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BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING

IN THE MATTER OF	)	
MEDICINE BOW FUEL & POWER	)	Docket No. 09-2801
AIR PERMIT CT-5873	)	

WYOMING DEPARTMENT OF ENVIRONMENTAL QUALITY'S MEMORANDUM IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT

Respondent, Wyoming Department of Environmental Quality (DEQ), through undersigned counsel, and pursuant to WYO. R. CIV. P., Rules 7(b)(1), 56, and 56.1 and the Environmental Quality Council (EQC) Rules, Chapter II, Sections 3 and 14, submits the following memorandum in support of its Motion for Summary Judgment.

I. BACKGROUND

This case involves an appeal of DEQ air quality Prevention of Significant Deterioration (PSD) construction permit CT-5873 issued on March 5, 2009, by the DEQ to Medicine Bow Fuel & Power, LLC (Medicine Bow) to construct an underground coal mine and industrial gasification and liquefaction plant (collectively the mine and plant are referred to as the Facility) that will produce transportation fuels and other products, to be located in Carbon County, Wyoming.

MEDICINE BOW
EXHIBIT JJJ
PRE-HRG MEMO

On May 4, 2009, the Sierra Club filed a Protest and Petition for Hearing before this Council. (Pet. for Hr'g). Generally, the Sierra Club alleges that the DEQ failed to comply with certain PSD and maximum achievable control technology (MACT) permitting requirements. (Pet. for Hr'g at pp. 11-22). Despite Sierra Club's allegations to the contrary, the DEQ reviewed Medicine Bow's application and performed related analyses according to current Wyoming law and existing statutory and regulatory interpretation. Therefore, summary judgment is appropriate in these circumstances.

II. SIERRA CLUB'S GROUNDS FOR APPEAL

On November 10, 2009, Sierra Club withdrew Claims IV and VI of their Petition. In the remaining claims, Sierra Club alleges: (1) the DEQ erred in calculating flare SO_2 emissions in a manner that improperly excluded them from the Facility's Potential to Emit (PTE) and also resulted in such emissions not undergoing a Prevention of Significant Deterioration (PSD) review (Pet. for Hr'g at pp. 11-13); (2) it was "unlawful" for the DEQ to use and follow EPA's $PM_{2.5}$ New Source Review (NSR) Implementation Rule and PM_{10} Surrogate Policy to analyze $PM_{2.5}$ emissions (Pet. for Hr'g at pp. 17-19); (3) Medicine Bow and the DEQ used incorrect or inaccurate emission factors and component count estimates which resulted in the miscalculated and underestimated fugitive volatile organic compound (VOC) and HAP emissions from the Facility's valves, pumps, compressors and connectors, and therefore the resulting VOC Best Available Control Technology (BACT) determination was incorrect (Pet. for Hr'g at pp. 13-14); (4) the Facility also should have undergone a hazardous air pollutant (HAP) maximum

achievable control technology (MACT) analysis (Pet. for Hr'g at pp. 13-14); and (5) Medicine Bow failed to model fugitive particulate matter emissions and therefore failed to demonstrate to the DEQ that the Facility would not cause or contribute to a National Ambient Air Quality Standard (NAAQS) violation (Pet for Hr'g at p. 16).

III. STANDARD FOR SUMMARY JUDGMENT

Chapter II, Section 14 of the EQC Rules makes the Wyoming Rules of Civil Procedure applicable to matters before the EQC. EQC Rules, Ch. 2, § 14. Summary judgment is appropriate if there is no genuine issue of material fact and the moving party is entitled to judgment as a matter of law. WYO. R. CIV. P. 56(b), (c). Summary judgment procedures set out in WYO. R. CIV. P. 56 apply to administrative cases. *Rollins* v. *Wyoming Tribune Eagle,* 2007 WY 28, ¶ 6; 152 P.3d 367, 6 (Wyo. 2007). The purpose of summary judgment is to dispose of cases before trial that present no genuine issues of material fact. *Id.* A fact is material if proof of that fact would have the effect of establishing or refuting one of the essential elements of the cause of action or defense. *Id.*

Where there are no genuine issues of material fact, summary judgment concerns strict application of the law. *Bd. of County Comm'rs of County of Laramie v. City of Cheyenne,* 2004 WY 16, ¶ 8; 85 P.3d 999, 8 (Wyo. 2004). Summary judgment may involve statutory interpretation as a question of law to determine legislative intent. *Id.* at 1002-03.

IV. UNDISPUTED MATERIAL FACTS

The DEQ's statement of undisputed material facts is attached. *See* Annex.

V. BACKGROUND

A. Clean Air Act (CAA)

The CAA protects and enhances the nation's air quality and promotes public health, welfare and economic development by preventing and controlling air pollution are achieved through a cooperative federalism approach with the states.[1] The CAA authorizes states to assume primary regulatory authority for air quality if EPA has approved the state's State Implementation Plan (SIP) specifying the strategies the state will use to attain, maintain and enforce the NAAQS. *See* 42 U.S.C. § 7410(a). SIP-approved states have primary responsibility and authority for managing and protecting air quality within its state borders. *See* 42 U.S.C. § 7407(a). EPA has approved Wyoming's SIP. *See* 40 C.F.R. part 52, subpart ZZ (Wyoming's SIP). Therefore, the State exercises primary air quality regulatory authority (primacy) through the DEQ, and the EPA maintains oversight.

B. Wyoming Environmental Quality Act (WEQA)

The State's air quality program was initiated in response to CAA requirements but the underlying foundation is the WEQA. The WEQA establishes a statutory structure designed in part to enable the State to preserve, protect, use, develop, reclaim and enhance its air resources. WYO. STAT. ANN. § 35-11-102.

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[1] 42 U.S.C. §§ 7401-7671q (2000); 40 C.F.R. parts 1 through 789 (2008) (EPA regulations); 40 C.F.R. part 52, subpart ZZ (Wyoming's EPA approved SIP); WYO. STAT. ANN. §§ 35-11-201 through 214 (Wyoming's air quality statutes); and WAQSR chs. 1-14 (Wyoming's air quality standards and regulations).

The WEQA simultaneously recognizes and gives effect to both public protection and economic development. In enacting the WEQA, the legislature designed the permitting system to provide the State with flexibility to address certain economic realities. *See State v. Platte Pipe Line Co.*, 649 P.2d 208, 212 (Wyo. 1982) ("[t]he legislature knew that business and industry, essential to the state's economic health, had to be maintained"). The legislature also recognized environmental protection statutes such as the WEQA, which eliminate, reduce, and prevent pollution, have public protection as a goal. *Id.*

In accordance with the CAA and the WEQA, the DEQ regulates Wyoming's air quality pursuant to a carefully crafted, intricately woven, federal and state regulatory system with many highly technical provisions.[2] At the core of the CAA and the State's air quality program are ambient air quality standards.

C. Ambient Air Quality Standards

"Ambient air" refers to "that portion of the atmosphere, external to buildings, to which the general public has access." 2 WAQSR § 1(a). Ambient air quality standards established at the federal level are referred to as NAAQS. *See* 42 U.S.C. § 7409.

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[2] WYO. STAT. ANN. §§ 35-11-109 (DEQ Director authority and duties include performing any and all acts necessary to administer the WEQA and any rules, regulations, standards or requirements established thereunder, and exercise all incidental powers to carry out the WEQA's purpose); WYO. STAT. ANN. § 35-11-110 (Air Quality Division (AQD) Administrator authority and duties include the "powers as shall be reasonably necessary and incidental to the proper performance of the duties imposed" by the WEQA); WYO. STAT. ANN. §§ 35-11-201 through 214 (air quality statutes); WAQSR chs. 1-14 (air quality regulations); *see Chevron U.S.A., Inc. v. Natural Res. Def. Council, Inc.*, 467 U.S. 837, 848 (1984) (CAA is "a lengthy, detailed, technical, complex, and comprehensive response to a major social issue").

NAAQS set the maximum ambient air concentration for certain "criteria" pollutants at levels sufficient to protect public health (primary standards) and welfare (secondary standards) with a built in safety margin. *See* 42 U.S.C. §§ 7408-7409; 40 C.F.R. pt. 50. The DEQ is responsible for assuring Wyoming's air quality meets the NAAQS and has incorporated the NAAQS and state specific ambient air quality standards into the State's air quality program. *See* 42 U.S.C. § 7407(a), 2 WAQSR §§ 1-11. Permit applicants must demonstrate to the satisfaction of the AQD Administrator that the proposed facility will not prevent the attainment or maintenance of any NAAQS or Wyoming Ambient Air Quality Standards (WAAQS). 6 WAQSR § 2(c).

