brief at 45-50.

The level of these SILs was not randomly or arbitrarily selected. EPA proposed to set the SILs at 4% of the Class I increments, and "[t]he EPA previously used a similar rationale to establish the significant emissions rates for PSD applicability purposes, concluding in part that emissions rates which resulted in ambient impacts less than four percent of the 24-hour standards for particulate matter and SO_2 were sufficiently small so as to be considered *de minimis*." 61

Fed. Reg. 38250, 38292 (July 23, 1996).[8] Of course, the contribution of Dry Fork to modeled increment violations is far, far below this SIL. Basin Electric's Brief at 49.

Protestants nevertheless argue that the regulations bar permitting of sources "that would impact ongoing increment violations." Protestants' Motion at 56 (emphasis added). Under this "impact" formulation, even just a trillionth of a gram of "impact" would require the permit to be denied. However, the controlling statutory test is not whether there is an "impact," it is whether an impact "causes or contributes" to a violation. This is a significantly different standard, and explains why the *de minimis* concept is applied. A trifling impact does not "cause" anything, whereas Protestants' incorrect "impact" standard would require a permit to be denied solely because a computer model predicts the source will contribute a trillionth[9] of a gram toward a modeled violation of a PSD increment. And, as in the case of Dry Fork, a permit could be denied even if all but a trillionth of a gram of the impact was the result of a large source in

---

[8] EPA Region VIII submitted comments to DEQ on the draft Dry Fork Station permit, but none of those comments related to the SO_2 increment modeling for the NCIR or DEQ's use of Class I SILs to determine that Dry Fork Station did not cause or contribute to the modeled increment violation at the NCIR. If EPA believed that Dry Fork was causing or contributing to a Class I increment violation, it clearly would have challenged DEQ's use of the SILs (*see Chipperfield v. Missouri Air Conservation Comm'n*, 229 S.W. 3d 226, 245 (Mo. App. 2007) (EPA's failure to challenge could be reasonably inferred that the EPA concurred in the permitting agency's analysis)) or would have intervened to stop construction of Dry Fork Station (*see Alaska Dep't. of Envtl. Conservation v. EPA*, 540 U.S. 461, 487 (2004) (CAA authorizes EPA to stop construction of a facility permitted by a state under the PSD program but "EPA will not intervene if the state agency has given 'a reasoned justification for the basis of its decision.'"). EPA Region VIII took neither action, thereby approving DEQ's use of SILs to determine that Dry Fork Station did not cause or contribute to a modeled increment violation in the NCIR.

[9] One correction should be noted to Basin Electric's Brief at 49, which states that on the 29 days when Dry Fork was modeled to have a non-zero impact at the NCIR, the amount of that impact was between 200 and 900 **billionths** of a gram per cubic meter. Counsel for Basin Electric have

another state. Such a small impact would cause a permit to be denied without any real-world effect on actual air quality, and air permits would be held hostage to the ever-more sophisticated computer software which can model ever smaller non-zero concentrations. Basin Electric's Brief at 43, 50-51.

This result is not warranted for protection of the environment, and it would have a disastrous impact on Wyoming if adopted. There are good reasons to use the *de minimis* levels to determine whether a source will "cause or contribute" to increment violations. Computer models being what they are, if a trillionth of a gram impact is enough to deny the Dry Fork permit, then Wyoming will never again be able to permit a new major emissions source anywhere within 100 miles of the Montana border, thus effectively curtailing economic development in northern Wyoming over a modeled trillionth of a gram. This is the practical reason for the *de minimis* rule, and Protestants ignore it despite the absence of any meaningful health or environmental impact from pollutant concentrations below *de minimis* levels.

Protestants' Motion offers no authority whatsoever to support the "impact" argument. Protestants rely exclusively on the bold, unsupported assertion that: "[T]here is no 'wiggle room' in the applicable regulation." Protestants' Motion at 55. But this ignores the well-settled proposition that agencies have legal authority to overlay a *de minimis* threshold to a statutory or regulatory limit. *Kentucky Waterways Alliance*, 2008 WL 4057140 at *21 (quoting *Greenbaum v. EPA*, 370 F.3d 527, 534 (6th Cir. 2004)). Protestants therefore offer no cogent argument to

---

been informed by Mr. Robert Pearson that in fact the amount of those modeled impacts were 200 to 900 **trillionths** of a gram per cubic meter.

invalidate the DEQ's conclusion that Dry Fork does not cause or contribute to any increment violation at the NCIR.

B. When modeling is done in accordance with federal and state regulations, based on actual emission not allowable emission, there is no 24-hour increment violation.

As Basin Electric explained in its Brief in support of its own Motion for Summary Judgment, the applicable regulations provide for the use of actual emissions to determine compliance with increments. Basin Electric's Brief at 51-52. When modeling of the 24-hour increment is done using actual emissions for Colstrip Units 3 and 4, rather than higher allowable emissions, there are no increment violations. *Id.* Protestants suggest that Basin Electric is not now allowed to point this out because Basin Electric somehow waived this argument by failing to "timely challenge" the DEQ's requirement to model Colstrip at allowable levels. However, in the lone case cited by Protestants in support of this "waiver" argument the plaintiffs failed to challenge the conditions in their permit. In this case, Basin Electric is not challenging any condition contained in the Dry Fork permit, it accepts the permit. In fact, it would not have been possible for Basin Electric to appeal that requirement at the time even if it had wanted to, because no permit had been issued and therefore the issue was not ripe for appeal. To preclude Basin Electric from pointing out this issue now would lead the perverse notion that parties are required to appeal their own permit just to preserve arguments in response to other permit appeals. It is the Protestants, not Basin Electric, that challenge this permit. In presenting the information that modeling with actual emissions actually shows no 24-hour increment violation at all, Basin Electric is pointing out an additional ground for upholding the permit.

IV. DEQ did not err in its treatment of mercury.

A. Introduction.

Protestants characterize the permit's adjustable mercury emission limitation as a "free pass." Protestants' Motion at 49. This is grossly misleading. The Dry Fork permit actually imposes significant obligations on Basin Electric to control its mercury emissions, with a mercury emission limit, the requirement to install and operate a mercury control system within 90 days of startup, **and** the requirement that Basin Electric conduct a mercury control optimization study, after which the permit will be reopened and new emission limits may be imposed.

Unlike most pollutants that have a long technical control history, regulation of mercury emissions from power plants is just beginning and control technologies have not yet been fully developed and proved. There has been little experience with mercury control technologies for sub-bituminous coal boilers, and several different technologies are under consideration. No plant in the country has yet studied mercury control in a plant, like Basin Electric's, that will employ a circulating dry scrubber for sulfur dioxide emissions, itself a relatively new technology with limited operating experience. This case is literally the first of its kind.

In the face of these technical uncertainties, DEQ made the most prudent and sensible choice possible: rather than mandate an unproven control technology that might not even work and rather than impose a mercury limit based upon an unproven technology, either of which would have been a sure recipe for problems later, DEQ decided to establish an initial mercury control emissions limit equal to the federal New Source Performance Standard (NSPS) of 97 x 10^{-6} pounds per megawatt/hour and then require Basin Electric to install, operate and test

mercury control technologies within 90 days of initial start-up. After this mercury optimization study, a decision will be made regarding new mercury limits based upon the results of the control technology study. This approach allows for testing of various different control technologies in actual operation, so that the most effective and reasonable technology under the BACT criteria can then be selected. This approach to a new pollutant is well-established and has been followed around the country (including Wyoming), and is the approach to mercury taken recently in a number of permits elsewhere around the country. DEQ's treatment of mercury in the permit is both aggressive and legally sound, and Protestants err when they contend otherwise.

B. The Dry Fork Station's mercury emissions present no health hazard.

It is important to stress at the outset that Basin Electric's permit application demonstrates that the level of mercury emissions at Dry Fork will fall far below levels harmful to public health. The modeled mercury health risk from the Dry Fork Station is less than 1% of the hazard index – well below levels necessary to protect public health. *See* Dry Fork Permit Application § 7.9, Table 7-11 (attached as Exhibit 2). There is no health concern associated with the Dry Fork emissions, and Protestants offer no evidence to the contrary.

C. Significant technical uncertainties exist over mercury control technologies.

During the one-year period covered by the optimization study, Basin Electric must install a mercury control system and commence its study of that system within 90 days of initial startup of the boiler. The target emission level for the study is 20 x 10^{-6} (0.000020) pounds per megawatt/hour, which is within the range of mercury emission levels specified in other recently issued permits. Based on the study's results, DEQ will then reopen the permit and establish a final BACT emission limit to achieve maximum reductions considering technical feasibility and

cost. DEQ chose to mandate a mercury optimization period because it concluded that "mercury control is an evolving technology and control efficiencies are site specific depending on coal properties and control devices used for other pollutants." DEQ Oct. 15, 2007 Decision at 13 (excerpt attached as Exhibit 3).

A significant level of uncertainty remains in general regarding the availability, feasibility, and effectiveness of mercury control strategies on coal-fired boilers, and no information or test data exist specifically regarding the effectiveness of the potential control strategies on a unit employing the control technologies determined to represent BACT for the Dry Fork Station.[10] Indeed, mercury control systems are in various stages of development and commercial deployment, and mercury control systems remain emerging technologies. Snell Aff. at ¶ 25. Moreover, DEQ faced a paucity of analytical data regarding the effectiveness of control strategies that depend on site-specific or design-specific considerations.[11] These factors combined to shroud in uncertainty what emission limits, based on current technologies, would be both stringent and realistic. DEQ therefore concluded that additional study for a year of these control technologies in operation would alleviate that uncertainty by providing hard data regarding the lowest achievable levels of mercury emissions achievable at Dry Fork.

---

[10] These technologies include selective catalytic reduction (SCR) for NOx control, circulating dry scrubber (CDS) for SO_2 control, and fabric filter (FF) baghouse for PM_{10} control. Snell Aff. ¶ 20-21, 25.

[11] Such considerations include changing operating conditions, or variability in the composition of the coal or fly ash. Basin July 11, 2006 Comments in Response to Permit Application at 4, a copy of which is attached as Exhibit 4. Snell Aff. at ¶ 17.

The Snell Affidavit discusses the MidAmerican Energy Unit 4 – which is fired by sub-bituminous coal and equipped with an activated carbon injection system for mercury capture on an on-going basis. Snell Aff. at ¶ 22.[12] The MidAmerican Unit's permit also includes a directive to conduct a mercury control optimization study in order to evaluate the efficacy of the activated carbon injection system. Snell Aff. at ¶ 23. Based on the results of the optimization study, which have not yet been made publicly available, the permit will be reopened and the mercury limits will be adjusted accordingly. Snell Aff. at ¶¶ 23-24.[13] Thus, quite the reverse of what Protestants claim, the Dry Fork mercury optimization period is right in keeping with other plants' permit provisions for adjustable limits, reflecting the current dearth of good data on which to base a reliable mercury emissions limits. At MidAmerican, the selection of activated carbon injection may prove to have been premature and not necessarily the best option. The optimization period for Dry Fork will help avoid a premature choice of BACT technology.

