

BEFORE THE ENVIRONMENTAL QUALITY COUNCIL  
OF THE STATE OF WYOMING

IN THE MATTER OF: )  
BASIN ELECTRIC POWER COOPERATIVE ) Docket No. 07-2801  
DRY FORK STATION, )  
AIR PERMIT CT-4631 )  
\_\_\_\_\_ )

**PROTESTANTS' MOTION FOR SUMMARY JUDGMENT**

**TABLE OF CONTENTS**

INTRODUCTION ..... 1

STANDARD OF REVIEW ..... 1

LEGAL BACKGROUND ..... 2

I. Federal PSD Program ..... 2

II. Wyoming’s Implementation of the PSD Program ..... 4

STATEMENT OF UNDISPUTED FACTS ..... 5

ARGUMENT ..... 9

I. PROTESTANTS HAVE STANDING TO CHALLENGE THE DRY FORK AIR PERMIT. .... 9

II. DEQ FAILED TO CONSIDER ALTERNATIVE TECHNOLOGIES REQUIRED FOR THE BACT DETERMINATION. .... 11

A. The BACT Process Requires Consideration of Production Processes and Innovative Fuel Combustion Techniques. .... 12

B. DEQ Should Have Required Basin To Consider IGCC In Its BACT Analysis..... 15

1. IGCC is a “production process” that transforms coal into electricity and so should have been considered in Basin’s BACT analysis. .... 15

2. The use of IGCC technology would not “redefine the source.” ..... 19

a. IGCC and pulverized coal technologies are each production process that use Powder River Basin Coal to produce electricity..... 19

b. IGCC and pulverized coal plants are in the same category of major stationary source for air permitting purposes. .... 22

c.	The Clean Air Act’s legislative history demonstrates that Congress intended gasification technologies be considered in a BACT analysis. ....	23
C.	DEQ Should Have Required Basin to Consider Supercritical Boiler Technology in its BACT Analysis. ....	25
1.	A supercritical boiler is a production process that transforms coal into electricity and therefore should have been considered in Basin’s BACT analysis. ....	25
2.	The use of supercritical technology would not redefine the source. ....	26
D.	If the Council Finds that IGCC and Supercritical Technology Do Not Redefined the Source, the Appropriate Remedy is a Remand to DEQ. ....	29
III.	DEQ MUST ADDRESS PM <sub>2.5</sub> EMISSIONS FROM THE DRY FORK STATION. ....	32
A.	Due to the Serious Health Threat Posed by PM <sub>2.5</sub> , It is Regulated Under the Clean Air Act and Wyoming’s SIP.....	32
1.	EPA established NAAQS for PM <sub>2.5</sub> .....	32
2.	Wyoming incorporated the PM <sub>2.5</sub> standards into its SIP. ....	34
B.	Because PM <sub>2.5</sub> is Regulated Under Both the Clean Air Act and Wyoming’s SIP, DEQ is Required to Regulate PM <sub>2.5</sub> as a Matter of Law.....	35
C.	The Seitz Memo Does Not Excuse DEQ From Complying with the Law. ....	36
D.	EPA’s Subsequent Attempt to Retroactively Apply the Seitz Memo Does Not Excuse DEQ From Complying with the Law.....	41
E.	The Council Must Require DEQ to Regulate PM <sub>2.5</sub> Under the Environmental Quality Act. ....	45
IV.	DEQ MUST SET A BACT LIMIT FOR MERCURY.....	46
A.	Mercury Emissions Pose a Serious Threat to Wyoming’s Citizens and the Environment. ....	46
B.	Under Wyoming Law, DEQ Must Set a BACT Limit for Mercury. ....	47
V.	THIS COUNCIL MUST DENY THE PERMIT BASED ON THE FLAWED SO <sub>2</sub> INCREMENT ANALYSIS. ....	51

A. The Issue of Whether Basin’s Permit Should Be Denied Due To Ongoing SO<sub>2</sub> Increment Violations in the Northern Cheyenne Indian Reservation Is a Matter of Wyoming Law. ....51

B. The Council Should Deny Basin’s Permit at Because SO<sub>2</sub> Emissions From Dry Fork Will Contribute to Ongoing Increment Violations in the Northern Cheyenne Indian Reservation. ....51

CONCLUSION.....57

## INTRODUCTION

Protestants challenge the Wyoming Department of Environmental Quality's ("DEQ") decision to issue an air permit to Basin Electric Power Cooperative Inc. ("Basin") for an outdated subcritical coal-fired power plant that will foul Wyoming's air quality for decades to come. The coal-fired power plant is authorized to emit each year: nearly 840 tons of nitrogen oxides ("NOx"), over 1,000 tons of sulfur dioxide ("SO<sub>2</sub>"), over 2,500 tons of carbon monoxide, and nearly 200 tons of particulate matter. These pollutants contribute to acid rain and regional haze and cause serious heart and lung problems. The plant will also emit hazardous air pollutants, including mercury—a powerful neurotoxin that threatens the health and welfare of Wyoming's citizens and its wildlife.

Despite Governor Freundenthal's claims that Wyoming should be a leader in clean coal technology, DEQ refused to even consider in its BACT analysis Integrated Gasification Combined Cycle ("IGCC") and supercritical technologies that result in less pollutants emitted for the same amount of energy produced. DEQ also refused to consider controls on dangerous particulate pollution or mercury, and authorized SO<sub>2</sub> emissions that will contribute to ongoing increment violations in the Northern Cheyenne Indian Reservation. Because these failures violate the Clean Air Act and Wyoming law, this Council must remand the permit back to DEQ. The Dry Fork Station will operate for decades; therefore, it is essential for this Council to require DEQ to consider the most stringent controls possible at this time.

## STANDARD OF REVIEW

As this Council held previously in this case, its review of DEQ's permitting decision is *de novo*. Order Denying Basin Electric Power Cooperative Inc.'s Motion to Dismiss Appeal at 7; see also Appeal of 4W Ranch Objection to NPDES Permits, Docket No. 04-3801 (EQC Mar. 5,

2007) (“The EQC conducts de novo hearings pursuant to the DEQ Rules of Practice and Procedure, the Wyoming Rules of Evidence, and the Wyoming Rules of Civil Procedure.”). Under *de novo* review, the Council must look afresh at DEQ’s decision and should not afford deference to DEQ. See, e.g., Friends of the Chattahoochee v. Couch, Docket No. 2008-CV-14398, at 4-5 n.3 (Jun. 30, 2008) (attached as Exh. 1) (holding that that the administrative law judge did not apply *de novo* review when she affirmed the state air agency director’s decision because it was a “reasonable exercise of her discretion”).

This Council may grant Protestants’ Motion for Summary Judgment if there are no genuine issues of material fact and they are entitled to judgment as a matter of law. Wy. R. Civ. P. 56(c); Dwan v. Indian Springs Ranch Homeowners Ass’n, Inc., 186 P.3d 1199 ( Wyo. 2008); Wyoming Bd. of Land Comm’rs v. Antelope Coal Co., 185 P.3d 666 (Wyo. 2008).

## **LEGAL BACKGROUND**

### **I. Federal PSD Program**

In 1977, Congress added the Prevention of Significant Deterioration (“PSD”) Program to the Clean Air Act in order to maintain air quality in areas that were still unspoiled by air pollution. 42 U.S.C. §§ 7470-7479. To accomplish this goal, Congress targeted “major emitting facilities.” Id. § 7475. Congress’ intent was to “identify facilities which, due to their size, are financially able to bear the substantial regulatory costs imposed by the PSD provisions and which, as a group, are primarily responsible for emission of the deleterious pollutants that befoul our nation’s air.” Alabama Power Co. v. Costle, 636 F.2d 323, 352-53 (D.C. Cir. 1979). The preconstruction PSD process is critical for these massive sources of air pollution that operate for decades because there is little opportunity under the Clean Air Act to revisit the allowed emissions levels.

Prior to construction, all major emitting facilities must demonstrate that emissions from the facility will not cause or contribute air pollution in excess of either the national ambient air quality standards (“NAAQS”) or allowable PSD increments. 42 U.S.C. § 7475(a)(3). NAAQS are the bare minimum requirements for maintaining air quality under the Act. They are designed to protect public health, including an adequate margin of safety. Id. § 7409(b)(1). The PSD program adds an additional level of protection in areas where the NAAQS are being met—i.e., “attainment areas.” 42 U.S.C. § 7470(l) (stating the purpose of the PSD program as “protect[ing] public health and welfare from any actual or potential adverse effect which . . . may reasonably be anticipated to occur from air pollution or from exposure to pollutants . . . notwithstanding attainment and maintenance of all national ambient air quality standards” (emphasis added)). It does so by prohibiting major sources from emitting regulated pollutants in excess of the PSD increments, which are the maximum allowable increases in concentration over a certain baseline concentration. See 40 C.F.R. § 52.21(c).

As an additional method to prevent deterioration of air quality in attainment areas, major emitting facilities must also utilize the best available control technology (“BACT”) for each pollutant subject to regulation. 42 U.S.C. § 7475(a)(4). Considered “one of the most critical elements of the PSD permitting process,” the BACT analysis results in the selection of emissions limitations and control technologies for a particular facility. In re Knauf Fiber Glass, 8 E.A.D. 121, 131 (EAB 1999). As control technologies evolve over time and new, cleaner equipment and processes are introduced, BACT becomes more stringent. See, e.g., In re Tenn. Valley Auth., 9 E.A.D. 357, 391 (EAB 2000) (citations omitted) (“[T]he program Congress established was particularly aggressive in its pursuit of state-of-the-art technology at newly constructed sources.”), overruled in part on other grounds by Tenn. Valley Auth. v. Whitman, 336 F.3d 1236

(11th Cir. 2003). As EPA has explained, BACT is intended to foster “rapid adoption” of improvements in emission control technology. In re Columbia Gulf Transmission Co., 2 E.A.D. 824, 828-29 (EAB 1989).

## **II. Wyoming’s Implementation of the PSD Program**

Wyoming has delegated authority to implement the PSD program within the State. Wyoming’s program must be at least as stringent as the federal requirements. 42 U.S.C. § 7416. Under Wyoming’s Air Quality Standards and Regulations (“WAQSR”), any new major stationary source of air pollution in Wyoming must obtain a PSD permit before beginning construction. 6 WAQSR § 2(a)(i). Wyoming defines “major stationary source” as

any of the following stationary sources of air pollutants which emit, or have the potential to emit, one hundred tons per year or more of any air pollutant for which standards are established under these Standards and Regulations or under the Federal Clean Air Act: fossil fuel-fired steam electric plants of more than two hundred and fifty million British thermal units per hour heat input . . . .

Id. § 4(a) (emphasis added).

As under the Federal Clean Air Act, a permit applicant must demonstrate that it will meet all applicable NAAQS, will not consume the applicable PSD increment, and will utilize BACT.

Id. §§ 2(c), 4(b). Wyoming defines BACT as follows:

Best available control technology means an emissions limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulation under the [Wyoming] 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 of production processes and available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Id. § 4(a). This definition is nearly identical to that in the Federal Clean Air Act. 42 U.S.C. § 7479(3).

These PSD requirements apply to “all pollutants for which standards have been established under [Wyoming’s] regulations or under the Federal Clean Air Act and which are emitted in significant amounts.” Id. § 4(b)(i); see also id. § 4(b)(ii)(A) (requiring BACT limit for “each pollutant subject to regulation under [Wyoming] Standards and Regulations or regulation under the Federal Clean Air Act”). Likewise, Wyoming defines “regulated NSR pollutants” to include “[a]ny pollutant for which a national ambient air quality standard has been promulgated and any constituents or precursors for such pollutants identified by the EPA Administrator.” Id. § 4(a).

### **STATEMENT OF UNDISPUTED FACTS**

1. On October 15, 2007, DEQ authorized Basin to build a subcritical pulverized coal (PC) power plant rated at 422 MW (gross) and 385 MW (net), approximately 7 miles northeast of Gillette, Wyoming. Exh. 11 at 1; Exh. 41. The power plant will be known as the Dry Fork Station. Exh. 41.
2. Basin will use Powder River Basin coal from the adjacent Dry Fork Mine to generate electricity. Exh. 11 at 2-5
3. Pulverized coal-fired (“PC”) power plants can use either subcritical or supercritical boiler technology. Exh. 17 at 17-18; Exh. 27 at 10-11.
4. Both supercritical and subcritical PC plants start with pulverized coal and combust it in the boiler to generate steam. The steam then drives a turbine-generator to produce electricity. Exh. 17 at 12-13, 17-18; Exh. 26 pg 48 lines 21-25; Exh. 29 at 5; Exh. 30 at 2-3. The product produced is electricity and the raw material used to produce that electricity is coal. Exh. 26 pg. 38 lines 21-23, pg. 39 lines 15-21.
5. Supercritical boilers operate at temperatures and pressures above the “critical point” of water, while subcritical boilers operate at temperatures and pressures below the critical point of water. Exh. 27 at 10; Exh. 28 at 2.
6. Because they operate at higher temperatures and pressures, supercritical boilers are generally more efficient at converting pulverized coal to electricity. Exh. 27 at 12; Exh. 28 at 4-5; Exh. 29 at 4; Exh. 30 at 1. The efficiency gain will depend on the size of the plant and site specific factors. Exh. 27 at 12. More efficient plants result in less emissions for the same amount of energy produced.

7. There is no BACT analysis comparing supercritical and subcritical technology in the permit record for the Dry Fork Station. DEQ did not require a BACT analysis comparing supercritical boiler technology with subcritical boiler technology because the agency believes this would redefine the source. Exh. 19 at 11.
8. In an IGCC facility, the coal is crushed and then thermally converted into a clean, gaseous fuel termed “syngas.” Exh. 13 at 5-6. That syngas is combusted in a gas turbine, which drives an electricity-producing generator that produces approximately 60% of the electricity generated at an IGCC facility. Exh. 16 at 153. The remaining 40% comes from the steam produced when the hot syngas is cooled in a syngas cooler where steam is produced. Id. That steam drives a steam turbine that, in turn, drives a generator. Exh. 15 at 6-7.
9. For the same amount of energy produced, IGCC results in lower emissions than a pulverized coal plant. Exh. 17 at 2, 22, 25; Exh. 9 at 3.
10. DEQ did not require a formal BACT analysis for IGCC because the agency claimed it would redefine the source. Exh. 19 at 11.
11. PM<sub>10</sub> is particulate matter with a diameter less than or equal to 10 micrometers, and PM<sub>2.5</sub> is particulate matter with diameter of less than 2.5 micrometers.
12. The Environmental Protection Agency (“EPA”) has promulgated NAAQS for PM<sub>2.5</sub>. 71 Fed. Reg. 61,144 (Oct. 17, 2006); 62 Fed. Reg. 38,652, 38,655-57 (Jul. 18, 1997). Wyoming has incorporated the NAAQS into its SIP. 2 WAQSR § 2(b).
13. DEQ did not require Basin to consider PM<sub>2.5</sub> emissions from the Dry Fork station. The agency relied on the “surrogate policy” articulated in a memorandum by John S. Seitz, Director of EPA’s Office of Air Quality Planning & Standards, dated October 23, 1997 (“Seitz Memo”). Exh. 19 at 14; Exh. 33.
14. PM<sub>2.5</sub> results in different health impacts than PM<sub>10</sub>. 71 Fed. Reg. at 2,620, 2,627-49 (Jan. 17, 2006).
15. PM<sub>10</sub> and PM<sub>2.5</sub> have different sources and formation processes, are chemically distinct, and disperse in the atmosphere in different ways. 70 Fed. Reg. 65,992; 71 Fed. Reg. 2,625; 72 Fed. Reg. 20,599. PM<sub>2.5</sub> is mainly produced by combustion and by atmospheric reactions of various gaseous pollutants. 71 Fed. Reg. 2,625. Major sources include motor vehicles, power plants, and industrial facilities. Id. PM<sub>2.5</sub> particles can remain suspended in the atmosphere for days to weeks and can be transported thousands of kilometers. Id. PM<sub>10</sub> generally result from mechanical processes that crush or grind larger particles or the resuspension of dust. Id. Because of their larger size, these particles are generally deposited closer to the source than PM<sub>2.5</sub>. Id.
16. Different techniques and technologies are more effective at controlling PM<sub>2.5</sub> than controlling PM<sub>10</sub>. 72 Fed. Reg. 20,589.

