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**BEFORE THE ENVIRONMENTAL QUALITY COUNCIL
STATE OF WYOMING**

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

SIERRA CLUB'S PRE-HEARING MEMORANDUM

INTRODUCTION

In this matter, Sierra Club challenges the Wyoming Department of Environmental Quality's ("DEQ") decision to issue an air permit to Medicine Bow Fuel &

Power, LLC (“Medicine Bow”) for an underground coal mine and industrial gasification and liquefaction plant that will produce transportation fuels. At critical junctures throughout the permitting process, DEQ accepted, without adequate independent oversight, Medicine Bow’s analysis and recommendations as to pollution control requirements required by law. DEQ’s unlawful deference to the applicant led DEQ to underestimate the facilities’ potential to emit SO₂ and hazardous air pollutants, as well as to permit use of controls for a range of pollutants – including particulate pollution, SO₂, and volatile organic compounds – that are inferior to the applicable “best available” control requirement. Similarly, DEQ unlawfully permitted controls for hazardous air pollutants that are less than the applicable “maximum achievable” requirement. Finally, without reasoned justification, DEQ failed to conduct – or require Medicine Bow to conduct – the required analyses to control fine particulate matter pollution.

Sierra Club will present evidence establishing that because of these and other failures, the relevant analyses and terms of the Medicine Bow permit violate the Clean Air Act and Wyoming law. Accordingly, this Council must remand the permit to DEQ.

STANDARD OF REVIEW

This Council has consistently held that its review of DEQ’s permitting decisions is *de novo*. See, e.g., *In The Matter Of Basin Electric Power Cooperative Dry Fork Station Air Permit CT-4631*, Docket No. 07-2801 (EQC Aug. 21, 2008, Order

Denying Basin Electric Power Cooperative Inc.'s Motion to Dismiss Appeal at 7) (“Upon filing a petition for review of the agency's action with this Council, a full evidentiary, *de novo* hearing is required for further appellate review.”); *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.

IDENTIFICATION AND DISCUSSION OF ISSUES FOR HEARING

I. Whether Use of the PM₁₀ Surrogate Policy Excuses DEQ’s Failure to Meet PM_{2.5} BACT and NAAQs Requirements

A. Background on PM_{2.5} Claim

Before issuing a permit to Medicine Bow, Wyoming regulations and the Clean Air Act require DEQ to demonstrate that the facility’s fine particulate emissions (particulate matter less than 2.5 microns in diameter, known as PM_{2.5}) would not “cause or contribute” to air pollution in excess of the PM_{2.5} air quality standards, and to establish a Best Available Control Technology (BACT) emission limit for PM_{2.5}. 6 WAQSR §§4(b)(i) & (ii); 42 U.S.C. § 7475(a). Yet the evidence will show that DEQ admits that it did not consider PM_{2.5} emissions from the Medicine Bow facility in any respect.

DEQ claims it complied with PM_{2.5} permitting requirements by conducting a BACT analysis for coarse particulate matter (PM₁₀) and demonstrating compliance

with PM₁₀ air quality standards. DEQ's position is based on a misinterpretation of EPA's now-defunct PM₁₀ surrogate policy. The surrogate policy has always been governed by D.C. Circuit law on surrogates, which requires a case-by-case reasonableness inquiry, the so-called "reasonableness analysis." This interim policy, announced over twelve years ago in the Seitz Memo, advised that permitting authorities could use PM₁₀ as a surrogate for PM_{2.5} only as long as it proved "administratively impracticable" to directly address PM_{2.5} due to "technical and informational deficiencies." Memorandum from John S. Seitz at 2 (October 21, 1997) (Sierra Club's exhibit 3).¹ Those deficiencies of twelve years ago present no difficulties today – as EPA has recognized. The interim surrogate policy did not justify DEQ's failure to analyze PM_{2.5} and its failure to perform a reasonableness analysis of a PM₁₀ surrogate.

Earlier in this case, the Council rejected DEQ's motion to dismiss Sierra Club's PM_{2.5} claim, and held that there are two unresolved issues remaining.

The first is whether the Department is unable to implement a PSD program for the PM-2.5 NAAQS based upon the EPA rule established on May 16, 2008...The second is whether or not the use of the surrogate in this application has been shown to be a reasonable substitute.

Order Denying Respondents' Motion for Dismissal of Claim VII and Granting Dismissal of Claim VIII, Docket No. 09-2801 (Nov. 2, 2009), at §§ 22, 23. The Council has therefore already determined the legal questions at issue with respect to this claim.

