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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 SUPPORT OF MOTION FOR SUMMARY JUDGMENT ON PROTESTANTS' CLAIMS REGARDING REDEFINITION OF THE SOURCE, $PM_{2.5}$ AND ALLEGED CLASS I INCREMENT VIOLATIONS

TABLE OF CONTENTS

I. Basin Electric is not required to consider "redesigning its source" as part of the BACT process for a PSD air permit 2

A. Basin Electric's technology selection 2

B. The selection of the generating technology is not subject to regulation through the air permitting process because the choice must weigh many factors that have nothing to do with air quality. 5

C. The BACT process involves consideration of pollution control technologies, not the selection of the base generating technology. 6

D. The fact that BACT includes consideration of production processes and innovative combustion technologies does not authorize air agencies to redefine or redesign the facility chosen by the applicant. 10

E. This Council and DEQ have long recognized, and followed, the legal principle that permit applicants cannot be required to redefine their chosen emissions source technology. 13

F. IGCC would completely replace, not just redesign, the Dry Fork Station. 14

1. EPA has consistently determined that IGCC would improperly redefine a subcritical plant. 19

G. Supercritical technology would also redesign the Dry Fork Station. 21

II. Protestants $PM_{2.5}$ claims should be dismissed 25

A. Introduction. 25

B. DEQ's $PM_{2.5}$ permit analysis complied with controlling EPA guidance. 29

C. Wyoming does not yet have the tools to regulate $PM_{2.5}$. 34

D. The impact of Dry Fork Station $PM_{2.5}$ emissions are well below the $PM_{2.5}$ NAAQS and DEQ's permit effectively controls $PM_{2.5}$ emissions to the maximum degree achievable in accordance with BACT. 37

III. Protestants' SO_2 increment claims should be dismissed. 40

A. Introduction. 40

B. SO_2 increment modeling for the Dry Fork project. 43

C. Protestants' claim that the DEQ erred is contrary to the law and common sense. 45

D. SILs may be used for Class I PSD increments even though not embodied in a regulation. 48

E. In the alternative, cumulative modeling using actual emissions predicts no Class I SO_2 increment exceedances. 51

F. Dry Fork will not cause or contribute to air quality impacts at the NCIR. 53

IV. Conclusion. 53

Basin Electric Power Cooperative., Inc. (Basin Electric) respectfully submits this memorandum brief in support of its motion for summary judgment on Protestants' "redefinition of the source" claims, their $PM_{2.5}$ claims, and their allegations of Class I increment violations on the Northern Cheyenne Indian Reservation. None of these claims present disputed issues of fact and Basin Electric is entitled to judgment as a matter of law on all of them.[1]

Introduction

First, Protestants assert that DEQ was required to consider Integrated Gasification Combined Cycle (IGCC), supercritical and ultra-supercritical generating technologies as pollution control devices during the "Best Available Control Technologies" (BACT) portion of the permitting process. Protestants' claim that these technologies must be reviewed in the "BACT" analysis is contrary to law and this Council's own prior precedent. Both this Council and DEQ have long taken the position that a permit applicant is not required to redesign its chosen generating technology.

Second, Protestants' claim that DEQ should be required to separately model and regulate $PM_{2.5}$. This is a fine particulate emission that EPA is still studying and for which final regulatory rules have not yet been adopted. Pending final rules, which have not been issued by EPA or the DEQ, EPA has authorized DEQ to use PM_{10} as a regulatory surrogate for $PM_{2.5}$, which DEQ has done. In any event, DEQ has required BACT on the precursors for secondary $PM_{2.5}$, and Basin Electric is installing the fabric filter coating on the baghouse that Protestants' own expert

[1] These claims are set forth in paragraphs 33-41, 61-66, and 67-69 of the Petition for Review.

recommends for controlling particulate $PM_{2.5}$. As a practical matter, therefore, DEQ and Basin Electric have taken the necessary steps to control $PM_{2.5}$.

Finally, Protestants allege that DEQ improperly reached the conclusion that the Dry Fork Station would not cause or contribute to a Class I increment violation with respect to sulfur dioxide (SO_2) emissions on the Northern Cheyenne Indian Reservation in Montana. However, it is factually undisputed that all ambient air quality modeling has demonstrated that Dry Fork will **never** have a legally significant impact on **any** modeled Class I increment violations for the Northern Cheyenne Indian Reservation. Acknowledging that there is no legally significant impact under existing law and practice, Protestants have decided to make the unprecedented argument in this case that merely showing no legally significant contribution is not enough—they insist upon a "zero" impact, which is not the law anywhere and which, if adopted, could stop the permitting of all new major sources over most of Wyoming, forever.

I. Basin Electric is not required to consider "redesigning its source" as part of the BACT process for a PSD air permit.

A. Basin Electric's technology selection.

After much study, Basin Electric selected subcritical pulverized coal technology as its fundamental electrical generating choice for the Dry Fork Station. Like most utilities, Basin Electric employs a broad mix of different generating technologies across its system to meet the overall needs of its consumers. Basin Electric operates subcritical coal-fired plants, natural gas-fired combined cycle units, wind turbines, and plans to build a supercritical coal-fired plant. Each plant fills a particular niche. Each is tailored to consider reliability and the suitability of technology for the particular application, and each meets a specific part of the needs of its customers.

Basin Electric evaluated many different options, including energy conservation and efficiency, wind, solar, hydroelectric, geothermal, biomass, natural gas simple cycle turbines, natural gas combined cycle turbines, micro-turbines, base load coal facility, re-powering/up-rating of existing generating units, and purchased power. This evaluation concluded that a coal-based generating resource was the only alternative that could meet all of the key criteria for the plant–considerations driven by the need for new electric generation on a reliable and continuous basis. *See Northeast Wyoming Generation Project, Project Justification and Support, Initial and Supplemental Analysis Executive Summary, Basin Electric Power Cooperative, December 2004 and July 2005*, attached as Exhibit A to the Affidavit of David D. Raatz in Support of Basin Electric's Motion for Summary Judgment (Raatz Affidavit) (attached as Raatz Aff.).

Basin Electric then evaluated alternative coal-based generating technologies, including subcritical, supercritical, IGCC and circulating fluidized bed options. *See Coal Power Plant Technology Evaluation for Dry Fork Station, Prepared for Basin Electric Power Cooperative by CH2M Hill, November 1, 2005* (2005 Technology Evaluation), attached as Exhibit A to Affidavit of Robert T. Williams in Support of Basin Electric's Motion for Summary Judgment (the Williams Affidavit) (attached as Williams Aff.). Each alternative was evaluated to determine which would best meet the key criteria for the project: baseload capacity; high reliability and availability; commercial availability and proven technology; environmental compliance; and cost effectiveness. Exhibit A to Williams Aff. at 8.

Measured against these criteria, Basin Electric and its consultants concluded that subcritical pulverized coal technology was the superior choice, because it achieves all of the key criteria. *Id.* at 51-52. Subcritical technology at the Dry Fork Station utilizes available coal from

a mine next door which provides an inexpensive low-sulfur sub-bituminous product without large transportation costs. It meets the fundamental purpose of the plant—to provide very high availability and reliability to meet the need for a "base load" supply of electricity. In power-generating parlance, a "base load" facility means a power plant that can operate at near maximum capacity twenty-four hours a day, seven days a week, year round. Many generating technologies, including IGCC, simply cannot meet that purpose because they lack the high reliability and availability needed. Subcritical pulverized coal technology can provide base load power with high reliability and it is a commercially available and cost-effective technology with a proven track record of utilizing low sulfur sub-bituminous coals at the elevation of the Dry Fork Station. *See* the attached Raatz and Williams Affidavits that fully explain Basin Electric's extensive study and analysis of the need for electricity in northeast Wyoming and how best to meet that need.

Even after the initial recommendation that subcritical technology was the best fit for Dry Fork, Basin Electric did further evaluation of other coal-based options, including IGCC and supercritical technology, as part of the permitting process. These evaluations were submitted to DEQ for its consideration. *See Subcritical-Supercritical Boiler Comparison*, Sargent & Lundy, June 11, 2007 (attached as Exhibit C to Williams Affidavit) and *A Comparison of [subcritical], CFB and IGCC Technologies for Basin Electric Power Cooperative's Dry Fork Station*, Steve Jenkins/Gary Brown of CH2M Hill, June 26, 2007 (2007 Technology Comparison) (attached as Exhibit D to Williams Affidavit). Exhibit C was an analytical comparison of subcritical and supercritical generating technologies done by Sargent & Lundy, provided in 2007 at the request of the DEQ, which concluded that at the size of the Dry Fork Station there would be no

significant efficiency improvement from supercritical technology to justify selecting that substantially more expensive technology. Exhibit D was an update in 2007 of the 2005 Technology Evaluation which focused on IGCC developments and, taking into account new information, concluded again that subcritical PC technology continued to be the best fit for Dry Fork and that IGCC could not meet the requirements for high reliability and cost-effective power generation. IGCC is also not commercially available at the 385 net MW size of the Dry Fork Station. All of this information was considered by DEQ in the permitting process. However, IGCC and supercritical generating technologies were not part of the BACT evaluation because the BACT analysis is different than the evaluation of generating technologies made by the permit applicant.

B. The selection of the generating technology is not subject to regulation through the air permitting process because the choice must weigh many factors that have nothing to do with air quality.

Basin Electric's process for considering and evaluating alternative electrical generating technologies at Dry Fork was lengthy, thorough and based on criteria that were essential to determine what technology is most suitable to meet the needs of its customers for electricity. Many of the factors that determine the ultimate selection of a multi-billion dollar generating technology, whether at Dry Fork or elsewhere, have little to do with air quality regulation. For example, at Dry Fork one site-specific factor is the availability of a nearby coal supply. For a facility located near a river, hydroelectric technology might apply. The availability of an adequate water source might lead to a hydro-electric plant, not because it would have low emissions, but for reasons having nothing to do with air quality concerns.

Moreover, the choice that is made has to be paid for by the utility's customers. The customers pay, and so they have a say in the ultimate technology choice. Utilities are ultimately accountable to their customers for the technologies they chose. That is not true for environmental regulators, who are looking after environmental concerns rather than the customer's interests in paying the bills. As a result, the law does not make the choice of fundamental generating technology a function of air quality regulations. Which generating technology best meets a project's specific needs requires the identification and evaluation of a large number of competing considerations, including, but not limited to, the availability and cost of different types of fuel; the available means and costs of transporting fuel; the reliability of the generating technology; the cost of generating and transmitting electricity; whether the need is for base load power, peaking power or intermittent power; the availability and cost of equipment; the type and extent of available guarantees of performance and reliability; and, perhaps most important, the nature, timing and magnitude of the need for power and the consequences to customers if power is not available to meet those needs. Given the many factors that govern the selection of a generating technology that are not a function of air quality concerns, Congress did not draft the Clean Air Act to regulate the selection of the basic generating technology. That responsibility rightly remains with the utilities who must answer to their customers.

C. The BACT process involves consideration of pollution control technologies, not the selection of the base generating technology.