17. There are methods available for modeling PM<sub>2.5</sub>, including ISC and AERMOD. 40 C.F.R. § 51, App. W 5.1 (e), (h), 5.2.2.1; id. § 52.21(l); 70 Fed. Reg. 68,234-35; Exh. 29 at 13.
18. There are methods available for measuring PM<sub>2.5</sub> emissions, including Conditional Test Method (“CTM”) 39, CTM 40, and Method 202. 70 Fed. Reg. 66,050; id. at 66,051-52; Exh. 29 at 12-13, Exh. 32 at 32; Exh. 34 at 3.
19. Technologies for control of PM<sub>2.5</sub> emissions are available and in use, including Teflon coated bags, scrubbers, wet electro-static precipitators (“ESPs”), and fabric filter devices. Exh. 32 at 31; Exh. 29 at 11-12.
20. Wyoming has monitoring stations that monitor PM<sub>2.5</sub> in the ambient air.  
<http://www.epa.gov/pmdesignations/1997standards/rec/letters/8/s/Wyoming.pdf>;  
[http://www.epa.gov/pmdesignations/1997standards/rec/letters/8/s/Wyoming\\_R.pdf](http://www.epa.gov/pmdesignations/1997standards/rec/letters/8/s/Wyoming_R.pdf);  
[http://epa.gov/ttn/naaqs/pm/designations/2006standards/rec/letters/08\\_WY\\_rec.pdf](http://epa.gov/ttn/naaqs/pm/designations/2006standards/rec/letters/08_WY_rec.pdf);  
[http://www.epa.gov/pmdesignations/2006standards/rec/letters/08\\_WY\\_EPAMOD.pdf](http://www.epa.gov/pmdesignations/2006standards/rec/letters/08_WY_EPAMOD.pdf).
21. The permit for the Dry Fork Station contains a permit limit for mercury of  $97 \times 10^{-6}$  lb/MWh. Exh. 41 at 3. In its permit application, Basin stated that the uncontrolled mercury emission rate from the boiler would range from 60.4 to  $96.6 \times 10^{-6}$  lb/MW-hr. Exh. 11 at 5-21.
22. DEQ did not require Basin to perform a complete top-down BACT analysis for mercury. Exh. 14 at 15; Exh. 19 at 2; Exh. 40 at 4.
23. During the permitting process, Basin identified at least four potentially available technologies for controlling mercury emissions from the Dry Fork Station: sorbent injection, sorbent enhancement additives, coal pretreatment processes and mercury oxidation technologies. Exh. 40 at 5.
24. There are at least four permits for coal-fired power plants in the United States with mercury permit limits at or below  $20 \times 10^{-6}$  lb/MWh, including Newmont Nevada Mining Unit 1, MidAmerican Energy CBEC Unit 4, Xcel Energy Comanche Unit 3, and Intermountain Unit 3. Exh. 40 at 2-3.
25. The Northern Cheyenne Indian Reservation (“NCIR”) is approximately 135 kilometers northwest of the site of Basin Electric’s Dry Fork power plant. Exh. 14 at 34 & Figure 7. The NCIR is a Class I airshed, meant to preserve the pristine air quality of the reservation and to provide the greatest protection from new sources of pollution. 42 Fed.Reg. 40695 (August 5, 1977).
26. Basin Electric modeled the impact to the NCIR of SO<sub>2</sub> emission sources that were constructed after the major source baseline date for SO<sub>2</sub> of January 6, 1975. Exh. 19 at 16-17.

27. Initially, Basin Electric modeled all SO<sub>2</sub> sources using allowable short-term SO<sub>2</sub> emission rates, except for Units 3 and 4 at the Colstrip power plant in Montana, which were modeled at the 90<sup>th</sup> percentile of actual emissions, based on actual emissions data from 2003 and 2004. Exh. 19 at 16-17.
28. DEQ subsequently required Basin to model all sources at their short-term SO<sub>2</sub> permitted emission rates, including Colstrip Units 3 and 4. Exh. 42; Exh. 19 at 16-17.
29. According to DEQ, “[s]ince the Class I SIL [Significant Impact Level] analysis demonstrated that a cumulative increment analysis was required to address short-term SO<sub>2</sub> increment consumption at NCIR, it is the Division’s position that the allowable short-term emission rates are representative of short-term actual emission rates, as a practical means to quantify short-term emission rates in a dispersion modeling analysis. Therefore, the Division will require that Unit #3 and Unit #4 at the Colstrip facility are both modeled using the short-term permitted SO<sub>2</sub> emission rates for these sources.” Exh. 42.
30. Basin performed the modeling required by DEQ using the short-term permitted SO<sub>2</sub> emission rates for Colstrip Units 3 and 4. Basin did not appeal DEQ’s March 28, 2006 modeling requirement to either the Council or a District Court.
31. When Basin modeled the short-term permitted SO<sub>2</sub> emission rates for all applicable air pollution sources, the model predicted SO<sub>2</sub> concentrations in the NCIR greater than the 24-hour Class I SO<sub>2</sub> increment of 5 µg/m<sup>3</sup> for 2002 and 2003. Exh. 19 at 16-17.
32. A summary of the results of Basin’s 24-hour SO<sub>2</sub> modeling, using permitted emission rates for all applicable air pollution sources, is shown below. Exh. 14 at 40.

<u>Year</u>	<u>Modeled 2<sup>nd</sup> highest SO<sub>2</sub> 24 hr. concentration in NCIR</u>	<u>Dry Fork’s impact</u>
2002	7.0 µg/m <sup>3</sup>	0.11 µg/m <sup>3</sup>
2003	5.8 µg/m <sup>3</sup>	0.2 µg/m <sup>3</sup>

33. Basin’s modeling, required by DEQ, shows that the 5.0 µg/m<sup>3</sup> 24-hour SO<sub>2</sub> maximum allowable increment applicable to the NCIR Class I area has been consumed and is being exceeded. Basin’s modeling also shows that the predicted impact of 24-hour SO<sub>2</sub> emissions from Dry Fork and other increment-consuming sources (over and above the baseline concentration) is not less than 5.0 µg/m<sup>3</sup> in the NCIR Class I area. Id.
34. Basin’s consultant Robert Pearson stated under oath that Basin’s model predicted forty-seven (47) SO<sub>2</sub> 24-hour increment violations in the representative years 2002 and 2003 in the NCIR Class I area. Exh. 43 at 10 (Pearson Expert Report).

35. The Northern Cheyenne Tribe provided comments to DEQ on the Dry Fork permit. According to the Tribe:

Two of the critical pollutants, sulfur dioxide and nitrogen dioxide, are the primary concern for the Northern Cheyenne Tribe. All CBM activities in southern Montana and northern Wyoming, along with existing coal fired power plants, such as Colstrip 1, 2, 3 and 4, combine for a cumulative effect of pollution that directly impacts the NCIR. This power plant [Dry Fork] will impact the NCIR, which is part of the Powder River Basin. If this permit is let through then there will be violations of sulfur dioxide [in] the NCIR. Exh. 44 (AR Bates No. 999).

### **ARGUMENT**

Protestants move for summary judgment on five issues. First, Protestants seek a declaration that they have standing. Second, they request this Council find that DEQ was required to consider IGCC and supercritical technology in the BACT analysis for the Dry Fork Station. Third, Protestants seek an order finding that DEQ was required to ensure compliance with PM<sub>2.5</sub> NAAQS and complete a BACT analysis PM<sub>2.5</sub>. Fourth, Protestants challenge DEQ's failure to require a complete BACT analysis for mercury emissions. Protestants ask the Council to remand the permit to DEQ for these required analyses. Finally, Protestants ask this Council to deny the permit based on SO<sub>2</sub> increment violations at the Northern Cheyenne Indian Reservation.

#### **I. PROTESTANTS HAVE STANDING TO CHALLENGE THE DRY FORK AIR PERMIT.**

DEQ's Rules of Practice and Procedure allow any "protestant" to file an appeal before the Council. "Protestant" is defined as "any person . . . requesting a hearing before the Environmental Quality Council and who is objecting to an action of [DEQ] the Department of Environmental Quality and desiring affirmative relief." Chpt. 1 § 2(a)(ii). Although an intervenor must allege that he is "adversely affected" by the action, the rules contain no similar requirement for a protestant. See Chpt. 2 § 7. Accordingly, Powder River Basin Resource

Council, Wyoming Outdoor Council, and Sierra Club are entitled to proceed before this Council without making a showing of standing.

To obtain judicial review of any order of the Council, however, Protestants must establish standing under the Wyoming Administrative Procedure Act (“APA”). Wyo. Stat. § 16-3-114(a). Review under the APA is based on the record established before the Council. Id. § 114(c). Therefore, in an abundance of caution, Protestants are offering evidence demonstrating their standing in this case so that this information will be in the record if an appeal is necessary. Protestants seek an order from the Council finding that they have standing.

To challenge a final agency action under the APA, a “person” must demonstrate that she is “aggrieved or adversely affected in fact” by that action. Id. § 16-3-114(a). Associations and organizations fall within the definition of a “person” who may seek judicial review. Id. § 16-3-101(b)(vii). Only one member needs to have standing to establish standing for the entire organization. Northfork Citizens for Responsible Dev. v. Park County Bd. of County Comm’rs, 189 P.3d 260, 262 (Wyo. 2008); Int’l Ass’n of Fire Fighters, Local No. 279 v. Civil Serv. Comm’n of Fire Dep’t of City of Cheyenne, 702 P.2d 1294, 1298 (Wyo. 1985) (Thomas, C.J., specially concurring). Furthermore, only one party needs to demonstrate standing for a case to proceed. Rumsfeld v. Forum for Academic and Institutional Rights, Inc., 547 U.S. 47, 53 n.2 (2006).

To show they are “aggrieved or adversely affected,” Protestants must demonstrate that they have a “legally recognizable interest” that will be “harmed” by the agency action. Northfork Citizens, 189 P.3d at 262. As demonstrated in the attached affidavits, Protestants easily meet this standard. Exhs. 2-8. Construction and operation of the Dry Fork Station will result in increased emission of air pollutants that will harm these members’ health and the health

of their families, the use and enjoyment of their own lands, and their enjoyment of public lands near the Dry Fork Station. Protestants' are also harmed in their organizational capacity by DEQ's failure to comply with the procedures required under the law, including conducting a proper BACT analysis. For example, Basin's failure to do a BACT analysis for IGCC, a supercritical boiler, PM<sub>2.5</sub>, and mercury prevented Protestants and other members of the public from obtaining information and providing comments on this analysis. Accordingly, Protestants' have standing to pursue any subsequent appeal of the Council's decision if necessary.

## **II. DEQ FAILED TO CONSIDER ALTERNATIVE TECHNOLOGIES REQUIRED FOR THE BACT DETERMINATION.**

Since taking office, Governor Freudenthal has touted Wyoming's role in the nation's clean energy future and, in particular, promoted "the advancement of clean coal technologies, both in the next cycle of coal fired power plant construction and the opportunity to add value to the vast coal resource through coal-to-fuel and coal gasification technologies."<sup>1</sup> As part of his clean coal initiative, Governor Freudenthal has emphasized the importance of IGCC technology to the West's energy future. In 2006, for example, he declared that, "the progress we are seeing in IGCC technologies will enable broader use of this technology throughout the region," and so concluded that "[t]he West needs to seek all opportunities to expand the deployment of this technology."<sup>2</sup>

These public promises notwithstanding, in October 2007, Governor Freudenthal's DEQ issued the Dry Fork Station air permit to Basin without requiring Basin to even consider inherently lower polluting production processes utilizing supercritical or ultra-supercritical boiler

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<sup>1</sup> Wyoming State Government Annual Report 2004, available at <http://www-wsl.state.wy.us/slpub/reports/2004/governor.pdf>.

<sup>2</sup> Press Release, Western Governors Laud Efforts to Expand IGCC Technology Development in the West (Aug. 16, 2006) (emphasis added), available at <http://www.westgov.org/wga/press/igcc8-16-06.htm>.

technologies. DEQ also allowed Basin to ignore the possibility of installing IGCC technology—the very technology championed publicly by the Governor.

In addition to ignoring the Governor’s plea that “[t]he West ... seek all opportunities to expand the deployment of this technology,” DEQ’s failure to require Basin to even consider IGCC and advanced boiler technologies in its BACT analysis ignored warnings from the National Park Service that pollution from Basin’s old-style pulverized coal facility would degrade air quality at nearby national parks. See Exh. 9 at 2-4 (requesting that Basin be required to consider lower emitting production processes in its BACT analysis); see also Exh. 10 at 10-31 (same request from Protestants). As the Park Service pointed out, “it is generally understood that a source impacting a national park is held to a higher standard and may be required to install additional controls or take additional operating measures to minimize impacts at these national treasures.” Exh. 9 at 2.

DEQ’s failure to require Basin’s BACT analysis to even consider supercritical boilers and IGCC is not only bad energy policy, it is against the law. DEQ’s cramped view of a BACT analysis’s scope is contrary to the plain terms of the Clean Air Act, its legislative history, EPA guidance, the State of Wyoming’s Clean Air Act regulations, and the relevant case law. Protestants request, therefore, that the Environmental Quality Council remand the PSD permit to DEQ so the agency and Basin can work together to produce a BACT analysis that takes the requisite broad look at all available alternative production processes—including advanced boilers and IGCC—for the Dry Fork Station.

**A. The BACT Process Requires Consideration of Production Processes and Innovative Fuel Combustion Techniques.**

It is uncontested that the “Dry Fork Station is a major emitting facility or major stationary source of air emissions” as defined by Wyoming regulations and the Clean Air Act. Exh. 11 at

4-1. Consequently, Basin Electric must obtain preconstruction approval in the form of a PSD permit before it may build the Dry Fork facility. 6 WAQSR §§ 2(c), 4(b).

The permit must ensure that the project employs BACT, which is:

an emissions limitation (including a visible emission standard) based on the maximum degree of reduction of each pollutant subject to regulations under the [Wyoming] 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 of production processes and available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant.

Id. § 4(a) (emphasis added). Through the BACT process, then, the permitting agency must consider the full range of available alternative “production processes” and other methods—including “innovative fuel combustion techniques”—of lowering a proposed facility’s emissions. After doing so, the agency selects emission limitations and control technologies that are specific to the particular facility. See, e.g., In re Knauf, 8 E.A.D. at 128-29.