D. DEQ has the legal right to regulate mercury with an interim emissions limit and optimization study.

It was not legally erroneous for DEQ to regulate mercury this way. In fact, it makes perfect sense under the Clean Air Act, because requiring several plants around the country to engage in simultaneous optimization studies generates the fastest and most reliable database for

---

[12] However, because MidAmerican does not employ circulating dry scrubber technology for SO_2 control, there are significant differences between the two plants that may affect the technical feasibility and effectiveness of potentially available mercury control technologies. Snell Aff. at ¶ 24. As such, results from MidAmerican may be of limited value in establishing an appropriate mercury control emissions limit for the Dry Fork Station.

[13] The Xcel Energy Comanche Unit 3, another of the four plants mentioned by Protestants, Protestants' Motion at 49, also provides for a one-year test program of various mercury removal technologies. *See* Exhibit 4.

the rest of the country to employ on mercury going forward. Technologies are rapidly tried, proved and then implemented. The Environmental Appeals Board has therefore on several occasions upheld the use of adjustable emissions limits following an optimization period.

For example, *In re Prairie State Generating Station*, PSD Appeal No. 05-05 (EAB 8-24-2006), the EAB considered whether review of a permit issued by the Illinois EPA (IEPA) was warranted on the grounds that the permit's total PM_{10} limit was less stringent than the total PM_{10} limits at other facilities. Although the IEPA considered recently issued and proposed total PM_{10} limits for other facilities in setting a total PM limit for Prairie State, it did not adopt the limits from those permits, explaining that "the collection of information assembled in this comment does not demonstrate that a limit of 0.018 lb/mmBtu for total PM_{10} is achievable in the sense that the Illinois EPA believes is needed to set a BACT limit. It is not clear that this information is reliable." *Id.* at slip. op. at 107.

To deal with this technical uncertainty, IEPA established a higher initial limit but required this limit to be adjusted downward based on subsequent tests of Prairie State's actual performance. *Id.* at 110. IEPA explained the adjustment provision was an "essential component" of IEPA's BACT analysis, and the EAB upheld this determination, noting that IEPA's decision was based, at least in part, on its conclusion that there was an "uncertain current state of scientific knowledge about condensable particulate emissions, total PM_{10} emissions, and their control." *Id.* at 110.

Likewise, *In re AES Puerto Rico, L.P.*, 8 E.A.D. 324 (EAB 1999), the EAB sustained a permitting authority's decision to issue a permit containing BACT limits subject to adjustment on post-construction performance data. There, the permit at issue set a low BACT limit for

PM_{10}, but it allowed for upward adjustment of that limit, with a cap, after the facility obtained stack test data after construction. *Id.* at 349. The EAB observed that the permitting authority was faced with some uncertainty as to which emission limit was achievable and so, under the circumstances, "the use of an adjustable limit, constrained by certain parameters, and backed by a worst case air quality analysis, is a reasonable approach." *Id.* As such, the EAB found the adjustable limit did not indicate clear error or an important policy matter warranting its review. *Id.* at 350.

The EPA has employed, and the EAB has upheld, the use of optimization clauses as a hedge against a lack of meaningful, comparable data in air permits for almost two decades. *See, e.g., In re Indeck-Elwood, LLC*, PSD Appeal No. 03-04 (Sept. 27, 2006), 13 E.A.D. __, slip op. at n.126 (noting that the EAB has often held that limits which ratchet downward based on assessments that take place after permit issuance, as provided in an optimization clause, are not per se impermissible); *In re Rockgen Energy Center*, 8 E.A.D. 536, 554 (EAB 1999) (commenting that the State may require that once the facility is operational, any permit provisions designed to reduce emissions be refined over time "so as to increase their efficiency and effectiveness"); *In re Pennsauken County, N.J. Resource Recovery Facility*, 2 E.A.D. 768, 771 (Adm'r 1989) (observing that the addition of an optimization clause in the permit requiring the State to minimize emissions of NOx and ammonia based on tests conducted after permit issuance should ensure operation at maximum efficiency).

As evidenced by these cases, EPA's longstanding practice is to make use of optimization periods when robust data tracking performance of a given technology is not yet available. The EAB has acknowledged the utility of an optimization period in helping to establish the maximum

achievable reduction in emissions level, and it has time and again approved the use of such adjustable limits in setting a BACT emission limit. As such, Protestants' complaint regarding the Dry Fork Station's permitted adjustable mercury limits has no basis in law or in fact.

Basin Electric respectfully requests this Council deny Protestants' request to remand the permit to DEQ on this issue. Any such remand would only require DEQ to guess about an appropriate BACT limit for mercury emissions because, as discussed above, no data is yet available to measure the efficacy of various control options currently being developed. DEQ's very intent in employing an optimization period in the Dry Fork permit was to avoid guessing and conjecture. Rather than forcing DEQ to make a hasty, ill-informed determination with no scientific backing, this Council should uphold DEQ's decision – which is consistent with EPA's longstanding practice – to wait for available data that can serve as the basis for a sound emission limit.

V. Protestants lack standing because the Environmental Quality Act imposes a more stringent standing requirement than the APA.

Protestants claim they are entitled to proceed before this Council without making any showing of standing. However, even they disbelieve this argument, as shown by the member affidavits they attach to their Motion (Ex. 2-8). In conceding the requirement to demonstrate harm, however, Protestants rely on the wrong statute for standing, improperly assert organizational standing not conferred under the correct statute, and fail to show the required unique and non-hypothetical injury for their members signing affidavits.

To obtain judicial review of a permit issued under the Wyoming Environmental Quality Act (WEQA), "[a]ny aggrieved party **under this act** [i.e., as defined specifically in and for the WEQA]...may obtain judicial review by filing a petition for review...pursuant to the provisions

of the Wyoming Administrative Procedure Act" (WAPA). W.S. § 35-11-1001(a). Under WAPA, judicial review is available to "any person aggrieved or adversely affected" by an agency decision **unless** there is "**any statutory** or common-law **provision** precluding or **limiting judicial review.**" W.S. § 16-3-114(a). The WEQA has such a statute limiting judicial review. The WEQA's definition of "[a]ggrieved party" is obviously different from and more restrictive than the WAPA – the WEQA limits "aggrieved party" to any party seeking admission to a proceedings "because of damages that person may sustain or be claiming because of his **unique position in any proceeding held under this act.**" W.S. § 35-11-103(a)(vii). Protestants ignore the WEQA's more limited right of review and erroneously rely on the WAPA.

The word "unique" in the WEQA was put in by the legislature to mean something, and standard rules of statutory construction in Wyoming first require seeking the legislature's intent by looking to the common meaning of words used in a statute. *Bd. of County Com'rs of County of Laramie v. City of Cheyenne*, 85 P.3d 999 (Wyo. 2004) (using Merriam-Webster's Collegiate Dictionary). "Unique" is defined as in Merriam-Webster's as "1: being the only one: **sole**; 2a: being without a like or equal: **unequaled**; 2b: distinctively characteristic: **peculiar**; 3: **unusual.**" At the time the legislature drafted the WEQA in 1973, the WAPA already existed, and the legislature obviously intended the words "unique position" to place a limit on aggrieved parties claiming the right to review of proceedings under the WEQA. Basin Electric contends that the legislature not only intended a heightened requirement for standing for individuals seeking review of an action under the WEQA, but also intended that Wyoming not become embroiled in national agendas led by environmental organizations to challenge environmental decisions taken under the WEQA. Protestants, as organizations, cannot rely on a unique position

in this protest because they have none. Certain individuals might hypothetically meet the more strict test for review of WEQA actions, but the individual affidavits submitted by Protestants also fail to show a "unique position," resulting in damages arising under the WEQA.

To be "aggrieved or adversely affected in fact" under the WAPA (a lower threshold to obtain review not applicable to seeking review of a permit granted under the WEQA anyway), a party must have a legally recognizable interest that has been affected by the agency's action. This must be demonstrated by "a perceptible, rather than a speculative, harm resulting from the agency action. 'The interest which will sustain a right of appeal must generally be substantial, immediate, and pecuniary. A future, contingent, or merely speculative interest is ordinarily not sufficient.'" *Jacobs v. State ex rel. Wyo. Workers' Safety & Comp. Div.*, 100 P.3d 848, 850 (Wyo. 2004) (citations omitted).

Protestants' members' affidavits expressing health "concerns," "worry," and "fear" merely allege conjectural health injuries, and such allegations fall short of the requirements for standing in federal courts requiring the same concrete, non-hypothetical injury that Wyoming requires. *See, e.g., Cent. and South West Servs., Inc. v. EPA*, 220 F.3d 683, 698-702 (5th Cir. 2000) (affiants' "subjective concerns," "fears" and "apprehensions"—without evidence to support them—were insufficient to confer standing); *Natural Res. Def. Council v. EPA*, 464 F.3d 1, 6 (D.C. Cir. 2006) (court required "substantial probability" of injury shown not by individual allegations but only by expert affidavit quantifying specific health impacts).

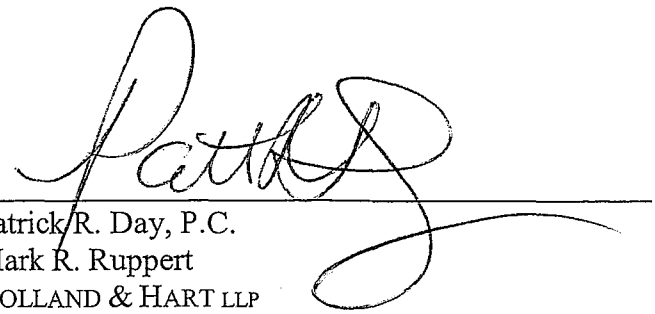
Some of the affidavits further claim a general lack of enjoyment of certain public lands (e.g., national monuments and parks) near Dry Fork Station (Protestants' Motion, Exs. 2-4, 6), despite the fact that these claims fail to match the evidence assembled by Protestants in this case.

None of Protestants' issues presented for review in this proceeding involve conditions at national monuments or national parks, and none of their **experts' reports and opinions have offered evidence** regarding such conditions. The only issue presented by Protestants regarding a Class I area relates to the alleged impact of Dry Fork on the 24-hour SO_2 impact at the NCIR. None of the offered affidavits are from NCIR Tribe members or people who use NCIR lands, and of course the NCIR did not appeal the permit. Because impacts on public lands from Dry Fork Station are not an issue in this proceeding, affidavits alleging such impacts cannot be bootstrapped as the basis for standing. Summary judgment on standing is inappropriate in this case and should be denied.

VI. Conclusion.

Protestants lack standing to pursue this appeal because they do not have the "unique" injury required under the restrictive standing requirements of Wyoming's Environmental Quality Act. Nor have Protestants identified any errors of law committed by DEQ. Basin Electric therefore respectfully requests that their Motion for Summary Judgment be denied.

DATED September 12, 2008.