Protestants nevertheless assert that DEQ should be required to consider IGCC and supercritical generating technologies as part of the BACT process. In making this argument, Protestants are improperly attempting to control Basin Electric's right to select the fundamental generating technology, a right which is **not** regulated by the Clean Air Act.

Understanding why this is so requires review of what the BACT process involves. Under the Prevention of Significant Deterioration (PSD) program applicable to major emissions sources like a subcritical pulverized coal boiler, new major sources of emissions such as the Dry Fork boiler are subject to a requirement that they meet pollution emission limits that reflect what can be achieved by the "Best Available Control Technology" for each pollutant regulated under the PSD program. Generally speaking, BACT is the lowest emission rate that DEQ determines is actually achievable, in practice, by applying applicable and available **emission control** technologies to the emission source in question for each regulated pollutant (like sulfur dioxide or nitrogen oxides), taking into account the purpose of the facility, technical feasibility, and economic, energy and environmental impacts on the particular project. WAQS&R, Ch. 6, Section 4(a). BACT is **not** the lowest possible emission rate ever obtained in a performance test; it is the lowest rate that the Administrator of the Air Quality Division believes can practically be obtained on a continuous basis, building in a safety factor that considers operational variability, and considering economic, environmental and energy impacts. *See, e.g., In re Newmont Nevada Energy Investment LLC, TS Power Plant*, 12 E.A.D. 429, 442 (EAB 2005).

During the permitting process, the applicant does a BACT analysis that evaluates all appropriate, applicable and available emission control technologies for each regulated pollutant. This involves consideration of pollution **control** technologies, **not** the fundamental **generating** technology chosen by the applicant. Dry and wet scrubbers, for example, are studied for control of sulfur dioxide. DEQ then reviews the applicant's BACT analysis, may request additional analyses, and eventually makes a determination regarding what the DEQ Air Quality Administrator determines constitutes BACT for each regulated pollutant at that site-specific

location and for the specific emissions source chosen by the applicant, in this case a subcritical pulverized coal boiler. *See* Affidavit of Chad Schlichtemeier attached to DEQ's motion for summary judgment.

Here, Protestants contend that because IGCC and supercritical generating technologies may be inherently lower emitting sources of regulated pollutants than subcritical pulverized coal boilers on a kilowatt by kilowatt hour basis (because they may use less coal per kilowatt hour or otherwise may have lower emissions), these technologies should have been evaluated as potential pollution control technologies in the five-step BACT review process for each regulated pollutant.

This argument is incorrect on the law because it confuses the difference between control technologies, which are subject to BACT, and fundamental emission sources, which are not. The distinction between a **pollution control technology** that must be considered in the BACT analysis and an **emissions source** chosen by the applicant is reflected in the plain language of the statutory and regulatory definition of BACT:

> "Best available **control** technology" means an emission limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under these Standards and Regulations or regulation under the Federal Clean Air Act, which would be emitted from or which results for any **proposed** major **stationary source** or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable **for such source** or modification through application or production processes and available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for **control** of such pollutant.

WAQS&R, Ch. 6, Section 4(a) (emphasis added). By its terms, this regulation requires BACT review of technologies designed to **control** pollutants emitted by the **proposed source**; it does not state that different **sources** should be reviewed in the BACT process.

This makes common sense, because any other result would put into the hands of air regulators the multi-billion dollar choice of what type of source best meets the multiple needs and multiple criteria for projects—criteria that are outside the scope of concern for air regulators. At Dry Fork, the business purpose to be met by this project requires a technology that can provide base load capacity, high reliability and availability, and technologies sufficiently proven and commercially available to generate cost-effective electricity. To treat the choice of a generating technology as if it were the choice of an emission control technology would subject the critically important need for electric power of Basin Electric's customers to a process that is not designed for that purpose.

For all of these reasons, the law is clear that the BACT process does not seek to regulate the permit applicant's basic technology choice. The BACT process does not authorize air regulatory agencies to second guess the choice of what type of facility to build: "[T]he permit issuer looks **to how the permit applicant defines** the proposed facility' s purpose or basic design in its application . . ." *In re Prairie State Generating Station*, PSD Appeal No. 05-05 (EAB. 8-24-2006), slip op at 28 (emphasis added). The Environmental Appeals Board (EAB) has acknowledged that it is the "proposed facility" identified by the permit applicant that is subject to BACT and that "[i]n this context, the **permit applicant** initiates the process and, in doing so, we conclude, **defines the proposed facility's end, object, aim or purpose—that is the facility's design . . . .** *Id.* at 29 (emphasis added). Finally, the EAB has observed that "we conclude that

the permit issuer appropriately looks to how the applicant, in proposing the facility, defines the goals, objectives, purpose, or basic design for the proposed facility. Thus, **the permit issuer must be mindful that BACT, in most cases, should not be applied to regulate the applicant's objective or purpose for the proposed facility** . . . " *Id.* at 30 (emphasis added).

The air quality permitting agency therefore does not revisit the applicant's choice of what type of facility to build, but instead applies BACT to consider options for reducing emissions **from that facility**. Basin Electric was free to choose the type of facility it needs to build; the question is whether controls have been developed for that facility which are BACT.

D. The fact that BACT includes consideration of production processes and innovative combustion technologies does not authorize air agencies to redefine or redesign the facility chosen by the applicant.

Protestants seek to avoid this result by relying on language in the definition of BACT that provides for consideration of "production processes and available methods, systems and techniques, including fuel cleaning or treatment or innovative combustion techniques" for emission control, WAQS&R, Ch. 6, Section 4(a); *see also* 42 U.S.C. 7479(3). Pointing to this language, Protestants argue that IGCC and supercritical technology are merely "production processes" involving "innovative combustion techniques" and therefore must be evaluated as BACT.

This argument is contrary to the clear weight of legal authority. EPA's longstanding position—as the lead agency with the power to interpret and then apply the Clean Air Act—has been that consideration of production processes and innovative combustion techniques may be part of BACT, "**provided such processes or techniques do not fundamentally redefine the basic design or scope of the facility proposed by the permit applicant.**" EPA Responses to

Public Comments on the Proposed Prevention of Significant Deterioration Permit for the Desert Rock Energy Facility, July 31, 2008 (EPA Desert Rock Responses) at 16 (emphasis added) (excerpt attached as Exhibit 1). *See also Prairie State*, PSD Appeal No. 05-05, slip op. at 24 (EPA "argues that the Agency's long-standing policy on redefining the source 'establishes some level of balance' and 'reasonably harmonizes' the competing BACT obligations that the **permit issuer review the project as proposed – not something fundamentally different** – while simultaneously . . . considering whether lower emissions are achievable through 'application of production processes and available methods, systems, and techniques,' including lower-emitting fuels.'" (emphasis added)). This is how the applicant's basic choice of generating technology is protected from regulation through an air permit.

BACT therefore does not include redefining or redesigning the proposed source—it does not include choosing a different type of electrical generating technology than the one selected by the permit applicant. The DEQ therefore properly declined to consider these technologies during the BACT process, although DEQ did demand that Basin Electric evaluate them and report its reasons for rejecting them.

EPA's New Source Review Workshop Manual, October 1990 (NSR Manual), at B.13 states that "[h]istorically, the **EPA has not considered the BACT requirement as a means to redefine the design of the source** when considering available control alternatives." (emphasis added) (excerpts of NSR Manual attached as Exhibit 2). The NSR Manual, which is widely relied on to guide the PSD permitting process and interpret the requirements of the PSD program, specifically cites the example that EPA would not, pursuant to BACT, require a permit

applicant for a coal-fired power plant to consider building a natural gas-fired power plant instead. *Id.*

Decisions of the EAB have consistently held that BACT does not require redefining or redesigning a proposed project. *See Prairie State*, PSD Appeal No. 05-05, slip op at 27 ("We have specifically stated that 'EPA has not generally required a source to change (i.e., **redefine**) **its basic design**.'" (quoting *In re Knauf Fiber Glass, GmbH*, 8 E.A.D 121, 136 (EAB 1999).) (emphasis in original). The Seventh Circuit Court of Appeals, in *Sierra Club v. U. S. EPA*, 499 F.3d 653, 655 (7th Cir. 2007) upheld the *Prairie State* decision that BACT does not require a proposed plant to be redefined. The EAB has rejected a petition to require the substitution of a fuel oil-fired combined cycle facility for a proposed coal-fired power plant, because that would involve redefining the proposed plant. *In the Matter of Hawaiian Commercial & Sugar Co.*, 4 E.A.D 95, 99 (EAB 1992). Consistent with the NSR Manual, the Board has refused to require a company to build a natural gas-fired turbine instead of a coal-fired plant. *In the Matter of Old Dominion Electric Cooperative Permit Applicant*, 3 E.A.D. 779 (EAB 1992), 1992 EPA App. LEXIS 37. Further, the EPA Administrator rejected the claim that municipal waste should be co-fired with fuel and coal at power plants instead of being burned in a municipal waste combustor, stating that BACT conditions "**are not intended to redefine the source. . .** " *In the Matter of Pennsauken County New Jersey, Resource Recovery Facility*, PSD Appeal No. 88-8 (November 10, 1988), slip op at 10-11 (emphasis added). Both IGCC and supercritical technologies are fundamental power generating technologies, not pollution control technologies.

The bottom line is that there is no legal authority to support Protestants' claim that consideration of production processes or innovative combustion techniques may be applied in the

BACT process to allow the permitting authority to change or redefine the type of facility proposed by the permit applicant. Protestants' argument goes well beyond consideration of emission control technology and seeks instead to specify how electricity should be generated. In the Seventh Circuit decision affirming this interpretation of the BACT statute, *Sierra Club, supra*, Judge Posner, one of America's most highly respected jurists, affirmed EPA's view that BACT does not require a redesign of the emissions source. Judge Posner observed that the same argument Protestants make here—that the broad references to clean fuel and combustion techniques make any technology choice potentially applicable—logically leads to an absurd result: "[t]he [Clean Air] Act is explicit that 'clean fuels' is one of the control methods that the EPA has to consider. Well, nuclear fuel is clean, and so the implication, one might think, is that the agency could order *Prairie State* to redesign its plant as a nuclear plant rather than a coal-fired one, or could order it to explore the possibility of damming the Mississippi to generate hydroelectric power, or to replace coal-fired boilers with wind turbines. . . . The petitioners to their credit shy away from embracing the extreme implications of such a strategy, which would stretch the term 'control technology' beyond the breaking point . . ." *Sierra Club*, 499 F.3d at 655.

E. This Council and DEQ have long recognized, and followed, the legal principle that permit applicants cannot be required to redefine their chosen emissions source technology.

This Council has specifically adopted and followed EPA's interpretation of the BACT process, and has concurred that BACT does not authorize second-guessing a permit applicant's choice of electrical generating technology. This prior practice by the Council is significant, and it is controlling here, because both Basin Electric and the DEQ have relied upon this settled law.