EPA has issued a guidance document widely used in PSD reviews and BACT analyses in particular. See U.S. EPA, New Source Review Workshop Manual (Draft Oct. 1990) (“NSR Manual”) (Part B covering BACT analysis is attached as Exh. 12). The NSR Manual, which Basin and DEQ utilized in this case, describes a five-step BACT analysis process. The first step in the process is to identify and list all “available” control options. See id. at B.5. At this initial step, the applicant must cast a very broad net because the goal of this step is simply to “develop a comprehensive list of control options.” In re Knauf, 8 E.A.D. at 130. Although control technologies may later be rejected because they are demonstrated to be technically infeasible or have unacceptable energy, economic, or environmental impacts, “at the outset, applicants should initially identify all control options with potential application to the emissions unit under

review.” Exh. 12 at B.5-B.7. Furthermore, while a technology or production process must be “available” in order to win consideration at BACT Step 1, this is a low bar at this preliminary stage. See id. at B.5.<sup>3</sup> EPA’s Environmental Appeals Board (EAB) has emphasized, “[t]he term available is used in its broadest sense under the first step and refers to control options with a ‘practical potential for application to the emission unit’ under evaluation.” In re Knauf, 8 E.A.D. at 130 (emphasis in original) (citing NSR Manual at B.5).<sup>4</sup>

The intended breadth of BACT Step 1 is underscored by the NSR Manual, which defines “production process” for the purpose of the BACT analysis. “A production process,” the Manual declares, “is defined in terms of its physical and chemical unit operations used to produce the desired product from a specified set of raw materials.” Exh. 12 at B.13-14; see also id. at B.10 (stating the agency determines a production process “based on demonstrations made on the basis of manufacturing identical or similar products from identical or similar materials”). A “production process,” in other words, is something that transforms specified raw materials into “the desired product.”

The NSR Manual goes on to detail the types of “production processes” and technologies to be considered. These include:

- **Inherently Lower-Emitting Processes/Practices**, including the use of materials and production processes and work practices that **prevent** emissions and result in lower “production-specific” emissions; and

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<sup>3</sup> See In re Knauf, 8 E.A.D. at 130 (explaining the difference between the broad interpretation of “available” at Step 1 and the more narrow interpretation of “available” at Step 2).

<sup>4</sup> The second through fifth stages of the BACT analysis process are not germane here because DEQ concluded that advanced supercritical boilers and IGCC need not be considered even at BACT Step 1. If the Council concludes that DEQ short-circuited the BACT process by prematurely eliminating advanced boiler and IGCC production processes at the very outset of the BACT process, the proper remedy will be for the Council to remand the PSD permit to DEQ and Basin for the development of a full BACT analysis. See infra at 29-32 (demonstrating that Basin has never prepared a BACT analysis for IGCC or supercritical boilers and citing admissions to that effect by the author of Basin’s air permit submissions).

- **Add-on Controls**, such as scrubbers, fabric filters, thermal oxidizers and other devices that **control** and **reduce** emissions after they are produced.
- **Combinations of Inherently Lower Emitting Processes and Add-on Controls.** For example, the application of combustion and post-combustion controls to reduce Nox emissions at a gas-fired turbine.

Id. at B.10. “The top-down BACT analysis should consider potentially applicable control techniques from all three categories.” Id.

Like its sweeping definition of “production processes,” the NSR Manual’s three-part production process list makes plain that the BACT analysis must extend far beyond end-of-stack scrubbers and the like, and include emission-lowering processes and techniques that occur much earlier at the very start of the production process. The NSR Manual goes still further and stresses that the permitting agency must consider “technologies employed outside of the United States” and “should include not only existing controls for the source category in question, but also (through technology transfer) controls applied to similar source categories and gas stream, and innovative control technologies.” Id.

In sum, the NSR Manual dictates that a permitting agency cast a broad net at BACT Step 1 so that every potentially applicable technology and production process—defined broadly to include the entire process that transforms raw materials into a desired finished product—is considered. Only by doing so can the permitting agency fulfill BACT’s goal of “promot[ing] the best control technologies as widely as possible.” In re Knauf, 8 E.A.D. at 140.

**B. DEQ Should Have Required Basin to Consider IGCC in its BACT Analysis.**

**1. IGCC is a “production process” that transforms coal into electricity and so should have been considered in Basin’s BACT analysis.**

Basin’s purpose in constructing the Dry Fork facility is to use Powder River Basin coal to generate electricity for the Cooperative’s customers. See Exh. 14 at 1. Basin proposes to do so by building a pulverized coal (PC) power plant in which Powder River Basin coal—the raw

material—will be fed into the facility, pulverized, and combusted in a subcritical boiler. In a subcritical PC plant, the water circulating in the tubes lining the boiler is converted to steam that drives a turbine that, in turn, drives a generator to produce electricity. Exh. 15 at 2. Distilled to its essence for BACT-analysis purposes, the pulverized coal technology favored by Basin is a “production process” that transforms a “raw material,” Powder River Basin coal, into a “desired product,” electricity. See Exh. 12 at B.13-14.

For all its sophistication and technological differences, an IGCC plant at Dry Fork Station would be fundamentally the same as a PC plant for BACT purposes.<sup>5</sup> An IGCC facility at Dry Fork would use the same raw material—Powder River Basin coal—and through “physical and chemical unit operations” create the very same “desired product”—electricity. To be sure, the pulverized coal and IGCC production processes differ in how they transform coal to electricity. In an IGCC facility, the coal is crushed and then, rather than being fully combusted as in a pulverized coal plant, is first thermally converted into a clean, gaseous fuel termed “syngas.” Exh. 13 at 5-6.<sup>6</sup> That syngas is then combusted in a gas turbine, which drives an electricity-producing generator that produces approximately 60% of the electricity generated at an IGCC

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<sup>5</sup> IGCC is an “inherently lower-emitting process” than the pulverized coal process favored by Basin. See Exh. 17 at 25 (admission in Basin’s permit document that “[a]n IGCC plant has the potential for reduced emissions of SO<sub>2</sub>, NO<sub>x</sub>, Hg and particulates compared to levels produced by conventional PC and CFB units”); id. at 2 (Basin admitting that “[t]he main incentive for IGCC development has been that units may be able to achieve higher thermal efficiencies than PC plants, be able to match the environmental performance of gas-fired plants, and potentially provide a more cost-effective means of removing CO<sub>2</sub> should that become a future regulatory requirement.”); id. at 22 (Basin explaining that “[t]he driving force behind the development of IGCC is to achieve high thermal efficiencies together with low levels of emissions.”); Exh. 9 at 3 (Park Service describing IGCC as “a technological solution . . . that would allow use of local coal to generate electricity without the large quantities of emissions associated with pulverized coal-fired boilers.”).

<sup>6</sup> In its response to public and agency comments, Basin emphasizes that there is no combustion involved in the transformation of coal to syngas. Exh. 18 at 70. It is unclear why Basin places so much stock in this point given that the presence or absence of combustion in a particular production process is irrelevant for BACT purposes. See, e.g., infra at 24-25 (citing legislative history to demonstrate that Congress unquestionably intended that gasification processes be included in BACT analyses). In any event, as Mr. Jenkins admitted at his deposition, combustion is involved when syngas is formed. Exh. 16 at 137-38. Combustion also takes place at an IGCC’s gas turbine. Id. at 163; see also Exh. 19 at 10 (DEQ description of IGCC as involving syngas’s “combustion in a gas turbine”).

facility. Exh. 16 at 153 (deposition of Stephen Jenkins). The remaining 40% comes from the steam produced when the hot syngas is cooled in a syngas cooler where steam is produced. Id. As in a pulverized coal plant, that steam drives a steam turbine that, in turn, drives a generator. Exh. 15 at 6-7. These differences notwithstanding, the legally dispositive fact for the purposes of this motion is that a pulverized coal plant and IGCC facility at Dry Fork Station would be identical in being production processes that use Powder River Basin coal to produce electricity.

This fundamental similarity between pulverized coal and IGCC facilities lead a recent Georgia court to hold, in a court case of first impression, that a BACT analysis for a pulverized coal plant must consider IGCC as an available alternative production process. In Friends of the Chattahoochee, Inc. v. Couch, the court concluded that a BACT analysis for a pulverized coal plant to be built by Longleaf Energy Associates was inadequate because it failed to consider an IGCC alternative. Exh. 1 at 13-15. In doing so, the court stressed the fundamental similarity between the two approaches, explaining that they were simply “different way[s] of using the coal to generate heat to drive the turbines.” Id. at 13. The court also declared that IGCC must be considered in the Longleaf BACT analysis because it is an “innovative fuel combustion technique” of the sort anticipated by the Clean Air Act’s BACT analysis requirement. Id. at 14.

The Georgia court’s holding is not unique, but rather is in keeping with the view of several state permitting authorities that have concluded that IGCC must be considered in a BACT analysis for a proposed coal-fired power plant. One of these is Illinois, which explained to EPA in 2003 that:

Over the last few months, the Illinois EPA has been reviewing whether Integrated Gasification Coal Combustion (sic) (IGCC) must be considered as part of the Best Available Control Technology (BACT) demonstration supplied in the PSD application for a proposed coal-fired power plant in Illinois. We have concluded that it is appropriate for applicants for such plants to consider IGCC as part of their BACT demonstrations. In this regard, IGCC is an alternative production process that can be used with coal to

produce electricity. General guidance previously provided by the USEPA states that “there may be instances where, in the permit authority’s judgment, the consideration of alternative production processes is warranted and appropriate for consideration in the BACT analysis.” We have concluded that this is such a circumstance.

Exh. 20. When the State’s decision was challenged on other grounds, EPA’s Environmental Appeals Board confirmed that IGCC was “consistent with [the] basic design” of the proposed pulverized coal-fuel powered electricity generating plant. In re Prairie State Generating Co., PSD Appeal No. 05-05, slip op. at 36 (Aug. 24, 2006).

Michigan’s Department of Environmental Quality has required consideration of IGCC in a BACT analysis for proposed coal-fired plants on numerous occasions. See Exh. 21 (engineer for project proponent responding to DEQ’s request for additional information in support of a permit to construct a supercritical or ultra-supercritical coal plant, including a request for a control technology evaluation of IGCC); Exh. 22 (supplying a top-down BACT analysis on IGCC technology for Consumer Energy’s permit to construct an advanced supercritical coal plant, pursuant to MDEQ’s request); Exh. 23 (consultant responding to seven separate questions asked by MDEQ concerning the treatment of IGCC technology in the BACT analysis for the proposed CFB plant).

The State of New Mexico recently followed suit, requiring consideration of IGCC in a BACT analysis for the proposed Mustang coal-fired power plant. See Exh. 24 (explaining that the New Mexico Environment Department “agrees that IGCC ... should be considered in the BACT analysis for the proposed facility”); Exh. 25 (follow-up letter from the State in which it rejected the applicant’s conclusion that IGCC was technically infeasible at the proposed site, and requested further information and analysis on IGCC).

As the Georgia court and these state permitting agencies have recognized, IGCC technology is a lower-emission alternative that must be consider in a BACT analysis for a PC plant.

**2. The use of IGCC technology would not “redefine the source.”**

Although an IGCC plant and pulverized coal plant at Dry Fork Station would each use Powder River Basin coal to produce electricity, Basin has insisted—and DEQ agreed—that IGCC technology can be ignored in a BACT analysis because its imposition would “redefine the source.” Exh. 18 at 69-73; Exh. 19 at 10-11.<sup>7</sup> This argument should be rejected for numerous reasons.

**a. IGCC and pulverized coal technologies are each production processes that use Powder River Basin coal to produce electricity.**

As explained above, BACT Step 1 is meant to be a broad compilation of each available “production process,” which is defined as the entirety of the “operations” that produce a desired product from a “specified set of raw materials.” Therefore, for the purposes of the BACT analysis in this case, IGCC and pulverized coal processes are alternative processes for using Powder River Basin coal—the raw material—to produce electricity.<sup>8</sup>

This interpretation of the scope of BACT Step 1 is consonant with the NSR Manual’s explanation of the outer limits of the BACT analysis. While a BACT analysis must consider

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<sup>7</sup> It is undisputed that a formal BACT analysis that considers IGCC or supercritical boilers has never been prepared for the Dry Fork facility. See Exh. 19 at 11.

<sup>8</sup> Basin’s expert, Stephen Jenkins, insists that coal is a “fuel” in a pulverized coal plant and a “feedstock” in an IGCC facility. See, e.g., Exh. 16 at 140. Even if this distinction was universally accepted, which it is not, it would be a distinction without a difference. There is nothing in the NSR Manual, the Clean Air Act, or in Wyoming’s regulations that declares that only production processes with identical “fuels” or “feedstocks” need be considered in a BACT analysis. The relevant factor under the NSR Manual is whether the “specified raw materials” involved are the same, which they undeniably are here because Powder River Basin coal is the raw material in both an IGCC and pulverized coal plant. Semantic niceties notwithstanding, syngas plainly is not a “raw material,” but rather the product of a gasification process involving a cryogenic air separation unit and the like. See Exh. 18 at 70.

alternative “production processes,” the analysis need not consider options that would “redefine the design of the source.” Exh. 12 at B.13. EPA’s paradigmatic example of a redefinition of the source is an applicant proposing to construct a coal-fired electric generator being forced to consider the construction of a natural gas-fired electric turbine. Id. Because the raw material would shift from coal to natural gas, this would be an example of an agency forcing the redefinition of the source.

This view of the scope of a BACT analysis and the redefinition of the source was also adopted by the Georgia court in the Friends of the Chattahoochee case. Like Basin and DEQ here, Longleaf Energy Associates and Georgia’s permitting agency argued that IGCC need not be considered in a BACT analysis because doing so would require the redefinition of the source. Exh. 1 at 13. The court rejected the argument because it defined “source” too narrowly. Id. For the purpose of the BACT analysis, the court concluded, the legally relevant fact is that IGCC and pulverized coal plants both “consume coal to generate electricity.” Id.

Decisions from EPA’s Environmental Appeals Board are in accord. See, e.g., In re Old Dominion Elec. Coop. Clover, Virginia, 3 E.A.D. 779 (EAB 1992), 1992 WL 92372, at 8-9 (holding BACT analysis for a pulverized coal plant need not consider natural gas as an alternative fuel for the facility); In re Knauf, 8 E.A.D. at 142 (holding that alternative fiberglass production technologies must be considered in BACT analysis despite “differences in features in the manufacturing process[es]”); In re Hibbing Taconite Co., 2 E.A.D. 838 (EAB 1989), 1989 EPA App. Lexis 24 (holding that taconite ore processing facility must consider natural gas alternative to petroleum coke palletizing furnaces because, regardless of the fuel supplying the furnaces, the facility will transform the same raw material, taconite ore, into the same product, taconite pellets); Id. at \*11 n.12 (describing In re Pennsauken County, New Jersey, Resource

Recovery Facility, 2 E.A.D. 667 (EAB 1988), which concluded that a BACT analysis for a municipal waste combustor need not consider an alternative in which the waste would be co-fired with coal at an existing power plant because, “the petitioner was seeking to substitute power plants (having as a fundamental purpose the generation of electricity) for a municipal waste combustor (having as a fundamental purpose the disposal of municipal waste)”).

In re Prairie State is particularly instructive. In that case, the applicant proposed a pulverized coal fueled powered electricity generating plant located at the mouth of a new underground coal mine whose relatively high-sulfur coal would supply the facility. Id. at 1. Petitioners argued that the BACT analysis should have considered the use of less-polluting low-sulfur fuel rather than the high sulfur fuel from the adjoining mine. Id. at 19. The EAB disagreed and concluded the use of different coal would result in the redefinition of the source. Id. at 32. In the case of a mine-mouth coal-fired power plant, the EAB concluded, the substitution of a coal from elsewhere is as fundamental a shift in the “raw material” as would be the substitution of natural gas. Id. at 32-33 (citing NSR Manual and other examples where the “raw material” at the beginning of the production process was exempt from reconsideration in the BACT process). In that case, therefore, the “raw material” was not coal generally, but rather the specific high-sulfur coal from the adjacent mine. It was in this sense that the EAB rejected petitioners’ claim that the proposed facility’s purpose should be viewed as broadly as “the production of electricity, from coal.” Id. at 32.