Patrick R. Day, P.C.
Mark R. Ruppert
HOLLAND & HART LLP
2515 Warren Avenue, Suite 450
P.O. Box 1347
Cheyenne, WY 82003-1347
Telephone: (307) 778-4200
Facsimile: (307) 778-8175

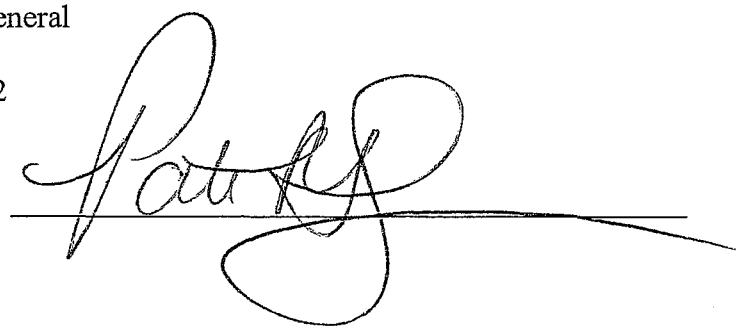
ATTORNEYS FOR BASIN ELECTRIC POWER COOPERATIVE

CERTIFICATE OF SERVICE

I hereby certify that on September 12, 2008, I served the foregoing Basin Electric's Memorandum In Opposition to Protestants' Motion for Summary Judgment by placing a true and correct copy thereof in the United States mail, postage prepaid and properly addressed to the following:

James S. Angell
Robin Cooley
Andrea Zaccardi
Earthjustice
1400 Glenarm Place, #300
Denver, CO 80202

Jay A. Jerde
Deputy Attorney General
Nancy E. Vehr
Senior Assistant Attorney General
Luke Esch
Assistant Attorney General
123 Capitol Building
Cheyenne, WY 82002



3914776_2.DOC

FOWLER DEPO

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
OF THE STATE OF WYOMING

DEPOSITION OF: MICHAEL SERGIO FOREMAN-FOWLER
VOLUME II
EXAMINATION DATE: August 14, 2008

IN THE MATTER OF:	)
	) Docket No. 07-2801
BASIN ELECTRIC POWER	) Presiding Officer,
COOPERATIVE, DRY FORK STATION,	) F. David Searle
AIR PERMIT CT-4631	)

PURSUANT TO NOTICE, Volume II of the deposition of MICHAEL SERGIO FOREMAN-FOWLER was taken at 7:33 a.m., on August 14, 2008, at 555 Seventeenth Street, Suite 3200, Denver, Colorado 80202, before Patricia S. Newton, Registered Professional Reporter and Notary Public in and for the State of Colorado, said deposition being taken pursuant to the Wyoming Rules of Civil Procedure.

Patricia S. Newton
Registered Professional Reporter

Q Would a substitute for federal support be a lump-sum turnkey guarantee?
A I don't follow you.
Q If I am Basin Electric and I need to build a power plant in Wyoming and I can't get federal subsidies for an IGCC plant and it's a technology that is fairly new.
Would you agree with that, by the way?
A That IGCC is a technology that's fairly new?
Q Yes.
A There have been -- the first IGCC, I believe, was in 1969. So it's a technology that's been around for quite a while.
Q Technology that doesn't really work at the 80 percent -- 85 percent availability that it's been designed to meet, right?
A If you exclude the -- the natural gas or other backup fuel and you look only at the -- the units fueled by coal, that may be true.
I don't recall your whole sentence there.
Q Well, let me start over.
If I can't get a government subsidy and I can't get a lump-sum turnkey guarantee from a

vendor, given the history of operational availability, would you agree that I'm at much greater risk than I would be if I built a PC plant?
A I'll repeat it so I understand.
If you can't get government support in some way and you can't get a lump-sum turnkey, do I agree that you're at greater risk?
Q Compared to --
A Compared to a pulverized-coal plant?
Not necessarily. The lump-sum turnkey may -- you know, the cost of adding a lump-sum turnkey component to the project may increase the financial risk of the project.
Q Whether I can get a lump-sum turnkey or not, if the plant doesn't put out electricity and what my project needs are, then I'm better off to have a PC plant, aren't I?
A I think I understand your question. I believe if -- if you cannot meet the -- you know, the project's fundamental purpose in one way but you can in another way, then clearly, you'd be better off with the way that meets the project's fundamental purpose.
Q We've been talking about cost a

little bit, and I want to go into specifically some questions about cost.
Mr. Jenkins, in his report -- and I don't have a page cite for you -- actually, I do.
Page 22 of his report shows that the Department of Energy says that the cost of electricity from IGCC is 22 percent higher than the cost of electricity from PC.
Do you have any reason to disagree with that?
A I've read this -- read this study, and I don't recall the precise numbers, but that's -- that seems consistent of what -- what I've seen of that study.
Q All right. And the cost of electricity for Mesaba using Powder River coal, if I were to tell you it's actually 32 percent higher than the cost of electricity from a PC plant, do you have any reason to disagree with that?
A I don't have a reason to -- to agree or disagree.
Q Have you heard about that?
A The number that you're specifying?

Q Yes.
A I don't recall having read it, no.
Q I'm going to hand you Deposition Exhibit 12, and it's certain pages of a decision from the State of Minnesota Office of Administrative Hearings.
The Mesaba Plant is located in the state of Minnesota, as I understand it. Is that your understanding?
A It is.
Q And have you heard or read about proceedings there?
A I have followed it intermittently. I don't know all of the -- all of the proceedings.
Q And have you heard about a finding regarding cost?
A I don't recall the details. There was a lot of activity on that project.
Q I don't know if you've seen this decision from the State of Minnesota Office of Administrative Hearings.
Does this ring any bells for you?
A I don't recall having seen this.

EXAMINATION

BY MR. RUPPERT:

Q This Deposition Exhibit 10 that you just looked at again, all the equipment on this list for either plant is equipment located inside the black box in your schematic in your report, right: between "coal" and electricity"?

A Some of it -- some of it arguably could be on the outside: coal delivery, storage, and handling. The schematic that we're talking about from my -- my report is -- is just that: It's a schematic. It's not intended to convey the level of detail that's on here.

Q I understand that. That wasn't my question at all.

My only question was: All of this equipment on this list would be contained within that black box in the middle?

A Oh, I see. I understand. That's -- that's true.

Q Okay. I have one last question, and I think we're done.

The opinion you gave earlier on the value of comparing past performance in terms of operational availability to the prediction of

future performance, that opinion is not based on you as an IGCC technology expert, right, because you're not one?

A The opinion that -- when -- when looking at what you would expect of a plant, you should look at what's being projected for that plant, not just the history.

And you're asking what that -- what the basis of my --

Q No, I'm not. I realize you gave the opinion. I'm just asking you to agree or disagree with my statement that that's not an opinion based on you being an IGCC technology expert, because you're not one, correct?

A We did cover that ground. I have -- as I said, I have not designed IGCC power plants; I've not built power plants. So in that -- in that respect to what you're saying, then, I would agree.

MR. RUPPERT: Thank you, Mr. Fowler.

MR. ANGELL: We're done. Thank you.

(The deposition concluded at 12:15 p.m.)

AFFIDAVIT

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

I have read Volume II of my deposition, and the same is true and accurate, save and except for changes and/or corrections, if any, as indicated by me on the amendment sheet(s) attached hereto as indicated.

Amendment sheet(s) attached [ ]
No changes; no amendment sheet(s) attached [ ]

_____
MICHAEL SERGIO FOREMAN-FOWLER
VOLUME II
(August 14, 2008)

SUBSCRIBED AND SWORN TO before me on this _____ day of _____, 2008.
My commission expires: _____.

_____
NOTARY PUBLIC
in and for the State of _____.
psn

CERTIFICATE

STATE OF COLORADO)
) ss.
COUNTY OF DENVER)

I, Patricia S. Newton, Registered Professional Reporter and Notary Public in and for the State of Colorado, duly appointed to report Volume II of the deposition of MICHAEL SERGIO FOREMAN-FOWLER, certify that prior to the examination, the deponent was duly sworn to testify to the truth in the matters in controversy between the parties herein; that the deposition was taken in shorthand by me at the time and place aforesaid and was thereafter reduced to typewritten form by me and processed under my supervision, the same consisting of 158 pages; and that the same is a full, true, and complete transcription of my machine shorthand notes. I further certify that I am not related to, employed by, nor counsel to any of the parties herein, nor otherwise interested in the events of the within cause.

A transcript review of this deposition was requested and is available to the deponent as notified by me.

IN WITNESS WHEREOF, I have affixed my notarial seal this 21st day of August, 2008. My commission expires December 6, 2008.

_____
Patricia S. Newton
Registered Professional Reporter

PEARSON AFF.

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL STATE OF WYOMING IN THE MATTER OF: BASIN ELECTRIC POWER COOPERATIVE DRY FORK STATION AIR PERMIT CT-4631	DOCKET NO. 07=2801 PRESIDING OFFICER, F. DAVID SEARLE

AFFIDAVIT OF ROBERT L. PEARSON REGARDING PM.2.5

Robert L. Pearson, having been duly sworn, states as follows:

1. On page 34 of their Motion for Summary Judgment, Protestants state that Wyoming has determined that the State complies with the promulgated $PM_{2.5}$ 24 hour National Ambient Air Quality Standard of 35 $\mu g/m^3$. Protestants state that this determination of statewide compliance of the 24 hour $PM_{2.5}$ standard is based on measurements made in three locations in Wyoming: Sheridan, Lander and Cheyenne.

2. Protestants do not provide information regarding $PM_{2.5}$ measurements for other ambient $PM_{2.5}$ monitoring stations in Wyoming. On page 34 of their Motion they state that four $PM_{2.5}$ monitoring stations are located in Powder River Basin, but they neither name these other stations nor provide the ambient air quality data from those stations.

3. EPA has established a nationwide database of ambient air quality data called the AirData database. This database is accessible on the Internet at http://www.epa.gov/oar/data/. $PM_{2.5}$ ambient air quality data are contained in this data base for three air quality monitoring stations in Campbell County. Those three are Black Thunder, Belle Ayr and Triton. Attachment 1 to this Affidavit is a map that shows the locations of these three $PM_{2.5}$ ambient air quality monitoring stations as well as the locations of the monitoring stations in Sheridan and Lander, and their distances to the Dry Fork Plant.

4. The distance from Dry Fork to Sheridan is 78 miles and the distance to Lander is 196 miles. Neither station is close to the Powder River Basin. Of the three monitoring stations within the Basin, Black Thunder is 50 miles from Dry Fork, Belle Ayr is 21 miles from Dry Fork, and the Triton station is 7 miles from Dry Fork and therefore the closest to Dry Fork.

5. Ambient monitoring data for each of these stations were taken from the EPA AirData database and placed into the table in Attachment 2. This table shows the 98^{th} percentile of the 24 hour measurements for the years, 2004, 2005, 2006 and 2007 for each of these five locations. For

locations where there are more than one monitoring station reporting in a year the highest reading was used.

6. Three year averages of the 98th percentile measured value were calculated for each location for the three year period, 2004, 2005 and 2006 and for the three year period 2005, 2006 and 2007, pursuant to EPA regulations requiring $PM_{2.5}$ NAAQS to be measured based on 98th percentile annual values averaged over three years. For Sheridan, the three year average for 2004, 2005 and 2006 is 32.5 $\mu g/m^3$ and for Lander is 31.1 $\mu g/m^3$. These apparently are the values referenced by the Protestants on Page 35 of their Motion.