For example, in 1993 this Council specifically determined that Black Hills and DEQ were not required to consider a circulating fluidized bed coal-fired unit as part of the BACT analysis for a subcritical pulverized coal boiler, even though both technologies combust coal to produce steam and generate electricity.

> The Applicant, Black Hills, defined the proposed source, a coal-fired steam electric generating plant with a pulverized coal boiler. **Federal and state laws and regulations do not require the DEQ/AQD to redefine the source and as a result cause Black Hills to build a different type of boiler**, such as a circulating fluidized bed boiler, rather than a pulverized coal boiler. The DEQ/AQD properly exercised its discretion not to redefine the source.

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 (emphasis added) (attached as Exhibit 3). Consistent with this long-settled law, DEQ in this case did not subject IGCC or supercritical technologies to a BACT analysis because it would have been contrary to law to do so. That does not mean DEQ just ignored these technologies. DEQ did require Basin Electric to provide information regarding its reasons for not choosing them. However, it would have been contrary to Wyoming law to have required a BACT analysis for these technologies.

F. IGCC would completely replace, not just redesign, the Dry Fork Station.

After affirming that the definition of BACT does **not** require an applicant to fundamentally redesign its project and abandon its chosen technology, Judge Posner went on to explain in *Sierra Club* that the issue in any case where a BACT contention is made is whether the proposed use of a particular technology would improperly cross the line from a legitimate question about a "control" device to an improper attempt to redefine the fundamental emissions source. *Id.* at 655 (noting the issue is "where control technology ends and a redesign...begins").

Seizing upon this formulation of the issue, Protestants have retained experts to opine that the physical differences between Basin Electric's subcritical pulverized coal boiler and IGCC and supercritical technologies is so minimal that these technologies are really not a "fundamental redesign" of a subcritical boiler.

These opinions, which are really just legal arguments, are contrary to law and defy common sense. First, there can be no question that IGCC is a complete redesign of a subcritical boiler. In fact, IGCC does not even use a coal-fired boiler. An IGCC plant employs a very different way of generating electricity than a subcritical pulverized coal plant. In a subcritical plant, coal is combusted in a boiler to heat water and convert it to steam. The steam is piped to a steam turbine which converts the steam's thermal energy into mechanical energy, and the steam turbine turns a generator to produce electricity. *See, e.g.*, Expert Report of Stephen D. Jenkins, *Integrated Gasification Combined Cycle Technology is Not Commercially Available or Technically Feasible for Meeting the Requirements of Basin Electric Power Cooperative's Dry Fork Station* (Jenkins Expert Report) at 14-15 (attached as Exhibit 4); 2007 Technology Comparison at 1-3 (Exhibit D to Williams Aff.).

IGCC is more like a chemical plant that is combined with a combustion turbine to generate electricity. IGCC has virtually nothing in common with a boiler-based subcritical plant. In an IGCC plant, coal is not burned but instead is heated and thermally converted into synthetic gas (syngas). After impurities such as sulfur compounds, metals, ash and ammonia are removed, the syngas is burned in a combustion turbine that is similar to a natural gas-fired turbine. No coal-fired boiler is involved at all. The fuel that generates electricity in a subcritical pulverized

coal plant is coal, but the fuel in an IGCC plant is syngas. *See, e.g.*, Jenkins Expert Report at 15-17 (Exhibit 4); 2007 Technology Comparison at 4-7 (Exhibit D to Williams Aff.).

Protestants' expert, Mr. Fowler, does not dispute that subcritical and IGCC are very different, or that the former combusts coal to heat steam to spin a steam turbine whereas the latter converts coal to syngas that is combusted in a gas turbine. For example, in a June 26 e-mail to Mr. Angell, counsel for the Protestants, Mr. Fowler acknowledged that "Jenkins also includes some detail on how an IGCC is very different from a [subcritical] plant. **He is basically correct about that**, but it's not really a relevant detail." *See* Fowler Depo. Ex. 11, p. 2 (emphasis added) (attached as Exhibit 5).[2]

To make these admitted fundamental design differences merely irrelevant "details," Mr. Fowler argues that IGCC does not redefine or redesign a subcritical plant because, in both, coal is the initial raw material for the process and, in both, electricity is produced. This test proposed by Protestants simplifies the concept of redesign to such a broad formulation that just about anything that touches coal can be called the same thing as a subcritical pulverized coal boiler. For example, Mr. Fowler provides a "Schematic Illustration of Coal-to-Electricity Production Process" which shows coal going in and electricity coming out and a black box in between. (attached as Exhibit 7). Although admitting that hidden behind the black box are all of the huge differences between IGCC and subcritical technology (Fowler Depo. at 268 and Exhibit 6), Mr. Fowler asserts that because an IGCC plant and a subcritical plant both start with coal and

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[2] Mr. Fowler's deposition testimony feebly seeks to identify some minimal similarities between the two technologies, but admits that the major items of equipment and the two processes are fundamentally different. Fowler Depo. at 75-87 (excerpts of Deposition of Michael Foreman-Fowler attached as Fowler Depo.) and Fowler Depo. Ex. 10 (attached as Exhibit 6).

ultimately convert the coal into electricity, the differences are not legally consequential; according to Mr. Fowler, IGCC does not redefine or redesign a subcritical plant because IGCC and subcritical technology really are the same because they both start with coal.[3]

This is akin to claiming there is no difference between a Chevrolet, an ocean-going freighter and a jet plane because they all combust petroleum products to provide transportation from one place to another. It is therefore not surprising that Mr. Fowler's argument—that anything that starts with coal and ends with electricity is the same thing as anything else that starts with coal and ends with electricity—has universally been rejected. In the recent case of *Prairie State*, PSD Appeal No. 05-05, for example, the petitioners argued that changing a proposed mine-mouth subcritical plant to a plant that used imported coal from another state would not redefine the proposed source because it would not change the "basic purpose" of the facility which, like Mr. Fowler, they argued was broadly defined as producing electricity from coal. The EAB rejected this argument, stating that "[w]e . . . specifically **reject** Petitioners' **contention** that an electric generating facility's **purpose must be viewed as broadly as the production of electricity from coal.**" *Prairie State*, slip op at 32. The EAB held that changing from mine-mouth to imported coal would redefine the facility, **despite the fact that in both cases coal would be used to produce electricity**. The basic purpose was not simply to produce electricity from coal; it included the utilization of mine-mouth coal reserves which was an

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[3] Mr. Fowler is forced to maintain that IGCC does not redefine a subcritical plant, because he admits in his deposition that if it does, then a BACT analysis does not make sense and is not required. Fowler Depo. at 229-230. However, Mr. Fowler concedes that IGCC could redefine a pulverized coal plant if operational availability of the IGCC plant is "absurdly" low, which he defines as 20%. Fowler Depo. at 220-221. This example given by Mr. Fowler illustrates the weakness of the oversimplified "coal in - electricity out" analysis.

integral part of the plant's objective. If switching from mine-mouth to imported coal would redefine the Prairie State plant, certainly switching from a subcritical plant to IGCC would redefine the proposed Dry Fork plant. The fact that both use coal to produce electricity does not make them the same type of plant.

Protestants' argument is also inconsistent with EPA's longstanding position that the proponent of a coal-fired power plant is not required by BACT to construct a natural gas-fired turbine instead of a subcritical boiler, like an IGCC plant would do, because doing so would redefine the source. "For example, applicants proposing to construct a coal-fired electric generator, have not been required by EPA as part of a BACT analysis to consider building a natural gas-fired electric turbine although the turbine may be inherently less polluting per unit product (in this case electricity)." Exhibit 2, NSR Manual at B.13. *See also In the Matter of Old Dominion Electric Cooperative Permit Applicant*, 1992 EPA App. LEXIS at 31-32 (BACT does not require a company to build a natural gas-fired turbine instead of a coal-fired boiler.) Although it burns syngas instead of natural gas, the combustion turbine in an IGCC plant is similar to the combustion turbine in a natural gas-fired power plant—according to the NSR Manual, changing from a coal-fired boiler to a syngas combustion turbine would redefine the boiler. But an IGCC plant is even more different from a subcritical plant than a natural gas turbine, because in addition to the syngas turbine it includes a gasifier to convert coal into syngas instead of a boiler to combust coal and heat steam. If a natural gas turbine would redefine a coal-fired boiler, an IGCC plant plainly does.

1. EPA has consistently determined that IGCC would improperly redefine a subcritical plant.

EPA has made clear that the IGCC process would redesign a coal-fired plant. In the August 30, 2007 decision of the EPA Administrator in the case of *East Kentucky Power Cooperative, Inc. Hugh L Spurlock Generating Station*, (excerpts attached as Exhibit 8), the EPA Administrator stated that "**EPA does not** interpret the CAA [Clean Air Act] to **require** an 'innovative fuel combustion technique' to be subject to a detailed **BACT review** when application of such a technique would **re-design the proposed source** [a CFB steam boiler] to the point that it becomes an alternative type of facility, **which . . . EPA believes would be the case if the IGCC technology were applied to Spurlock's Unit 4**." *Id.* at 38 (emphasis added).

EPA reiterated its interpretation that IGCC need not be part of a BACT analysis for a proposed coal-fired power plant on July 31, 2008, just a month ago, when it issued a PSD permit for the Desert Rock power plant on the Navajo reservation in New Mexico. Citing several EPA and EAB decisions spanning two decades, EPA restated "the Agency's longstanding judgment that there should be limits on the degree to which permitting authorities can dictate the design and scope of a proposed facility through the BACT analysis." Exhibit 1, EPA Desert Rock Responses at 14. Noting that BACT is defined as an emission limit on pollutants emitted from a major emitting facility that is achievable "for **such facility**" (emphasis in original), EPA concluded that the definition "makes clear that the BACT review is based on the **proposed project**, as opposed to something fundamentally different." *Id.* at 15 (emphasis added). "**The combined cycle generation power block of an IGCC process employs the same turbine and heat recovery technology that is used to generate electricity with natural gas at other electric generation facilities. Thus, the combined cycle generation power block portion of**

the IGCC process is very similar to existing power generation designs that EPA has agreed would redefine the basic design of the source when an applicant proposed to construct a pulverized coal-fired boiler (citations omitted). Furthermore, the core process of gasification at an IGCC facility is fundamentally different than operating a boiler." *Id.* at 19 (emphasis added). "With respect to the [Desert Rock] project . . . , our assessment is that the application of the **IGCC process would fundamentally change the nature of the proposed major source as it would change the basic design of the equipment** [Desert Rock] proposed to install." *Id.* (emphasis added).

One year before issuing the Desert Rock permit, EPA came to the same conclusion regarding the PSD permit for the coal-fired Bonanza power plant in Utah, noting that "these fundamental differences in equipment design are sufficient to conclude that the **IGCC process would redefine the proposed source**." Response to Public Comments on Draft Air Pollution Control Prevention of Significant Deterioration (PSD) Permit to Construct, Permittee: Deseret Power Electric Cooperative, Permitted Facility: Bonanza Power Plant, August 30, 2007, at 15-16 (emphasis added) (attached as Exhibit 9).