Because consideration of IGCC at Dry Fork Station would not involve any change in the raw material – Powder River Basin coal would be used by an IGCC or pulverized coal plant – Prairie State does not support DEQ’s refusal to require the consideration of IGCC. Indeed, the Illinois EPA (IEPA), required the inclusion of IGCC in the BACT analysis for the proposed coal

plant because the agency concluded that “IGCC is a ‘production process’ that can be used to produce electricity from coal.” Id. at 35 n.30. Tellingly, EAB describes the inclusion of IGCC in the BACT analysis approvingly and offers it as evidence of IEPA’s faithful implementation of the BACT process. Id. at 35-36. Prairie State, therefore, only undermines DEQ’s position.

**b. IGCC and pulverized coal plants are in the same category of major stationary source for air permitting purposes.**

Further undermining DEQ’s position is the fact that IGCC and pulverized coal plants are the same type of “major stationary source” for the purpose of the State’s PSD program: both are “fossil fuel-fired steam electric plants of more than two hundred and fifty million British thermal units per hour heat input.” 6 WAQSR § 4(a) (definition of “major stationary source”). While Wyoming’s regulations do not define “fossil fuel-fired steam electric plants,” the term unquestionably applies to both pulverized coal and IGCC facilities.

While Wyoming law leaves the obvious unsaid, the common regulatory treatment of pulverized coal and IGCC plants is explicit under federal law. See 40 C.F.R. § 60.41Da (“Coal-fired electric utility steam generating unit means an electric utility steam generating unit that burns coal, coal refuse, or a synthetic gas derived from coal.”); id. (“Integrated gasification combined cycle electric utility steam generating unit or IGCC electric utility steam generating unit means a coal-fired electric utility steam generating unit that burns a synthetic gas derived from coal in a combined-cycle as turbine.”); id. (“Steam generating unit means any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam (including fossil-fuel-fired steam generators associated with combined cycle gas turbines).”); id. (“[C]oal-fired electric utility steam generating unit [includes a unit that] burns coal, coal refuse, or a synthetic gas derived from coal.”); 70 Fed. Reg. 28606, 28610 (May 18, 2005) (EPA rule establishing new source performance standards for mercury air emissions for the source category

electric utility steam generating units, including IGCC); 70 Fed. Reg. 9706, 9715 (Feb. 28, 2005) (EPA revising its new source performance standards for the electric generating units new source category, including pulverized coal and IGCC technologies in the same source category); 69 Fed. Reg. 4652, 4665 (Jan. 30, 2004) (EPA explaining that “[t]here are five basic types of coal combustion processes used in the coal-fired electric utility industry. These are conventional-fired boilers, stoker-fired boilers, cyclone-fired boilers, IGCC units, and GBC units.”).

Because pulverized coal and IGCC facilities fall within the same major stationary source category, the consideration of the latter in a BACT analysis would not “redefine the source” for PSD permitting purposes. This fact was at the heart of the Georgia court’s decision in Friends of the Chattahoochee. As the court explained:

The proposed “major emitting facility” [“major stationary source” in Wyoming’s parlance] is still the same kind of statutorily defined “facility” under the Clean Air Act whether the coal is burned directly in a boiler or is first converted to gas and then burned to create the heat of combustion that drives the turbines. The ALJ erred in ruling that IGCC would “redefine the air pollution source” so that it need not be part of the BACT analyses. . . . Under the statutory definition, one kind of “major emitting facility” is a “fossil-fuel fired steam electric plant.” 42 U.S.C. § 7479(1). With or without IGCC technology, the Longleaf plant thus falls under the same “facility” definition – a “fossil-fuel fired steam electric plant.”

Exh. 1 at 14. Because the “facility” definition applies equally to pulverized coal and IGCC, the court concluded that requiring the permitting agency to consider IGCC would not result in any redefinition of the source. Id. Because the same is true for the synonymous “major stationary source” definition in this case, the result should be the same and DEQ must consider IGCC in a BACT analysis for the Dry Fork facility.

**c. The Clean Air Act’s legislative history demonstrates that Congress intended gasification technologies be considered in a BACT analysis.**

DEQ’s narrow view of the BACT analysis process is not supported by the Clean Air Act’s legislative history. The Act specifically requires that a BACT analysis consider

“innovative fuel combustion techniques.” 42 U.S.C. § 7479(3). This language is carried over verbatim in Wyoming’s air quality permitting regulations. 6 WAQSR § 4(a). Earlier drafts of the Clean Air Act’s BACT provision did not mention “innovative fuel combustion techniques.” The following colloquy in the legislative history demonstrates quite clearly that the reference to “innovative fuel combustion techniques” was added specifically so that gasification technologies would be included in BACT analyses:

Mr. HUDDLESTON. Mr. President, the proposed provisions for application of best available control technology to all new major emission sources, although having the admirable intent of achieving consistently clean air through the required use of best controls, if not properly interpreted may deter the use of some of the most effective pollution controls. The definition in the committee bill of best available control technology indicates a consideration for various control strategies by including the phrase “though application of production processes and available methods, systems, and techniques, including fuel cleaning or treatment.” And I believe it is likely that the concept of BACT is intended to include such technologies as low Btu gasification and fluidized bed combustion. But, this intention is not explicitly spelled out, and I am concerned that without clarification, the possibility of misinterpretation would remain. It is the purpose of this amendment to leave no doubt that in determining the best available control technology, all actions taken by the fuel user are to be taken into account—be they the purchasing or production of fuels which may have been cleaned or up-graded through chemical treatment, gasification, or liquefaction; use of combustion systems such as fluidized bed combustion which specifically reduce emissions and/or the post-combustion treatment of emissions with cleanup equipment like stack scrubbers. The purpose, as I say, is just to be more explicit, to make sure there is no chance of misinterpretation. Mr. President, I believe again that this amendment has been checked by the managers of the bill and that they are inclined to support it.

Mr. MUSKIE. Mr. President, I have also discussed this amendment with the distinguished Senator from Kentucky. I think it has been worked out in a form I can accept. I am happy to do so. I am willing to yield the remainder of my time.

123 Cong. Rec. S. 9421, 9434-35 (June 10, 1977) (emphasis added). Thus, while Senator Huddleston explained that he believed BACT already included “such technologies as . . . gasification,” the amendment was added “to be more explicit, to make sure there is no chance of misinterpretation.” Id.

In the Friends of the Chattahoochee case, the court read the amendment adding “innovative fuel combustion techniques” as clear evidence that IGCC is within the intended scope of a BACT analysis. Exh. 1 at 14-15. This Council should do the same.

**C. DEQ Should Have Required Basin to Consider Supercritical Boiler Technology in its BACT Analysis.**

DEQ did not require a BACT analysis comparing supercritical boiler technology with subcritical boiler technology. Rather, the agency allowed Basin to eliminate supercritical technology from further consideration prior to submitting its permit application. Exh. 17 at 17-18; Exh. 26 pg. 54 lines 23-35, pg. 55 lines 1-3.<sup>9</sup> In its response to comments issued with the final permit on October 15, 2007, DEQ states—for the very first time in the permitting process—that supercritical technology would require Basin to “redefine the source.” Exh. 19 at 11. As with IGCC, this argument must fail as a matter of law.

**1. A supercritical boiler is a production process that transforms coal into electricity and therefore should have been considered in Basin’s BACT analysis.**

Pulverized coal-fired (“PC”) power plants can use either subcritical or supercritical boiler technology. Exh. 17 at 17-18; Exh. 27 at 10. The two technologies differ with respect to the temperatures and pressures at which they operate. Supercritical boilers operate at temperatures and pressures above the “critical point” of water, while subcritical boilers operate at temperatures and pressures below the critical point of water. Exh. 27 at 10; Exh. 28 at 2. Because they operate at higher temperatures and pressures, supercritical boilers are generally more efficient at converting pulverized coal to electricity. Exh. 27 at 12; Exh. 28 at 4-5; Exh. 29 at 4; Exh. 30 at

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<sup>9</sup> Mr. Snell is the expert Basin offered on BACT issues related to supercritical technology.

1.<sup>10</sup> They produce more energy per pound of coal, resulting in less emissions for the same amount of energy produced.

The basic process of converting coal to electricity is the same for both a supercritical and a subcritical PC plant. Both start with pulverized coal and combust it in the boiler to generate steam. The steam then drives a turbine-generator to produce electricity. Exh. 17 at 12-13, 17-18; Exh. 26 pg. 48 lines 21-25; Exh. 29 at 5; Exh. 30 at 2-3. The product produced is electricity and the raw material used to produce that electricity is Powder River Basin coal. See Exh. 26 pg. 38 lines 21-23, pg. 39 lines 15-21. Accordingly, supercritical and subcritical boilers are simply two different types of pulverized coal “production processes.” Exh. 12 at B.10, B. 13 (“A production process is defined in terms of its physical and chemical unit operations used to produce the desired product from a specified set of raw materials.”). For this reason, EPA recently required consideration of supercritical technology as an alternative to subcritical CFB technology in the BACT process for the Deseret Power Electric Cooperative’s Bonanza Power Plant in Utah. Exh. 31.<sup>11</sup> DEQ must do the same. 6 WQASR § 4(a).

**2. The use of supercritical technology would not redefine the source.**

DEQ’s claim that requiring consideration of supercritical technology is redefining the source renders meaningless the “production process” language in the Clean Air Act’s and Wyoming’s definition of BACT. The only differences between supercritical and subcritical technology are design modifications that account for the higher temperatures and pressures under

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<sup>10</sup> As Mr. Snell points out, the efficiency increase will depend on site-specific considerations, such as the size of the plant. Exh. 27 at 12.

<sup>11</sup> In that case, EPA was comparing a subcritical circulating fluid bed (“CFB”) plant with a supercritical CFB plant. However, just as with PC plants, these two technologies represent very closely similar production processes.

which a supercritical plant operates.<sup>12</sup> To find that these design modifications constitute redefining the source would mean that a permit applicant would never have to consider a different “production process,” even if it resulted in drastically reduced emissions of NSR pollutants.

Indeed, this is Basin’s position. According to Basin’s expert, a permit applicant can choose whatever technology it wants—even an outdated technology from the 1920’s that emits vast quantities more pollution than the most efficient new technology—and there is nothing that the state agency can do about it. Exh 26 pg. 57 lines 4-6 (“I think the proponent has the ultimate say in the generating technology that they propose for their project.”); *id.* pg. 59 line 25, pg 60 lines 1-3 (“I would say if the agency wanted the proponent to build something different than what they proposed, that . . . would constitute redefining of the emissions source.”); *id.* pg. 60 lines 4-10 (admitting that under his interpretation of redefining the source, if the project proponent proposed “stoker technology,” agency could not require a subcritical boiler); Exh. 27 at 16 (“Generating technology choice is not revisited in the BACT analysis.”). Under Basin’s view, DEQ can only require Basin to consider “add-on” technologies.

This approach is inconsistent with the plain language of the Clean Air Act and Wyoming’s regulations, which require consideration of “production processes.” As the NSR Manual demonstrates, this means state agencies must consider both production processes and

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<sup>12</sup> These include differences in the design of the boiler and the turbines. Within the turbines, the changes are minimal. According to Sargent & Lundy, “[t]urbines designed for use in supercritical applications are fundamentally similar to turbine designs used in subcritical power plants.” Exh. 28 at 3. The company also confirms “[t]here are no significant differences between the IP [intermediate pressure] and LP [low pressure] turbine sections of a supercritical and subcritical plant.” *Id.* Although there would be differences in the blade sizes, rotor design, and materials of construction, the general system is the same. Exh. 26 pg. 50 lines 16-18 (“[B]oth are designed with rotors and blades that are turned by the steam to turn the generator and generate electricity.”). According to Mr. Snell, the more significant design changes occur in the boiler. Exh. 27 at 17. These differences include the lack of a steam drum, which is used to separate steam and water in a subcritical plant, but is not necessary in a supercritical plant. There are also differences in the materials used to construct the water walls, the boiler, the economizer, and the high pressure parts of the boiler. Exh. 26 pg. 44-48.

add-on controls. NSR Manual at B.10; see also In re Knauf, 8 E.A.D. at 129 (“A control option may be an ‘add-on’ air pollution control technology that removes pollutants from a facility’s emissions stream, or an ‘inherently lower-polluting process/practice’ that prevents emission from being generated in the first instance.” (emphasis added)).

Basin’s approach also defeats the purpose of the BACT analysis. The case-by-case BACT analysis is technology-forcing and designed to account for innovation over time. As described by the Board of Environmental Review for the State of Montana, “[a] BACT determination is not a static process. . . . [A]s technologies are developed or change and improve those new and improved technologies must be taken into consideration.”<sup>13</sup> Exh. 32 at 2; see also Tenn. Valley Auth., 9 E.A.D. at 391 (“[T]he program Congress established was particularly aggressive in its pursuit of state-of-the-art technology at newly constructed sources.”); Columbia Gulf Transmission, 2 E.A.D. at 828-29. “Because the duration of a permit can be for decades, the most modern technologies must be considered and analyzed in the BACT process.” Exh. 32 at 44. Accordingly, DEQ cannot allow Basin to ignore the most efficient, modern technologies simply because they are production processes rather than add-on controls.

Finally, Basin’s approach conflicts with EPA practice. See Exh. 31 (Final Statement of Basis for Desert air permit); see also Exh. 26 pg. 64 lines 12-23 (Basin’s expert stating that he would consider a BACT analysis prepared by EPA to be “more persuasive” than one submitted by a permit applicant). Because any conclusion that supercritical would redefine the source for the Dry Fork permit is inconsistent with plain language definition of BACT, Congress’ intent,

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<sup>13</sup> In the Matter of: Southern Montana Electric Generation and Transmission Cooperative-Highwood Generating Station Air Quality Permit No. 3423-00, Case No. BER 2007-07 AQ, at 2 (May 30, 2008) (Findings of Fact, Conclusions of Law and Order on Claims of Petitioners that the Department of Environmental Quality Failed to Comply with Permitting Requirements Applicable to PM<sub>2.5</sub> and Ruling of Regulation of CO<sub>2</sub> for BACT Purposes) (hereinafter “Highwood Order”) (attached as Exh. 32).

and EPA's guidance and practice, this Council should require Basin to consider this lower-emitting production process in a BACT analysis.

**D. If the Council Finds that IGCC and Supercritical Technology Do Not Redefine the Source, the Appropriate Remedy is a Remand to DEQ.**

It is uncontested that a formal BACT analysis has never been completed for supercritical boiler or IGCC technologies. Exh. 19 at 11; Exh. 26 pg. 54 lines 23-35, pg. 55 lines 1-3. Because these technologies should have been considered, the Council must remand the PSD permit to DEQ with instructions that a full and formal BACT analysis be completed and circulated for public review and comment in accordance with Wyoming regulations. See In re Knauf, 8 E.A.D. at 142 (“Incomplete BACT analyses are grounds for remand.”); In re Prairie State, slip op. at 19 (same).

In the course of the permitting process, Basin and its consultants produced several documents related to supercritical and IGCC that addressed issues that arise in a BACT analysis, including emissions reductions and cost. DEQ occasionally offered similar statements. Those documents and statements do not obviate the need for a remand order because they fall far short of the substantive and procedural requirements of the BACT process.