7. The three year average for the years 2005, 2006 and 2007 for Sheridan is 28.7 $\mu g/m^3$ and the three-year average for these same years for Lander is 26.4 $\mu g/m^3$.

8. The three year averages for the three Powder River Basin stations for these averaging periods range from 22.2 $\mu g/m^3$ down to 12 $\mu g/m^3$. The lowest values are at the Trident location which is closest to Dry Fork.

FURTHER, AFFIANT SAYETH NAUGHT.

Robert L. Pearson

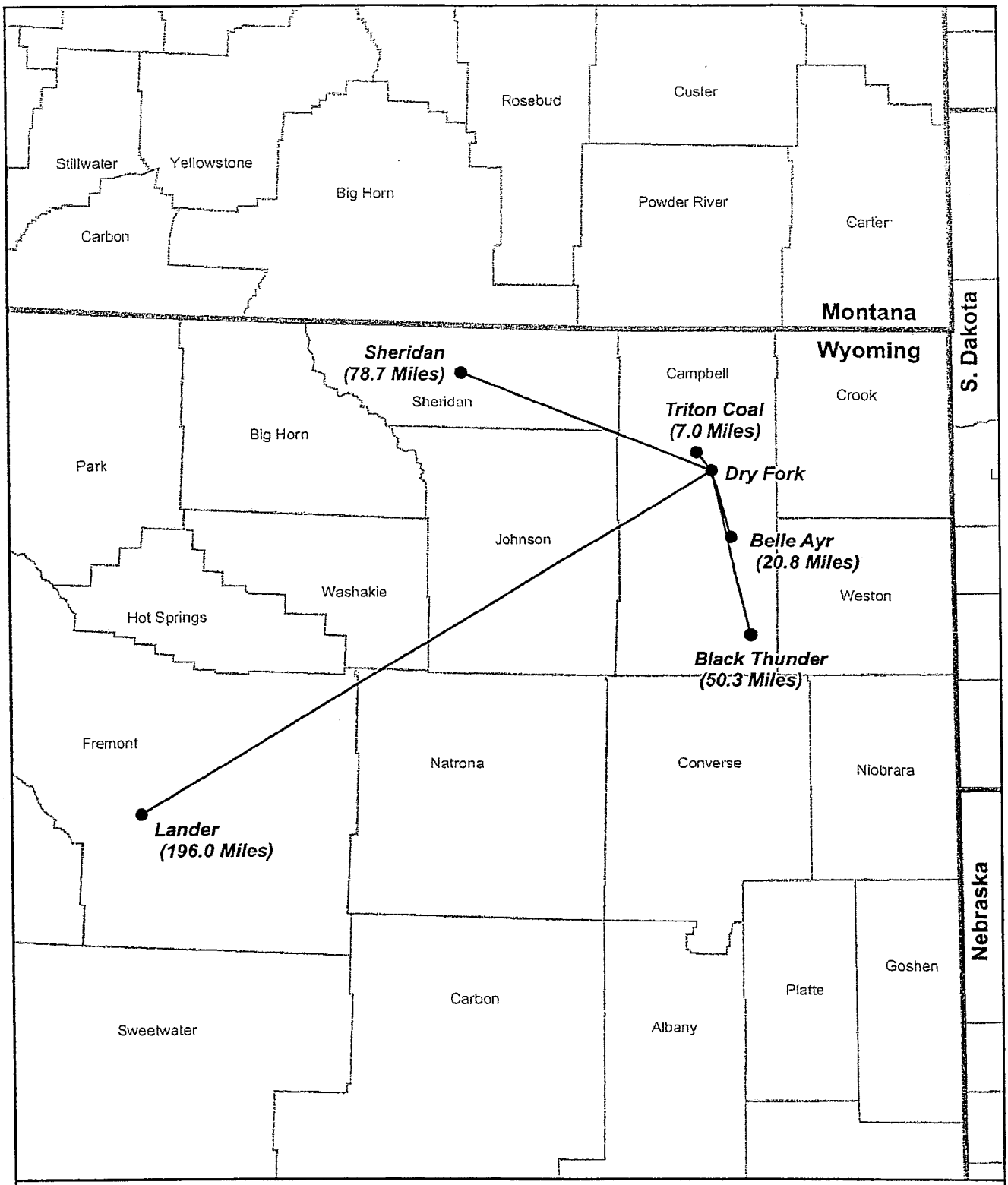
STATE OF COLORADO)
)ss:
COUNTY OF DOUGLAS)

SUBSCRIBED AND SWORN to before me on this 11 day of September, 2008 2008, by Robert L. Pearson.

My commission expires: 10/17/09

SEAL

Notary Public



Attachment 1
Wyoming Ambient PM_{25} Monitoring Stations

DEN \\COBRA\GIS\PROJECTS\AIR\DRYFORKSTATION_APPEAL\APPEAL\DISTANCE_TO_STATIONS.MXD 9/10/2008 10:36:02

CH2MHILL

Attachment 2

	98th Percentile (µg/m³)				3-yr Averages		NAAQS (µg/m³)	Is NAAQS Exceeded
Site Address	2004	2005	2006	2007	2004-2006	2005-2007		
Black Thunder	16.7	18.5	28.2	19.9	21.1	22.2	35	No
Belle Ayr	10.9	9.5	15.8	15.4	12.1	13.6	35	No
Triton	11.9	12.2	11.8	13.9	12.0	12.6	35	No

	98th Percentile (µg/m³)				3-yr Averages		NAAQS (µg/m³)	Is NAAQS Exceeded
Site Address	2004	2005	2006	2007	2004-2006	2005-2007		
Sheridan	38.9	32.5	26.2	27.4	32.5	28.7	35	No
Lander	40.2	30.0	23.0	26.1	31.1	26.4	35	No

SNELL AFF.

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL STATE OF WYOMING IN THE MATTER OF: BASIN ELECTRIC POWER COOPERATIVE DRY FORK STATION AIR PERMIT CT-4631	DOCKET NO. 07=2801 PRESIDING OFFICER, F. DAVID SEARLE
AFFIDAVIT OF KENNETH J. SNELL as to PM2.5 and MERCURY	

Kenneth J. Snell, having been duly sworn, states as follows:

PM2.5

1. Particulate matter (PM) is a chemically and physically diverse mixture of discrete solid particles and liquid droplets. (70 FR 65992, November 1, 2005). PM composition from coal-fired boilers are a complex function of the coal properties, boiler firing configuration, boiler operation, and pollution control equipment. Uncontrolled PM emissions from coal-fired boilers include the ash from combustion of the fuel as well as unburned carbon resulting from incomplete combustion. In pulverized coal systems, combustion is almost complete; thus, the emitted PM is primarily composed of inorganic ash residues. (See, EPA's Compilation of Air Pollutant Emission Factors (AP-42), section 1.1.3.1.)

2. The term PM2.5 is used to describe the fraction of particles whose nominal aerodynamic diameter is less than or equal to 2.5 micrometers (μm). PM2.5 in the ambient air is composed of both primary PM2.5 and secondary PM2.5. Primary PM2.5 particles are emitted directly into the air as a solid or liquid particle. Secondary PM2.5 particles (e.g., sulfate and nitrate) form in the atmosphere as a result of various chemical reactions. (72 FR 20586, April 25, 2007).

Primary PM2.5

3. Although PM2.5 particles in the ambient air originate from a variety of sources (including stationary emission sources, mobile sources, and area sources), the principal source of particulate emissions from the Dry Fork Station, including PM, PM10, and PM2.5 will be generated from the same process; that is, coal combustion in the boiler.

4. Limited emissions data are available from published sources that can be used to quantify uncontrolled primary PM2.5 emissions from a subbituminous coal-fired boiler. EPA's Compilation of Air Pollutant Emission Factors (AP-42) includes particle size distribution data and size-specific emission factors for particulate matter emissions from coal-fired boilers (AP-42 Table 1.1-6). The

cumulative emission factors for uncontrolled particulate matter emissions from a coal-fired boiler have an emission factor rating of "C". An emission factor rating of C means that the factor is of "average" quality, and that the factor was developed from a reasonable number of facilities although the facilities tested may not represent a random sample of the industry.

5. Limited emissions data are also available from published sources that can be used to quantify primary PM2.5 removal efficiencies and controlled primary PM2.5 emission rates. Again, AP-42 includes cumulative particle size distribution data for controlled particulate matter emissions from coal-fired boilers (AP-42 Table 1.1-6); however, these emission factors have emission factor ratings of "D" and "E". An emission factor rating of D means that the factor is of "below average" quality, was developed from a small number facilities, and that the emission factor may not be representative a random sample of the industry. An emission factor rating of E means that the factor is of "poor" quality.

6. Although published emission factors could be used to estimate uncontrolled and controlled primary PM2.5 emissions, the accuracy of the emission estimates would be questionable, and it is likely that the emission factors would not be representative of emissions from the Dry Fork Boiler. In my opinion, emissions data of adequate quality do not yet exist upon which accurate PM2.5 removal efficiencies could be developed, and adequate emissions data do not yet exist upon which an enforceable PM2.5 Best Available Control Technology (BACT) emission limit could be established.

7. Control technologies designed to capture PM10 will capture primary PM2.5. Technically and scientifically, PM10 remains an excellent surrogate for the control of primary PM2.5. Control technologies identified as BACT for filterable PM10 would represent BACT for primary PM2.5.

8. Basin Electric Power Cooperative (BEPC) prepared a comprehensive BACT analysis for the control of PM10 emissions from the Dry Fork boiler (see, Dry Fork Station Permit Application Section 5.2.6, see also, Attachment No. 3 to BEPC's Response to WDEQ Comments, dated 3/7/2006). The BACT analysis included an evaluation of particulate matter control technologies with a practical potential to reduce PM10 emissions from the boiler, including electrostatic precipitators and a fabric filter baghouse.

9. In its permit application, BEPC evaluated the effectiveness of various fabric filter media including Ryton filters (Ryton is a felted filter made of polyphenylene sulfide (PPS) fibers) and membrane bags such as the Gore-tex membrane bag which is an expanded polytetrafluoroethylene (PTFE) membrane that is laminated with a variety of fibers such as Fiberglas (see, Attachment No. 3 to BEPC's Response to WDEQ Comments, dated 3/7/2006, page 2). Based on the PM10 BACT analysis, and the PM10 emission limits included in the final permit issued for the Dry Fork Station, the Dry Fork fabric filter baghouse is being designed with PTFE membrane coated PPS fabric filters. These filters represent BACT for PM10 control and will provide excellent control of primary PM2.5. Furthermore, there is adequate PM10 emissions data from existing sources and emission control technology vendors upon which a reasonable and enforceable PM10 BACT emission limit can be established.

10. The Dry Fork PM10 BACT emission limit of 0.012 lb/MMBtu is among the most stringent PM10 emission limit in the country for any new/proposed pulverized coal-fired electric generating

unit. Based on emission calculations, the Dry Fork fabric filter baghouse will have to achieve a PM10 removal efficiency of greater than 99.4% to ensure compliance with the PM10 BACT limit. The PM10 BACT emission limit should be considered an excellent surrogate for the control of primary PM2.5.