Protestants' own expert admits that IGCC technology is very different than subcritical pulverized coal technologies. There is no dispute on these factual differences. As to the law, Protestants' proposed "coal-in electricity-out" test for when something constitutes a redesign has been specifically rejected by EPA and the EAB, for the obvious reason that it would establish a threshold for "redesign" that is so broad as to swallow the concept altogether, thus subverting the Clean Air Act into a vehicle to make regulators the decision-makers of fundamental technology choices. The law is to the contrary.

G. Supercritical technology would also redesign the Dry Fork Station.

Protestants also allege that it was error for DEQ not to require a BACT analysis of supercritical and ultra-supercritical technologies. However, both of these technologies would also require a redesign of the Dry Fork Station. In supercritical processes, substantially higher temperatures and pressures are used to heat the steam until it reaches a "supercritical" state, at which point the steam has the properties of both a liquid and a vapor and therefore behaves differently when passed over and through the turbine blading system. As a result of these substantially different pressure and temperature conditions, changing from subcritical to supercritical technologies requires a different boiler made with different steel alloys, different water wall tubing, different valves, different turbines, different reheaters, different boiler feed pumps, and a different economizer. Subcritical and supercritical boilers are therefore not interchangeable; Dry Fork would have to be redesigned from the ground up.

Basin Electric submitted to the DEQ a detailed explanation of the differences between subcritical and supercritical plants. *See* Exhibit C to Williams Aff. Again, there is no dispute between the parties about the substantial design differences between subcritical and supercritical technologies. Although quick to reiterate at every opportunity his legal conclusion that these design differences do not constitute "fundamental redesigns" for purposes of interpreting the BACT statute, Dr. Ron Sahu, Protestants' expert on supercritical technology, acknowledged the factual design differences in deposition. In his own words:

- The Boiler firebox and boiler drum configuration is different – "in the supercritical unit, you are going to operate above the critical temperature of steam, so it's going to be a once-through boiler...a subcritical boiler will have a steam drum; a separator basically. A supercritical boiler will not have that." Sahu Depo. at 58-59.

- The steam flows through the boiler tubes is different – "the manner in which the steam flows through the boiler tubes is going to be different ..." Sahu Depo. at 62.

- A subcritical boiler requires a huge drum to separate the liquid water from the steam, an aspect of a subcritical boiler that does not even exist in supercritical technologies: "the lack of a drum in a supercritical is different[.]" Sahu Depo. at 62.

- The base metallurgy of the supercritical boiler is different than in a subcritical boiler. This means that the boilers themselves have to be made with different metal alloys: "You have different materials of construction of the supercritical" meaning "the boiler walls, which typically are composed of tubes within which the water or steam combination in a subcritical or water at some point becoming steam in the supercritical flows, would be made of different types of steel...different alloys of steel simply because they have to withstand different temperatures and pressures." Sahu Depo. at 62-63.

    - Special alloy steels are "one of the more expensive items in the supercritical design[.]" Sahu Depo. at 63.

    - "[Y]ou have to use different grades of steel appropriate to withstanding the stresses and creep and all other mechanical properties that have to be withstood at these higher temperatures and pressures." Sahu Depo. at 63.

    - Water walls would have to be changed out because the metallurgy will need to be different. Sahu Depo. at 65.

- The geometry of the boilers is different – "[t]he manner in which the steam flows through the circuit that flows through there could be different." Sahu Depo. at 64.

- The valves in the tubing is different because – "the pressures to which they're designed probably would be different." Sahu Depo. at 64.

- The Heaters are different – The "[s]uper heater and perhaps the reheater sections, depending on how many reheats it has." Sahu Depo. at 65.

- Boiler water feed pump – feed-water pump would have to be changed because it "has to probably withstand higher pressures." Sahu Depo. at 65-66.

- The turbines are different and would have to be redesigned – "portions of the turbine. The high-pressure section...would have to be different" as the "turbine manufacturer will balance the turbine and do the rotor design and make sure that the clearances are proper and – under actual conditions and all the elongations are fine and the clearances are okay." Sahu Depo. at 66-67.

- Economizer – would have to be changed out because the metallurgy "would be different." Sahu Depo. at 65.

Excerpts to Deposition of Ranajit Sahu attached as Sahu Depo.

In short, there is no dispute that many basic features of the entire operation differ between supercritical and subcritical technologies: the boilers are different, the water drum is different, the economizers are different, the turbines are different, and the feed-pumps are different. These differences go all the way down to the basic metallurgy comprising the steels used to construct the plant. Expert Report of Kenneth J. Snell, *Expert Report and Analysis – Basin Electric Power Cooperative's Dry Fork Station Power Plant: (1) Supercritical Boiler Technology is not a Practical Option for the Dry Fork Station; (2) The Dry Fork Permitting Process was Thorough and Technically Sound; and (3) Emission Limits Included in the Final Permit Represent Best Available Control Technology* (Snell Report) at 17 (attached as Exhibit 10). This is clearly a redesign of the technology chosen by Basin Electric. Supercritical technologies are not mere "pollution control" devices; they redesign the plant and thus, in Judge Posner's words, improperly "cross the line" between a control technology applicable to BACT and a redesign not subject to BACT. DEQ properly did not consider supercritical technologies in the BACT process.

Unlike IGCC, there are no reported cases squarely addressing whether supercritical technologies are redesigns. But there are good reasons why such cases do not exist.

Above a certain size, supercritical technologies are more efficient than subcritical technologies, meaning they use less coal per kilowatt hour. This saves fuel costs and makes the overall generation of electricity less expensive. Thus, where supercritical technologies can, in

fact, provide efficiency gains, they are usually selected by the utility as the basic emissions source.

It is therefore in the utility's own best interest to employ supercritical technologies where they can provide efficiencies, because these technologies require less coal to be burned per kilo-watt hour of electricity. Where, however, the proposed plant is too small to enable efficiency gains, the technology adds no value for its huge additional expense. For this reason, utilities only reluctantly conclude that supercritical technologies cannot be justified. Given the financial benefits of efficiency gains, air quality regulation is not necessary to encourage this technology because it is the utility's own interest to use it where it can.

In this case, however, the Dry Fork project is just too small to realize efficiency gains. Supercritical technologies do not provide significant incremental efficiencies below about 500 megawatts, and the Dry Fork project is much smaller, at 385 net megawatts, making any efficiency gain for this smaller facility (at enormous additional cost) minimal at best. Snell Report at 9-16, Exhibit 10. As explained in the Williams Affidavit, Basin Electric looked very hard at supercritical technologies and only very reluctantly concluded that the efficiency gains were not there to be had for a project this small. See, for example, the vendor comments attached as Exhibit B to Williams Affidavit, in which multiple vendors confirmed to Basin Electric that supercritical technology can achieve significant efficiency gains for larger plants, but efficiency gains for plants smaller than 500 MW are not likely to be significant.

In any event, whether or not there might be efficiency gains, it is established in Wyoming that a substantial change from one type of coal boiler to another is a redesign of the source that is not required in the BACT process. In *Black Hills*, this Council ruled that the BACT process

could not be used to require installation of a coal-fired circulating fluidized bed boiler instead of a subcritical boiler, because to do so would constitute a redefinition of the source. Exhibit 3 at Conclusions of Law ¶ 5. The plain language of the *Black Hills* decision provides that changing from one boiler design to another is a redefinition of the source, even if both boilers use coal. *Id.* That is the case here.

Because supercritical technology is a different type of source than the selected subcritical pulverized coal technology selected by Basin Electric, the DEQ properly did not consider base source technology in the BACT analysis.

II. Protestants $PM_{2.5}$ claims should be dismissed.

A. Introduction.

Protestants allege that DEQ failed to conduct a BACT analysis of particulate matter of less than 2.5 microns ($PM_{2.5}$), failed to set an emission limit for $PM_{2.5}$, and failed to ensure that the Dry Fork Station power plant will not exceed the $PM_{2.5}$ National Ambient Air Quality Standards (NAAQS). Each of these contentions is without merit.

First, the Council should know that air quality regulations for $PM_{2.5}$ do not yet exist in Wyoming, and have not yet been finalized by the EPA either. As a result, EPA has authorized states including Wyoming to regulate $PM_{2.5}$ by using PM_{10} as a surrogate for $PM_{2.5}$. Stated differently, the modeling done for PM_{10}, and the BACT analysis done for PM_{10}, are considered legally sufficient to meet the PSD requirements for modeling and a BACT analysis for $PM_{2.5}$ emissions, which are a subset of PM_{10} emissions. EPA determined that it was necessary to substitute PM_{10} analyses for $PM_{2.5}$ analyses because many technical issues still need to be resolved before modeling and BACT analyses can be done for $PM_{2.5}$ directly. DEQ was entitled

to rely upon EPA's authorization to use PM_{10} as a surrogate for regulating $PM_{2.5}$, and this is the practice followed in most states.

Second, even if Wyoming decided not to follow EPA's PM_{10} surrogate policy, the regulatory tools for separately regulating $PM_{2.5}$ do not yet exist. Wyoming has until 2011 to adopt regulations for $PM_{2.5}$, and until those regulations are adopted there is no legal framework in place yet for regulating this pollutant. In addition, EPA has not yet issued final rules establishing "significant impact levels," or "SILs" for this particulate, so as a practical matter it is not yet possible to do meaningful ambient modeling. There is no inventory of existing emission data for all sources in the modeling area. The lack of established and reliable emission factors for $PM_{2.5}$ would make a meaningful BACT analysis extremely difficult to conduct. EPA recognizes these concerns, which is in part why the surrogate policy was reaffirmed as recently as last May.

Although Protestants will contend that Wyoming should decline to follow EPA guidance and get out in front of the EPA by separately regulating $PM_{2.5}$ without reliance on the surrogate policy, this argument fails to address the enormous problems this would cause. First, Wyoming has not yet adopted any regulations governing $PM_{2.5}$. There has been no notice or public comment regarding what rules Wyoming should adopt to regulate this pollutant. Simply put, until Wyoming adopts rules, and until EPA adopts SILs for $PM_{2.5}$, and until reliable emission factors from other sources are developed, Wyoming cannot meaningfully or practically model $PM_{2.5}$ emissions. Nor can it conduct a realistic BACT analyses. Protestants invite the Council to adopt a position that DEQ cannot meaningfully implement.

Also, the Council should know that despite Protestants' complaints about the surrogate policy, $PM_{2.5}$ impacts attributable to the Dry Fork Station will be well below the new $PM_{2.5}$ NAAQS. In the permitting process, PM_{10} emissions, which include all $PM_{2.5}$ emissions as a subset of PM_{10} emissions, were modeled to determine Dry Fork's impact on PM_{10} levels in the ambient air. The modeling showed that the maximum impact from Dry Fork on the 24-hour ambient PM_{10} concentration was 4.2 micrograms per cubic meter. *Basin Electric Dry Fork Station Air Construction Permit Application*, November 2005 at 7-15 (excerpt attached as Exhibit 11). PM_{10} includes all particulate matter smaller than 10 microns in diameter, and thus includes all $PM_{2.5}$. Even if it were conservatively assumed that 100 percent of all PM_{10} is actually comprised of $PM_{2.5}$, and even if it were assumed that, as a result, the entire impact of Dry Fork on ambient $PM_{2.5}$ levels were 4.2 micrograms (the same as PM_{10} impacts), that impact would still be just a fraction of the $PM_{2.5}$ 24-hour NAAQS of 35 micrograms per cubic meter. There is no air quality issue here.