With respect to supercritical, Basin's consultant prepared a November 1, 2005 “technology evaluation” prior to its permit application in which it concluded the “additional capital cost for a supercritical steam cycle is typically only justified by the efficiency improvement for PC units of 350 MW and larger.” Exh. 17 at 18. This conclusion was based on Basin's intent to build a 250 MW plant. Although Basin later changed its plans from building a 250 MW plant to a 422 MW plant, the company did not revisit the finding in the technology report. Exh. 11 at 1 (stating Basin's intend to build a 422 MW plant).

The confusion over the potential efficiencies to be won through supercritical boiler

technologies was compounded in 2007 when DEQ, after being prodded by comments from Protestants and the National Park Service, requested additional information from Basin based on the increased size of the plant. Basin responded with a June 15, 2007 memorandum from a different consultant, Sargent and Lundy, which contradicted CH2MHill's prior statement and concluded that a supercritical boiler would not be warranted for the Dry Fork Station even at 422 MW because the efficiency gains would be small and the cost too high. Exh. 28 at 7. There was no opportunity for the public to review or comment on this latest contradictory analysis. When it finally issued the permit in 2007, DEQ asserted that supercritical technology is "not appropriate" because the efficiency gains for a unit the size of Dry Fork would be small. Exh. 19 at 12.

Neither Basin nor DEQ subjected its efficiency or cost conclusions to the rigors of a formal BACT analysis. However, the Clean Air Act and Wyoming regulations require that these issues be carefully considered in a BACT analysis, rather than being papered over after-the-fact as happened here. See Exh. 12 at B.6 (top-down analysis should include consideration of whether the technology is available and technically feasible, the expected emissions reductions, and the cost effectiveness); Exh. 32 at 42 (Montana Board of Environmental review explaining that an agency cannot predetermine, without applying BACT, "what is economically unfeasible and excluding possible control technologies on this basis"); In re Knauf, 8 E.A.D. at 131 ("The BACT analysis is one of the most critical elements of the PSD permitting process. As such, it should be well documented in the administrative record."). Such rigor is especially appropriate in this instance because of the contradictory statements and incomplete discussions surrounding Basin's efficiency claims.<sup>14</sup>

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<sup>14</sup> As Protestants' expert Dr. Ranajit Sahu points out, the Sargent and Lundy analysis is missing much crucial information regarding efficiency and cost. Exh. 30 at 2.

Moreover, only by remanding for a full BACT analysis of supercritical boiler technology can the Council ensure that the public participation requirements of the Clean Air Act and Wyoming regulations are satisfied. See 42 U.S.C. § 7475(a)(2) (public must be provided opportunity to comment on a complete BACT analysis prior to construction); 6 WAQSR § 2(m) (same); In re Knauf, 8 E.A.D. at 124 (“In addition to the technical requirements of PSD review, the Clean Air Act emphasizes the importance of public participation and input into the decisionmaking process.”); Exh. 26 at 27-28 (Basin expert acknowledging importance of public process to quality of BACT analysis); Exh. 16 at 103 (similar admission from Basin's IGCC expert).

Basin’s discussions concerning the potential outcome of a BACT analysis for IGCC fail for many of the same reasons. See Exh. 17 at 42-45 (providing an “equivalent” BACT analysis); Exh. 17 at 38-45;<sup>15</sup> Exh. 45 at 10-28 (providing “hypothetical” BACT analysis). First, like its statements concerning supercritical boilers and efficiency, Basin’s reports have never been made public and so do not satisfy BACT’s public review and comment requirements.

Second, the so-called “equivalent” BACT analysis in Exhibit 17 was prepared by CH2Mhill in 2005 before Basin decided to increase the size of the Dry Fork facility from 250 MW to 422 MW (385 MW gross). Therefore, the analysis in that report was for a different facility than Basin decided to pursue. Among other things, this calls into question the report’s representations concerning the responses to Basin’s Request for Proposal (RFP) since the RFP and responses concerned a different project. See Exh. 17 at Appendices G & H. Because Basin never sent out a new RFP after increasing the size of the proposed facility, Basin’s IGCC expert was forced to admit that there is no way of knowing how IGCC providers would have responded to an RFP for a proposal of that size. See Exh. 16 at 279-281.

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<sup>15</sup> This “equivalent” BACT analysis does not address supercritical boiler technology. See Exh. 17 at 38-49.

Third, Stephen Jenkins, the consultant from CH2MHill who prepared Exhibit 17 and the “hypothetical” BACT analysis in Exhibit 45 has admitted that he is not an expert on BACT analyses, Exh. 16 at 27, that he has never written a BACT analysis, *id.*, that he would not be qualified to author a BACT analysis, *id.* at 34, and that he lacked the legal training necessary to interpret the legal consequences of the NSR Manual, *id.* at 38. Given that the author of Basin’s “hypothetical” BACT analysis specifically denies that he has any expertise in preparing such reports and denies ever having written one in his life, it would plainly be inappropriate for the Council to rely on his report to satisfy the BACT analysis requirement. Instead, the Council should remand to DEQ so that a proper BACT analysis can be performed by someone with the experience and expertise to do so.

### **III. DEQ MUST ADDRESS PM<sub>2.5</sub> EMISSIONS FROM THE DRY FORK STATION.**

#### **A. Due to the Serious Health Threat Posed by PM<sub>2.5</sub>, It is Regulated Under the Clean Air Act and Wyoming’s SIP.**

“Particulate matter” is a generic term for a large class of pollutants that includes liquid droplets and solids that are emitted from a variety of stationary and mobile sources. 49 Fed. Reg. 10,408, 10,410 (Mar. 20, 1984). Particulates may be emitted directly or formed through chemical reactions in the atmosphere. *Id.* Particulate matter pollution poses a serious health threat, and is regulated under both the Clean Air Act and Wyoming’s SIP.

#### **1. EPA established NAAQS for PM<sub>2.5</sub>.**

EPA has long recognized the serious health threat posed by particulate matter. In 1971, the agency promulgated the first NAAQS for particular matter. 36 Fed. Reg. 8,186 (Apr. 28, 1971). These standards focused on regulating Total Suspended Particulate Matter (“TSP”), a broad category of larger particles (up to 30 micrometers in diameter). *Id.* at 8,187. In 1976, EPA acknowledged that the standards were insufficient to address the serious health risks posed

by smaller particulates, which can get deep into the lungs, causing respiratory and cardiovascular problems. 49 Fed. Reg. 10,408, 10,410 (Mar. 20, 1984). Although it took more than 11 years after this recognition, the agency finally revised the standards to focus on particulate matter with a diameter less than or equal to 10 micrometers (PM<sub>10</sub>) in 1987. 52 Fed. Reg. 24,634 (July 1, 1987). The agency adopted a 24-hour PM<sub>10</sub> standard of 150 g/m<sup>3</sup> and an annual PM<sub>10</sub> standard of 50 g/m<sup>3</sup>. Id.

In 1997, spurred by a lawsuit and court order, EPA recognized that PM with a diameter of less than 2.5 micrometers (PM<sub>2.5</sub>) posed a health risk above and beyond that posed by PM<sub>10</sub>. 62 Fed. Reg. 38,652, 38,655-57 (Jul. 18, 1997); see also American Lung Ass'n v. Browner, 884 F.Supp. 345, 349 (D. Ariz. 1994).<sup>16</sup> Even in areas where the PM<sub>10</sub> standard was being met, the public (especially sensitive populations, including the elderly, children, and asthmatics) was still suffering serious health effects—including increased mortality, aggravation of respiratory and cardiovascular disease, and increased hospital emissions—as a result of PM emissions. 62 Fed. Reg. 38,655-56. To protect the public health, EPA promulgated separate NAAQS for PM<sub>2.5</sub>, including a 24-hour standard of 65 micrograms per cubic meter (µg/m<sup>3</sup>) and an annual standard of 15 µg/m<sup>3</sup>. The PM<sub>10</sub> standard remained the same.<sup>17</sup>

Even under the 1997 PM<sub>2.5</sub> NAAQS, however, the science showed that “thousands of premature deaths” and “substantial numbers of incidences of hospital admissions, emergency

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<sup>16</sup> These “fine particulates” include: sulfate (SO<sub>4</sub>); nitrate (NO<sub>3</sub>); ammonium; elemental carbon and other organic compounds; and inorganic material, including metals, dust, and other trace elements. 70 Fed. Reg. 65,984, 65,988 (Nov. 1, 2005). PM<sub>2.5</sub> is produced “chiefly by combustion processes and by atmospheric reactions of various gaseous pollutants.” 71 Fed. Reg. 2,625. Major sources include motor vehicles, power plants, and industrial facilities. Id. Because of their small size, PM<sub>2.5</sub> particles “can remain suspended in the atmosphere for days to weeks and can be transported thousands of kilometers.” Id. In contrast, coarser particles like PM<sub>10</sub>, generally result from “mechanical processes that crush or grind larger particles or the resuspension of dusts.” Id. Because of their larger size, these particles are generally deposited closer to the source. Id.

<sup>17</sup> The studies also showed that there was no specific threshold below which there would be no PM-related health effects. 70 Fed. Reg. 65,988. Accordingly, EPA recognized that emissions reductions below the 1997 standards would provide additional health benefits.

room visits, aggravation of asthma and other respiratory symptoms, and increased cardiac-related risk” would occur nationally. 71 Fed. Reg. at 2,620, 2,643 (Jan. 17, 2006). New scientific studies confirmed the threat posed even by short term exposure to PM<sub>2.5</sub>, including premature mortality and increased respiratory problems. Id. at 2,627. Studies also provided new evidence linking short term exposure to cardiovascular problems, and long term exposure to death from heart attacks and lung cancer. Id.; see also id. at 2627-49 (discussing extensive scientific literature documenting health problems cause by PM<sub>2.5</sub> exposure). Therefore, in 2006, once again spurred in part by a lawsuit, EPA revised the 24-hour NAAQS for PM<sub>2.5</sub> to be nearly twice as stringent as the original 1997 NAAQS. 71 Fed. Reg. 61,144 (Oct. 17, 2006) (changing the 24-hour PM<sub>2.5</sub> standard from 65 µg/m<sup>3</sup> to 35 µg/m<sup>3</sup>); see also American Lung Ass’n v. Whitman, No. 1:03cv00778 (D.D.C. 2003). EPA did not change the annual standard of 15 µg/m<sup>3</sup>. Id.

## **2. Wyoming incorporated the PM<sub>2.5</sub> standards into its SIP.**

Wyoming integrated the NAAQS for PM<sub>2.5</sub> into its air quality regulations. 2 WAQSR § 2(b). Pursuant to the Clean Air Act, Wyoming was required to make recommendations on attainment and non-attainment classifications for PM<sub>2.5</sub> to the EPA. 42 U.S.C. § 7407(d)(1). Wyoming determined that the entire state was in attainment for PM<sub>2.5</sub> under the 1997 NAAQS,<sup>18</sup> and EPA confirmed this finding.<sup>19</sup> This determination was based on eight monitoring stations throughout the entire state: one each in Cheyenne, Lander and Jackson, two in Sheridan, and four in the Powder River Basin. Wyoming is currently in the process of revising its area designations in accordance with 2006 PM<sub>2.5</sub> NAAQS. The state has determined that the entire

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<sup>18</sup> Letter from Gov. Dave Freudenthal to Mr. Robbie E. Roberts, EPA Region VIII (Feb. 5, 2004), available at <http://www.epa.gov/pmdesignations/1997standards/rec/letters/8/s/Wyoming.pdf>.

<sup>19</sup> Letter from Mr. Robbie E. Roberts, EPA Region VIII, to Gov. Dave Freudenthal (Jun. 28, 2004), available at [http://www.epa.gov/pmdesignations/1997standards/rec/letters/8/s/Wyoming\\_R.pdf](http://www.epa.gov/pmdesignations/1997standards/rec/letters/8/s/Wyoming_R.pdf).

state is in attainment with the new 24-hour PM<sub>2.5</sub> standard.<sup>20</sup> This attainment determination was based on monitoring at only three stations throughout the entire state: one each in Cheyenne, Sheridan, and Lander. The average monitored ambient levels in Sheridan and Lander were 32 µg/m<sup>3</sup> and 31 µg/m<sup>3</sup> respectively—only slightly lower than the standard of 35 µg/m<sup>3</sup>. EPA has preliminarily approved this finding. The designations are scheduled to be finalized by Dec. 18, 2008.<sup>21</sup>

**B. Because PM<sub>2.5</sub> is Regulated Under Both the Clean Air Act and Wyoming’s SIP, DEQ is Required to Regulate PM<sub>2.5</sub> as a Matter of Law.**

As discussed above, Wyoming law requires major sources to comply with NAAQS and implement BACT for all pollutants regulated either under Wyoming law or the Federal Clean Air Act. 6 WAQSR §§ 2(c), 4(b)(i), (ii). Under section 4(b), “[a]ny person who plans to construct any major stationary source . . . shall be subject to the conditions outlined below.” *Id.* § 4(b) (emphasis added). One of those conditions provides: “A permit to construct . . . shall be issued only if . . . the ambient standard for the pollutant(s) is not exceeded.” *Id.* § 4(b)(i). Likewise, “[t]he required permit shall not be issued unless the proposed major stationary source . . . would meet an emissions limit(s) or equipment standard(s) specified by the Administrator to represent the application of [BACT].” *Id.* § 4(b)(ii). As the Wyoming Supreme Court has held repeatedly, shall means shall. *Geringer v. Bebout*, 10 P.3d 514, 530 (Wyo. 2000) (holding the “mandatory verb ‘shall,’ indicat[es] that no discretion can be exercised with respect to the duties imposed”); see also *Merrill v. Jansma*, 86 P.3d 270, 288 (Wyo. 2004) (“Where a statute uses the mandatory language ‘shall,’ a court must obey the statute and has no right to make the law contrary to what

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<sup>20</sup> Letter from Gov. Dave Freudenthal to Mr. Robbie E. Roberts, EPA Region VIII (Dec. 11, 2007), available at [http://epa.gov/ttn/naaqs/pm/designations/2006standards/rec/letters/08\\_WY\\_rec.pdf](http://epa.gov/ttn/naaqs/pm/designations/2006standards/rec/letters/08_WY_rec.pdf).

<sup>21</sup> Letter from Carol Rushin, EPA Region VIII, to Gov. Dave Freudenthal (Aug. 18, 2008), available at [http://www.epa.gov/pmdesignations/2006standards/rec/letters/08\\_WY\\_EPAMOD.pdf](http://www.epa.gov/pmdesignations/2006standards/rec/letters/08_WY_EPAMOD.pdf).

the legislature prescribed.”). Because the regulations use this mandatory language, DEQ cannot avoid these legal requirements.

Although these provisions apply only to pollutants regulated under either Wyoming’s regulations or the Federal Clean Air Act, PM<sub>2.5</sub> is regulated under both. Both Wyoming and the Federal Clean Air Act define “regulated NSR pollutant” to include “[a]ny pollutant for which a [NAAQS] has been promulgated.” *Id.* § 4(a); 40 C.F.R. § 52.21(b)(50). As discussed above, EPA implemented a NAAQS for PM<sub>2.5</sub> in 1997, revised it in 2006, and Wyoming has incorporate the NAAQS into its SIP. As EPA concedes, the “obligation to implement PSD [for PM<sub>2.5</sub>] was triggered upon the effective date of the NAAQS.” 70 Fed. Reg. 66,043. A Georgia state court Georgia recently confirmed this finding in Friends of the Chattahoochee, holding that “[b]ecause PM<sub>2.5</sub> is an air pollutant that is subject to NAAQS, [the permit applicant] was required to prove that the national PM<sub>2.5</sub> standard would not be exceeded as a result of the plant’s construction.” Exh. 1 at 10. Likewise, in May of this year, Montana’s Board of Environmental Review held that PM<sub>2.5</sub> has been a regulated pollutant since 1997 and “since that time agencies considering air quality permits have been required to make a BACT determination of what control technologies should be required on any facility producing fine particulate emissions.” Exh. 32 at 1-2. Because PM<sub>2.5</sub> is regulated under Wyoming and federal law, DEQ cannot issue a permit for the Dry Fork Station until it analyzes whether its emissions will violate the NAAQS, considers PM<sub>2.5</sub> through the top-down BACT process, and sets a BACT emissions limit.