Secondary PM2.5

11. Secondary PM is formed by chemical reactions of gas-phase precursors in the atmosphere. These reactions form condensable vapors that either form new particles or condense onto other particles in the air. Most of the sulfate and nitrate and a portion of the organic compounds in the atmosphere are formed by such chemical reactions. (70 FR 65992, November 1, 2005).

12. In its final PM2.5 PSD implementation rule, published May 16, 2008, (after WDEQ issuance of the final permit for the Dry Fork Station) EPA identified SO2 as a precursor to secondary PM2.5 formation, and EPA identified NOx as a presumed precursor to secondary PM2.5 formation. (See, 73 FR 28321, May 16, 2008). Based on this recently published PSD implementation rule, SO2 and NOx control would be required to minimize emissions of secondary PM2.5 precursors.

13. BEPC's permit application included a comprehensive BACT analysis for both SO2 and NOx emissions from the Dry Fork boiler (see, Dry Fork Station Permit Application Sections 5.2.3 and 5.2.4. See also, Attachments 1 & 2 to BEPC's Response to WDEQ Comments, dated 3/7/2006). The BACT analysis included an evaluation of both SO2 and NOx control technologies with a practical potential to control emissions from the Dry Fork Boiler. Based on the BACT analysis it was determined that selective catalytic reduction (SCR) was BACT for NOx control, and that a dry flue gas desulfurization (FGD) was BACT for SO2. This combination of control technologies would also represent BACT for the control of secondary PM2.5 precursors. The Dry Fork NOx and SO2 BACT emission limits are among the most stringent emission limits in the country for any new/proposed pulverized coal-fired electric generating unit.

Mercury (Hg)

14. The Dry Fork Station final permit (Air Quality Permit CT-4631 dated October 15, 2007) requires BEPC to: (1) achieve a controlled Hg emission rate of 97 x 10^{-6} lb/MWh-hr (the federal mercury new source performance standard (NSPS) that was applicable to the Dry Fork Station at the time the permit was issued); (2) install and operate a mercury control system within 90 days of initial startup of the main boiler; and (3) initiate, within 90 days of initial startup, and perform a one year mercury optimization study.

15. BEPC submitted a BACT analysis for Hg control as part of its permit application (See, BEPC's Response to WDEQ Comments dated 7/11/2006). The mercury BACT analysis concluded that:

a. Control technologies for mercury are still in the developmental stage, resulting in only limited information regarding possible alternatives and potential control efficiencies.

b. A top-down analysis with cost estimates is not possible with current incomplete technology alternatives and cost information.

c. Commercially available mercury control systems and associated vendor guarantees are very limited to date. Activated Carbon sorbent injection systems have been proposed and designed by a few vendors but other control technologies are at the planning and demonstration stages.

16. Based on its review of the development status of mercury control technologies for coal-fired boilers, WDEQ concluded that "[m]ercury controls for power plants are an emerging technology and the BACT emission limit will be determined based on the results of a one year mercury optimization study to be performed at this facility."

17. Various mercury control strategies are being studied for applicability and effectiveness on coal-fired boilers. Studies conducted by EPA, the Department of Energy, and others suggest that the feasibility and effectiveness of potentially available mercury control strategies depend on a number of project-specific design parameters including, but not necessarily limited to: (1) coal characteristics; (2) fly ash characteristics; (3) mercury speciation in the flue gas; (4) the presence of halogen species in the flue gas (e.g., chlorine); and (5) the emission control systems defined as BACT to control NSR regulated pollutants.

18. During combustion, mercury readily volatilizes from the fuel and is found in the flue gas predominantly in the vapor phase as elemental mercury (Hg^0). As the flue gas cools, a series of complex reactions begin to convert Hg^0 to ionic mercury (Hg^{2+}) compounds and Hg compounds that are in a solid-phase at flue gas temperatures (Hg^p). Testing indicates that the distribution of Hg^0, Hg^p, and Hg^{2+} (referred to as "mercury speciation") varies with coal type. Specifically, test results indicate that flue gas from subbituminous coals will contain significantly more Hg^0 than flue gas from bituminous coals, while higher concentrations of Hg^{2+} are associated with bituminous coals, especially those with high chloride concentrations. Studies indicate that Hg^{2+} and Hg^p may be effectively captured in a unit's FGD and baghouse control systems, while Hg^0 may not be effectively captured in these control systems.

19. Mercury control systems, including activated carbon injection systems, have been tested on electric utility steam generating boilers firing subbituminous coals. These studies suggest that, due to the lack of halogens in the flue gas (e.g., chlorine), the effectiveness of an activated carbon injection system may be limited on units firing subbituminous coals and units equipped with dry FGD control systems. Test results suggest that other control strategies, such as halogenated activated carbon injection or fuel additives designed to promote mercury oxidation, may be needed to provide effective mercury capture on units firing subbituminous coal and equipped with dry FGD.

20. Although mercury control technologies are being developed for use on units firing subbituminous coals, to date, none of these control technologies have been tested on a unit firing subbituminous coal and equipped with selective catalytic reduction (SCR) for NOx control, circulating dry scrubber (CDS) for SO2 control, and fabric filter (FF) baghouse for PM10 control – the control technologies determined as BACT for the Dry Fork Station.

21. Because mercury control technologies have not been tested on a subbituminous coal-fired boiler equipped with the combination of SCR/CDS/FF control technologies, it cannot be determined with any reasonable certainty which of the potentially available mercury control strategies will effectively remove mercury from the Dry Fork boiler flue gas. To my knowledge, there is simply no data available yet for mercury control on a subbituminsous coal-fired boiler using the pollution control technologies that Dry Fork will employ.

22. MidAmerican's Walter Scott Jr. Energy Center (WSEC) Unit 4 (formerly named Council Bluffs Energy Center) is a subbituminous pulverized coal-fired unit that is in service and equipped with a mercury control system designed to operate on an on-going basis. It was placed into service on June 1, 2007 and was required to install an activated carbon injection (ACI) system for mercury control. It is a 790 MW subbituminous coal-fired unit equipped with SCR, a spray dryer absorber (SDA) for SO2 control, ACI, and fabric filter baghouse for particulate control.

23. Although WSEC Unit 4 was required to install an ACI control system, the unit's permit included provisions to conduct a mercury control optimization study. Based on the results of the optimization study, the permit will be reopened and the mercury limits adjusted as necessary. To my knowledge, results of the optimization study have not yet been made available. However, as discussed above, data from mercury control studies suggest that the effectiveness of an ACI system may be limited on a unit firing subbituminous coal and equipped with an SDA dry FGD control system. Based on these data, it may be that the selection of ACI control will prove to have been premature and not necessarily the best control option for WSEC Unit 4.

24. In order to achieve its BACT limit for SO2, the Dry Fork boiler will be designed with a CDS dry FGD system. Although mercury test data from units firing subbituminous coal and equipped with an SDA control system is informative, there are significant differences between the design and operation of an SDA and the CDS that may affect the technical feasibility and effectiveness of potentially available mercury control technologies. For example, activated carbon cannot be injected downstream of the CDS (as is done with the SDA/FF arrangement). The activated carbon would have to be injected upstream of the CDS or directly into the CDS. Also, particulate size distribution is an important design parameter for proper operation of the fluidized CDS scrubber. In the CDS, fluidized bed fluid dynamics will dictate the activated carbon particle size distribution (rather than mercury absorption); thus, it may not be possible to optimize the carbon particle size for mercury capture. All of these issues need to be, and will be, studied during the Dry Fork optimization study.

25. No information or test data exists regarding the effectiveness of the potentially available mercury control technologies on a subbituminous coal-fired unit equipped with SCR/CDS/FF control systems for other pollutants. Mercury control systems that may be available for the Dry Fork boiler are in various stages of development and commercial deployment, and mercury control systems are still emerging technologies.

26. For all these reasons, there remains a lack of sufficiently reliable data upon which to predict the effectiveness of potentially available mercury control technologies on the Dry Fork boiler. Given these uncertainties, it is my opinion that it would be premature to establish an emission limit without the benefit of a mercury optimization study. Furthermore, it is not unusual for permitting agencies to

include a period of time to test and evaluate the feasibility and effectiveness of an emerging control technology (see, for example, the WSEC Unit 4 permit discussed above).

27. BEPC will be required to submit a protocol for review and approval by WDEQ prior to commencement of the optimization study. The protocol must include a description of the control techniques to be employed, including the type of sorbent and proposed operational parameters, test methods, and procedures. At the conclusion of the optimization study the permit will be reopened to revise the mercury limit and/or add operational parameters based on the results of the study.

28. In my opinion, these permit conditions will ensure that BEPC installs a technically feasible mercury control system that will not adversely impact operation of the circulating dry scrubber or other air pollution control systems. The optimization study will result in BEPC installing the most effective, technically feasible and commercially available mercury control technology at the Dry Fork Station and WDEQ imposing an appropriately stringent mercury emission limit. Without an optimization study, it would be premature to establish a mercury emission limit, and it would not be possible to identify the mercury control technology best suited for the Dry Fork Station.

FURTHER, AFFIANT SAYETH NAUGHT.

K. J. Snell

STATE OF ILLINOIS)
) ss:
COUNTY OF COOK)

SUBSCRIBED AND SWORN to before me on this 12 day of September, 2008, by Kenneth J. Snell.

My commission expires: September 14, 2010

SEAL

"OFFICIAL SEAL"
BELINDA DRYGALSKI
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES 9/14/2010

Belinda Drygalski
Notary Public

1

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
BUREAU OF AIR

October 2003

Responsiveness Summary for Public Questions and Comments on the Construction Permit Application from Indeck-Elwood LLC

Site Identification No.: 97035AAJ
Application No.: 02030060

fired power plants in Illinois do contribute to these effects at levels that can be predicted mathematically. However, those studies do not demonstrate that new power plants, like the proposed plant, pose a significant risk to public health. Indeed, having an adequate, reliable and affordable supply of electricity is also essential to modern society, and to the health and well-being of the public. Rather, the purpose of those studies is to influence public policy toward reducing the emissions and any associated health impacts from these existing plants, many of which are over forty years old. As such, one goal of those studies is to have these existing power plants upgraded to approach the levels of emission control that would be present at the proposed plant. This goal is also achieved by construction of new, modern, well-controlled coal-fired power plants, like the proposed plant, that over time displace existing plants and reduce adverse health impacts from use of coal for power generation.

Another concern was that the proposed plant is not needed because Illinois currently has adequate generating capacity. While Illinois does have adequate generating capacity to meet the demand for the power, this does not mean that Illinois would not benefit from development of new power plants, like the proposed plant. In addition to benefits in terms of lower emissions, Illinois would benefit from new plants, as they would be more efficient than older plants and would use local Illinois coal contributing to the state's economy.