¹ Available at <http://www.epa.gov/ttn/oarpg/t1/memoranda/pm25.pdf>

DEQ has repeatedly admitted that it did not conduct a “reasonableness analysis” in this case. Despite the Council’s ruling, and the ample legal authorities supporting it, DEQ continues to argue that it need not conduct a reasonableness analysis. On the other hand, Medicine Bow has offered the *post-hoc* rationale generated by its retained expert, Katrina Winborn, in an attempt to compensate for the lack of analysis done by DEQ. The Council should not consider Katrina Winborn’s report because it introduces information not present in the record at the time of decision and constitutes an impermissible *post-hoc* rationalization. DEQ RPP Ch. 2 § 12 (“[t]he Council shall make a written decision and order in all cases, which decision shall contain findings of fact and conclusions of law *based exclusively on the record* . . .”). Under the arbitrary and capricious standard of review, the Council’s review is limited to the adequacy of DEQ’s decision to issue the permit, so the Council should not consider any evidence generated to support the decision after the permit was issued. *See Tri-State Generation and Transmission Ass’n, Inc. v. Environmental Quality Council*, 590 P.2d 1324, 1330-31 (Wyo. 1979) (“An agency action is arbitrary or capricious if it is not based on a consideration of the relevant factors.”). Further, the report is not DEQ’s own analysis, making the report not only a *post-hoc* rationalization, but one offered by the party who stands to have its permit remanded due to what they seem to realize is a failure of DEQ to fulfill its duty.

B. Questions of Fact

1. Does the DEQ’s decision-making record contain a “reasonableness analysis” of whether use of PM₁₀ was reasonable as a surrogate for PM_{2.5}? *Order Denying*

Respondents' Motion for Dismissal of Claim VII and Granting Dismissal of Claim VIII, Docket No. 09-2801 (Nov. 2, 2009), at ¶23 (holding there is an unresolved issue “whether or not the use of the surrogate in this application has been shown to be a reasonable substitute”); *In re Louisville Gas & Electric Co.*, Order Responding to Issues raised in April 28, 2008 and March 2, 2008 Petitions, and Denying in part and Granting in Part Requests For Objection to Permit (August 12, 2009), at 44 (Sierra Club exhibit 4) (hereinafter “*Trimble*”) (holding that “applicants and permitting authorities [must] determine whether PM₁₀ is a reasonable surrogate for PM_{2.5} under the facts and circumstances of the specific permit at issue, and not proceed on a general presumption that PM₁₀ is always a reasonable surrogate for PM_{2.5}”); *E.g.*, *National Lime v. EPA*, 233 F.3d 625, 639 (D.C. Cir. 2000) (surrogates may only be used under limited circumstances after a thorough reasonableness inquiry demonstrates that use of the surrogates satisfies legal requirements for the original pollutant).

2. There is a mixed question of law and fact whether Medicine Bow’s expert’s *post-hoc*, purported surrogate reasonableness analysis can be considered. First the Council must determine, as a matter of law (see Section B below), whether it will consider Katrina Winborn’s surrogate analysis at all. If the Council chooses to examine the report, the question of fact is whether Katrina Winborn’s surrogate analysis is an adequate reasonableness analysis. *Trimble*, exhibit 5, at 45 (providing detailed instructions for state permitting agencies on how to show PM₁₀ provides a reasonable surrogate for PM_{2.5} in a particular case). The answer to that question

depends on the answer to two subsidiary questions, including whether Winborn's analysis evidence a strong statistical relationship between PM₁₀ and PM_{2.5} emissions from the facility, *Id.*, and whether Winborn's analysis demonstrate that the degree of control selected in the PM₁₀ BACT analysis will be at least as effective as the technology that would have been selected if a BACT analysis specific to PM_{2.5} had been conducted. *Id.*

3. There is a further question of necessity: Did DEQ establish in the decision-making record that it is not able to demonstrate compliance with PM_{2.5} NAAQs or perform a PM_{2.5} BACT analysis? *Order Denying Respondents' Motion for Dismissal of Claim VII and Granting Dismissal of Claim VIII*, Docket No. 09-2801 (Nov. 2, 2009), at ¶22 (holding there is an unresolved issue "whether the Department is unable to implement a PSD program for the PM-2.5 NAAQS based upon the EPA rule established on May 16,2008); 73 Fed. Reg. 28321, 28341 (May 16, 2008) (SIP-approved states may only continue to use PM₁₀ as a surrogate for PM_{2.5} if it is "unable to implement a PSD program for the PM_{2.5} NAAQS"). If the Council chooses to consider evidence outside of DEQ's decision-making record to answer the preceding question, this question becomes whether DEQ can show that it does not have all the technical tools needed to perform a PM_{2.5} analysis.