Finally, the Dry Fork station BACT emission limits and control equipment for PM_{10}, SO_2, NOx, and sulfuric acid mist (each of which contributes to $PM_{2.5}$ emissions), will control $PM_{2.5}$ emissions to virtually the same maximum achievable level that would have been required by BACT anyway. The reason is simple. The presumptive precursors for secondary $PM_{2.5}$ (formed in the atmosphere) are NOx and SO_2, and both of these pollutants **were subjected** to BACT by DEQ. The emission limits for these pollutants, set by DEQ in Basin Electric's permit, **are among the most stringent ever imposed anywhere in the country.** Indeed, the permit limit for NOx on a 12 month rolling average basis is **the lowest in the entire country**. This is a

very tough permit. The SO_2 limit is among the lowest in the country as well. As a result, everything that can be done to limit the formation of secondary $PM_{2.5}$ has been done.

As to primary emissions of $PM_{2.5}$, DEQ imposed one of the lowest emission limits in the country for PM_{10}. In addition, Basin Electric has agreed to install a state of the art fabric filter at the Dry Fork Station that will be coated with PTFE (Williams Aff., ¶ 13), a chemical that is effective at capturing small particulate emissions, and which is exactly the type of coating Protestants' expert Dr. Sahu thought should have been considered (and actually was) for controlling $PM_{2.5}$ emissions:

> Q: -- which fabric-filter materials did you specifically have in mind?
>
> A: If you look at the previous page, I think I was speaking to Teflon or PTFE type of bags and coatings.
>
> Q: Okay. So that's what you mean by "specific fabric filters" at the end of that paragraph?
>
> A: Right. It could be more besides, but certainly those types.
>
> Q: What does "PTFE" stand for?
>
> A: I think it's polytetrafluoroethylene. It's a polymer.
>
> * * * *
>
> Q: Okay. So what somebody would want to look at for control of $PM_{2.5}$ would be to use a baghouse filter and then apply this particular PTFE coating?
>
> A: Right. And that's an example. I mean, EPA has been doing evaluations of various types of coatings through their technology evaluation program, working with the baghouse vendors in different bag types and coating types; and they've been successful, at least based on the test results that they've been getting, to controlling $PM_{2.5}$ with certain combinations of these bags and coatings or bags or coatings.

> Q: Okay. And so I am reading your report correctly to say that you're suggesting here that a baghouse filter that includes the PTFE coating would do – would be able to at least help control $PM_{2.5}$?
>
> A: Right. I'm saying you're already going to have a baghouse for this boiler, and it's going to have bags on it.
>
> Q: Right.
>
> A: With a somewhat little bit of extra effort in terms of the bag selection, one can also control $PM_{2.5}$, the fine particulates.
>
> Q: Okay. That would be like coating of the PTFE?
>
> A: Yeah, I gave that as an example because I thought I saw some test data on that, some vendor claims on that, that seemed to be very promising.

Sahu Depo. at 283-285. Thus, even though EPA has not yet developed adequate emissions factors for $PM_{2.5}$, which would be necessary for DEQ to conduct a true BACT analysis of $PM_{2.5}$, emissions of $PM_{2.5}$ from the Dry Fork station will still be controlled using the technology recommended by Protestants' expert. The "little bit of extra effort" that he said should have been taken actually was. He just did not know that. In short, while Protestants complain that the surrogate policy does nothing to protect the environment, everything that actually can be done – all of the controls that work for $PM_{2.5}$ – has been done.

B. DEQ's $PM_{2.5}$ permit analysis complied with controlling EPA guidance.

After EPA promulgated the NAAQS for $PM_{2.5}$ in 1997, it issued a guidance document entitled "Interim Implementation for the New Source Review Requirements for $PM_{2.5}$" (surrogate policy). EPA, *Interim Implementation for the New Source Review Requirements for PM2.5* (Oct. 23, 1997) (attached as Exhibit 12). The surrogate policy addressed the use of PM_{10} as a surrogate for $PM_{2.5}$ in meeting the new source review (NSR) requirements under the Clean

Air Act, including the prevention of significant deterioration (PSD) permit program. The policy recognized that EPA's recent promulgation of primary and secondary standards for $PM_{2.5}$ marked the first time that EPA had specifically regulated fine particles as a discrete indicator for particulate matter. Because of this, EPA was concerned with "the lack of necessary tools to calculate emissions of $PM_{2.5}$ and related precursors and project ambient air quality impacts that sources and permitting authorities c[ould] adequately meet the NSR requirements for $PM_{2.5}$."

Thus, in light of the technical uncertainties, the surrogate policy explained that "EPA believes it is administratively impracticable at this time to require sources and State permitting authorities to attempt to implement PSD permitting for $PM_{2.5}$." Accordingly, "[i]n view of the significant technical difficulties that now exist with respect to $PM_{2.5}$ monitoring, emissions, estimation, and modeling..., EPA believes that ***PM_{10} may be properly used as a surrogate for $PM_{2.5}$ in meeting NSR requirements*** until these difficulties are resolved." (emphasis added). Therefore, until such deficiencies were corrected, the surrogate policy authorized permitting authorities to use PM_{10} as a surrogate for meeting $PM_{2.5}$ NSR requirements.

In 2005, EPA re-affirmed the surrogate policy. EPA, *Implementation of New Source Review Requirements in PM-$_{2.5}$ Nonattainment Areas* (Apr. 5, 2005) (attached as Exhibit 13). In this more recent guidance, EPA concluded that "***significant technical difficulties with implementing PSD for PM-$_{2.5}$*** because of limitations in ambient monitoring and modeling capabilities" continue to render ***"administration of a PM-$_{2.5}$ PSD program [ ] impractical."*** (emphasis added). *Id.* at 4.

In September of 2007, EPA proposed additional elements for the PSD program for $PM_{2.5}$, including $PM_{2.5}$ "increments," significant impact levels (SILs), and significant monitoring

concentrations (SMCs) (Proposed Rule). 72 Fed. Reg. 54,112 (Sept. 21, 2007). EPA again reaffirmed in the Proposed Rule that "[a] State implementing a NSR program in an EPA approved State Implementation Plan (SIP) may continue to rely on the interim surrogate policy[.]" *Id.* at 54,114.

On May 16, 2008, more than seven months after Basin Electric's permit was issued, EPA promulgated a final rule implementing other aspects of the NSR program for $PM_{2.5}$ (Final Rule). 73 Fed. Reg. 28,321. The Final Rule provides that "States with SIP-approved PSD programs that require amendments to incorporate these final NSR rule changes for $PM_{2.5}$," like Wyoming, "will need time to accomplish these SIP amendments." *Id.* at 28,340. Accordingly, states with SIP-approved PSD programs must submit a revised PSD program and a revised nonattainment NSR program for $PM_{2.5}$ within three years. *Id.* at 28,341. During the SIP-development period, however, a "**State may continue to implement a PM_{10} program as a surrogate to meet the PSD program requirements for $PM_{2.5}$ pursuant to the 1997 guidance mentioned previously [surrogate policy].**" *Id.* (emphasis added).

Thus, even in the Final Rule for NSR implementation of $PM_{2.5}$, EPA stated that it is "allowing SIP-approved States to continue with the existing PM_{10} surrogate policy to meet the PSD requirements for $PM_{2.5}$." *Id.* As EPA explained,

> to ensure consistent administration during the transition period, [EPA] ha[s] elected to maintain [its] existing PM_{10} surrogate policy which only recommends as an interim measure that sources and reviewing authorities conduct the modeling necessary to show that PM_{10} emissions will not cause a violation of the PM_{10} NAAQS as a surrogate for demonstrating compliance with the $PM_{2.5}$ NAAQS.

Id. Moreover, EPA supported its decision to allow the surrogate policy to continue by stating that "PM_{10} will act as an adequate surrogate for $PM_{2.5}$ in most respects [] because all new major sources and major modifications that would trigger PSD requirements for $PM_{2.5}$ would also trigger PM_{10} requirements because $PM_{2.5}$ is a subset of PM_{10}." *Id.* Additionally, "both of the precursors designated in the final rule—SO_2 and NOx (presumptively)—are already regulated under State NSR programs for other criteria pollutants. Thus, those precursors will be subject to NSR through other programs." *Id.* Further, as EPA indicated earlier in the Final Rule, it is continuing to study appropriate monitoring and measuring methods for condensable PM, another component of $PM_{2.5}$ emissions, and in the meantime, EPA determined that PSD reviews need not account for those emissions.

Even if Wyoming were not a SIP-approved state and were a "Delegated State," meaning that the Final Rule would take effect on July 15, 2008 (the effective date of the Final Rule), the NSR program for $PM_{2.5}$ articulated in the Final Rule would be inapplicable because the Dry Fork permit application was completed and submitted long before the effective date of the Final Rule. As EPA's newly adopted regulations provide:

> EPA will allow sources or modifications who previously submitted applications in accordance with the PM_{10} surrogate policy to remain subject to that policy for purposes of permitting if EPA or its delegate reviewing authority subsequently determines the application was complete as submitted.

73 Fed. Reg. at 28,340 (to be codified at 40 C.F.R. § 52.21(i)(1)(x)). Thus, the Final Rule notes that as long as the completed permit application was consistent with the surrogate policy, which specified the use of PM_{10} as a surrogate for $PM_{2.5}$, permit analyses completed before July 15, 2008 are subject to the PM_{10} surrogate policy even in delegated states (which Wyoming is not).

In this case, DEQ followed the surrogate approach established by EPA for $PM_{2.5}$. In its permit application, Basin Electric demonstrated that a fabric filter (baghouse) was BACT for PM_{10}. Based in part on the analysis presented by Basin Electric, as well as its own independent analysis, DEQ determined that a baghouse and an emission limit of 0.012 lb/MMBtu was BACT for PM_{10}, thus satisfying the $PM_{2.5}$ BACT requirements pursuant to EPA's surrogate policy. In addition, Basin conducted an ambient air impact analysis and demonstrated that the Dry Fork station would meet all ambient air quality standards and PSD increments for PM_{10}, thereby satisfying the ambient air quality impact analysis requirement for $PM_{2.5}$, again in accordance with EPA's surrogate policy.