**C. The Seitz Memo Does Not Excuse DEQ From Complying with the Law.**

Neither DEQ nor Basin argues that PM<sub>2.5</sub> is not a regulated pollutant under Wyoming or federal law. See, e.g., Basin Electric’s Opposition to Motion to Suspend Permit, Appendix at 6 (recognizing that “EPA has adopted national ambient air quality standards (NAAQS) for

PM<sub>2.5</sub>”). Rather, DEQ and Basin claim that DEQ does not have to comply with its legal obligations for PM<sub>2.5</sub> as long as it has done so for PM<sub>10</sub>. Exh. 18 at 111; Exh. 19 at 14.<sup>22</sup> This “surrogate” approach is articulated in the “Seitz Memo”—a memorandum by John S. Seitz, Director of EPA’s Office of Air Quality Planning & Standards, dated October 23, 1997. Exh. 33. Protestants are not aware of any official Wyoming policy adopting the surrogate approach.

Mr. Seitz drafted the Seitz Memo one month after the NAAQS for PM<sub>2.5</sub> first became effective in 1997. Exh. 33. In the Memo, Mr. Seitz relied on the “technical difficulties” that existed with respect to “PM<sub>2.5</sub> monitoring, emissions estimation, and modeling.” Id. at 1. Mr. Seitz recognized the need for ambient monitoring of PM<sub>2.5</sub> and identified such monitoring as a “high priority” for EPA. Id. at 2. He also acknowledged that ambient monitoring was necessary to take the next steps towards implementation of the PSD program, which included calculating PM<sub>2.5</sub> emissions and projecting ambient air quality impacts. Id. at 1. Until EPA resolved these technical difficulties, Mr. Seitz stated that sources could comply with PM<sub>10</sub> standards as a “surrogate” for complying with PM<sub>2.5</sub> standards. Id. at 2. The surrogate policy was intended as an interim measure as EPA planned to resolve the technical difficulties within 3 to 5 years. Id. The Seitz Memo was not adopted through notice-and-comment federal rulemaking, and is not binding on EPA or any state. Indeed, the Memo expressly provides that it “do[es] not bind State and local governments and the public as a matter of law.” Id. at 2.<sup>23</sup>

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<sup>22</sup> DEQ also claims that it is not performing a BACT analysis or setting emission limits on condensable PM<sub>10</sub>, which is largely PM<sub>2.5</sub>, because “[t]here are not methods to control condensable PM<sub>10</sub>.” Exh. 19 at 14.

<sup>23</sup> EPA “reaffirmed” the “surrogate policy” in an April 5, 2005 memo by Stephen D. Page titled “Implementation of New Source Review Requirements in PM-2.5 Nonattainment Areas” (“Page Memo”). Exh. 34. Mr. Page affirms that PSD permits were required for PM<sub>2.5</sub> once EPA issued the PM<sub>2.5</sub> NAAQS. Id. at 4. Although Mr. Page does not rely on the technical impediments identified in the Seitz Memo, he states that implementation of a PSD program for PM<sub>2.5</sub> is “impractical” because EPA has not promulgated an implementation rule. Id. As such, he advises states to continue relying on the surrogate approach. The Page Memo was merely “guidance” and did “not bind State and local governments and the public as a matter of law.” Id.

DEQ cannot legally rely on the surrogate policy because it conflicts with EPA's own justifications for regulating PM<sub>2.5</sub> in the first place and, in any event, the justification for the policy is no longer applicable. EPA has recognized for more than 11 years that to protect public health and welfare, PM<sub>10</sub> and PM<sub>2.5</sub> needed to be regulated as separate and distinct air pollutants—they have different health impacts and are controlled in different ways. PM<sub>2.5</sub> and PM<sub>10</sub> have different sources and formation processes, are chemically distinct and disperse in the atmosphere in different ways. 70 Fed. Reg. 65,992; 71 Fed. Reg. 2,625; 72 Fed. Reg. 20,599. Accordingly, “[i]n contrast to PM<sub>10</sub>, EPA anticipates that achieving the NAAQS for PM<sub>2.5</sub> will generally require States to evaluate different sources for controls, to consider controls of one or more precursors in addition to direct PM emissions, and to adopt different control strategies.” 72 Fed. Reg. 20,589. In fact, the areas violating the PM<sub>2.5</sub> and PM<sub>10</sub> NAAQS are not even the same.<sup>24</sup> Therefore, compliance with the PM<sub>10</sub> standard is no proof at all of compliance with the PM<sub>2.5</sub> standard, and it is impossible for PM<sub>10</sub> to serve as an adequate surrogate for PM<sub>2.5</sub>.

Furthermore, 10 years passed between the drafting of the Seitz Memo and DEQ's issuance of the Dry Fork Station air permit, and the technical difficulties EPA identified no longer exist. As EPA stated in 2005:

The 1997 guidance stated that sources would be allowed to use implementation of a PM<sub>10</sub> program as a surrogate for meeting PM<sub>2.5</sub> NSR requirements until certain difficulties were resolved, primarily the lack of tools to calculate the emissions of PM<sub>2.5</sub> and related precursors, the lack of adequate modeling techniques to predict ambient impacts, and the lack of PM<sub>2.5</sub> monitoring sites. As discussed in this preamble, those difficulties have been resolved in most respects.

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<sup>24</sup> There are 39 areas in the country that are designated as nonattainment for PM<sub>2.5</sub> and 47 for PM<sub>10</sub>. However, only 4 areas violate both standards. Compare [www.epa.gov/oar/oaqps/greenbk/qnc.html](http://www.epa.gov/oar/oaqps/greenbk/qnc.html) (listing PM<sub>2.5</sub> nonattainment areas) with [www.epa.gov/oar/oaqps/greenbk/pnc.html](http://www.epa.gov/oar/oaqps/greenbk/pnc.html) (listing PM<sub>10</sub> nonattainment areas).

70 Fed. Reg. 66,043 (emphasis added). EPA’s Guideline to Air Quality Models provides methods for modeling PM<sub>2.5</sub>, including ISC and AERMOD. 40 C.F.R. § 51, App. W 5.1 (e), (h), 5.2.2.1 (generally discussing the availability and applicability of air quality modeling for PM<sub>2.5</sub>); see also 40 C.F.R. § 52.21(l); 70 Fed. Reg. 68,234-35 (identifying modeling approaches for PM<sub>2.5</sub>); see also Exh. 29 at 13.<sup>25</sup> EPA has also approved at least three test methods for measuring PM<sub>2.5</sub> emissions—Conditional Test Method (“CTM”) 39, CTM 40, and Method 202. 70 Fed. Reg. 66,050 (finding by EPA in 2005 that “the most reliable measurement of total direct PM<sub>2.5</sub> emissions would combine the use of Condition Method 40 with EPA Method 202”); id. at 66,051-52 (discussing new dilution-based test method, CTM 39); Exh. 29 at 12-13, Exh. 32 at 32; Exh. 34 at 3.

Technologies for control of PM<sub>2.5</sub> emissions are available an in use. Exh. 32 at 31. For example, Teflon coated bags, scrubbers, wet electro-static precipitators (“ESPs”), and fabric filter devices are available to control these emissions. Id.; see also Exh. 29 at 11-12. Further, “it is possible to rank effectiveness of the control devices based on vendor specifications and existing literature.” Exh. 32 at 31. Additionally, as discussed above, Wyoming has for many years been monitoring PM<sub>2.5</sub> in the ambient air. Because it is now possible to calculate, model, control, and monitor PM<sub>2.5</sub> emissions, the surrogate policy no longer has any validity.

Numerous states now recognize that the surrogate policy is outdated and irrelevant. For example, the Montana Board of Environmental Review recently held that Montana DEQ was required to consider PM<sub>2.5</sub> in the permitting process for a proposed coal fired power plant. The Board rejected the surrogate approach, holding that BACT analysis is required for all regulated pollutants, including PM<sub>2.5</sub>. Exh. 32 at 38, 44 (“A surrogate analysis is not acceptable”).

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<sup>25</sup> Neither Basin nor DEQ offered any expert testimony through expert reports to contradict Dr. Sahu’s statements regarding PM<sub>2.5</sub>.

According to the Board, the “tools needed to derive BACT determined limits for PM<sub>2.5</sub> were available . . . [and] there was no impediment to the Department conducting a PM<sub>2.5</sub> analysis to determine how or if PM<sub>2.5</sub> emissions could be reduced.” *Id.* at 32. Likewise, in August 2007, the Connecticut Department of Environmental Protection (“CTDEP”) found that “a demonstration of compliance with the PM<sub>10</sub> NAAQS will no longer serve as a surrogate for compliance with the PM<sub>2.5</sub> NAAQS. . . . NSR permit applicants must consider PM<sub>2.5</sub> as a criteria pollutant and address it in preparing an application.” Exh. 35. Moreover, a Georgia state court found a permit illegal where the applicant “made no effort at all to show that the PM<sub>2.5</sub> NAAQS would be satisfied.” Exh. 1 at 11. As these decisions show, there are no technical impediments to analyzing PM<sub>2.5</sub> as part of the permitting process. Therefore, the surrogate policy—even if it were legal—no longer has any justification, and DEQ must address PM<sub>2.5</sub> prior to issuing a permit for Dry Fork Station.

Furthermore, even if DEQ could make a credible claim that there are still technical impediments that prevent the agency from setting an emissions limit, that does not mean the agency can ignore PM<sub>2.5</sub> completely. Wyoming regulations state:

If the Administrator determines that technological or economic limitations on the application of measurement methodology to a particular emissions unit would make the imposition of an emission standard infeasible, he may instead prescribe a design, equipment, work practice or operational standard or combination thereof to satisfy the [BACT] requirement . . . . Such standard shall, to the degree possible, set forth the emission reduction achievable by implementation of such design, equipment, work practice, or operation and shall provide for compliance by means which achieve equivalent results.

6 WAQSR § 4(a) (definition of BACT); see also Exh. 12 at B.2. For example, EPA identifies as a possible operational standard for condensable PM<sub>2.5</sub> changing the operating temperature of the control device. 73 Fed. Reg. 28,335. To the extent there are still difficulties in setting an actual emissions limit, DEQ is still required to consider control technologies or ways of operating the

Dry Fork Station that will reduce PM<sub>2.5</sub> emissions. See Exh. 32 at 27-28 (Montana Board of Environmental Review finding that “setting BACT emission limits for PM<sub>2.5</sub> emissions . . . is feasible by requiring [the permit applicant] to use design alternative equipment, work practices or operation standards to reduce emission of PM<sub>2.5</sub> to the maximum extent”).

**D. EPA’s Subsequent Attempt to Retroactively Apply the Seitz Memo Does Not Excuse DEQ From Complying with the Law.**

Since DEQ issued the Dry Fork permit on October 15, 2007, EPA has attempted to codify the surrogate approach in a regulation and allow applicants to apply it retroactively. 73 Fed. Reg. 28,321 28,340-42 (May 16, 2008).<sup>26</sup> Although this rule was not in place at the time DEQ issued the permit, if the Council were to remand the permit to DEQ to consider PM<sub>2.5</sub>, Protestants’ anticipate that DEQ would rely on this final rule. The final rule purports to exempt new major sources from compliance with the PM<sub>2.5</sub> PSD requirements for three years in states—like Wyoming—that implement PSD programs through their own SIPs. 73 Fed. Reg. 28,341. Eleven years after the adoption of PM<sub>2.5</sub> NAAQS, EPA is not requiring these states to even consider PM<sub>2.5</sub> emissions during PSD permitting. Id. The rule also allows these states to ignore condensable PM emissions—which are often the bulk of PM<sub>2.5</sub> pollution—until 2011. 73 Fed. Reg. 28,334-35.<sup>27</sup>

EPA’s rule, however, proves once and for all that the technical difficulties identified in the Seitz Memo no longer exist. 73 Fed. Reg. 28,340. In fact, in states where EPA retains PSD

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<sup>26</sup> This final rule implements some of the NSR program for PM<sub>2.5</sub>. EPA first proposed a rule to implement the PM<sub>2.5</sub> requirements in November 2005. 70 Fed. Reg. 65,984. On April 25, 2007, EPA implemented the portions of the proposed rule dealing with attainment dates, SIP submittals, and reasonable further progress, but delayed implementation of the PSD program. 72 Fed. Reg. 20,586. On September 21, 2007, EPA proposed additional elements of the PSD program, including PM<sub>2.5</sub> increments, significant impacts levels (SILs), and significant monitoring concentrations (SMCs). 72 Fed. Reg. 54,112. Although the May 16, 2008 final rule implemented some of the PSD program for PM<sub>2.5</sub>, it delayed implementation of increments, SILs, and SMCs. 73 Fed. Reg. 28324.

<sup>27</sup> This was a change from the November 2005 proposed rule, in which EPA recognized that Method 202 was available to measure condensable PM. 73 Fed. Reg. 28,334-35.

permitting authority, EPA is not waiving compliance with the PM<sub>2.5</sub> NAAQS or BACT requirements. Id. In these states, the PSD program for PM<sub>2.5</sub> went into effect on July 15, 2008. Id. Left without a technical excuse, EPA justified its decision to delay implementation of NAAQS on the ground that it was giving the states time to amend their SIPs. Id. at 28,340-41. Not only does this excuse exceed EPA's authority under the Clean Air Act, there is simply no justification for it as a practical matter.

EPA's rule exceeds EPA's authority because it attempts to waive standards contained in the Clean Air Act.<sup>28</sup> The Clean Air Act requires compliance with all NAAQS. 42 U.S.C. § 7475(a)(3). The law also requires BACT for all regulated pollutants. Id. § 7475(a)(4). EPA cannot change the mandatory requirements of the statute. New York v. EPA, 413 F.3d 3, 41 (D.C. Cir. 2005) ("Absent clear congressional delegation . . . EPA lacks authority to create an exemption from New Source Review by administrative rule."); Sierra Club v. EPA, 294 F.3d 155, 160-62 (D.C. Cir. 2002) (holding EPA has no authority to extend an express statutory deadline for attaining the NAAQS). Nor does the Clean Air Act contain any provision for a transition period during which noncompliance with standards is allowed. EPA's implementation of PM<sub>2.5</sub> PSD requirements is long overdue, and the agency has no legal authority for its continued delay.

As a practical matter, there is no need to wait three additional years before the states even have to consider PM<sub>2.5</sub> in the permitting process. As EPA's numerous rulemakings regarding PM<sub>2.5</sub> confirm, states can easily require compliance with NAAQS and BACT controls and

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<sup>28</sup> The rule also violates the notice and public comment provisions of the Clean Air Act. 42 U.S.C. § 7607(d)(3)-(7), (h). Neither the PM<sub>2.5</sub> waiver nor the condensable PM waiver was included in the proposed rule that EPA published in the Federal Register for public comment. 70 Fed. Reg. 65,904 (Nov. 1, 2005).

emissions limits without further guidance from EPA. There is simply no reasonable justification for not doing so.