C. Questions of Law

1. Is DEQ required — in accordance with well-established D.C. Circuit law and the EPA's *Trimble* decision — to conduct a thorough, case-specific analysis of

whether PM₁₀ is reasonable as a surrogate for PM_{2.5} at the Medicine Bow facility? *Trimble*, exhibit 4, at 42-46; *E.g.*, *National Lime v. EPA*, 233 F.3d at 639.

2. Can the Council consider Medicine Bow's expert's testimony on reasonableness at all, since it was performed after DEQ's permitting decision, DEQ did not review or accept this as a basis for its permitting decision, and it was not subject to proper public notice and comment procedures? *See, e.g.*, *Sierra Club's Motion to Strike; Motor Vehicle Mfrs Ass'n v. State Farm Mut. Auto Ins. Co.*, 463 U.S. 29, 50 (1983) (an agency's action "must be upheld, if at all, on the basis articulated by the agency itself"); *Mossville Env'tl Action Now v. EPA*, 370 F.3d 1232, 1242-43 (D.C. Cir. 2004) (rejecting use of surrogate where no explanation is found in the record for public review).

D. Elements That Sierra Club Must Establish to Carry its Burden of Proof

As the Council has ordered, Sierra Club must establish either: 1) that DEQ did not show that use of PM₁₀ as a surrogate for PM_{2.5} was reasonable; or, alternatively, 2) that DEQ did not establish that it is unable to implement a PM_{2.5} PSD program. *Order Denying Respondents' Motion for Dismissal of Claim VII and Granting Dismissal of Claim VIII*, Docket No. 09-2801 (Nov. 2, 2009), at 22, 23. If Sierra Club establishes either of the preceding, it will establish that DEQ failed to meet PM_{2.5} requirements.

As to the Council's first issue, the evidence will show that DEQ did not conduct any reasonableness analysis regarding whether PM₁₀ is a proper surrogate for

PM_{2.5}, nor did DEQ rely on and incorporate a reasonableness analysis undertaken by Medicine Bow in its permitting decision. DEQ admits this much.

If the Council decides to review Katrina Winborn's post-hoc effort to discharge DEQ's obligation to provide a reasonableness analysis, the burden shifts to DEQ, and the Sierra Club will show the analysis is inadequate. First, Ms. Winborn improperly and inadequately estimates the statistical relationship between PM₁₀ and PM_{2.5} emissions from Medicine Bow. *See Trimble*, exhibit 4, at 45. In direct contradiction of EPA's direction in *Trimble*, Ms. Winborn relies entirely on EPA's Compilation of Air Pollutant Emission Factors (AP-42). The Sierra Club will show her estimate is insufficient because AP-42 provides a constant, fixed ratio of PM₁₀/ PM_{2.5} for estimation purposes only. In the case of fugitive particulate emission sources, the PM₁₀/ PM_{2.5} relationship will vary significantly depending on numerous factors such as wind velocity, surface friction factor, and degree and manner of wear and friability of materials. The Sierra Club will also show that Ms. Winborn provides no support for her conclusion that there is a perfect correlation between PM₁₀ and PM_{2.5} for combustion turbines under all situations.

Second, the Sierra Club will prove that Ms. Winborn's analysis does not show that the controls selected in the PM₁₀ BACT analysis for the facility will be at least as effective as the technology that would have been selected if a BACT analysis specific to PM_{2.5} had been conducted. *See Trimble*, exhibit 4, at 45. The Sierra Club will show that Ms. Winborn's analysis is flawed because work practice techniques for controlling fugitive particulate matter emissions will vary in degree, amounts, fre-

quency, and other ways depending on whether they are used to control PM₁₀ or PM_{2.5}.