D. Ambient Air Quality Designations

Areas where ambient air quality meets the NAAQS for a particular pollutant are deemed in "attainment." *See* 42 U.S.C. § 7407(d)(1)(A). Areas that cannot be classified on the basis of available information as meeting or not meeting the NAAQS are deemed "unclassifiable." *Id.* Areas that do not meet the NAAQS are designated as "nonattainment." *Id.* The PSD program only applies to areas that have been designated as attainment or unclassifiable. 42 U.S.C. § 7471. The Facility is located in Carbon County which has been designated as unclassifiable or in attainment for all NAAQS. *See* 40 C.F.R. § 81.351.

E. NSR and PSD Construction Permitting Program

In 1977, Congress adopted the PSD program for major sources in areas designated as "attainment" or "unclassifiable" to insure that ambient air quality in those areas does

not deteriorate to unacceptable levels. *See* 42 U.S.C. §§ 7471, 7473. The PSD program requires major sources undergo a detailed review and analysis to assure that the NAAQS are maintained, clean air is protected, appropriate emission controls are applied, and economic development opportunities are maximized consistent with the protection of clean air, and permitting decisions are made after careful evaluation and public participation. *See* 42 U.S.C. §§ 7470, 7475. Essentially, the PSD program balances "economic growth" with "the preservation of existing clean air resources." *See* 42 U.S.C. § 7470(3); *see also* 42 U.S.C. §§ 7470-79; *Alabama Power Co. v. Costle*, 636 F.2d 323, 346-52 (D.C. Cir. 1979) (describing history and background of PSD program).

One of the primary means for attaining, maintaining, and protecting the NAAQS, the WAAQS, and the State's air quality in general, is the DEQ/AQD's new source construction review and permitting program. The DEQ/AQD's new source construction review and permitting program covers both minor and major sources of air pollution.[3] Construction permitting requirements applicable to both minor and major sources are located in Chapter 6, Section 2 of the WAQSR. Major sources must also comply with PSD permitting requirements located at Chapter 6, Section 4 of the WAQSR.

The DEQ's EPA-approved construction permitting program requires an applicant demonstrate, to the satisfaction of the DEQ Director and AQD Administrator, that: (1) the facility will install and operate pollution controls determined through the BACT

[3] *See* 40 C.F.R. part 52, subpart ZZ (Wyoming SIP); WYO. STAT. ANN. § 35-11-801(c) (permit required); WYO. STAT. ANN. § 35-11-201 (prohibiting pollution which violates rules, regulations and standards); 6 WAQSR §§ 2 and 4 (construction and PSD permitting).

process to control emissions of regulated pollutants; and (2) construction of the proposed facility will not "cause or contribute" to an exceedance of any ambient air quality standard or increment violation. 6 WAQSR §§ 2, 4; *see also* 42 U.S.C. § 7475.

The Medicine Bow Industrial Gasification and Liquefaction (IGL) Plant is subject to PSD permitting requirements because it is classified as a fuel conversion plant which is one of the 28 listed major source types and will emit, or have the potential to emit, over 100 tons per year (TPY) of specific criteria pollutants (NO_x, CO, VOC, PM/PM_{10}). *See* 6 WAQSR § 4; (Ex. 11 at DEQ000514). The PSD permit review for the Facility consisted of BACT analyses, an ambient air quality analysis, increment analysis, and an analysis of air quality related values (AQRV) for NO_x, CO, VOC and PM/PM_{10}. (Ex. 11). Emissions of other pollutants did not meet the PSD significance[4] threshold, so they were analyzed pursuant to Wyoming's minor source permitting requirements. *Id.*; *see also* 6 WAQSR §§ 2, 4. However, the review for sulfur dioxide (SO_2) was similar to a PSD review, consisting of a BACT analysis, an ambient air quality analysis, an increment analysis, and an AQRV analysis. (Ex. 11 at DEQ000528, 533-541, 547-549, 559-574).

F. Best Available Control Technology (BACT)

The DEQ's PSD and minor source permitting processes require BACT for each pollutant subject to regulation. 6 WAQSR § 2 (2008); *see also* 42 U.S.C. § 7475(a)(4). BACT is defined as:

> [A]n emission limitation (including a visible emission standard) based on the maximum degree of reduction of each

[4] Significance relates to the source's PTE pollutants at specified emission rates. 6 WAQSR § 4(a).

> pollutant subject to regulation under these Standards and Regulations [WAQSR] or regulation under the Federal Clean Air Act, which would be emitted from or which results for [sic] any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application or production processes and available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. 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 requirement of Best Available Control Technology. 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. Application of BACT shall not result in emissions in excess of those allowed under Chapter 5, Section 2 [New Source Performance Standards (NSPS)] or Section 3 [National Emission Standards for Hazardous Air Pollutants (NESHAP)] of these regulations and any other new source performance standard or national emission standards for hazardous air pollutants promulgated by the EPA but not yet adopted by the State of Wyoming.

6 WAQSR § 4(a); *see also* 42 U.S.C. § 7479(3); 40 C.F.R. §§ 52.21(b)(12), 51.166(b)(12).

The DEQ's BACT determinations are generally conducted using EPA's five-step top-down approach and are made on a case-by-case site-specific basis for each pollutant and each emission unit. (Schlichtemeier Aff. at ¶ 39). The BACT process requires consideration of control technologies, design, equipment, work practice or operational

standards available for the source proposed by the applicant. (*Id.* at ¶ 40). Although BACT is a process, the end result is a determination appropriate for and specific to the source. (*Id.* at ¶¶ 40-41). The Facility underwent a variety of BACT analyses for various pollutants and emission units. (Ex. 11 at DEQ000514-531).

VI. ARGUMENTS

A. THE DEQ PROPERLY CALCULATED THE FLARES' POTENTIAL TO EMIT (PTE)

The Sierra Club alleges that if the DEQ had included SO_2 flare emissions that may occur during startup, shutdown, or malfunction events in the Facility's PTE, the Facility's total SO_2 emissions would have been greater than the PSD significance level resulting in a PSD SO_2 review and DEQ establishing a numerical BACT SO_2 emission limit for the flares. (Pet. for Hr'g at pp. 11-13). Contrary to Sierra Club's assertions, the DEQ properly included flare emissions from the Facility's normal operations (Warm Startup/Shutdowns) in the Facility's PTE and excluded emissions from Initial Startup, Cold Startups or malfunction events. Based on information provided by Medicine Bow, Warm Startup/Shutdowns were characterized as part of normal operations and included in the Facility's PTE. Based on the type of event and frequency, emissions from Initial Startup (commissioning activities), Cold Startups/Shutdowns or malfunction events were excluded from the PTE.

Medicine Bow's Application and the DEQ's Analysis refer to startups associated with various Facility activities. (*See* Ex. 11; Ex. 15; Ex. 25). Based on information provided by Medicine Bow, types of startup events were characterized as follows: flare

emissions generated during commissioning activities are those occurring during "Initial Startup;" flare emissions generating during normal operations and maintenance activities are those occurring during "Warm Startup/Shutdowns;" and flare emissions generated following shutdowns are those occurring during "Cold Startup/Shutdowns." As Cold Startup/Shutdown events occur in the future, the DEQ/AQD will review each startup on a case by case basis. (Schlichtemeier Aff. at ¶ 53). Depending on the type of startup and frequency, the AQD may, based on the results of the review, consider an event as part of normal operations. (*Id.*).

Malfunctions are unplanned events, not routine events. *See* 1 WAQSR § 5. The DEQ addresses malfunction emissions pursuant to Chapter 1, Section 5 of the WAQSR, not through permits.