To require compliance with NAAQS and BACT for PM<sub>2.5</sub>, Wyoming must first determine whether a source is a major stationary source subject to these PSD requirements. However, the emissions threshold for determining whether a source is a “major stationary source” under Wyoming law or “major emitting facility” federal law is the same for all regulated pollutants. 6 WAQSR § 4(a) (including within the definition of “major stationary source,” any stationary source which emits or has the potential to emit “one hundred tons per year or more of any air pollutant for which standards are established under these Standards and Regulations or under the Federal Clean Air Act (emphasis added)); see also 70 Fed. Reg. 66,036-37 (finding that there was no need to amend the definition of “major emitting facility” to implement the PM<sub>2.5</sub> PSD program); see also 73 Fed. Reg. 28,331 (same). Indeed, this minimum threshold is mandated by the Clean Air Act. 42 U.S.C. § 7602(j). Therefore, DEQ needs no guidance in the form of new regulations to determine what sources are subject to PM<sub>2.5</sub> PSD permitting requirements.

There is also no need for further guidance to ensure that major new sources are complying with NAAQS for PM<sub>2.5</sub>. As discussed supra, Wyoming regulations and the Clean Air Act require NAAQS compliance for all criteria pollutants. 6 WAQSR § 4(b)(i); 70 Fed. Reg. 66,043 (EPA recognizing that it did not need to change federal regulations to implement the requirement that major sources comply with the NAAQS for PM<sub>2.5</sub>); 73 Fed. Reg. 28,336 (same).<sup>29</sup> The same is true for BACT. 6 WAQSR § 4(a); 70 Fed. Reg. 66,039 (EPA recognizing

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<sup>29</sup>In fact, while the November 2005 proposed rule also contained an illegal transition rule, it was much more stringent than the final rule. It would have required states to at least demonstrate compliance with the PM<sub>2.5</sub> NAAQS and consideration of condensable PM emissions. 73 Fed. Reg. 28,341. In the final rule, EPA turned its

that it did not need to change federal regulations to apply BACT to PM<sub>2.5</sub>); 73 Fed. Reg. 28,336.<sup>30</sup> In Wyoming, BACT analysis is governed only by the definition of BACT found in the regulations—a definition that applies the same regardless of the criteria pollutant under consideration—and the top-down approach articulated in the NSR Manual. 6 WAQSR § 4(a); see also Exh. 26. at 24-26 (Basin’s expert acknowledging that he is unaware of any Wyoming regulations governing the top-down process and that he looks to the NSR Manual). Because no changes to Wyoming’s regulations are necessary to ensure compliance with NAAQS or to implement BACT, DEQ must engage in this analysis for PM<sub>2.5</sub>.<sup>31</sup>

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back on even these limited protections—not because of any technical or regulatory difficulty—but because it would be “confusing.” Id.

<sup>30</sup> The only specific SIP amendment that EPA identifies in the final rule is the addition of a “significant emission rate.” 73 Fed. Reg. 28,340. However, Wyoming’s regulations expressly contemplate that there will be pollutants which are regulated under the Clean Air Act or Wyoming law, for which the state has not yet specifically set a “significant emission rate.” For these pollutants, the regulations set the significant emission rate at zero. 6 WAQSR § 4(a) (definition of “significant”).

<sup>31</sup> An appeal of the May 16, 2008 final rule has already been filed in the D.C. Circuit. NRDC v. EPA, No. 08-1250 (filed July 15, 2008). Indeed, this Council should be wary of relying on yet another illegal Clean Air Act regulation from the Bush Administration EPA. During this administration an alarming number of EPA rule-makings have been overturned by the Supreme Court and D.C. Court of Appeals. See, e.g., Massachusetts v. EPA, 549 U.S. 497 (2007) (overturning EPA’s assertion that it had no authority to regulate greenhouse gases under the Clean Air Act); Sierra Club v. EPA, No. 04-1243, 2008 U.S. App. LEXIS 17583 (D.C. Cir. August 19, 2008) (overturning EPA rule that prohibited permitting authorities from including monitoring sufficient to assure compliance in Title V permits, in violation of the “statutory directive that each permit must include adequate monitoring requirements”); North Carolina v. EPA, 531 F.3d 896 (D.C. Cir. 2008) (overturning the Clean Air Interstate Rule); New Jersey v. EPA, 517 F.3d 574 (D.C. Cir. 2008) (overturning EPA mercury rule attempting to exempt electric generating units from Section 112); NRDC v. EPA, 489 F.3d 1364 (D.C. Cir. 2007) (NRDC II) (overturning EPA exemption of an allegedly “low risk” subcategory of plywood and composite wood product manufacturing facilities from CAA standards limiting emissions of hazardous air pollutants); NRDC v. EPA, 489 F.3d 1250 (D.C. Cir. 2007) (NRDC I) (overturning EPA rule covering hazardous air pollutants from commercial/industrial boilers and solid waste incinerators that employed unlawfully narrow definitions of the sources subject to the standards); Sierra Club v. EPA, 479 F.3d 875 (D.C. Cir. 2007) (overturning EPA hazardous air pollution standards for brick and ceramic kilns that failed to heed statutory requirements for minimum stringency); South Coast Air Quality Mgmt. Dist. v. EPA, 472 F.3d 882 (D.C. Cir. 2006) (overturning EPA rule regarding ground-level ozone standard); New York v. EPA, 443 F.3d 880 (D.C. Cir. 2006) (New York II) (overturning EPA rule exempting plant process unit modifications valued at less than 20% of the process unit from triggering NSR); New York v. EPA, 413 F.3d 3 (D.C. Cir. 2005) (New York I) (overturning portions of the EPA NSR rule allowing the agency to evaluate emissions increases without measuring actual emissions from major pollution sources); Mossville Env’tl. Action Now v. EPA, 370 F.3d 1232 (D.C. Cir. 2004) (overturning EPA’s failure to set emissions standards for each listed hazardous air pollutant emitted from PVC plants); Ne. Md. Waste Disposal Auth. v. EPA, 358 F.3d 936 (D.C. Cir. 2004) (overturning emissions standards for small municipal waste combustors).

**E. The Council Must Require DEQ to Regulate PM<sub>2.5</sub> Under the Environmental Quality Act.**

Even if the Council decides to excuse DEQ's illegal application of the surrogate policy, it should regulate PM<sub>2.5</sub> to protect Wyoming's citizens. The underlying purpose of the Wyoming Environmental Quality Act is protection of the "public health and welfare" of Wyoming's citizens. W.S. § 35-11-102. The Act is designed "to enable the state to prevent, reduce and eliminate pollution [and] to preserve, and enhance the air, water and reclaim the land of Wyoming." *Id.* The Wyoming Supreme Court has long recognized the "public protection" goal of the Act. People v. Platte Pipeline Co., 649 P.2d 208, 212 (Wyo. 1982). To fulfill this goal, the Court held the Act must be interpreted to "insure that the public is in fact protected from the menace the legislature has seen fit to address in the Act." People v. Fremont Energy Corp., 651 P.2d 802, 807 (Wyo. 1982); *see also* Platte, 649 P.2d at 212 ("When faced with claims under the Environmental Quality Act, courts of this state 'must at all times be ready and willing to afford such remedies as are within the law.'" (quoting Roberts Construction Co. v. Vondriska, 547 P.2d 1171, 1182 (Wyo. 1976))). To comply with this mandate, this Council must require DEQ to consider Dry Fork Station's PM<sub>2.5</sub> emissions.

The science is clear that PM<sub>2.5</sub> poses a major health threat to Wyoming's citizens. Even the very limited monitoring in Wyoming shows that two areas are close to violating the new NAAQS standards. Furthermore, even in areas that are in attainment, EPA acknowledges that emissions reductions will still provide "additional health benefits to the local population." 70 Fed. Reg. 65,988. Even "relatively small reductions in PM<sub>2.5</sub> levels are estimated to result in worthwhile public health benefits." 73 Fed. Reg. 28,327.

EPA's final rule does not prevent the state from taking action. *See, e.g.*, 73 Fed. Reg. 28,335 ("Although EPA is not requiring that State NSR programs address condensable emissions

of PM until the end of the transition period, States that have developed the necessary tools are not precluded from acting to measure and control condensable PM emissions in NSR permit actions prior to the end of the transition period.”); see also id. (“[W]e encourage States to begin immediately to identify measures for reducing condensable PM emissions in major NSR permit actions.”). That EPA has elected to abrogate its responsibilities to the public under the Clean Air Act does not mean that this Council can or should follow suit.

#### **IV. DEQ MUST SET A BACT LIMIT FOR MERCURY.**

##### **A. Mercury Emissions Pose a Serious Threat to Wyoming’s Citizens and the Environment.**

Coal-fired power plants are the largest human-caused source of mercury pollution in the United States, accounting for over 40% of mercury emissions.<sup>32</sup> Exh. 36 at 3-35. Mercury emitted by coal plants settles onto the ground and is then washed into water sources. Once mercury enters the aquatic ecosystem it is transformed through bio-chemical processes into a highly toxic form known as methylmercury. Id. at 3-36. Methylmercury is particularly dangerous because it bioaccumulates up the food chain. Id. Predatory animals at the top of the food chain that feed from the aquatic ecosystem, such as fish, birds, mammals and humans, typically have the highest concentrations of mercury in their bodies.

Methylmercury is a powerful neurotoxin. “Adults, children, and developing fetuses are at risk from ingestion exposure to methylmercury.” EPA, Health Effects of Mercury, <http://www.epa.gov/mercury/effects.htm>. A mother’s consumption of fish containing methylmercury while her baby is in the womb “can adversely affect [the] baby’s growing brain and nervous system” leading to problems with “cognitive thinking, memory, attention, language,

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<sup>32</sup> USDA, Draft Environmental Impact Statement for the Dry Fork Station and Hughes Transmission Line at 3-35 (Aug. 2007) (excerpts attached as Exh. 36).

and fine motor and visual spatial skills.” Id.; see also Exh. 36 at 3-36. Mercury also has significant impacts on other species. Consumption of methylmercury by fish, birds, and mammals can lead to death, impaired reproduction, slower growth and development, and abnormal behavior. Exh. 36 at 3-36. Even a small amount of mercury can cause significant environmental harm. Just one gram, or the amount found in one thermometer, is enough to contaminate a 27-acre lake.<sup>33</sup>

**B. Under Wyoming Law, DEQ Must Set a BACT Limit for Mercury.**

Wyoming requires BACT emission limits for mercury. See, e.g., Exh. 37 (DEQ stating “[a] BACT analysis is required by WAQSR Chapter 6, Section 2(c)(v)”; Exh. 14 at 15 (DEQ stating that “[m]ercury is . . . still included in WAQSR Chapter 6, Section 4(a)(xxi)”). In its permit application, however, Basin did not address Wyoming’s requirement to conduct a BACT analysis for mercury.<sup>34</sup>

After reviewing the application, DEQ required Basin to conduct BACT for mercury. Exh. 37. DEQ asked Basin to analyze emission levels of  $10 \times 10^{-6}$ ,  $20 \times 10^{-6}$ , and  $30 \times 10^{-6}$  lb/MW-hr and determine control efficiencies and determine cost effectiveness. Id. DEQ also

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<sup>33</sup> USGS, Mercury Contamination of Aquatic Ecosystems (Fact Sheet FS-216), [http://water.usgs.gov/wid/FS\\_216-95/FS\\_216-95.pdf](http://water.usgs.gov/wid/FS_216-95/FS_216-95.pdf).

<sup>34</sup> Instead, Basin prepared the permit application to comply with the EPA’s Clean Air Mercury Rule (“CAMR”). Permit Application at 5-21. In CAMR, EPA attempted to remove coal-fired electric utility generating units from the list of sources regulated under Section 112 of the Clean Air Act (which regulates hazardous air pollutants) and instead set performance standards and a voluntary cap and trade program. 70 Fed. Reg. 15,994 (Mar. 29, 2005); 70 Fed. Reg. 28,606 (May 18, 2005). Under CAMR, Basin did not propose any mercury specific controls for the Dry Fork Station. Permit Application at 5-21. Instead, the company relied on the fabric filter and dry scrubber implemented to reduce NO<sub>x</sub>, SO<sub>2</sub>, and PM<sub>10</sub>, to also reduce mercury emissions by 10 to 30%. Id. The D.C. Court of Appeals struck down the CAMR rule in February 2008. New Jersey v. EPA, 517 F.3d 574 (D.C. Cir. 2008). Accordingly, EPA’s attempt to remove coal-fired power plants from the list of sources regulated under Section 112 is null and void, and these sources continue to be regulated under that section. Under Section 112(g), “no person may construct . . . any major source of hazardous air pollutants [including mercury], unless the Administrator (or the State) determines that the maximum achievable control technology [or MACT] emission limit . . . will be met.” 42 U.S.C. 7412(g)(2)(b). Because EPA has not established an applicable emissions limit for mercury, DEQ must do a “case-by-case” analysis to determine the MACT. Protestant Sierra Club notified Basin on May 6, 2008 that case-by-case MACT analysis was required prior to construction (attached as Exh. 38). On July 2, 2008, Basin responded that it did not intend to do case-by-case analysis, and instead would comply only with Wyoming’s BACT requirement for mercury (attached as Exh. 39).

acknowledged that Utah recently issued a permit for a coal-fired power plant with a mercury emission limit of  $20 \times 10^{-6}$  lb/MW-hr and that EPA recognizes that sorbent injection can typically achieve at least 90% mercury control. Id.

Basin failed to comply with DEQ's request, refusing to conduct a top-down BACT analysis. Exh. 40 at 4. The company ignored DEQ's request to analyze mercury emission levels of  $10 \times 10^{-6}$ ,  $20 \times 10^{-6}$ , and  $30 \times 10^{-6}$  lb/MW-hr. Instead, the company offered three reasons why it could not even attempt a BACT analysis: (1) mercury control technologies are still in the developmental stage, (2) there is incomplete technology and cost information, and (3) available mercury control systems and associated vendor guarantees are limited to date. Id. Therefore, rather than conduct the legally required analysis, Basin proposed that the permit contain a limit of  $97 \times 10^{-6}$  lb/MWh. Additionally, Basin stated that it would perform a mercury optimization study to determine the best option for mercury control. Id. at 4-5. Ignoring its previous request, DEQ accepted this response. Exh. 14 at 15. DEQ also set an unenforceable target emission rate of  $20 \times 10^{-6}$  lb/MWh for the optimization study based on permit limits in existing coal fired power plant air permits. Id.; see also Exh. 41 at 3 (final permit). DEQ based its decision on the fact that mercury controls for coal-fired power plants is an "emerging technology." Exh. 19 at 2.

Basin's excuse for not preparing a BACT analysis and setting a BACT emission limit—and DEQ's acquiescence—is not supported by law. Wyoming's regulations mandate BACT for all regulated pollutants. 6 WAQSR §§ 2(c)(v), 4(b)(ii). This analysis must occur prior to construction, not after. Id. § 2(c). There are no exceptions. The only enforceable, pre-construction permit limit in the Dry Fork permit is  $97 \times 10^{-6}$  lb/MWh. Exh. 41 at 3. This so-called "limit" is in fact no limit at all, much less the "best available" limit. It is actually higher than the highest predicted uncontrolled emission rate of mercury for the plant. Exh. 11 at 5-21

(Basin stating that the uncontrolled mercury emission rate from the boiler would range from 60.4 to  $96.6 \times 10^{-6}$  lb/MW-hr).

Furthermore, Basin and DEQ cannot rely on the excuse that mercury technology is still emerging. The case-by-case BACT process is designed to be flexible and account for developing technology over time. See, e.g., Tenn. Valley Auth., 9 E.A.D. at 391; Columbia Gulf Transmission, 2 E.A.D. at 828-29; Exh. 32 at 2. An applicant cannot simply assert that a control option is not “technically or economically feasible,” it must explain and justify that decision through the BACT process. In re Knauf, 8 E.A.D. at 131. That there are still questions about the best methods for controlling a particular pollutant or that there might not be perfect information for completing the BACT analysis does not justify giving the company a free pass. To do so would defeat the purpose of BACT and preconstruction review.