Another general comment was that the proposed plant should use Integrated Gasification Combined Cycle (IGCC) technology because IGCC would be able to achieve lower emission levels than the modern boiler technology that is proposed. The Illinois EPA has examined the status of IGCC technology at the present time. While various claims have been made that the technology is available, they do not survive close scrutiny. While IGCC is expected to be the next generation of technology for coal-fired power plants, it is still a developing technology that is not yet mature. It is not appropriate for the permit to require use of a technology by the proposed plant that is not yet sufficiently developed to be commercially accepted.

Some commenters stated that the proposed plant is inappropriate because it would be located next to the Midewin National Tallgrass Prairie (Midewin). As limited by the issued permit, the emissions of the plant should not have a significant effect on the Midewin. Other discharges from the plant will also be appropriately regulated to prevent significant impacts. The proposed plant also should not have a significant affect on the character of the Midewin as the plant would be located next to the portion of the Midewin in which commercial and industrial facilities were historically planned and are already present.

Another concern was that the proposed plant would be a nuisance due to dust from coal handling operations and associated rail and truck traffic. All coal handling activities will be located inside buildings and dust suppression measures will be used to prevent dust from escaping to the outside air. With respect to train and truck traffic, the plant is located next to a major Intermodal center in an industrial area and levels of traffic in the area will not increase significantly.

A final concern is that the permit decision should be based on public opinion. The decision to whether to grant a permit is a legal and technical one, based on compliance with applicable environmental laws and rules.

2

DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

PERMIT APPLICATION FORM

Date of Application: 11/10/2005

1. Name of Firm or Institution Basin Electric Power Cooperative

2. Mailing Address

1717 East Interstate Avenue		Bismarck	ND
Number	Street	City	State

Burleigh	58503	701-223-0441
County	Zip	Telephone

3. Plant Location

Highway 59	North of Gillette		Wyoming
Number	Street	City	State

Campbell		701-355-5655
County	Zip	Telephone

4. Name of owner or company official to contact regarding air pollution matters

Jerry Menge	Air Quality Program Coordinator	701-355-5655
Name	Title	Telephone

1717 East Interstate Avenue		Bismarck	ND	58503
Number	Street	City	State	Zip

5. General nature of business

Coal Fired Electric Generation

Table 7-11
Tier 1 Chronic Noncancer Risk Estimates for Hazardous Air Pollutants
Site-Specific Risk Assessment
Basin Electric Power Cooperative, Dry Fork Station, Unit 1 Boiler (ES1-01)

Analyte	CAS NO.	HAP No.	Emissions[a] [lbs/hr]	Continuous Exposure Concentration[b] [ug/m3]	Continuous Exposure Concentration[b] [mg/m3]	Reference Concentration (RFC)[c] [mg/m3]	Reference Concentration (RFC) Source[c]	Hazard Quotient [-]	Percent of HI [%]
Biphenyl	92-52-4	19	4.14E-04	6.19E-05	6.19E-08				
Acenaphthene	83-32-9	187	1.24E-04	1.86E-05	1.86E-08				
Acenaphthylene	208-96-8	187	6.09E-05	9.10E-06	9.10E-09				
Anthracene	120-12-7	187	5.12E-05	7.65E-06	7.65E-09				
Benzo(a)anthracene	56-55-3	187	1.95E-05	2.91E-06	2.91E-09				
Benzo(a)pyrene	50-32-8	187	9.26E-06	1.39E-06	1.38E-09				
Benzo(b,j,k)fluoranthene	205-99-2	187	2.68E-05	4.00E-06	4.00E-09				
Benzo(g,h,i)perylene	191-24-2	187	6.58E-06	9.83E-07	9.83E-10				
Chrysene	218-01-9	187	2.44E-05	3.64E-06	3.64E-09				
Fluoranthene	206-44-0	187	1.73E-04	2.58E-05	2.58E-08				
Fluorene	86-73-7	187	2.22E-04	3.31E-05	3.31E-08				
Ideno(1,2,3-cd)pyrene	193-39-5	187	1.49E-05	2.22E-06	2.22E-09				
Naphthalene	91-20-3	119	3.17E-03	4.73E-04	4.73E-07	0.00300	IRIS	1.58E-04	<1%
Phenanthrene	85-01-8	187	6.58E-04	9.83E-05	9.83E-08				
Pyrene	129-00-0	187	8.04E-05	1.20E-05	1.20E-08				
5-Methyl chrysene	3697-24-3	187	5.36E-06	8.01E-07	8.01E-10				
Acetaldehyde	75-07-0	1	1.39E-01	0.0208	2.08E-05	0.00900	IRIS	0.00231	<1%
Acetophenone	98-86-2	4	3.65E-03	5.46E-04	5.46E-07				
Acrolein	107-02-8	6	7.07E-02	0.01056	1.06E-05	2.00E-05	IRIS	0.528	71%
Benzene	71-43-2	15	3.17E-01	0.0473	4.73E-05	0.0300	IRIS	0.00158	<1%
Benzyl chloride	100-44-7	18	1.71E-01	0.0255	2.55E-05				
Bis(2-ethylhexyl)phthalate	117-81-7	20	1.78E-02	0.00266	2.66E-06	0.0100	P-CAL	2.66E-04	<1%
Bromoform	75-25-2	22	9.50E-03	1.42E-03	1.42E-06				
Carbon disulfide	75-15-0	28	3.17E-02	0.00473	4.73E-06	0.700	IRIS	6.76E-06	<1%
2-Chloroacetophenone	532-27-4	36	1.71E-03	2.55E-04	2.55E-07	3.00E-05	IRIS	0.00849	1%
Chlorobenzene	108-90-7	37	5.36E-03	8.01E-04	8.01E-07	1	CAL	8.01E-07	<1%
Chloroform	67-66-3	39	1.44E-02	0.00215	2.15E-06	0.0980	ATSDR	2.19E-05	<1%
Cumene	98-82-8	48	1.29E-03	1.93E-04	1.93E-07	0.400	IRIS	4.82E-07	<1%
Cyanide	57-12-5	180	6.09E-01	0.0910	9.10E-05				
2,4-Dinitrotoluene	121-14-2	71	6.82E-05	1.02E-05	1.02E-08	0.00700	P-CAL	1.46E-06	<1%
Dimethyl sulfate	77-78-1		1.17E-02	0.00175	1.75E-06				
Ethyl benzene	100-41-4	77	2.29E-02	0.00342	3.42E-06	1	IRIS	3.42E-06	<1%
Ethyl chloride	75-00-3	79	1.02E-02	0.00153	1.53E-06	10	IRIS	1.53E-07	<1%
Ethylene dichloride	107-06-2	81	9.75E-03	1.46E-03	1.46E-06	2.40	ATSDR	6.07E-07	<1%
Ethylene dibromide	106-93-4	80	2.92E-04	4.37E-05	4.37E-08	0.00900	IRIS	4.85E-06	<1%
Formaldehyde	50-00-0	87	5.85E-02	0.00874	8.74E-06	0.00980	ATSDR	8.92E-04	<1%
Hexane	110-54-3	95	1.63E-02	0.00244	2.44E-06	0.200	IRIS	1.22E-05	<1%
Isophorone	78-59-1	100	1.41E-01	0.0211	2.11E-05	2	CAL	1.06E-05	<1%
Methyl bromide	74-83-9	105	3.90E-02	0.00582	5.82E-06	0.00500	IRIS	1.16E-03	<1%
Methyl chloride	74-87-3	106	1.29E-01	0.0193	1.93E-05	0.0900	IRIS	2.14E-04	<1%
Methyl ethyl ketone	78-93-3	105	9.50E-02	0.01420	1.42E-05	5	IRIS	2.84E-06	<1%
Methyl hydrazine	60-34-4		4.14E-02	0.00619	6.19E-06				
Methyl methacrylate	80-62-6	113	4.87E-03	7.28E-04	7.28E-07	0.700	IRIS	1.04E-06	<1%
Methyl tert butyl ether	1634-04-4	114	8.53E-03	1.27E-03	1.27E-06	3	IRIS	4.25E-07	<1%
Methylene chloride	75-09-2	118	7.07E-02	0.01058	1.06E-05	1	ATSDR	1.06E-05	<1%
Phenol	108-95-2	130	3.90E-03	5.82E-04	5.82E-07	0.200	CAL	2.91E-06	<1%
Propionaldehyde	123-38-6		9.26E-02	0.01383	1.38E-05				
Tetrachloroethylene	127-18-4	150	1.05E-02	0.00157	1.57E-06	0.270	ATSDR	5.80E-06	<1%
Toluene	108-88-3	152	5.85E-02	0.00874	8.74E-06	0.400	IRIS	2.18E-05	<1%
1,1,1-Trichloroethane	79-00-5	159	4.87E-03	7.28E-04	7.28E-07	0.400	P-CAL	1.82E-06	<1%
Styrene	100-42-5	146	6.09E-03	9.10E-04	9.10E-07	1	IRIS	9.10E-07	<1%
Xylenes	1330-20-7	169	9.02E-03	1.35E-03	1.35E-06	0.100	IRIS	1.35E-05	<1%
Vinyl acetate	108-05-4	165	1.85E-03	2.77E-04	2.77E-07	0.200	IRIS	1.38E-06	<1%
Hydrochloric Acid	7647-01-0	97	3.23E00	0.483	4.83E-04	0.0200	IRIS	0.0241	3%
Hydrofluoric Acid	7664-39-3	98	2.62E00	0.392	3.92E-04	0.0140	CAL	0.0280	4%
Antimony	7440-36-0	173	3.23E-03	4.82E-04	4.82E-07				
Arsenic	7440-38-2	174	3.23E-03	4.82E-04	4.82E-07	3.00E-05	CAL	0.0161	2%
Beryllium	7440-41-7	175	9.68E-04	1.45E-04	1.45E-07	2.00E-05	IRIS	0.00723	<1%
Cadmium	7440-43-9	176	6.45E-04	9.64E-05	9.64E-08	2.00E-05	CAL	0.00482	<1%
Chromium	18540-29-9	177	6.45E-03	9.64E-04	9.64E-07	1.00E-04	IRIS	0.00964	1%
Cobalt	7440-48-4	178	6.45E-03	9.64E-04	9.64E-07	1.00E-04	ATSDR	0.00964	1%
Lead	7439-92-1	182	6.45E-03	9.64E-04	9.64E-07	0.00150	EPA OAQPS	6.43E-04	<1%
Manganese	7439-96-5	183	2.58E-02	0.00386	3.86E-06	5.00E-05	IRIS	0.0771	10%
Mercury	7439-97-6	184	1.13E-02	1.69E-03	1.69E-06	9.00E-04	IRIS	0.00582	<1%
Molybdenum	7439-98-7		3.23E-03	4.82E-04	4.82E-07				
Nickel	7440-02-0	186	1.29E-02	0.00193	1.93E-06	9.00E-05	D-ATSDR	0.0214	3%
Selenium	7782-49-2	189	3.23E-02	0.00482	4.82E-06	0.0200	CAL	2.41E-04	<1%
								0.7	100%