The DEQ limited the Facility's total SO_2 emissions to 36.6 TPY. (Ex. 26). The DEQ also established the startup/shutdown emission minimization plan (SSEM Plan) as BACT. (*Id.*) In addition, the DEQ required, and Medicine Bow demonstrated, through SO_2 NAAQS modeling, that even during commissioning activities (Initial Startup), Cold Startup/Shutdowns or malfunction events, when the worst-case emissions associated with flaring would occur, the SO_2 NAAQS remained protected. (Ex. 11; Ex. 25). The DEQ analyzed flare SO_2 emissions that occurred outside of Warm Startup/Shutdowns and determined, as represented by Medicine Bow, that they did not occur during normal operations, so were excluded from PTE. (Ex. 11; Ex. 15; Ex. 21; Ex. 25). This does not mean that the DEQ ignored such emissions. Instead, the DEQ required Medicine Bow to

have an SSEM Plan to minimize the duration and extent of flare SO_2 emissions that may occur. (Ex. 11; Ex. 25; Ex. 26).

1. PTE

An "emission unit" is defined to mean any part of a stationary source that emits or would have the potential to emit any regulated NSR pollutant. 6 WAQSR § 4(a). The emission unit's PTE determines whether the source is required to undergo a minor source or PSD review for the particular pollutant. PTE is defined as:

> the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Any physical or operational limitation on the capacity of the source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the affect it would have on emissions is enforceable. Secondary emissions do not count in determining the potential to emit of a stationary source.

6 WAQSR § 4(a).[5] "Secondary Emissions" are "emissions which occur as a result of the construction or operation of a major stationary source . . . but do not come from the major stationary source . . . itself [.]" 6 WAQSR § 4(a). If there are no physical or operational limits, emissions are calculated based on the assumption that the emission unit will operate continuously, 24 hours/day, 365 days/year (8,760 hours/year). (Ex. 2, app. C at C-1). Emissions "expected to occur from a source on a continuous or regular basis" are

[5] *See also* 6 WAQSR at § 3(b)(xxi) (definition for use in Title V Operating Permit Program); 42 U.S.C. § 7479 (major emitting facilities include sources with the PTE to emit 250 TPY of any air pollutant); 40 C.F.R. § 51.166(b)(4) (federal PSD definition); *Alabama Power Co. v. Costle*, 636 F.2d 323, 353 (D.C. Cir. 1979) (when calculating PTE, the permitting agency must take into account "the anticipated functioning of the air pollution control equipment designed into the facility").

included in the PTE. (*Id.* at C-2). Conversely, infrequent emissions would not be included in the PTE. PTE does not refer to the maximum emissions that can be generated by the source under the worst case scenario. Instead, PTE refers to "the maximum emissions that can be generated while operating the source as it is intended to be operated and as it is normally operated." *United States v. Louisiana Pacific Corp.*, 682 F.Supp. 1141, 1158 (D.Colo. 1988).

To calculate the Facility's SO_2 PTE, the DEQ had to determine the Facility's "maximum capacity" to emit SO_2 under the Facility's physical and operational design. *See* 6 WAQSR § 4(a)(PTE definition). Specifically, the DEQ had to evaluate the Facility's physical or operational limitations (including air pollution control equipment, restrictions on hours of operation, or the type or amount of material combusted, stored, or processed) or the effect such physical or operational limitations would have on emissions.[6]

2. Normal operations were properly included in the Facility's Flare PTE

The DEQ determined that the Facility's PTE included flare emissions from normal operations and maintenance activities, as characterized by Medicine Bow to include Warm Startup/Shutdowns. (Ex. 11; Ex 21; Ex. 25). During all operations, the high pressure (HP) and low pressure (LP) flares will be operated by two continuous natural

[6] 6 WAQSR § 4(a); *see also Chemical Mfrs A'ssn. v. EPA,* 70 F.3d 637, 1995 WL 650098 (D.C.Cir. 1995)(unpublished)(vacated "federal enforceability" requirement for PTE limits); *Nat'l Mining Assoc. v. EPA*, 59 F.3d 1351, 1362 (D.C.Cir. 1995) (established framework to evaluate operational and physical restrictions on PTE and held that "effective" controls should be taken into account even if they are not federally enforceable).

gas pilot flare systems to maintain the system for service before any other flammable gas is present. (Ex. 15 at DEQ000078-000042 – 43, 000078-000049, 000078-000054). The flares function as a control device during startup/shutdowns and malfunction events. (Ex. 15).

Medicine Bow expects to continuously operate the Facility and perform periodic maintenance due to the Facility's design which includes a multi-gasifier configuration. (Ex. 21). Medicine Bow also notes that it has a financial incentive not to flare syngas because it results in lost revenue. (Ex. 21 at DEQ001483). During these planned periodic maintenance events, represented as being part of normal operations, Medicine Bow estimated some process streams may be routed to the flares and result in SO_2 flare emissions of 3.64 TPY. (Ex. 21; Ex. 25 at DEQ000039; Ex. 26 at DEQ001419). Therefore, after factoring in SO_2 flare emissions from normal operations, the Facility's SO_2 PTE increased from 32.9 TPY to 36.6 TPY. (Ex. 21; Ex. 25; Ex. 26). The Permit limits the Facility to 36.6 TPY SO_2 emissions, including SO_2 emissions from flares. (Ex. 26). This 36.6 TPY SO_2 emission total is less than the 40 TPY PSD significance threshold. (Ex. 25 at DEQ000039-42). Therefore, the Facility's SO_2 emissions are not subject to PSD regulation.

3. Initial Startups were properly excluded from the Facility's PTE

Facility commissioning activities are temporary, and will only occur once during the initial startup of the Facility. (Ex. 15; Ex. 21; Ex. 25). Therefore, by nature, these activities are not part of normal operations, and DEQ properly excluded them from PTE.

(Ex. 25 at DEQ000039; *see also* Ex. 15; Ex. 21). The Sierra Club even acknowledged that "temporary emissions and emission during startup shutdown, and malfunction are not considered in the determination of applicability to 40 CFR 52.21(j)[.]" (Ex. 55 at DEQ001697). The emissions generated during Initial Startup are temporary, only occur upon commissioning of the Facility, and are not part of normal operations. (Ex. 15, Ex. 21, Ex. 25). Therefore, DEQ properly excluded such emissions from PTE.

4. Cold Startups were properly excluded from the PTE

The flares were designed to operate as control equipment for emissions occurring during startup/shutdowns and malfunction events. (Ex. 15; Ex. 25 at DEQ000040). Although Medicine Bow anticipates Cold Startup/Shutdowns to occur approximately every four years, Cold Startup/Shutdowns are not part of normal operations. (Ex. 15; Ex. 21; Ex. 25). Thus, based on frequency, Cold Startup/Shutdowns were determined not to be part of normal operations and were properly excluded from the Facility's PTE. As startups occur in the future, the DEQ/AQD will review each startup on a case by case basis. Depending on the type of startup and frequency, the DEQ/AQD may, based on the results of the review, consider an event as part of normal operations.

5. Malfunction events were properly excluded from the PTE

The DEQ addresses malfunction events through Chapter 1, Section 5 of the WAQSR, not through NSR permits. 1 WAQSR § 5; *see also* (Ex. 25). To qualify as a malfunction: (1) the event must be "beyond the reasonable control of the owner or operator;" (2) the emissions "could not have been avoided by better operation,

maintenance or improved design;" (3) the source maintained and operated equipment "in a manner consistent with good practice for minimizing emissions;" (4) the source made repairs "as quickly as practicable;" (5) the source took steps to "minimize the potential impact of excess emissions on ambient air quality;" and, (6) the emissions are not part of a recurring pattern caused by inadequate operation, maintenance or design. 1 WAQSR § 5(a). Therefore, if an event occurs that is not part of the Facility's operation or design, it may qualify as a malfunction. *See* 1 WAQSR § 5. Malfunctions, by definition, cannot be part of the facility's operation or design, thus it cannot be included in the PTE. 6 WAQSR § 4(a).

6. Worst-case SO_2 emission modeling demonstrated NAAQS/WAAQS protected

Medicine Bow modeled for impacts to the NAAQS and WAAQS using the worst case 3-hour, 24-hour and annual SO_2 emissions. (Ex. 11; Ex. 15; Ex. 25). Because the Facility will likely only emit at these "worst case" levels during Initial Startup, the modeling results are a conservative estimate of short-term SO_2 impacts. (Ex. 11 at DEQ000547-49; Ex. 25). The modeling results predicted impacts were below allowable levels for all averaging periods. (Ex. 11 at DEQ0000547 – 49; Ex. 25). Therefore, the SO_2 NAAQS and WAAQS remain protected under the Facility's normal operations and worst-case emissions.