Furthermore, Basin’s own analysis shows that there is sufficient information out there to conduct a BACT analysis and set an emissions limit. As part of Step 1, Basin must consider all “potentially available” control options. In re Prairie State, slip op. at 17. Basin identified at least four potentially available technologies: sorbent injection, sorbent enhancement additives, coal pretreatment processes and mercury oxidation technologies. Exh. 40 at 5. The company must therefore proceed to Step 2 to determine whether these control options are “demonstrated,” and even if they are not, whether the controls are “available” and “applicable.” In re Prairie State, slip op. at 17. Basin never completed even this second step of the BACT analysis.

Basin’s claim that it cannot make a BACT determination or set a permit limit is also undermined by Basin’s and DEQ’s acknowledgement that there at least four permits for coal fired power plants with mercury permit limits at or below  $20 \times 10^{-6}$  lb/MWh. Exh. 40 at 2-3. (listing Newmont Nevada Mining Unit 1, MidAmerican Energy CBEC Unit 4, Xcel Energy

Comanche Unit 3, and Intermountain Unit 3). Basin could utilize information from these permitting decisions in a BACT analysis. Exh. 12 at B.11 (including other federal and state permits on the list of information sources to consider in determining what technologies are available in the BACT process). As Basin notes, these permitting agencies applied a case-by-case Maximum Achievable Control Technology (“MACT”) analysis, rather than a BACT analysis. Exh. 40 at 3. Neither Basin nor DEQ even explain, however, why it was possible for these agencies to conduct a MACT analysis for mercury, but impossible for Basin to even attempt a BACT analysis.<sup>35</sup>

Furthermore, even if there are technical difficulties associated with measuring mercury emissions, that does not get Basin off the hook. Basin must still consider “design, equipment, work practice or operational standard[s] or combination thereof to satisfy the [BACT] requirement.” 6 WAQSR § 4(a) (definition of BACT); see also Exh. 12 at at B.2. Basin did not consider possible work practices or design standards. Because Basin did not complete any BACT analysis and subject it to public review, the Council must remand the permit to DEQ to require this analysis. In re Knauf, 8 E.A.D. at 142 (“Incomplete BACT analyses are grounds for remand.”); In re Prairie State, slip op. at 19 (same).

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<sup>35</sup> Wyoming’s regulations define MACT as:

[T]he emission limitation which is not less stringent than the emission limitation achieved in practice by the best controlled similar source, and which reflects the maximum degree of reduction in emissions that the Division, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable by the constructed or reconstructed major source.

6 WAQSR § 5(f)(ix).

**V. THIS COUNCIL MUST DENY THE PERMIT BASED ON THE FLAWED SO<sub>2</sub> INCREMENT ANALYSIS.**

**A. The Issue of Whether Basin’s Permit Should Be Denied Due To Ongoing SO<sub>2</sub> Increment Violations in the Northern Cheyenne Indian Reservation Is a Matter of Wyoming Law.**

Wyoming’s air pollution permitting program is not a “delegated” federal program in which Wyoming enforces federal regulations, but rather a state program that is based on state regulations that have been federally-approved. See 44 Fed.Reg. 51977 (September 6, 1979). As such, the determination of whether the Council should deny Basin’s permit for the Dry Fork facility due to ongoing SO<sub>2</sub> increment violations is solely a matter of Wyoming’s federally-approved state law. Because the matters necessary to resolve this issue are strictly legal in nature, and because there are no material facts in dispute, the Council should rule at summary judgment to deny Basin’s permit due to SO<sub>2</sub> increment violations in the NCIR.

**B. The Council Should Deny Basin’s Permit at Because SO<sub>2</sub> Emissions From Dry Fork Will Contribute to Ongoing Increment Violations in the Northern Cheyenne Indian Reservation.**

The law in Wyoming is absolutely clear and unambiguous: DEQ is powerless to issue an air pollution permit to a source if the applicable emissions are predicted to exceed the maximum allowable increment in any Class I area. 6 WAQSR § 4(b)(i)(A)(I). DEQ and Basin concede that predicted emissions of SO<sub>2</sub> from Dry Fork and other applicable sources will exceed the maximum allowable 24-hour SO<sub>2</sub> increment in the Northern Cheyenne Indian Reservation.<sup>36</sup> The Council therefore should deny Basin’s air quality permit for the Dry Fork Station pursuant to W.S. § 35-11-112(c)(ii).

According to the Wyoming Supreme Court, statutory interpretation is a question of law.

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<sup>36</sup> The Northern Cheyenne Tribe itself warned DEQ about this issue: “If this permit is let through then there will be violations of sulfur dioxide [in] the NCIR.” Exh. 44.

Qwest Corp. v. Public Svc. Comm'n of Wyo., 161 P.3d 495, 497 (Wyo. 2007).<sup>37</sup> The Court first looks “to the plain and ordinary meaning of the words in the statute and decide[s], as a matter of law, whether the statute is clear or ambiguous.” Id.; Powder River Coal Co. v. State Bd. of Equalization, 38 P.3d 423, 426 (Wyo.2002). “If the statutory language is clear and unambiguous, we follow its plain meaning.” Rogers v. State, 2008 WY 90, ¶ 5 (Wyo. 2008). A statute is clear and unambiguous if its wording is such that reasonable persons are able to agree on its meaning with consistency and predictability. Qwest Corp., 161 P.2d at 497. A statute is ambiguous if it is found to be vague or uncertain and subject to varying interpretations. RME Petroleum Co. v. Wyoming Dep't of Revenue, 150 P.3d 673, 683 (Wyo.2007).

Pursuant to DEQ's regulations, any person planning to construct a new, major source of air pollutants such as Dry Fork is subject to the following conditions.

An analysis of the predicted impact of emissions from the stationary source is required for all pollutants for which standards have been established under these regulations or under the Federal Clean Air Act and which are emitted in significant amounts. An analysis of the impact of other pollutants may be required by the Administrator. Such analysis shall identify and quantify the impact on the air quality in the area of all emissions not included in the baseline concentrations including, but not limited to, those emissions resulting from the instant application and all other permits issued in the area. The purpose of this analysis is to determine the total deterioration of air quality from the baseline concentrations,<sup>38</sup> however, projections of deterioration due to general non-stationary source growth

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<sup>37</sup> The Wyoming Supreme Court has held that “[p]roperly promulgated rules and regulations have the same force and effect of law. We construe them as we construe statutes.” Johnson v. City of Laramie, 2008-WY-R0627.001, ¶ 7 (Wyo. 2008); see also Olivas v. State ex rel. Wyoming Workers' Safety and Compensation Div., 130 P.3d 476, 484 (Wyo. 2006); Antelope Valley Imp. v. State Bd. of Equalization for State of Wyo., 992 P.2d 563, 566 (Wyo. 1999).

<sup>38</sup> To the extent Basin seeks to argue here that the definition of “baseline concentrations” in 6 WAQSR § 4(a) required DEQ to accept the “actual emissions” from Colstrip Units 3 and 4, rather than the “allowable emissions” from those units, Basin has waived this argument as shown below. Even if the argument is considered by the Council, however, Basin is wrong. To establish the most representative, short-term SO<sub>2</sub> emissions at the Colstrip units, DEQ was correct to determine that the representative rate was the maximum rate allowed by law. (“[I]t is the Division’s position that the allowable short-term emission rates are representative of short-term actual emission rates, as a practical means to quantify short-term emission rates in a dispersion modeling analysis.”) Exh. 42. Wyoming’s definition of “actual emissions” approvingly states, “[t]he Division may presume that source-specific allowable emissions for the unit are equivalent to the actual emissions of the unit.” 6 WAQSR § 4(a) (emphasis added).

in the area predicted to occur after the date of application is not required.

6 WAQSR § 4(b)(i)(A)(I) (emphasis added). After the completion of such analysis, DEQ shall issue a permit to construct a major source of air pollution “only if . . . the predicted impact (over and above the baseline concentration) of emissions defined above is less than the maximum allowable increment shown in Table 1.” *Id.* (emphasis added). Table 1 in 6 WAQSR § 4 is set forth below.

Table 1  
Maximum Allowable Increments of Deterioration -  $\mu\text{g}/\text{m}^3$

<u>Pollutant</u>	<u>Class I</u>	<u>Class II</u>
Particulate Matter:		
PM <sub>10</sub> , annual arithmetic mean	4	17
PM <sub>10</sub> , 24-hour maximum	8	30
Sulfur Dioxide:		
Annual arithmetic mean	2	20
24-hour maximum*	5	91
3-hour maximum*	25	512
Nitrogen Dioxide		
Annual arithmetic mean	2.5	25

\*Maximum allowable increment may be exceeded once per year at any receptor site.

According to Table 1, the maximum allowable increment of SO<sub>2</sub> deterioration in any 24-hour period in a Class I area is 5 micrograms per cubic meter ( $\mu\text{g}/\text{m}^3$ ). Because the undisputed facts show that the predicted impact of applicable emissions is greater than this maximum allowable increment, the Dry Fork permit should be denied.

DEQ required Basin to perform the necessary modeling of applicable emissions above baseline concentrations. This included requiring the modeling of Colstrip Units 3 and 4 at their short-term allowable SO<sub>2</sub> emission rates. “Since the Class I SIL [Significant Impact Level] analysis demonstrated that a cumulative increment analysis was required to address short-term

SO<sub>2</sub> increment consumption at NCIR, it is the Division's position that the allowable short-term emission rates are representative of short-term actual emission rates, as a practical means to quantify short-term emission rates in a dispersion modeling analysis. Therefore, the Division will require that Unit #3 and Unit #4 at the Colstrip facility are both modeled using the short-term permitted SO<sub>2</sub> emission rates for these sources." Exh. 42.

As further shown by the administrative record in this matter, such modeling demonstrated SO<sub>2</sub> increment violations in the NCIR:

The Division required Basin Electric to model all sources at the respective short-term SO<sub>2</sub> permitted emission rates, and the revised SO<sub>2</sub> increment analyses submitted have included the two sources at the Colstrip facility modeled at the permitted 3-hour and 24-hour emission rates. Modeling the short-term permitted SO<sub>2</sub> emission rates for Colstrip Units 3 and 4, as submitted in the permit application, and subsequent revisions, does yield predicted SO<sub>2</sub> concentrations that are greater than the 24-hour Class I SO<sub>2</sub> increment of 5 µg/m<sup>3</sup>, for both 2002 and 2003.

Exh. 19 at 16-17 (emphasis added). In fact, DEQ acknowledged that the predicted second highest 24-hour SO<sub>2</sub> concentration in the NCIR, using 2002 meteorology and including emissions from Dry Fork, was 7.0 µg/m<sup>3</sup>—40% over the allowable 5.0 µg/m<sup>3</sup> increment. Exh. 14 at 40.

Basin's consultant Mr. Robert Pearson confirmed DEQ's findings, conceding that Basin's model predicted forty-seven (47) SO<sub>2</sub> 24-hour increment violations in the representative years 2002 and 2003 in the NCIR Class I area. Exh. 43 at 10.

Although Basin may be heard to complain that it should not have been required to model Colstrip Units 3 and 4 at short-term SO<sub>2</sub> permitted levels, it failed to timely challenge this or any other of DEQ's modeling conditions and requirements described above and has therefore waived its right to do so now. Wilson v. Board of County Commissioners, 153 P.3d 917 (Wyo. 2007).

Even if allowed to mount a belated challenge here, Basin's arguments are weightless as shown in footnote 38 above.

Furthermore, if either DEQ or Basin argue that DEQ may disregard ongoing increment violations if an additional contribution to those violations is "de minimis" or "insignificant," they would be mistaken.

First, as shown above, there is no "wiggle room" in the applicable regulation. Only if the predicted impact of emissions is less than the applicable increment may a permit be issued. Period. The regulation does not state that the predicted impact can be equal to the applicable increment, greater than the applicable increment as long as it is not significantly greater, or greater than the applicable increment if the increment is being violated anyway. Neither DEQ or the Council or the courts have the authority to change the clear language of this regulation: "We will not enlarge, stretch, expand or extend a statute to matters not falling within its express provisions." Lo Sasso v. Braun, 386 P.2d 630, 632 (Wyo. 1963).

Second, it is a well established canon of statutory construction that if exceptions are expressed, no others may be implied. "Where a statute enumerates the subjects or things on which it is to operate, or the persons affected, or forbids certain things, it is to be construed as excluding from its effect all those not expressly mentioned under the rule of *expressio unius est exclusio alterius*." City of Cheyenne v. Huitt, 844 P.2d 1102, 1103 (Wyo. 1993) (citing Town of Pine Bluffs v. State Board of Equalization, 333 P.2d 700 (Wyo. 1958)). There are only two limited exceptions to Section 4(b)(i)(A)(I) regarding the protection of applicable increments.<sup>39</sup>

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<sup>39</sup> According to 6 WASQR § 4(b)(i):

(C) The requirements for demonstration of compliance with applicable increments of Chapter 6, Section 4(b)(i)(A)(I), the additional analysis requirements of Chapter 6, Section 4(b)(i)(B) and the ambient air quality analysis requirements of Chapter 6, Section 4(b)(i)(E) shall not apply to a proposed major stationary source or modification with respect to a particular pollutant if the Administrator determines that:

The first exception states that if the emissions are temporary, and will not impact a Class I area or any area where an increment is being violated, additional air quality modeling is not required.

The second exception states that additional air quality modeling will not be required if the source was in existence in 1978, will only impact Class II areas, and will increase emissions after the installation of BACT by less than 50 tons per year. Neither of these exceptions apply to Dry Fork. None others may be implied.

Finally, the plain meaning of Section 4(b)(i)(A)(I), that bars the permitting of permanent, major emission sources that would impact ongoing increment violations, is supported by Section 4(b)(i)(C)(I) that follows. There, as shown above, temporary sources are exempt from the permitting bar as long as they “impact no Class I area and no area where an applicable increment is known to be violated.” Because Section 4(b)(i)(C)(I) prohibits the permitting of a temporary source if it would impact an area where an increment is known to be violated, surely it is consistent with the regulation’s purpose to accept the plain meaning of Section 4(b)(i)(A)(I) that prohibits the permitting of a permanent source that would impact an increment that is known to be violated.

For all the reasons set forth above, the Council should deny Basin’s permit for the Dry Fork facility because the predicted impact of Dry Fork’s SO<sub>2</sub> emissions is more than the maximum allowable Class I increment in the Northern Cheyenne Indian Reservation in contravention of 6 WAQSR § 4(b)(i)(A)(I).

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(I) The increase in allowable emissions of that pollutant from the stationary source or the net emissions increase of that pollutant from a modification would be temporary and would impact no Class I Area and no area where an applicable increment is known to be violated; or

(II) The stationary source was in existence on March 1, 1978, and that the maximum allowable emission increases only impact Class II Areas, and that after application of BACT, the increase in allowable emissions of each pollutant would be less than 50 tons per year.

## CONCLUSION

For the reasons discussed above, Protestants respectfully request that the Council grant their Motion for Summary Judgment and remand the permit back to DEQ.

Dated: September 2, 2008

Respectfully submitted,

/s/ Robin Cooley

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**CERTIFICATE OF SERVICE**

I certify that on this day of September 2, 2008, I served a copy of the foregoing PROTESTANTS' MOTION FOR SUMMARY JUDGMENT via e-mail and the same with exhibits via Federal Express addressed to:

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