By inaccurately claiming that "[n]o provision in the Clean Air Act or the Wyoming Air Regulations provides any justification for exempting $PM_{2.5}$ from the requirements of the PSD program," Protest and Pet. for Rehearing, at ¶ 64, Protestants ignore EPA's authority to issue the surrogate policy and DEQ's entitlement to rely on the policy. The courts and reviewing authorities have recognized EPA's authority to issue guidance and policy statements to ensure effective implementation of the Clean Air Act, and have granted deference to agency interpretations of the complex provisions of the Act. *See Envtl. Def. v. U.S. E.P.A.*, 369 F.3d 193, 204 (2d Cir. 2004) (In examining the agency's scientific determinations which are often based on "predictions at the frontiers of science," a reviewing court "must generally be at its most deferential"); *Vigil v. Leavitt*, 381 F.3d 826, 835 (9th Cir. 2004) (interpretations contained in policy statements warrant deference insofar as they contain a body of experience and judgment upon which a court may resort for guidance). As the United States Supreme Court has stated, "[t]he well-reasoned views of the agencies implementing a statute 'constitute a body of

experience and informed judgment to which [decision makers] may properly resort for guidance.'" *U.S. v. Mead Corp.*, 533 US 218, 227 (2001) (cite omitted; quoting *Skidmore v. Swift & Co.*, 323 U.S. 134, 139-40 (1944)). Further, the Court noted that it has "long-recognized that considerable weight should be accorded to an executive department's construction of a statutory scheme it is entrusted to administer." *Id.* at 227-228.

DEQ is authorized by EPA to implement the PSD program in the State of Wyoming, and this authorization includes the ability to rely on EPA's policy and guidance interpreting the PSD program, including the surrogate policy. *See* 54 Fed. Reg. 27,880 (1989); 40 C.F.R. Sec. 2630. Similarly, in other parts of its air program, Wyoming has relied on PM_{10} as a surrogate for $PM_{2.5}$. Indeed, in the rules governing the best available retrofit technology, Wyoming's regulations note in the Section 9 definition for "visibility-impairing air pollutant" that "PM_{10} will be used as the indicator for particulate matter" and that "[e]missions of PM_{10} include the components of $PM_{2.5}$ as a subset." 6 WAQSR § 9(b).

Because DEQ has complied with EPA's guidance as well as its own PSD regulations permitting the use of PM_{10} as a surrogate, Protestants have failed to demonstrate any error by DEQ. Protestants' arguments that using PM_{10} as a surrogate for $PM_{2.5}$ lack merit and should be dismissed as a matter of law.

C. Wyoming does not yet have the tools to regulate $PM_{2.5}$.

Protestants will nevertheless contend that Wyoming should reject the surrogate policy and formally regulate $PM_{2.5}$ on its own. However, as a practical matter this simply cannot be done. Protestants therefore seek to saddle Wyoming's economic development with a permitting barrier that DEQ cannot reliably implement.

The problem is that the tools for Wyoming to regulate $PM_{2.5}$ under PSD do not yet exist. As EPA recognized in the Final Rule, SIP-approved states, like Wyoming, have yet to adopt PSD regulations governing $PM_{2.5}$. 73 Fed. Reg. at 28,340. Indeed, until the effective date of the Final Rule (July 15, 2008), states such as Wyoming would have had no basis upon which to adopt such regulations. Wyoming's Air Quality Regulations only address PSD regulations for PM_{10}. Wyoming must undertake rulemaking to incorporate the Final Rule provisions addressing $PM_{2.5}$ PSD requirements into its regulations. There has not yet been any notice or public comment on proposed rules in Wyoming. Wyoming need not adopt wholesale the EPA Final Rule provisions, it must only adopt regulations that it will be able to demonstrate to EPA are at least as stringent as the EPA program set forth in the Final Rule.

Thus, as allowed for under the CAA and acknowledged in EPA's Final Rule, this process can take as long as three years from the effective date of EPA's Final Rule (July 15, 2008). Once that rulemaking is accomplished, Wyoming must then submit those regulations to EPA for approval and incorporation into Wyoming's SIP. EPA is allowed 18 months under the CAA for this action. Until that process is complete, Wyoming will not have a legal basis from which to regulate $PM_{2.5}$ for PSD purposes, and the EPA surrogate policy and Final Rule recognize that.

Moreover, the EPA's Rule for $PM_{2.5}$ is incomplete and contains only part of the requirements to implement an NSR program for $PM_{2.5}$. Specifically, the language of the Final Rule states that

> [t]his final action on the bulk of the major NSR program for $PM_{2.5}$ along with our proposed rule on increments, SILs, and SMC, **when final**, will represent the final elements necessary to implement a $PM_{2.5}$ PSD program. **When <u>both</u> rules are promulgated and in effect, the $PM_{2.5}$ PSD program will no longer use a PM_{10}**

> **program as a surrogate**, as has been the practice under our existing guidance.

73 Fed. Reg. at 28,323 (emphasis added). Although some of the technical developments for calculating the emissions of $PM_{2.5}$ have been resolved, a significant portion of the $PM_{2.5}$ implementation rule, including increments, SILs, and SMC has not yet been finalized.

Because the Proposed Rule on increments, SILs, and SMC is not yet final, and by EPA's own admission in the Final Rule both rules will need to be finalized "to represent the final elements necessary to implement a $PM_{2.5}$ PSD program," *id.*, even if DEQ elected to prepare a $PM_{2.5}$ analysis, a large part of the analysis would be based on conjecture in the absence of a finalized rule setting forth measures calculating increments, SILs, and SMC. Basically, any application of the PSD regulations to $PM_{2.5}$ emissions would just be a "guess."

For example, of the three elements to the PSD program addressed in the Proposed Rule, the most critical element for a PSD NAAQS modeling analysis is the adoption of SILs for $PM_{2.5}$. SILs set the threshold below which a PSD modeling analysis need only consider the ambient air impacts from the proposed source. If the predicted impacts from a source are below the SILs, no further modeling is required. If impacts are greater than the SILs, cumulative modeling of other sources must be done. Until SILs are developed, cumulative modeling of other sources presumably would be needed in all cases. But given the current paucity of $PM_{2.5}$ data, doing such cumulative modeling would be a fraught with uncertainty. First, as noted above, there is little reliable information regarding $PM_{2.5}$ emission rates, or emission factors, from different types of sources. For Dry Fork alone, it would be difficult to derive reliable $PM_{2.5}$ emission rates. If other sources were added to the mix for cumulative modeling, that difficulty would increase geometrically. Cumulative modeling can be a huge undertaking even for pollutants that

are well understood, monitored and measured. For $PM_{2.5}$, few if any sources have $PM_{2.5}$ emission limits that could be modeled, and estimating emissions for other sources, in the absence of reliable emission factors, would be a huge challenge. Thus, the undertaking would be almost unmanageable and unlikely to generate reliable results.

Similarly, the limited source testing data available for sources of $PM_{2.5}$ emissions and the paucity of reliable emission factors make it extremely difficult to conduct a worthwhile BACT analysis for $PM_{2.5}$. Without test data and reliable emission factors, potential control technologies cannot be usefully evaluated and compared to one another, to answer the questions whether equipment other than PM_{10} control equipment can enhance control of $PM_{2.5}$ emissions, or which equipment might be the most effective at controlling $PM_{2.5}$ emissions. The inability to answer these questions also makes it very difficult to determine incremental costs of BACT alternatives, because it is unclear which control equipment is the most effective. To ensure a workable PSD program for $PM_{2.5}$, rather than try to implement a regulatory structure based on guesses and unsupported by properly adopted rules, which is what Protestants propose, DEQ has prudently relied on EPA's guidance and has decided to wait until the final piece of the $PM_{2.5}$ implementation program is promulgated.

D. The impact of Dry Fork Station $PM_{2.5}$ emissions are well below the $PM_{2.5}$ NAAQS and DEQ's permit effectively controls $PM_{2.5}$ emissions to the maximum degree achievable in accordance with BACT.

Even if the surrogate policy were ignored, nothing would be accomplished as a practical matter by requiring that DEQ conduct $PM_{2.5}$ modeling or BACT. Everything that reasonably can be done has been done.

First, modeling was done to measure the impact of Dry Fork Station PM_{10} emissions, on levels of PM_{10} in the ambient air. That modeling showed that the maximum 24-hour ambient PM_{10} impact from Dry Fork was 4.2 micrograms per cubic meter. Exhibit 11. PM_{10} includes all $PM_{2.5}$ emissions—so, in the worst case, the amount of $PM_{2.5}$ cannot be greater than the amount of PM_{10}. As a result, even if it were conservatively assumed that 100 percent of all PM_{10} emissions were $PM_{2.5}$ emissions, ambient concentrations of $PM_{2.5}$ attributable to the Dry Fork Station would be 4.2 micrograms per cubic meter; the same as the impacts modeled for PM_{10}. This is a fraction of the new $PM_{2.5}$ NAAQS of 35 micrograms per cubic meter.

Second, DEQ has already imposed BACT limits on PM_{10}, significant PM condensable emissions such as sulfuric acid mist, and $PM_{2.5}$ precursor emissions. In addition, Basin Electric will install state-of-the-art fabric filters, which will ensure that particulate $PM_{2.5}$ emissions from the Dry Fork Station will be effectively controlled to the maximum degree achievable as defined by the BACT rules.

Third, DEQ imposed a BACT limit for PM_{10} emissions of 0.012 lb/MMBtu, **one of the lowest emission limits in the country for PM.** The fabric filter selected for the Dry Fork station is a state of the art fabric filter that is exactly the type suggested by Protestants' expert for controlling $PM_{2.5}$ emissions. These bags are made of polyphenylene sulfide (PPS) with a polytetrafluoroethylene (PTFE) coating. PPS is a felted filter. PTFE is an expanded membrane that can be laminated with a variety of fibers such as PPS. This fabric is expected to achieve excellent particulate control with relatively low pressure drops, further enhancing the baghouse's ability to control $PM_{2.5}$ emissions. Williams Aff. ¶ 13. Thus, even though EPA has not yet developed adequate emissions factors for $PM_{2.5}$ and condensable PM emissions, which would be

necessary for DEQ to conduct a true BACT analysis of $PM_{2.5}$, emissions of $PM_{2.5}$ from the Dry Fork station will be controlled using a technology recommended by Protestants' expert for just that purpose.

Fourth, DEQ imposed BACT limits on both SO_2 and NOx. These are the two pollutants that EPA has identified as $PM_{2.5}$ precursors with emissions that could potentially transform into secondary $PM_{2.5}$ depending on local ambient air quality conditions. After extensive technical analysis and review of BACT emission limits across the country, DEQ imposed extremely stringent BACT emission limits for SO_2 and NOx on the Dry Fork station. These limits were much lower than what Basin Electric initially proposed and are at the very limit of what experts and vendors believe can actually be achieved by the control equipment. DEQ left Basin no wiggle room at all. The Dry Fork Station permit requires use of state of the art pollution control technology, including selective catalytic reduction for NOx control and a circulating dry scrubber for SO_2 control. As a result of DEQ's requirements for this permit, **the SO_2 BACT emission limit is among the lowest in the country, and the NOx BACT emission limit is the lowest in the country.** *See* Snell Report at 29-31, Exhibit 10. Thus, by establishing stringent BACT limits for these two pollutants, DEQ has ensured that these $PM_{2.5}$ precursors would be effectively controlled to the maximum degree achievable as contemplated by BACT.