7. The SSEM Plan is BACT

The DEQ reviewed the Facility's Application which identified the flares as emission sources. (Ex. 15; Ex. 21; Ex. 25). The DEQ set the Facility's SO_2 emission

limit at 36.6 TPY which included 3.64 TPY SO_2 flare emissions. (Ex. 21; Ex. 25; Ex. 26). The DEQ did not establish flare SO_2 emission limits as BACT as there are no traditional EPA reference methods for monitoring compliance if any such limit was set. (Ex. 25); *see also* (Ex. 41 at 73:5 – 77:13). Therefore, the DEQ requested Medicine Bow provide an SSEM plan as BACT to minimize the duration of such events and the corresponding SO_2 emissions. (Ex. 9, Ex. 11, Ex. 21, Ex. 25); *see also* 40 C.F.R. § 60.8. The DEQ considers the SSEM Plan as an alternative BACT determination to apply during such time periods. (Ex. 11, Ex. 25). SSEM plans have been recognized as enforceable permit requirements.[7] The Sierra Club's own expert acknowledged that one of the BACT options for the flares could include work practices. (Ex. 41 at 68:23 – 69:8). Further, Sierra Club's expert was unable to state whether the results of a top-down BACT analysis would lead to something else other than the SSEM Plan as BACT for startup/shutdown events, because he did not do a BACT analysis for these flares. (Ex. 41 at 69:20 – 71:3).

The DEQ reviewed the SSEM plan using engineering judgment to ensure that the duration of a startup/shutdown was minimized. (Ex. 11; Ex. 19; Ex. 21; Ex. 25). Based on the DEQ's engineering judgment, the DEQ determined that the SSEM Plan minimized the duration of startup/shutdowns and the corresponding SO_2 emissions. (Ex. 25). Because the SSEM plan minimized SO_2 emissions, it was reasonable for the DEQ to

[7] *See Sierra Club v. Pub. Serv. Co.*, 894 F.Supp. 1455 (D.Colo. 1995); *Sierra Club v. Tri-State Generation and Transmission Ass'n, Inc.*, 173 F.R.D. 275 (D.Colo. 1997); *see also Anderson v. Farmland Indus., Inc.*, 70 F.Supp. 2d 1218 (D.Kan. 1999).

conclude it was BACT. *See* 6 WAQSR § 4(a). For the foregoing reasons, the Council should grant summary judgment to the DEQ on this issue.

B. DEQ'S USE OF PM_{10} AS A SURROGATE FOR $PM_{2.5}$ WAS AUTHORIZED BY LAW

Sierra Club asks this Council vacate and remand Permit CT-5873 based on Sierra Club's allegations that it was "unlawful" for the DEQ to use and follow EPA's $PM_{2.5}$ NSR Implementation Rule and PM_{10} Surrogate Policy for analyzing $PM_{2.5}$. (*See* Pet. for Hr'g at pp. 17-19). However, Wyoming's EPA approved SIP expressly requires that DEQ analyze particulate matter 2.5 micrometers or smaller ($PM_{2.5}$) using particulate matter 10 micrometers or smaller (PM_{10}) as a surrogate.[8] However, $PM_{2.5}$ precursor emissions (SO_2 and NO_x) undergo direct review and have BACT emission limits established. *See* 73 Fed. Reg. 28341; *see also* (Ex. 11 at DEQ000514-19 (NO_x) and DEQ000528-29 (SO_2); Ex. 40 at 96:3-19). Further, EPA's $PM_{2.5}$ NSR Implementation Rule expressly provides that SIP-approved states may follow EPA's PM_{10} Surrogate Policy for analyzing $PM_{2.5}$ until such state's SIP has been revised. *See* $PM_{2.5}$ NSR Implementation Rule, 73 Fed. Reg. 28321 (May 16, 2008); *In re Basin Electric Power Cooperative*, Order at ¶ 51. Finally, EPA has not provided all the necessary tools needed before the DEQ can implement EPA's $PM_{2.5}$ NSR Implementation Rule.[9] Thus, Sierra

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[8] *See* Approval and Promulgation of State Implementation Plans; States of South Dakota and Wyoming; Interstate Transport of Pollution, 73 Fed. Reg. 26019 (May 8, 2008) (EPA SIP approval); (Ex. 34) (WYOMING'S INTERSTATE TRANSPORT DECLARATION (Dec. 11, 2006) codified at 40 C.F.R. § 52.2620(e)(XVIII)).

[9] The EQC's *Order Denying Respondents' Motion for Dismissal of Claim VII and Granting Dismissal of Claim VIII*, p. 7 (Nov. 2, 2009) noted two unresolved issues: 1)

Club's claims that DEQ was actually acting unlawfully, by following the law, must fail. Sierra Club's claims and requested relief are based on what Sierra Club wants the law to be, rather than what the law actually is. There is no legal or factual basis to support Sierra Club's $PM_{2.5}$ claims. Therefore, as a matter of law summary judgment should be granted to the DEQ on this issue.

1. EPA's PM_{10} Surrogate Policy

In October 1997, after promulgating a national ambient air quality standard for $PM_{2.5}$, the EPA issued guidance addressing the "Interim Implementation of New Source Review Requirements for $PM_{2.5}$" (PM_{10} Surrogate Policy). (Ex. 36).[10] EPA's PM_{10} Surrogate Policy allowed states to use PM_{10} as a surrogate for $PM_{2.5}$ in meeting NSR requirements under the CAA, including PSD permitting requirements. (*Id.*).

In April 2005, EPA re-affirmed continued use of the PM_{10} Surrogate Policy. *See* (Ex. 37). Although the Page Memo provided guidance on NSR implementation in $PM_{2.5}$

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whether the DEQ is unable to implement a PSD program for the PM-2.5 NAAQS based upon EPA's May 16, 2008 rule; and 2) whether or not the use of the surrogate in this application has been shown to be a reasonable substitute. The DEQ did not conduct a "reasonableness" analysis for this application because it was, and continues to be the DEQ's position that as a matter of law, Wyoming's SIP requires the DEQ to use PM_{10} as a surrogate. The DEQ is aware that Medicine Bow's Expert, Ms. Katrina Winborn, conducted such an analysis. *See* (Ex. 35 at pp. 29-35).

[10] Prior to EPA's SIP approval, the DEQ was authorized pursuant to the WEQA and WAQSR Ch. 6, § 2 to follow the PM_{10} Surrogate Policy as EPA guidance "on new source review PSD permitting issues." *See In re Basin Electric Power Cooperative*, EQC Docket No. 07-2801, Order Granting Basin Electric Cooperative's and Department of Environmental Quality's Motions for Summary Judgment Regarding Protestants' Claim VII, ¶ 49 (Dec. 8, 2008); *see also Alaska v. EPA*, 540 U.S. 461, 475-476 (2004) (recognizing that permitting agencies commonly use EPA guidance in PSD permitting actions).

nonattainment areas, the memo also advised "attainment" states to continue following the PM_{10} Surrogate Policy because "administration of a PM-2.5 PSD program remains impractical" until promulgation of the $PM_{2.5}$ Implementation Rule. (*Id.* at 4).

In September 2007, the EPA issued proposed $PM_{2.5}$ rules addressing PSD increments, significant impact levels (SILs), and significant monitoring concentrations (SMCs). 72 Fed. Reg. 54112 (September 21, 2007). As part of this rulemaking, EPA proposed allowing continued use of the PM_{10} Surrogate Policy until such time as EPA approved the state's revised SIP: "A State implementing a NSR program in an EPA-approved State Implementation Plan (SIP) may continue to rely on the interim surrogate policy." *Id.* at 54114; *see also Longleaf Energy Assoc. v. Friends of the Chattahoochee, Inc.* 681 S.E.2d 203 (Ga. App. 2009) (upholding Georgia's use of PM_{10} Surrogate Policy for PSD permit issued in May 2007).

Several months later, in May 2008, EPA finalized the $PM_{2.5}$ NSR Implementation Rule. 73 Fed. Reg. 28321 (May 16, 2008). The preamble to the final rule codified continued use of the PM_{10} Surrogate Policy until revised PSD program SIPs have been submitted. *Id.* at 28341. *See Kennecott Utah Copper Corp. v. Dep't of Interior*, 88 F.3d 1191, 1222-23 (D.C.Cir. 1996) (in some instances, preamble statements may constitute binding, final agency action).