Notes:
a : Emissions based on the plant operating at a 100 percent load.
b : The maximum exposure concentration was estimated using ISC modeled maximum predicted 1 hour impact for a 103 percent load based on a 1 g/s unit emission rate (ug/m3): 1.18653
c : Source : Office of Air Quality Planning and Standards. Air Toxics Website (http://www.epa.gov/ttn/atw/toxsource/summary.html). Table 1. Prioritized Chronic Dose-Response Values (2/28/05).
CAS NO. = Chemical Abstracts Services number for the compound.
HAP NO. = Position of the compound on the HAP list in the Clean Air Act (112[b][2]). "999" denotes substances under consideration for listing.
IARC WOE = International Agency for Research on Cancer weight-of-evidence for carcinogenicity in humans (1 - carcinogenic; 2A - probably carcinogenic; 2B – possibly carcinogenic; 3 - not classifiable; 4 - probably not carcinogenic).
EPA WOE = US Environmental Protection Agency weight-of-evidence for carcinogenicity under the 1986 EPA cancer guidelines, as superseded for specific compounds by the 1999 interim guidelines (1986 guidelines: A - human carcinogen; B1 - probable carcinogen, limited human evidence; B2 - probable carcinogen, sufficient evidence in animals; C - possible human carcinogen; D - not classifiable E - evidence of noncarcinogenicity. 1999 guidelines: CH - carcinogenic to humans; LH - likely to be carcinogenic; SE - suggestive evidence for carcinogenicity; Ini - inadequate information to determine carcinogenicity; NL - not likely to be carcinogenic).
IRIS : US EPA Integrated Risk Information System.
CAL : California Environmental Protection Agency Reference Exposure Level (REL).
EPA OAQPS : US EPA Office of Air Quality Planning and Standards.
ATDSR : US Agency for Toxic Substances and Disease Registry
P-CAL : Proposed California Environmental Protection Agency Reference Exposure Level (REL).
D-ATDSR : US Agency for Toxic Substances and Disease Registry. Draft Minimum Risk Level (MRL).
Blank = RFC not available.

3

IN THE MATTER OF A PERMIT APPLICATION (AP-3546) FROM BASIN ELECTRIC POWER COOPERATIVE TO CONSTRUCT A 385 MW PULVERIZED COAL FIRED ELECTRIC GENERATING FACILITY TO BE KNOWN AS DRY FORK STATION

I. INTRODUCTION:

The Air Quality Division received a permit application from Basin Electric Power Cooperative to construct a coal fired electric power generating station adjacent to the Dry Fork Mine on Highway 59, approximately 7 miles north northeast of Gillette, Campbell County, Wyoming. The proposed facility includes one pulverized coal (PC) boiler rated at 422 MW (gross) and 385 MW (net) with associated material handling and auxiliary equipment. The maximum design heat input for the PC boiler is 3,801 MMBtu/hr. The design values used for coal from Dry Fork Mine include a heat value of 8,045 Btu/lb (7,800 Btu/lb minimum to 8,300 Btu/lb maximum) and a sulfur content of 0.33% (0.25% minimum to 0.47% maximum). Material handling will include coal, lime, fly ash, bottom ash, and waste product from the flue gas desulfurization (FGD) system. Auxiliary equipment will include an 8.36 MMBtu/hr Inlet Gas Heater, a 360 hp Fire Pump, and a 2377 hp Emergency Generator.

The Division completed its analysis of the application and advertised its proposed decision to issue a permit in the Gillette News-Record on February 26, 2007 giving opportunity for public comment and a public hearing on the matter. A public hearing was held on June 28, 2007 at the Campbell County Library in Gillette, Wyoming and the public comment period was extended through the hearing.

The Division received 31 comment letters on the proposed permit during the public comment period: 1) a March 16, 2007 letter from Bertha Ward; 2) a March 19, 2007 letter from Ester Johansson Murray; 3) a March 20, 2007 letter from Jared Schwab; 4) a March 21, 2007 letter from Albert Bitner; 5) a March 21, 2007 letter from Jane Eakin; 6) a March 23, 2007 letter from John Osgood; 7) a March 23, 2007 letter from William Young; 8) a March 24, 2007 letter from David Svendsen; 9) a March 26, 2007 letter from Arlene Bryant; 10) a March 26, 2007 letter from Martha Dubois; 11) a March 26, 2007 letter from Kristin Yannone; 12) a March 22, 2007 letter from EPA Region VIII; 13) a March 28, 2007 letter from Phil Round; 14) a March 28, 2007 letter from the National Park Service; 15) a March 28, 2007 letter with attachments from PRBRC et al. (Powder River Basin Resource Council, Wyoming Chapter of Sierra Club, Wyoming Wilderness Association, Wyoming Outdoor Council, Biodiversity Conservation Alliance, Western Resource Advocates, and Natural Resources Defense Council); 16) a March 28, 2007 letter from Basin Electric; 17) an April 30, 2007 letter from Albert Bitner; 18) an April 30, 2007 letter from Bertha Ward; 19) a May 4, 2007 letter from Phil Round; 20) a May 11, 2007 letter from Albert Bitner; 21) a May 11, 2007 letter from Ester Johansson Murray; 22) a May 21, 2007 letter from Jared Schwab; 23) a June 4, 2007 letter from Phil Round; 24) a June 5, 2007 letter from Karla Oksanen; 25) a June 28, 2007 letter from the Northern Cheyenne Tribe; 26) a June 28, 2007 letter from the Campbell County Commissioners; 27) a June 28, 2007 letter from the National Park Service; 28) a June 28, 2007 letter from Roy Liedske; 29) a June 28, 2007 letter from Kevin F. Lind; 30) a June 28, 2007 letter from the Powder River Basin Resource Council; 31) a June 28, 2007 letter with attachments from Basin Electric; and 32) written transcript of the testimony of James K. Miller presented at the public hearing on June 28, 2007. Oral testimony was presented at the public hearing by James K. Miller (Basin Electric Power Cooperative), Rich Pullen (Wyoming Municipal Power), Steve Thomas (Wyoming Chapter of Sierra Club), Jill Morrison (Powder River Basin Resource Council), Karla Oksanen (Campbell County Resident), Jim Margudant (South Dakota Chapter of Sierra Club), Wayne Gilbert (South Dakota Chapter of Sierra Club), Kevin Lind (Powder River Basin Resource Council), and Ryan Munz (Wyoming Resident).

Due to the number of public comments with similar concerns, the Division grouped individual comments and developed nine summary comments and responses. The comments from EPA, PRBRC et al., NPS, and Basin Electric were addressed individually. The comments and responses are presented on the

Response – The Division believes that the SO_2 limits do reflect the maximum reductions that can be achieved on a continuous basis. As discussed in the response to Public Comment #4 and NPS comment #5a, the final permit limits SO_2 emissions to 0.070 lb/MMBtu, 12 month rolling average, based on a circulating dry scrubber (CDS). With the exception of the 0.065 lb/MMBtu limit for the Newmont Nevada TS power plant, 0.070 lb/MMBtu is the lowest BACT limit of which the Division is aware. The Newmont Nevada TS power plant has not been constructed and Basin Electric evaluated the control efficiencies necessary to meet these permit limits over the range of coal properties expected for the TS power plant. Basin Electric concluded that the spray dryer absorber (SDA) would have to operate at a level equal to or greater than its technical capabilities in order to meet the 0.065 lb/MMBtu limit.

The Division agrees that a spray dryer absorber (SDA) can generally achieve greater than 90% SO_2 removal. In fact, the proposed permit with a 0.08 lb/MMBtu emission limit would require the SDA to achieve an average control efficiency of 92.4% based on an uncontrolled emission rate of 1.055 lb/MMBtu (based on 0.47% sulfur content, 7800 Btu/lb, and the AP-42 emission factor). The final permit limit is 0.070 lb/MMBtu using a circulating dry scrubber (CDS) as previously discussed. This results in an average control efficiency of 93.4%.

There is no requirement to set a removal efficiency in addition to an emissions limitation. The PSD regulations define BACT as an emissions limitation based on the maximum degree of reduction that is achievable and reasonable. The permit contains such an emissions limitation. The actual control efficiency will vary with coal sulfur content. Control efficiencies are higher with higher sulfur content coal. When burning coal with a low sulfur content, the control equipment is not capable of achieving the same removal efficiency even though lb/MMBtu emissions may be less.

7c.2) Hg Limit – PRBRC et al. commented that the limits for Hg should be based on a top down BACT analysis and don't reflect the maximum reduction that could be achieved. The comment went on to say that the permit should require at least 90% control efficiency resulting in an emissions limitation between 6.26×10^{-6} and 10.02×10^{-6} lb/MW-hr.

Response – A top down BACT analysis for Mercury is not required under the PSD regulations. However, a BACT analysis was performed under WAQSR Chapter 6, Section 2.

Mercury control is an evolving technology and control efficiencies are site specific depending on coal properties and control devices used for other pollutants. The permit requires Basin Electric to install a mercury control system within 90 days of startup and perform a one year optimization study with a target level of 20×10^{-6} lb/MW-hr. The target level is to ensure that Basin Electric evaluates levels specified in other recent permits. The Division will reopen the permit and establish a final BACT emission limit based on the maximum reductions that can be achieved considering technical feasibility and cost. The final emission limit may be higher or lower than 20×10^{-6} (0.000020) lb/MW-hr. See also the responses to Public Comment #1, NPS comment #5e, and Basin Electric comment #3.

7d) BACT Limits for VOC, Sulfuric Acid Mist, and Ammonia – PRBRC et al. commented that the Division must impose BACT limits for these pollutants.

4

Basin Electric Power Cooperative
Dry Fork Unit 1 PSD Permit Application
Response to Wyoming Department of Environmental Quality, Air Quality Division
Permit Application No. AP-3546 Completeness Review Dated May 3, 2006

Provided below is a detailed response to questions included in the Wyoming Department of Environmental Quality's (WDEQ) Completeness Review dated May 3, 2006. WDEQ comments are provided below in italics.

WDEQ Comment 1: *BACT for 134 MMBtu/hr Auxiliary Boiler:*

The Division's December 21, 2005 letter requested a top down BACT analysis including an evaluation of a 0.03 lb/MMBtu NO_x emission level for the 134 MMBtu/hr Auxiliary Boiler. In response, Basin Electric evaluated Selective Catalytic Reduction, Low NO_x Burners, and Low NO_x Burners with Flue Gas Recirculation (LNB/FGR). Basin Electric only evaluated LNB/FGR at an emission level of 0.04 lb/MMBtu and proposed this level as BACT. A BACT analysis including emission levels of 0.03 lb/MMBtu and 0.035 lb/MMBtu is required.

Response: Basin Electric Power Cooperative (BEPC) prepared a BACT analysis for NO_x, CO, SO_2, PM_{10} and VOC for the Auxiliary Boiler as part of the response submitted on March 3, 2006. The analysis included a review of low NO_x burners, flue gas recirculation (FGR) and selective catalytic reduction (SCR) as potential control options for limiting NO_x emissions. The BACT analysis was included as Attachment 4, a cost analysis was provided in Attachment 5 and a summary of the RBLC database was in Attachment 6. Based on information from vendors that supply natural gas auxiliary boiler systems in this size category, NO_x emission guarantees less than 0.036 lb/MMBtu were not obtainable without the use of SCR. A cost analysis was presented for SCR versus the use of Low NO_x Burners only and Low NO_x Burners with FGR. The incremental cost difference for the installation of SCR was over $70,000 per ton of additional NO_x removed. BEPC feels that it is also appropriate to have an operating margin above the design guarantee of approximately 10 percent when evaluating a proposed permitted emission rate. This and the review of other recently permitted sources (RBLC database) led to the conclusion that the use of Low NO_x burners and FGR with a permitted emission rate of 0.04 lb/MMBtu was appropriate.