Finally, condensable PM emissions will be controlled by the circulating dry scrubber, as demonstrated by the BACT analysis and limit for sulfuric acid mist and fluorides, two of the primary condensable PM emissions. The Dry Fork Station permit limits for sulfuric acid mist and fluorides are again among the lowest in the country, demonstrating that despite the lack of a

direct $PM_{2.5}$ BACT analysis, the pollutants that contribute to $PM_{2.5}$ emissions will be controlled to virtually the same maximum achievable-level required by BACT.

III. Protestants' SO_2 increment claims should be dismissed.

Protestants also contend that the DEQ erred in concluding that the Dry Fork Station would not cause or contribute to an exceedance of Class I SO_2 increments at the Northern Cheyenne Indian Reservation (NCIR). Although there is no dispute that the contribution of Dry Fork Station to modeled exceedances of Class I SO_2 increment levels would **never** exceed significant impact levels—and thus always be *de minimis* or legally insignificant, Protestants nevertheless assert that Dry Fork's contribution must be "zero" at all times and places where exceedances are modeled—a legal proposition with virtually no support, and which is contrary to the overwhelming weight of authority and practice.

A. Introduction.

Understanding why Protestants' "zero impact" argument has no merit requires review of the increment concept. An "increment" is the maximum allowable increase in ambient air concentrations of a pollutant above the baseline concentration that existed on the applicable baseline date. Basically, increments limit the degree to which air quality in an area is allowed to deteriorate after the baseline date, compared to the air quality on the baseline date. Areas can be classified in one of three categories or "Classes"—Class I, II and III. Each Class has separate allowable "increments" for particulate matter, sulfur dioxide (SO_2) and nitrogen dioxide (NO_2). 40 C.F.R. §51.166(c); WAQS&R Chapter 6, § 4(b)(i).

Class I areas have the strictest controls and the lowest increments. Class I areas include certain national parks and wilderness areas and cover a few additional designated areas such as

the NCIR. Class I increments are very small fractions of the NAAQS, and therefore Class I areas allow for very little degradation of air quality beyond the baseline.

For major sources that require PSD permits, like the Dry Fork Station, the permit applicant must demonstrate that allowable emissions from its proposed source and from all other sources in the area will not "cause or contribute" to a violation of any NAAQS or any applicable increment. 40 C.F.R. §51.166(k); WAQS&R Chapter 6, § 4(b). These demonstrations are made largely through air quality dispersion modeling.

EPA's draft NSR Manual, explains how the modeling process works. There are two distinct modeling phases: (1) the preliminary analysis, and, if necessary, (2) a full impact analysis.

In the preliminary analysis, the proposed source—in this case the Dry Fork Station—models its own emissions to determine whether any emissions from that single source will increase ambient concentrations of a pollutant by an amount greater than what is called a "Significant Impact Level" or "SIL." NSR Manual at C.24 (Exhibit 2). A SIL is a very small amount of impact that the law considers to be *de minimis* or legally and practically insignificant. If the impact of the single source is below the SIL and therefore legally insignificant, the source will be considered not to "cause or contribute" to any NAAQS or increment violation and no further modeling is required. If the model shows the source alone will have an impact in an area that is greater than a SIL, a full impact analysis, often referred to as cumulative modeling, is required. The cumulative modeling considers emissions from the source itself and other sources. If cumulative modeling predicts violations of an increment, a determination must then be made whether the proposed source "causes or contributes to" the violation.

The preliminary analysis in this case involved modeling emissions from Dry Fork alone to determine its impact on air quality. For most areas and most pollutants, this Dry Fork modeling showed insignificant impacts, below SILs. However, Dry Fork's 3-hour and 24-hour SO_2 impacts at the NCIR were above the Class I SILs, and cumulative modeling was therefore required for SO_2.

This modeling is normally done by using the **actual emissions** of other sources. Basin Electric followed that practice, and this cumulative modeling method demonstrated that there were **no** SO_2 increment violations at the NCIR. However, DEQ employs a more stringent policy, which requires cumulative modeling of maximum allowable **permitted emissions**, which are higher than actual emissions. Using this more stringent practice, Basin Electric's cumulative impact modeling did predict exceedances of SO_2 increments on a few days at a few places. **However, on all such days and at all such places, Dry Fork's contribution was below significant impact levels and therefore not legally significant.** For this reason, DEQ properly concluded that the Dry Fork Station will not cause or contribute to any Class I increment violations, even under the DEQ's stringent policy of modeling on permitted, rather than actual, emissions.

Protestants admit all of this, and have no dispute with the modeling that was done by Basin Electric. Instead, Protestants make the unprecedented legal argument that any non-zero impact from Dry Fork, even a trillionth of a gram, that occurs at the same time and place as a Class I increment exceedance means the Dry Fork permit must be denied. Basically, Protestants contend that SILs can be used to determine if cumulative modeling is necessary in the first place, but cannot be used to determine if there is any legally significant impact from the proposed

source when and where cumulative modeling shows a possible increment exceedance. According to Protestants, the permit must be denied if there is a trillionth of a gram contribution shown by computer models.

Settled law and practice is to the contrary. If the proposed source does not exceed a SIL when and where the model shows an increment exceedance, then the proposed source does not cause or contribute to the modeled exceedance. That is the case here. It should also be noted that if Protestants' theory were adopted by this Council—that even a trillionth of a gram means no permit—then it will be virtually impossible to permit any major new emission sources in many places in Wyoming, ever again, as computer models can always be made to show some impact, however infinitesimal.

B. SO_2 increment modeling for the Dry Fork project.

For the Dry Fork Station, preliminary analysis demonstrated that impacts were not above Significant Impact Levels for any pollutant or any location except for 3-hour and 24-hour SO_2 impacts at the NCIR. Therefore, a full impact cumulative analysis was done for SO_2 increment consumption at the NCIR. Increment-consuming sources within 300 kilometers of the NCIR were modeled (except for a few insignificant sources in South Dakota). Expert Report of Robert L. Pearson, *The Dry Fork Station Will Not Cause or Contribute to Violations of the Air Quality Standards in Northern Cheyenne Indian Reservation, Montana, June 16, 2008* (Pearson Report) (attached as Exhibit 14).

As explained further below, applicable regulations provide that increment consumption should be based on modeling of maximum **actual emissions** from sources rather than their higher allowable **permitted emission** rates. However, for convenience, all sources initially were

conservatively modeled at their higher allowable emission rates, except for Units 3 and 4 at the Colstrip Power Plant in Montana. Colstrip Units 3 and 4 were modeled at the 90th percentile of actual emissions, based on the precedent of SO_2 increment modeling previously performed by the EPA in North Dakota. Pearson Report at 8 (Exhibit 14). The 90th percentile approach was used in North Dakota because it would have been overly conservative to assume that all sources would operate at their maximum emission levels simultaneously. Colstrip Units 3 and 4 were modeled at the 90th percentile in this case because, due to their size and their close proximity to the NCIR, these sources were expected to have by far the greatest impact at the NCIR and using overly conservative emission rates for the source would tend to distort the results. *Id.* This cumulative modeling predicted **no exceedances** of the 3-hour or 24-hour Class I increment at the NCIR for the Dry Fork Station.

However, DEQ requested Basin Electric to model all sources, including Colstrip Units 1 and 2, at their **higher allowable** emissions rates. These are the highest rates the sources hypothetically are allowed to emit under the terms of their permits. Because of the large size of the Colstrip Units and their proximity to the NCIR, modeling with the allowable Colstrip rates predicted a few exceedances of the 3-hour and 24-hour SO_2 Class I increments. For all the times and places where cumulative increment exceedances were predicted, the impact of Dry Fork was then determined. **For all these times and places, the impact of Dry Fork was below SILs.** Therefore, the DEQ concluded that Dry Fork did not "cause or contribute" to an increment exceedance and the permit for Dry Fork could be issued. It is this conclusion that Protestants challenge.

C. Protestants' claim that the DEQ erred is contrary to the law and common sense.

Protestants' argument against the DEQ's conclusion is based on claims that: 1) no Class I SILs have been adopted as final regulations and therefore SILs should not be applied to determine whether a source causes or contributes to an increment exceedance; and 2) any source with a non-zero impact should be deemed to cause or contribute to an increment exceedance even if the impact shown is less than the SIL. These arguments are without merit for the reasons set forth below.

First, the principle of using SILs as *de minimis* levels that do not cause or contribute to increment exceedances is embodied in applicable regulations and guidance. SILs are specified in the nonattainment new source review regulations for Class II areas. 40 C.F.R. § 51.165(b). These same Class II SILs have been used for attainment areas under the PSD rules for decades. *See, e.g.,* NSR Manual at C.28, Table C-4 (Exhibit 2). The NSR Manual spells out exactly how this works:

> When a violation of any NAAQS or increment is predicted at one or more receptors [locations] . . . the applicant can determine whether the net emissions increase from the proposed source will result in a significant ambient impact at the point (receptor) of each predicted violation, and [emphasis in original] at the time the violation is predicted to occur. **The source will not be considered to cause or contribute to the violation if its own impact is not significant at any violating receptor at the time of each predicted violation.**

NSR Manual at C.52 (Exhibit 2) (emphasis added).

This is precisely what Basin Electric did at Dry Fork and precisely what the DEQ approved. The permit applicant did exactly the same thing in *Prairie State*, and it was upheld by

the Environmental Appeals Board. *Prairie State*, slip op. at 133-144: "EPA has long interpreted the phrase 'cause, or contribute to' to refer to significant, or non-de minimis emission contributions. This interpretation is reflected in both applicable EPA regulations and in long-standing EPA guidance." *Id.* at 139. The EAB concurred that it was proper to use SILs as "*de minimis amount[s]*" to determine whether Prairie State caused or contributed to increment exceedances. *Id.* at 144 (emphasis in original). The EAB approved the Illinois EPA's use of SILs in that case because "the approach IEPA used in the present case is EPA's long-standing interpretation of the CAA. In this regard, we note that IEPA's approach is consistent with the NSR Manual's guidance and that the Board has previously recognized the approach used by IEPA in this case as a valid method for determining whether a source will cause or contribute to a violation of the NAAQS." (citation omitted). *Id.* at 142-143.

This use of SILs also has been approved by guidance from EPA headquarters. *See* July 5, 1988 memorandum from Gerald Emison, EPA Office of Air Quality Planning and Standards to Thomas Maslany regarding *Air Quality Analysis for Prevention of Significant Deterioration (PSD),* (the Emison Memo) (attached as Exhibit 15) in which EPA made clear that "a modeled violation of a NAAQS or PSD increment may be predicted . . . but, upon further analysis, it is determined that the proposed source will not have a significant impact (i.e., will not be above de minimis levels) at the point and time of the modeled violation. **When this occurs, the proposed source may be issued a permit . . . .**" (emphasis added). Exhibit 15 at 2.