2. Wyoming's SIP Requires DEQ Analyze $PM_{2.5}$ Using PM_{10} as a Surrogate

a. SIP Approval Results in Federal Enforceability

SIP approval results in federal enforceability for the affected provisions. SIP approval of a specific state provision is applicable only to sources located within the specific state. *See e.g.* 40 C.F.R. part 52, subpart ZZ (Wyoming's SIP is applicable to Wyoming). SIP submittals must include control measures sufficient to ensure attainment, maintenance, and enforcement of the NAAQS. 42 U.S.C. § 7410(a). After EPA approves the SIP, the provisions become federal law and enforceable in federal court. *See* 42 U.S.C. §§ 7413, 7604; *see also Espinosa v. Roswell Tower, Inc.* 32 F.3d 491, 492 (10th Cir. 1994) (SIP has force and effect of federal law and is enforceable in federal court). After EPA has approved a SIP, the state may not unilaterally modify it. *See* 42 U.S.C. §§ 7410, 7602(q); 40 C.F.R. § 51.105; *Illinois v. Commonwealth Edison Co.*, 490 F.Supp. 1145, 1153 (N.D. IL 1980).

b. EPA's Approval of Wyoming's Interstate Transport SIP Declaration Means that PM_{10} must be used as a Surrogate for $PM_{2.5}$ in Wyoming

Wyoming's Interstate Transport SIP Declaration, approved and promulgated by the EPA into Wyoming's SIP, mandates as a matter of law that "Wyoming will implement the current rules in accordance with EPA's interim guidance using PM_{10} as a surrogate for $PM_{2.5}$ in the PSD program." *See* 73 Fed. Reg. 26019 (May 8, 2008), codified at 40 C.F.R. § 52.2620(e)(XVIII) & WYOMING'S INTERSTATE TRANSPORT DECLARATION (Dec. 11, 2006) (Ex. 34) ; *see also* 54 Fed. Reg. 27880 (July 3, 1989). Although the DEQ initially used and followed EPA's PM_{10} Surrogate Policy as

"policy/guidance," subsequent to EPA's approval of Wyoming's SIP, the "policy" was transformed into "law." Therefore, Wyoming's SIP, as federal law, requires the DEQ to use and follow EPA's PM_{10} Surrogate Policy. In Wyoming, PM_{10}, as a matter of law, must be used as a surrogate for $PM_{2.5}$ in the PSD program.[11] Until Wyoming submits and EPA approves Wyoming's $PM_{2.5}$ SIP, Wyoming must use PM_{10} as a surrogate for $PM_{2.5}$. The deadline for submitting such as SIP is 2011. Furthermore, although EPA submitted several pages of comments regarding the Application and DEQ's analysis, EPA did not submit any comments on $PM_{2.5}$. *See* (Ex. 31).

Despite Wyoming's SIP, which incorporates EPA's PM_{10} Surrogate Policy, and is enforceable as a matter of federal law, Sierra Club alleges that the DEQ should have ignored the law – in fact should have acted outside the law – and should have conducted the analyses using $PM_{2.5}$ instead of using PM_{10} as a surrogate. (Pet. for Hr'g at pp. 17-19). Sierra Club could have but did not appeal EPA's action approving Wyoming's Transport SIP and should not be allowed to sit back and now bring this collateral attack on the law. Wyoming's SIP, which has been codified as federal law, currently requires DEQ use PM_{10} as a surrogate for $PM_{2.5}$ in the PSD program. A recent Georgia Court of Appeals decision upheld Georgia's use of EPA's PM_{10} Surrogate Policy as consistent with Georgia's SIP. *Longleaf Energy Assoc. v. Friends of the Chattahoochee, Inc.* 681 S.E.2d 203 (Ga. App. 2009).

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[11] *See* 42 U.S.C. § 7413(a) - (b); 42 U.S.C. § 7604; *see also Latino Issues Forum v. EPA*, 558 F.3d 936, 938 (9th Cir. 2009) (EPA approved SIP provisions are federally enforceable); *Kentucky Res. Council, Inc. v. EPA*, 467 F.3d 986, 988 (6th Cir. 2006) (EPA approved SIP is federally enforceable).

c. EPA'S $PM_{2.5}$ NSR Implementation Rule Authorizes SIP Approved States such as Wyoming to Analyze $PM_{2.5}$ Using PM_{10} as a Surrogate

EPA's final rule entitled *Implementation of the New Source Review (NSR) Program for Particulate Matter Less than 2.5 Micrometers ($PM_{2.5}$)*, 73 Fed. Reg. 28321 (May 16, 2008) ($PM_{2.5}$ NSR Implementation Rule) expressly provides that SIP-approved states, such as Wyoming, may continue to use EPA's PM_{10} Surrogate Policy for analyzing $PM_{2.5}$ until such state has submitted its revised PSD SIP:

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

Id. at 28341; *see also In re Basin Electric Power Cooperative*, Order at ¶¶ 51-52.

Wyoming's current rules reflect the 1997 $PM_{2.5}$ NAAQS and have not yet been amended to reflect the 2006 $PM_{2.5}$ NAAQS.[12] This does not mean that DEQ has ignored the 2006 standards. To the contrary, DEQ is following EPA's prescribed $PM_{2.5}$ SIP development process having recommended to EPA that every region in Wyoming be designated as attainment/unclassifiable for the 24-hour $PM_{2.5}$ NAAQS. *See* (Ex. 38). On November 13, 2009, EPA promulgated the 2006 24-hour $PM_{2.5}$ NAAQS final designations. 74 Fed. Reg. 58688 (Nov. 13, 2009). All areas within Wyoming were designated as attainment or unclassifiable for $PM_{2.5}$. *Id.* at 58778.

[12] On October 26, 2009, the Air Quality Advisory Board held a hearing and took public comment on the DEQ's proposed rulemaking to lower the $PM_{2.5}$ Ambient Air Quality Standards.

When Medicine Bow submitted its PSD permit application to DEQ in 2007 and when the DEQ issued Permit CT-5873 in March 2009, EPA rules and Wyoming's SIP required use of EPA's PM_{10} Surrogate Policy for analyzing $PM_{2.5}$. *See* 73 Fed. Reg. 28321; 40 C.F.R. § 52.2620(e)(XVIII). It was not until April 24, 2009, almost two months after Permit CT-5873 was issued, that the EPA granted a petition for reconsideration of specific provisions of the $PM_{2.5}$ NSR Implementation Rule. As part of that process, EPA temporarily stayed the "grandfathering provision" concerning continued use of the PM_{10} Surrogate Policy for federal and delegated PSD programs (40 C.F.R. § 52.21(i)(l)(xi)) **but not** for SIP-approved PSD programs (such as Wyoming's).[13] Even if the EPA or the Court of Appeals decides to prohibit SIP approved states' **continued use** of EPA's PM_{10} Surrogate Policy, reversing DEQ's final permitting decision would require retroactive application of such a new law. Retroactive application of the law is not favored by the courts. *See Sierra Club v. Whitman*, 285 F.3d 63, 68 (D.C. Cir. 2002) (EPA nonattainment determination does not apply retroactively); *Bowen v. Georgetown Univ. Hosp.*, 488 U.S. 204, 208 (1988). Although EPA's $PM_{2.5}$ NSR Implementation Rule is under challenge, it remains the law for SIP-approved states and expressly provides that EPA's PM_{10} Surrogate Policy may be used to analyze $PM_{2.5}$ until such SIP-approved state has submitted its revised PSD SIP. The EPA $PM_{2.5}$ NSR

[13] *See* 74 Fed. Reg. 26098 (June 1, 2009); *see also* 74 Fed. Reg. 36427 (July 23, 2009) (proposing to extend the administrative stay for "grandfathering" under the Federal PSD program by an additional nine months); 74 Fed. Reg. 48153 (Sept. 22, 2009) (staying "grandfathering" until June 22, 2010); *see also NRDC v. EPA*, D.C. Cir. Ct. of Appeals, No. 08-1250, Order (June 2, 2009) (challenging legality of EPA's $PM_{2.5}$ NSR Implementation Rule and continuing stay of proceedings pending the outcome of EPA's reconsideration decision).