WDEQ Comment 2: *BACT analysis for Mercury:*

A BACT analysis for mercury is required by WAQSR Chapter 6, Section 2(c)(v) including emission levels of 10×10^{-6}, 20×10^{-6}, and 30×10^{-6} lb/MW-hr. The BACT analysis should include control efficiencies associated with proposed emission levels and provide cost effectiveness numbers.

The application currently estimates uncontrolled mercury emissions at approximately 60.4×10^{-6} lb/MW-hr to 90.6×10^{-6} lb/MW-hr and controlled mercury emissions at approximately 30×10^{-6} lb/MW-hr. For reference, the Utah Department of Environmental Quality recently issued a permit to Intermountain Power Generation Station with a mercury emission limit of 20×10^{-6} lb/MW-hr for sub-bituminous coal and EPA estimates that halogenated PAC injection can typically achieve at least 90% mercury control.

Response: In the permit application submitted to WDEQ, BEPC proposed compliance with the Federal Clean Air Mercury Rule (CAMR) with a controlled mercury emission rate of 78×10^{-6} lb/MW-hr based

on a 12 month rolling average. As a point of clarification, the application has an estimated uncontrolled mercury emissions range of 60.4 to 96.6 x 10^{-6} lb/MW-hr (not 90.6 as stated above). Also, on June 9, 2006, EPA revised the CAMR limit for new units with dry FGD burning subbituminous coal to 97 x 10^{-6} lb/MWh. BEPC has prepared the following response to the issues addressed in the WDEQ letter of May 3, 2006.

A. Background

Dry Fork Station is a 422-MW (gross) unit located northeast of Gillette, Wyoming, and is scheduled for start-up in January, 2011. The generating unit's boiler will be a pulverized coal design, utilizing sub-bituminous fuel from the Powder River Basin of Wyoming. The design maximum boiler heat input rating is 3,801 MMBtu/hr.

Flue gas from Dry Fork Station will pass through a series of emissions control devices including Low NO_x burners and overfire air for primary NO_x control, Selective Catalytic Reduction (SCR) for additional NO_x removal, a fabric filter dust collector for particulate control, a dry Flue Gas Desulphurization (FGD) system for SO_2 removal, and potential future sorbent injection system for mercury control if required.

Dry Fork Station will be subject to the New Source Performance Standard (NSPS) for Mercury that was promulgated as part of the Clean Air Mercury Rule (CAMR). CAMR was originally published in the Federal Register on March 18, 2005 and became effective on July 18, 2005. In the June 9, 2006 Federal Register (Volume 71, No. 111, pages 33388-33402), EPA revised the NSPS for Mercury based on Best Demonstrated Technology (BDT), type of coal combusted and regional precipitation levels. EPA indicated that dry FGD represents BDT for areas receiving less that 25 inches mean annual precipitation. The revised NSPS for new units burning sub-bituminous coal and utilizing dry FGD systems is 97 x 10^{-6} lb/MW-hr. The emission control technologies utilized for this project, including dry scrubbing for SO_2 control and a fabric filter for control of particulates, represent Best Demonstrated Technology (BDT) for control of mercury for this type of unit according to the CAMR. Basin Electric Power Cooperative will comply with the mercury emissions established under the CAMR.

From a recent report analyzing alternative mercury control strategies, there are two primary approaches to controlling power plant mercury emissions; 1) relying on "co-benefit" Hg reductions from other emission control technologies, and 2) reducing Hg emissions utilizing technologies specifically designed to reduce mercury.[1] This same report also concluded that no coal plants using sub-bituminous or lignite coals are assumed to be able to achieve 90% mercury reduction through co-benefit reductions alone.

B. Review of Recent Permits

As part of the Dry Fork Station mercury emissions analysis, an examination of several recent approved permits was completed. The following units were reviewed:

- Newmont Nevada Mining, Unit 1, Dunphy, Nevada
- MidAmerican Energy, Council Bluffs Energy Center Unit 4, Iowa
- Intermountain Power Agency, Intermountain Unit 3, Delta, Utah
- Xcel Energy, Comanche Unit 3; Pueblo, Colorado

[1] Energy Information Administration, "Analysis of Alternative Mercury Control Strategies", January 2005.

Three of the four projects which were reviewed will burn sub-bituminous coal. Intermountain will burn bituminous with the possibility of blending up to 30% sub-bituminous coal. Intermountain Unit 3 will also utilize a wet limestone FGD system. The following table compares the three permits where only sub-bituminous coal is being burned and a Lime Spray Dryer is being utilized for SO_2 removal.

TABLE 1
Recent Permitted Sub-bituminous Coal Fired Units with Dry FGD Systems

	Newmont Nevada Mining Unit 1	**MidAmerican Energy CBEC Unit 4**	**Xcel Energy Comanche Unit 3**
Location	Dunphy, NV	Council Bluffs, IA	Pueblo, CO
Unit Size	200 MW	790 net MW	750 MW-Supercritical
Permit Date	May 5, 2005	June 17, 2003	July 5, 2005
Coal Type	Sub-bituminous	PRB Sub-bituminous	PRB Sub-bituminous
LNB	Yes	LNB w/OFA	LNB w/OFA
SCR	Yes	Yes	Yes
FGD	Lime Spray Dryer	Lime Spray Dryer	Lime Spray Dryer
Baghouse	Pulse Jet	Yes	Yes
Sorbent Injection	Activated Carbon	Activated Carbon	Yes, Later
Hg Permit Level	0.02 lb/GWhr, or $20X10^{-6}$ lb/MW-hr	$1.7X10^{-6}$ lb/MMBtu; $16.5 X 10^{-6}$ lb/MW-hr (Calculated)	$20X10^{-6}$ lb/MW-hr
Hg Permit Compliance Period	12-month rolling average	Average of 3 tests	12-month rolling average
Hg Emissions Test	Method 29 with three runs	Draft ASTM Z655907	
Hg CEMS	No CEMS Requirement	No CEMS Requirement	CEMS Required
Hg Demo Test Program	No	Yes-Optimization of SO_2, NO_x, Hg	Yes, One year Hg emission reduction test w/ cost ranges

The Hg emissions permit level is 16.5×10^{-6} lb/MWh to 20.0×10^{-6} lb/MWh for the three units burning sub-bituminous coals. Intermountain Unit 3 has permit limits of 6.0×10^{-6} lb/MWh for bituminous coal and 20.0×10^{-6} lb/MWh for sub-bituminous coal. Compliance with the Hg limit on three of the four units is based on a 12-month rolling average.

In addition, the permits for MidAmerican Energy CBEC Unit 4 and Xcel Energy Comanche Unit 3 included provisions for testing and evaluation of a mercury removal system. The MidAmerican permit allows for a nine-month optimization period whereby the affects of increasing activated carbon rates of injection on Hg removal are evaluated. MidAmerican has agreed to a minimum activated carbon injection rate of 10 pounds per million cubic feet of flue gas. The permit can be reopened should results from this study demonstrates a change is necessary.

Within 180 days after start-up, Comanche Unit 3 will enter into a one-year test program of various mercury removal technologies on Comanche Units 1 & 2. Within two years from the start-up of Unit 3, Xcel Energy shall comply with an emission limit that represents the maximum cost-effective reduction of mercury at Comanche Station achievable with an expenditure of no less than $2 million per year and no more the $5 million per year in the first year's operations and maintenance costs directly associated with mercury controls.

It should also be noted that all of these units (both the bituminous and sub-bituminous boilers) were permitted when a Case-by-Case Mercury MACT determination was required under federal regulation. Subsequently, on March 18, 2005, the Clean Air Mercury Rule was published.

C. BACT Analysis

EPA has developed a process for conducting Best Available Control Technology (BACT) analyses. This method is referred to as the "top-down" method. The steps to conducting a "top-down" analysis are listed in EPA's "New Source Review Workshop Manual," Draft, October 1990. The steps are the following:

- Step 1 – Identify All Control Technologies
- Step 2 – Eliminate Technically Infeasible Options
- Step 3 – Rank Remaining Control Technologies by Control Effectiveness
- Step 4 – Evaluate Most Effective Controls and Document Results
- Step 5 – Select BACT

Basin Electric Power Cooperative conducted a BACT analysis for SO_2, NOx, CO, and PM/PM_{10}, in the original application. While a BACT analysis for mercury is not required on a Federal level, Basin Electric Power Cooperative recognizes the WDEQ authority to request this review. However, for Dry Fork Station a true BACT analysis is not possible for mercury for the following reasons:

- Control technologies for mercury are still in the developmental stage, resulting in only limited information regarding possible alternatives and potential control efficiencies.
- A top-down analysis with cost estimates is not possible with current incomplete technology alternatives and cost information.
- Commercially available mercury control systems and associated vendor guarantees are very limited to date. Activated Carbon sorbent injection systems have been proposed and designed by a few vendors but other control technologies are at the planning and demonstration stages.

D. Discussion and Conclusions

After review of several recent coal fired unit permits and the present status of current Hg removal technologies, there remains a significant level of uncertainty regarding establishing an appropriate permit limit for Hg emissions. The three major areas of concern are:

1. **Unknown effects from numerous unit operating parameters on Hg capture** – Mercury removal pilot and demonstration projects conducted to date have shown that significant questions remain regarding how changing operating conditions can impact Hg emissions.
2. **Uncertainty regarding future coal Hg levels** - Any Hg permit limitation must provide the ability to meet the emissions criteria under the entire range of Hg in the fuel, and at a reasonable cost.
3. **Current status of Continuous Emissions Monitors (CEM)** – Commercially available CEM systems for Hg have just started to come on the market. The accuracy of the current CEMs at very low Hg levels is questionable.

Given the current stage of mercury control technology, the inherent concerns with potential unit operating uncertainties, and the status of CEMs, Basin Electric Power Cooperative proposes the following course of action:

1. The current CAMR emissions limit of 97 X 10^{-6} lb/MWh on an output basis 12 month rolling average should be maintained as a permit limitation (as revised in the June 19, 2006 Federal Register, Volume 71, No. 111, pages 33388-33402).

2. Basin Electric Power Cooperative proposes a Mercury Optimization Study, which would be performed on the Dry Fork Station. This testing program would begin approximately July 2011 (approximately six months after unit start-up), and would continue for one year.

   The testing program will include a review of the following potential mercury technology options:

   a) Sorbent Injection Technologies
   b) Sorbent Enhancement Additives
   c) Coal Pretreatment Processes
   d) Hg^0 Oxidation Technologies

3. Results from the testing program would be provided to the WDEQ, and implemented on Dry Fork Station as appropriate. Basin Electric Power Cooperative and WDEQ will jointly determine whether permit modifications are necessary.