EPA has specifically approved the use of SILs in Class I areas. *See* September 10, 1991 memorandum from John Calcagni of EPA's Air Quality Management Division to Thomas Maslany regarding "*Class I Area Significant Impact Levels*" (the Calcagni Memo) (attached as

Exhibit 16), in which Mr. Calcagni stated that, despite the lack of final regulations, "**I see no reason . . . why the concept of significant impact should not also be applied to Class I increments** provided the significant impact levels are determined in a reasonable manner" (emphasis added).

In contrast to these authorities, Mr. Tran, Protestants' expert regarding SO_2 increments, takes a logically inconsistent position. He admits that SILs can be used at the preliminary analysis stage to show that the proposed source does not cause or contribute to any increment exceedance, but then denies that SILs can be used in connection with cumulative modeling to demonstrate, as provided in the NSR Manual, that the source will not have a significant impact at the times and places where exceedances are modeled. This makes no sense at all, because a facility with a non-zero effect in the first stage—but still below SILs—would be allowed a permit but a facility with a non-zero effect in the second stage would not. Expert Report of Khanh Tran on Behalf of Protestants at ¶ 10 (attached without exhibits as Exhibit 17).

Not only is this illogical position inconsistent with the NSR Manual, the *Prairie State* case, the Emison and Calcagni Memos and longstanding EPA guidance and practice, there is no logical basis on which to differentiate between the use of SILs in the two circumstances. In both cases, the absence of a significant impact means the source does not cause or contribute to an exceedance. Mr. Tran also acknowledges that his view is the minority view and that almost all states follow the same practice as the DEQ applied to Dry Fork. Deposition of Khanh Tran at 51-54. Excerpts of Deposition of Khanh Tran attached as Tran Depo.

D. SILs may be used for Class I PSD increments even though not embodied in a regulation.

The law is clear, then, that SILs may be used precisely as they were used by the DEQ in this case. Protestants point out, however, that despite being proposed by the EPA in 1996, 61 Fed. Reg. 38250, 38338 (July 23, 1996), the Class I SILs used for the NCIR have not been adopted as final rules. It is true that the Class I SILs have not been adopted as a final rule. However, this does not preclude them from being applied to determine when a source causes or contributes to an increment violation.

The Calcagni Memo expressly authorized the use of SILs in Class I areas, without the need to adopt regulations or even a national policy. Calcagni Memo (Exhibit 16). In *Prairie State,* the EAB stated that "[c]ourts have long recognized that EPA has discretion under the Clean Air Act to exempt from review 'some emission increases on grounds of de minimis or administrative necessity.'" *Prairie State*, slip op. at 139, *citing Alabama Power Co. v. Costle*, 636 F.2d. 323, 400 (D.C. Cir. 1979). Recently, EPA proposed a regulation to guide the implementation of the NAAQS for $PM_{2.5}$, specifically including proposed Class I increments and SILs. In the preamble to the proposed rule, EPA noted that "we had proposed this approach for setting PM_{10} SILs [setting the Class I SIL at 4 percent of the Class I increment] in our 1996 NSR Reform proposal. Many commenters supported this approach and believed that the proposed SIL values would serve as appropriate *de minimis* values. **In fact, EPA is aware that many States**

have been using these proposed SILs for PM_{10} screening tools since 1996." 72 Fed. Reg. at 54,140 (emphasis added).[4]

In responding to public comments on the PSD permit for the Desert Rock power plant on July 31, 2008, EPA applied Class I SILs to determine whether the source would cause or contribute to an increment exceedance, despite the fact that the SILs proposed in 1996 have not been finalized: "These proposed Class I SILs were never finalized. **However, in practice, EPA and the Federal Land Managers overseeing Class I Areas have used the proposed SILs as a baseline for comparison, and as one component of a determination on whether an impact is significant. Even without final SILs, a judgment must be made to assess whether the source 'causes or contributes' to a NAAQS or PSD increment violation.**" EPA Desert Rock Responses at 126-129 (Exhibit 1) (emphasis added).

It is clear that not every non-zero impact causes or contributes to an increment violation. At Dry Fork, there were 29 times when the model predicted a 24-hour SO_2 increment violation at the NCIR and the modeled impact of Dry Fork was a non-zero value. On all of those occasions Dry Fork's contribution was below the Class I SIL of 0.2 micrograms/cubic meter. On 25 of those 29 occasions, the Dry Fork impact was between 0.0002 and 0.0009 micrograms per cubic meter (that is, between 200 and 900 **billionths** of a gram per cubic meter). *See* Pearson Report (Exhibit 14). Protestants, nonetheless, argue that **every non-zero** level means that Dry Fork **causes or contributes** to the cumulative increment violation. This extreme position defies common sense and flies in the face of widespread practice, the acknowledged authority of

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[4] This analysis regarding PM_{10} applies with equal strength to all other pollutants for which Class I increments exist, including SO_2.

regulatory agencies to apply *de minimis* exceptions in carrying out their duties, and the specific authorities cited above.

In April 2007, the Commonwealth Court of Pennsylvania considered Protestant's argument here that, in the absence of a finally-adopted regulation establishing Class I SILs, a source should be deemed to cause or contribute to an increment violation if it is modeled to have any non-zero impact. The court rejected the claim and held that it was proper to apply as a Class I SIL the 0.2 microgram/cubic meter level proposed by EPA in 1996. *Groce v. Dept. of Envtl. Prot.*, 921 A.2d 567, 577-78 (Pa. Cmwlth. 2007). The court agreed with the Department of Environmental Protection (DEP) that a non-zero approach would be impractible, in part because as new modeling software allows modelers to predict ever smaller amounts, the level at which a source is considered to cause or contribute to an exceedance would depend solely on the capability of the computer to generate increasingly small values, "not [on] whether a proposed source's impact has any significance to air quality. Simply stated, merely because a computer model can generate a number does not necessarily make it significant in our analysis." *Id.* The DEP also noted that the Class I 24-hour SIL for SO_2 "is actually below the detection limit for ambient monitors used in the field." *Id.* at 578. It is difficult to fathom how, if Class I SILs are less than any concentration measurable in reality, impacts below SILs could be deemed significant.

Against this compelling weight of authority, Protestants and Mr. Tran offer a single letter from EPA Region 8 to the State of North Dakota, dated April 12, 2002 (attached as Exhibit 18). The letter did not concern a PSD permit, but rather a proposed revision to North Dakota's State Implementation Plan. Included in the proposed revision was a clause that would have adopted

significance levels for Class I areas. Region 8 opined that it was not appropriate to establish Class I significance levels when an increment violation already exists, and that the use of SILs should not be allowed until a state submits a revision to its Implementation Plan to correct any increment violations. This letter flies in the face of unvarying authority to the contrary, and should not be applied to Dry Fork for numerous reasons: (1) It did not deal with a PSD permit, but rather with a State Implementation Plan; (2) It came from Region 8, whereas, as noted above, EPA headquarters concurs with the use of Class I SILs; (3) it assumes that the state has the ability to correct increment violations, whereas at Dry Fork the modeled exceedances are almost wholly attributable to Colstrip Units 3 and 4, in Montana, and beyond the jurisdiction of the state of Wyoming to remedy;[5] (4) it flies in the face of widespread common sense practice and promotes an extreme position that even clearly *de minimis* modeled impacts should preclude economic development, regardless of whether there is any air quality significance involved.

The DEQ is right on this issue, its position is consistent with the strong weight of authority, and the Protestants' position is extreme and lacks common sense. It would allow no new permitting of major emissions sources in Wyoming.

E. In the alternative, cumulative modeling using actual emissions predicts no Class I SO_2 increment exceedances.

Basin Electric also notes, in the alternative, that if cumulative modeling for Dry Fork is performed in accordance with federal and Wyoming regulations, rather than the more stringent request made by DEQ here, and is therefore based on actual emissions rather than higher hypothetical allowable emissions, the modeling does not predict any exceedances of the 24-hour

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[5] Pearson Report at 12-15 (Exhibit 14).

SO_2 Class I increment at all. In response to public comments on the draft Dry Fork permit, which criticized the DEQ's use of SILs, Basin Electric did a further round of modeling using actual emissions for Colstrip Units 3 and 4, this time using the maximum level of actual emissions rather than the 90th percentile levels initially modeled. **This modeling showed no violations of the increment.** Pearson Report at 12-14 (Exhibit 14).

Although the DEQ did ask Basin Electric to model Colstrip at its allowable level, federal and state regulations and the NSR Manual uniformly provide that PSD increment consumption is based on actual emissions, not hypothetical allowable emissions. 40 C.F.R. 51.166(b)(13) provides that "[t]he following will not be included in the baseline concentration **and will affect the applicable maximum allowable increase(s) [increments]:** (a) **Actual emissions . . .** from any major stationary source on which construction commenced after the major source baseline date; and (b) **Actual emissions** increases and decreases . . . at any stationary source occurring after the minor source baseline date." *Id.* at p. 226; *see also* WAQS&R Chapter 6, § 4(a), definition of baseline concentration. The NSR Manual is very clear that "[f]or a PSD increment analysis, an estimate of the amount of increment consumed by existing point sources generally is based on increases in **actual** emissions occurring since the minor source baseline date." Exhibit 2 at C.48 (emphasis in original).

Therefore, although Basin Electric agrees with the DEQ's use of SILs to determine that Dry Fork would not cause or contribute to a violation of the increments, it is also true that if modeling of Colstrip is done with actual emissions, in accordance with usual practice and applicable regulations, there are in fact no increment exceedances at all, and no need to resort to SILs.

F. Dry Fork will not cause or contribute to air quality impacts at the NCIR.

The reality is that Dry Fork is not going to cause air quality problems or impacts at the NCIR, and therefore this much-needed project should not be shut down based on the Protestants' extreme position. Any increment problems at the NCIR are directly attributable to the Colstrip plant, and can only be addressed by the State of Montana. Protestants' position, if upheld in this case, would effectively preclude development of any new major industrial sources in the Powder River Basin.

IV. Conclusion.

For all of the reasons discussed above, Protestants' claims related to IGCC and super-critical technologies as BACT, with respect to $PM_{2.5}$, and with respect to alleged but non-existent impacts on the NCIR, should be dismissed as a matter of law.

DATED September 2, 2008.

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ATTORNEYS FOR BASIN ELECTRIC POWER COOPERATIVE

CERTIFICATE OF SERVICE

I hereby certify that on September 2, 2008, I served the foregoing BASIN ELECTRIC'S MEMORANDUM IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT ON PROTESTANTS' CLAIMS REGARDING REDEFINITION OF THE SOURCE, $PM_{2.5}$ AND ALLEGED CLASS I INCREMENT VIOLATIONS by electronic service and by placing a true and correct copy thereof in the United States mail, postage prepaid and properly addressed to the following:

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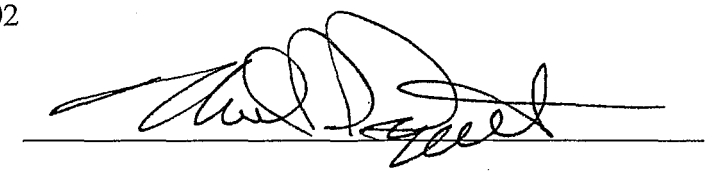

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