Implementation Rule provides authority for SIP-approved states, such as Wyoming, to continue analyzing $PM_{2.5}$ using EPA's PM_{10} Surrogate Policy until submitting a revised PSD SIP. The Sierra Club has failed to provide any evidence that the DEQ did not properly utilize PM_{10} as a surrogate for analyzing $PM_{2.5}$ emissions. Therefore, summary judgment should be granted to DEQ on this issue.

3. Not all of the necessary tools for analyzing $PM_{2.5}$ are available.

EPA adopted the PM_{10} Surrogate Policy in large part because EPA recognized that it was impracticable to implement $PM_{2.5}$ PSD permitting because not all the technical tools for monitoring, emissions estimation or modeling were available for primary and secondary (precursor) $PM_{2.5}$ emissions. (Ex. 36). Four years ago, in 2005, EPA issued further guidance recognizing that the previously identified "significant" technical difficulties, including ambient monitoring and modeling limitations continued to make it impractical for states to implement $PM_{2.5}$ permitting and therefore EPA affirmed continued use of the PM_{10} Surrogate Policy. (Ex. 37).

In 2007, EPA promulgated final rules establishing $PM_{2.5}$ attainment dates, and SIP submittal and reasonable further progress requirements. 72 Fed. Reg. 20,586 (April 25, 2007). Also in 2007, three months before Medicine Bow submitted its Application, EPA proposed rules for $PM_{2.5}$ increments, significant impact levels (SILs) and a significant monitoring concentration (SMC) for use as $PM_{2.5}$ PSD screening tools. 72 Fed. Reg. 54,112 (Sept. 21, 2007). In the preamble to this 2007 proposed rule, EPA recognized that after the proposed rule was final and established $PM_{2.5}$ increments, SILs and SMC, and

the $PM_{2.5}$ NSR Implementation Rule, SIP approved states would no longer need to rely on the PM_{10} Surrogate Policy. *Id.* at 54,114. EPA has not yet promulgated the final rule for $PM_{2.5}$ increments, SILs or SMC. (Ex. 41 at 101:17-20 (SIL); 101:21-23 (SMC); Ex. 42 at 180:3 – 181:4).

In 2008, the EPA promulgated the final $PM_{2.5}$ NSR Implementation Rule which included the $PM_{2.5}$ major source threshold, significant emissions rate, offset ratios and interpollutant offset trading, and $PM_{2.5}$ precursor NSR applicability. 73 Fed. Reg. 28,321 (May 16, 2008). EPA also acknowledged that it needed to promulgate increments, SILs and SMC before a state could implement the $PM_{2.5}$ PSD permitting program instead of EPA's PM_{10} Surrogate Policy. *Id.* at 28,323. EPA further noted that states would not have the necessary tools to address condensable $PM_{2.5}$ emissions until EPA had completed notice and comment rulemaking to codify new or revised test methods. *Id.* at 23,344.[14] EPA provided SIP approved states, including Wyoming, until 2011 as a transition period to switch from following EPA's PM_{10} Surrogate Policy to implementing the $PM_{2.5}$ NSR Implementation Rule. *Id.* at 28,340-42. EPA has not yet promulgated the final test methods rule.[15] *See* (Ex. 41 Sahu at 101:17-20 (SIL); 101:21-23 (SMC)); Nall

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[14] The DEQ had submitted comments on the proposed rule noting that needed tools such as fugitive direct $PM_{2.5}$ emission factors, major source thresholds, significant emissions rates for direct and precursor emissions, condensable emissions and $PM_{2.5}$ test methods; specifying treatment of condensable and secondary $PM_{2.5}$ in modeling; use of $PM_{2.5}$ increments and SILs. DEQ Letter, Jan. 17, 2008 – EPA rulemaking docket: EPA-HQ-OAR-2006-0605. (Ex. 43).

[15] EPA established January 1, 2011 as the latest possible end date for promulgating the final $PM_{2.5}$ test methods rule. 73 Fed. Reg. 28,344 (May 16, 2008). EPA has initiated,

Aff. at ¶ 21; Ex. 42 at 180:21-25 (SIL); 181:1-4 (SMC); 181:5 – 182:16 (test methods)). Without increments, SILs, SMC or EPA approved test methods, the DEQ cannot analyze $PM_{2.5}$.

C. THE FUGITIVE EMISSIONS WERE PROPERLY CALCULATED AND REVIEWED

Sierra Club alleges that Medicine Bow and DEQ miscalculated and underestimated fugitive VOC and HAP emissions from the Medicine Bow Facility's valves, pumps, compressors and connectors given the emission factors and component count estimates used by Medicine Bow and the DEQ. (Pet. for Hr'g at pp. 13-14). Sierra Club's allegations are baseless. Sierra Club's own expert did not do any calculations to refute those done by Medicine Bow. (Ex. 41 at 98:1 – 99:12).

The parties agree that calculating fugitive emissions from equipment components requires: 1) an equipment count; 2) information about the equipment and service type; 3) emission factors; and 4) control efficiency or effectiveness. *See* (Ex. 35 at pp. 13-15; Ex. 40 at 61:4 – 62:1; Ex. 40 at 9). Medicine Bow's initial and final application addressed each of these requirements. *See* (Ex. 4 at DEQ000124, 000265-82; Ex. 15 at DEQ000078-000054, 78-000231-49). The DEQ reviewed and analyzed each of those requirements. *See* (Ex. 11 at DEQ000511-514, 000525; Ex. 17; Ex. 25 at DEQ000036-37, 000045, 000057-59). The Sierra Club has failed to bring forth any evidence that Medicine Bow's calculations or the DEQ's review, analysis and decision was unsupported or unreasonable.

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but not finalized, rulemaking to amend test methods 201A and 202 to allow for $PM_{2.5}$ emission sampling. 74 Fed. Reg. 12970 (March 25, 2009).

The DEQ reviewed and analyzed Medicine Bow's estimated equipment count for emission calculation purposes, and also required Medicine Bow to provide an actual as-built component count to the DEQ for verification. *See* (Ex. 11 at DEQ000512, Table IV; Ex. 25 at DEQ000036-37; Ex. 26 at DEQ001415, Condition 19; Ex. 40 at 60:24 – 62:17). In addition, the DEQ reviewed and analyzed the Facility's equipment type and service; specific emission factors; and, the control effectiveness of the LDAR program. *See* (Ex. 11 at DEQ000525; Ex. 25 at DEQ000036-37; Ex. 26 at DEQ001415, Conditions 20 and 21; Ex. 40 at 65:24 – 66:9, 72:6 – 72:13). Because Medicine Bow used appropriate emission factors to calculate fugitive emissions, and the DEQ required an as-built verification of the estimated component count, the DEQ's review, analysis and decision was proper. Therefore, the DEQ should be granted summary judgment on this issue.

1. Component Count and Service Type

Medicine Bow's initial application estimated the number of potential equipment leak components by equipment type (valves, pump seals, compressor seals, connectors, lines, and sampling connections) and service type (gas, light liquid, heavy liquid or combination). (Ex. 4 at DEQ000124, 000265-82). Medicine Bow's initial component count estimate included open ended methanol sampling lines that required purging. (*Id.*) On September 30, 2008, Medicine Bow submitted a revised component count estimate that reflected the engineering re-design of six of the open ended methanol sampling lines with closed loop lines. (Ex. 19 at DEQ002918, 2926-27; Ex. 15 at DEQ000078-000054,

78-000231 – 249). Following the DEQ's review of comments and additional information submitted by Medicine Bow, the DEQ added a permit condition requiring Medicine Bow submit, prior to startup, a final component count of the as-built Facility. (Ex. 25 at DEQ000045, 57-59). The DEQ's component count review, analysis, and additional verification requirements was reasonable. *See Lead Indus. Ass'n v. EPA*, 647 F.2d 1130, 1147 (D.C. Cir 1980) (according EPA's construction of the CAA considerable deference).

2. Emission Factors

Emission factors "are frequently used, along with production information as a quick, low cost method to estimate emissions." 74 Fed. Reg. 52723, 52724 (Oct. 14, 2009). Emission factors relate the quantity of a pollutant released to the atmosphere with the activity associated with the release. *Id.* Typically, emission factors are expressed as a certain "mass of pollutant divided by a unit mass, volume, distance, or duration of the activity emitting the pollutant." *Id.* Generally, the emission factor is an average of available data of acceptable quality collected through source performance testing and assumed to be representative of pollution averages for facilities in the source category. *Id.*

EPA has approved certain emission factors and compiled them into the "AP-42 Compilation of Air Pollutant Emissions Factors" (AP-42), or other EPA regulations.[16] *See also* 40 C.F.R. § 60.14(b)(1); 74 Fed. Reg. 52723, 52724. The emission factors used

[16] The AP-42 is a fifteen chapter on-line document of EPA-approved emission factors that may be accessed at: http://www.epa.gov/ttn/chief/ap42/index.html.

by Medicine Bow are widely used and recognized for such calculations. (Ex. 35 at pp. 13, 15-16). Chapter 5 of AP-42 references EPA's Protocol for Equipment Leak Emission Estimates. Medicine Bow used the Protocol's average emission factor approach and the Synthetic Organic Chemical Manufacturing Industry (SOCMI) factors to estimate equipment leaks. (Ex. 15 at DEQ000078-000054; Ex. 35 at p. 13). Medicine Bow's decision to use EPA approved SOCMI emission factors for the HAP emission calculations was reasonable and appropriate.

The DEQ reviewed and analyzed whether the petroleum refinery NSPS and NESHAP applied to the Facility, or whether it was subject to Subpart VVa as a SOCMI facility. (Ex. 25 at DEQ000051). The DEQ's analysis noted that the Facility is subject to Subpart VVa of 40 CFR part 60. (Ex. 11 at DEQ000525; Ex. 25 at DEQ000058); *see also* 72 Fed. Reg. 64860, 64863 (Nov. 16, 2007)(subpart VVa applies to facilities in the SOCMI that are constructed, reconstructed or modified after November 7, 2006). In addition to analyzing the use of SOCMI emission factors for leak estimates, the DEQ's decision requires Medicine Bow to annually provide actual verification of the estimates based on the Facility's measured leak detection rates. (Ex. 25 at DEQ000059). Because Medicine Bow used SOCMI emission factors based on equipment type and service, and the DEQ required annual reports of the Facility's measured leak detection rates, the DEQ's review, analysis and decision was proper.

3. LDAR Control Effectiveness

Medicine Bow's initial equipment leak calculations were based on implementation of a leak detection and repair (LDAR) program with a leak definition of 10,000 ppm using the SOCMI control effectiveness factors for valves in gas or light liquid service and pump seals in light liquid service. (Ex. 4 at DEQ000124, 000265-282). Medicine Bow also assumed all streams would contain fluid for 8,760 hours/year. (*Id.*). On June 4, 2008, Medicine Bow revised the equipment leak calculations because the proposed LDAR BACT leak definitions were lowered to 500 ppm for valves and connectors and 2000 ppm for pumps. (Ex. 10). As a result of these revisions, Medicine Bow calculated that the overall control efficiency increased and the emission rate decreased. (*Id.*). Medicine Bow further explained in its final application that it used the LDAR control effectiveness factors for valves and connectors from EPA's Protocol for Equipment Leak Emission Estimates because those factors assumed the same leak definition of 500 ppm. (Ex. 15 at DEQ000078-000233); *see also* (Ex. 49). However, Medicine Bow calculated the LDAR control effectiveness factors for pumps. (Ex. 15 at DEQ000078-000233).

The DEQ determined that Medicine Bow's fugitive emission calculations were conservative estimates because the emissions were based on all connections and pumps leaking at 500 ppm (valves/flanges) and 2000 ppm (pumps). (Ex. 25 at DEQ000036). Furthermore, the DEQ determined that the 500 ppm /2000 ppm LDAR BACT levels were consistent with NSPS and NESHAP. (*Id.* at DEQ000045). The DEQ also requires Medicine Bow to annually calculate actual fugitive HAP emissions using the application

methodology and the previous year's average measured leak detection rate. (Ex. 25 at DEQ000059). Because Medicine Bow based control effectiveness on the LDAR leak definitions, and the DEQ requires annual reports of the Facility's measured leak detection rates to verify control effectiveness, the DEQ's review, analysis and decision was proper.

4. The LDAR program was BACT for fugitive component emissions

Sierra Club alleges that the DEQ's BACT analysis for fugitive component emissions and resulting determination that an LDAR program based on 40 C.F.R. pt. 60, subpart VVa was BACT was incorrect. (Pet. for Hr'g at pp. 13-14). However, as EPA acknowledges, fugitive emissions from equipment leaks can be controlled by implementing a leak detection and repair (LDAR) program or by replacing leaking components or a combination of both. *See* 72 Fed. Reg. 64860, 64864; *see also* (Ex. 49 at § 5.1). An LDAR program based on subpart VVa combines both control methods as appropriate to the specific source. By itself, use of leakless components may be constrained by material composition and process operation. (Ex. 42 at 111:19-112:18). The undisputed factual evidence supports the DEQ's determination that this LDAR program was BACT. Therefore, summary judgment must be granted to the DEQ on this issue.

BACT is applied using a case by case basis specific to each individual permit. 6 WAQSR § 4. The BACT definition recognizes that BACT may be more stringent than, or as equally stringent as, the NSPS and NESHAP requirements. 6 WAQSR § 4(a). However, BACT cannot be less stringent than the NSPS and NESHAP requirements. *Id.*

The Medicine Bow LDAR program is more stringent than subpart VVa, because the DEQ has imposed additional monitoring and recordkeeping requirements. *See* (Ex. 25 at DEQ000045 and 000059; Ex. 26 at DEQ001415, Condition 21).

The Medicine Bow LDAR program is designed for early identification of leaking components and emission reductions through repair or replacement of such components. (Ex. 11 at DEQ000525); Ex. 15 at DEQ000078-000082); *see also* 72 Fed. Reg. 64860, 64864. The program requires Medicine Bow to monitor components at set intervals to determine whether the component is leaking or not. (Ex. 25 at DEQ000059; Ex. 26 at DEQ001415); *see also* 72 Fed. Reg. 64860. If a component is leaking above the established threshold (500/2000ppmv), then Medicine Bow must repair or replace it within specified timeframes. *See* 72 Fed. Reg. 64860, 64883-95.

The BACT analysis starts with listing available control options. (Schlichtemeir Aff. at ¶ 44). Medicine Bow identified LDAR as the only available control option for fugitive component leaks at the Facility. (Ex. 4 at DEQ000151; Ex. 11 at DEQ000525; Ex. 15 at DEQ000078-000082). Medicine Bow proposed to operate the LDAR program to minimize fugitive emissions at the Facility, based on a leak detection level of 500 ppm for valves and connectors and a leak detection level of 2000 ppm for pumps. (Ex. 4 at DEQ000151; Ex. 11 at DEQ000525; Ex. 15 at DEQ000078-000082). EPA recently determined that lower detection levels were not cost-effective. *See* 72 Fed. Reg. 64864; *see* also (Ex. 19 at DEQ002919).

The DEQ/AQD reviewed Medicine Bow's proposed levels and found them to be similar to the requirements of Subpart VVa of 40 CFR part 60 (Nov 16, 2007) and NESHAPs. NESHAP thresholds are considered to be representative of maximum achievable control technology, and typically require greater control than BACT. (Ex. 50 at p. 8). Based on the proposed monitoring levels meeting NSPS/NESHAP thresholds the Division determined the proposed LDAR program to be representative of BACT for fugitive emissions. (*Id.*).

In addition to inspection and repair requirements and additional recordkeeping and reporting requirements, the DEQ also increased the leak monitoring frequency to every six months. (Ex. 25 at DEQ000037; Ex. 26 at DEQ001415, Condition 21). Medicine Bow's LDAR program is BACT because it was the only available technology. It is also more stringent than the NSPS requirements. Therefore, summary judgment should be granted to the DEQ on this issue.

D. THE DEQ CORRECTLY DETERMINED THE FACILITY WAS A MINOR SOURCE OF HAP EMISSIONS

The Sierra Club alleges that fugitive HAP emissions from the Medicine Bow Facility's valves, pumps, compressors and connectors were underestimated based on the emission factors and component count estimates used by the applicant and the DEQ, and therefore the Facility is actually a major source of HAPs and must undergo a MACT analysis. (Pet. for Hr'g at pp. 14-15). However, after lowering the leak detection level from 10,000 ppm to 500 or 2000 ppm (depending on the component) and re-engineering certain components, the Facility's recalculated fugitive emissions for each HAP were less

than 10 TPY and the total HAP emissions were less than 25 TPY. Because the Facility's HAP emissions did not exceed major source levels, it qualifies as a minor HAP emission source. *See* CAA § 112; 6 WAQSR § 6.

Medicine Bow's Application thoroughly described its process for estimating fugitive component leaks. (Ex. 4 at DEQ000124; Ex. 15 at DEQ000078-000054). Medicine Bow also provided detailed emission calculations including details on stream composition, emission factors, emission factor source, percent control achieved through application of the LDAR program, and estimated component count. (Ex. 4 at DEQ000124, 000265-282; Ex. 15 at DEQ000078-000054, 000078-000231 – 249); *see also* (Ex. 10 and Ex. 19).

Medicine Bow's Application initially estimated fugitive HAP emissions greater than 10 TPY based in part on a leak detection level of 10,000 ppm. (Ex. 4 at DEQ000124, 000265-282; Ex. 10). In May 2008, Medicine Bow lowered the leak detection level to 500 or 2000 ppm, depending on the component service. (Ex. 10). Despite using a lowered leak detection level, HAP emissions were still greater than 10 TPY. (Ex. 11 at DEQ000512). Therefore, Medicine Bow proceeded to redesign some of the component sampling connections from an open-ended design to a closed-loop design, which resulted in lower equipment leak emissions. (Ex. 19 at DEQ002918, 002926-27; Ex. 15 at DEQ000078-000054, 000078-000231 – 249). Based on this engineering design change, HAP emission estimates were lowered to less than 10 TPY. (Ex. 19 at DEQ002918, 002926-27; Ex. 15 at DEQ000078-000082, 000078-000231 – 249; Ex. 25

at DEQ000036-37 and 000057). The DEQ considers Medicine Bow's revised estimates to be conservative because the estimates assumed that all components will always be leaking at the 500 or 2000 ppm limits. (Ex. 25 at DEQ000036-37).

Additionally, although HAP emissions were calculated using an estimated number and mixture of components, the DEQ is requiring Medicine Bow to provide a final equipment count of the as-built facility before startup and submit a report of actual fugitive HAP emissions calculated using the Facility's measured leak detection rates after the Facility has started operations. (Ex. 25 at DEQ000037 and 000058-59). Although the DEQ's initial analysis estimated methanol HAP emissions greater than 10 TPY, DEQ's final analysis, based on information submitted during and in response to public comments, concludes that methanol HAP emissions are less than 10 TPY. (Ex. 25 at DEQ000036-37 and 000057). Because methanol HAP emissions are estimated to be less than 10 TPY, the Facility is considered a minor HAP source and not required to undergo a MACT analysis. *See* (Ex. 25 at DEQ000036-37 and 000057); CAA § 112; and 6 WAQSR § 6.

E. THE DEQ PROPERLY MODELED FUGITIVE PARTICULATE MATTER EMISSIONS

The Sierra Club alleges that the applicant failed to model fugitive particulate matter (PM) emissions and therefore failed to demonstrate to the DEQ that the Medicine Bow Facility would not cause or contribute to a NAAQS violation. (Pet. for Hr'g at p. 16). However, Medicine Bow modeled long term fugitive emissions and demonstrated NAAQS and WAAQS compliance. Furthermore, as Congress, EPA and Wyoming have

long recognized, short term fugitive emission modeling continues to have uncertainties in performance and has never been used as a viable tool to estimate such impacts in Wyoming.[17] *See* Section 234 of the Clean Air Act of 1990; *see* also (Ex. 51; Ex. 52; Ex. 53; Ex. 54; Ex. 46 at DEQ004889 and 004916; Ex. 47 at DEQ004927, 004931, 004938-39, 004947-48). Because Medicine Bow conducted fugitive PM_{10} emission modeling in accordance with Wyoming requirements, and demonstrated that the Facility would not cause or contribute to a NAAQS or WAAQS violation, summary judgment should be granted to the DEQ on this issue.

"Fugitive" emissions are "emissions which could not reasonably pass through a stack, chimney, vent, or other functionally equivalent opening." 1 WAQSR § 3(a); *see also* 40 C.F.R. § 52.21(b). Most of the air pollution generated at surface coal mines comes from fugitive dust, including unpaved haul road traffic.[18] Historically, fugitive emissions have been difficult to quantify and model. *See* 48 Fed. Reg. 38,742, 38743-47 (Aug. 25, 1983)(detailing some of the difficulties).

In 1990, Congress promulgated Section 234 of the 1990 Clean Air Act to address modeling issues regarding Fugitive Dust. CAA § 234. Section 234 authorizes states to use alternative approaches for short-term PM_{10} fugitive emissions modeling because of

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[17] EPA's Industrial Source Complex (ISC) regulatory dispersion model was replaced by AERMOD in December 2006. As with ISC, technical issues with AERMOD may result in overestimated concentration predictions for area (fugitive) sources. (Ex. 39 at p. 14; Nall Aff. at ¶ 23).

[18] *See Natural Resources Def. Council v. EPA*, 937 F.2d 641 (D.C.Cir. 1991) (upholding EPA decision to not include surface coal mines on list of industrial sources for which fugitive emissions are to be included in determining whether a source is major); *see also* 54 Fed. Reg. 48870, 48879 (Nov. 28, 1989).

"significant over-prediction of air quality effect of fugitive particulate emissions" from coal mines. *Id.* Although EPA has adopted revised models, even these newer models may overestimate fugitive impacts under light wind conditions. *See* (Ex. 39 at p. 14).

In 1994, after Section 234 was adopted, the DEQ and EPA entered into a Memorandum of Understanding (MOU) acknowledging that monitoring may be conducted in lieu of short term modeling for coal mine particulate in the Powder River Basin. (Ex. 52); *see also* 60 Fed. Reg. 47290 (Sept. 12, 1995). The DEQ, by policy applies that practice statewide to fugitive PM_{10} emissions modeling because of continued uncertainties in EPA model performance for short-term (24 hour) modeling. (Ex. 53; Ex. 54; Ex. 46; Ex. 47; Nall Aff. at ¶22). Short term model predictions involving fugitive mining emissions have never been endorsed by the DEQ as a viable tool to estimate 24 hour ambient impacts because existing short term modeling techniques do not produce realistic predictions.[19]

Consistent with specific EPA guidance for Wyoming, and DEQ's statewide fugitive PM_{10} modeling practice, Medicine Bow modeled annual but not 24-hour fugitive PM_{10} emissions. (Ex. 15 at DEQ000078-000123 – 125). The DEQ's analysis determined that the Facility would comply with the PM_{10} NAAQS and WAAQS. (Ex. 11 at DEQ000542-46; Ex. 25 at DEQ000037, 000043, 000045 and 000046). Because Medicine Bow demonstrated compliance with the PM_{10} NAAQS and WAAQS, the

[19] *See* CAA § 234; *see* also (Ex. 53; Ex. 54; Ex. 46; Ex. 47; Nall Aff. at ¶¶ 22 – 23; Ex. 51 (noting that model still overpredicts PM_{10} concentrations); Ex. 11 at DEQ000542, 000545-46; Ex. 25 at DEQ000043; Ex. 39 at p. 14; Ex. 56 at 11.9-6, note).

DEQ's decision issuing the Permit was proper. Therefore, summary judgment should be granted to the DEQ.

XI. CONCLUSION

There are no genuine issues of material fact on these five issues, and therefore judgment may be rendered as a matter of law. Applying the law to the facts, leads to one conclusion – the DEQ's permitting action for the Facility was supported by evidence in the record and complied with the law. Therefore, the DEQ requests the Council grant its Motion for Summary Judgment.

DATED this 16th day of November, 2009.

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CERTIFICATE OF SERVICE

I hereby certify that I have served a true and correct copy of the foregoing DEQ'S MEMORANDUM IN SUPPORT OF MOTION FOR SUMMARY JUDGMENT through United States mail, postage prepaid on this 16th day of November, 2009 addressed to the following:

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