As for the second issue raised by the Council's order of November 2, 2009, the evidence will show there is no justification in the decision-making record why DEQ is not able to demonstrate compliance with PM_{2.5} NAAQs or perform a PM_{2.5} BACT analysis. If the Council considers evidence outside the record, the burden shifts to DEQ to show why it cannot comply with PM_{2.5} NAAQs or BACT requirements. The Sierra Club will prove that there is no justifiable reason that DEQ can show because DEQ has all the technical tools necessary to conduct both PM_{2.5} NAAQs and BACT analyses. The Sierra Club will show that there are measurement methods, modeling tools and monitoring data available, and these tools have been available throughout Medicine Bow's permitting process.

II. Whether DEQ Failed to Consider Significant Sulfur Dioxide Emissions from Flares in Determining Medicine Bow's Potential to Emit and Failed to Properly Review Medicine Bow's Potential to Emit SO₂

A. Background on SO₂ Potential to Emit Claim

A source's "potential to emit" is defined as "the maximum capacity of a stationary source to emit an air pollutant under its physical and operational design." 6 WAQSR §4(a) ("potential to emit"); *see also* 40 C.F.R. § 51.165(a)(iii). The law is well-established that a new source such as Medicine Bow may not ignore startup, shutdown, and malfunction (SSM) emissions in calculating its emissions estimate, known as its potential to emit (PTE). *In re Tallmadge Generating Station*, 2003 WL

21500414 (PSD Appeal No. 02-12, May 22, 2003) at *8 (EPA has had a “long-standing position that automatic exemptions for excess emissions...during startup and shutdown periods cannot be reconciled with the directives of the CAA [Clean Air Act].”); *see also* Sierra Club’s Motion for Summary Judgment at 23-28. Emissions from SSM events are part of the normal operation of a source. *In re Tallmadge* at *8-*9, (“Startup and shutdown of process equipment are part of the normal operation of a source and should be accounted for in the planning, design, and implementation of operating procedures for the process and control equipment.”) Failure to properly estimate all of a facility’s emissions is a violation of law. *In re Masonite Corp.*, 5 E.A.D. 551, 1994 WL 615380 at *15-16 (E.A.B. 1994) (PSD permit re-manded for failure to consider all emissions of particulate matter); *In re BP Products North America, Inc.*, Order Responding to Petitioner’s Request that the Administrator Object to Issuance of State Operating Permit, Permit No. 089-254880—453 (Oct. 16, 2009) at 5-7 (hereafter “*In re BP Products*”) (Sierra Club exhibit 9) (EPA objected to an operating permit for the BP Whiting Refinery because it did not include sulfur dioxide emissions from flares during SSEM events in its emissions calculations).

The Medicine Bow project design includes two flares, whose purpose is to combust syngas at startup, shutdown and malfunction events. Medicine Bow admits that it did not include significant emissions of sulfur dioxide in its PTE calculation. Medicine Bow estimated emissions of 164.56 tons of sulfur dioxide per year from

flaring due to malfunction events, and 256.9 tons per year from cold startups. However, its potential to emit estimate totaled 36.6 tons per year.

B. Questions of Fact

1. Are cold starts part of the normal operation of the Medicine Bow facility such that they must be included in the potential to emit?

2. Are malfunctions part of the normal operation of the Medicine Bow facility such that they must be included in the potential to emit?

C. Questions of Law

1. Did DEQ properly exclude emissions from cold starts from Medicine Bow's potential to emit estimate?

2. Did DEQ properly exclude emissions from malfunctions from Medicine Bow's potential to emit estimate?

D. Elements That Sierra Club Must Establish to Carry its Burden of Proof

Sierra Club will show that cold starts and malfunctions are predictable events associated with normal operations and virtually certain to occur, and for these reasons must be included in any realistic assessment of the facility's maximum potential to emit SO₂.

The evidence will also show that periodic cold starts are an essential part of the facility's operations, and when they occur, they will be significant. The evidence will also show that cold starts will likely occur at least four years over the life of the

facility, which is so frequent as to be deemed routine. Accordingly, the exclusion of emissions resulting from such events would omit significant amounts of SO₂ from the potential to emit estimation. Accordingly, the evidence will show that DEQ improperly excluded approximately 164.56 tons of sulfur dioxide per year from malfunctions and approximately 256.9 tons per year from cold startups from Medicine Bow's potential to emit estimate, which totaled 36.6 tpy.

III. Whether DEQ Failed to Apply BACT to Sulfur Dioxide Emissions from the Flares.

A. Background on SO₂ BACT Claim

Wyoming law requires that a BACT limit must be set for every pollutant subject to regulation. 6 WAQSR §§ 2(c)(v) & 4(a). DEQ's failure to support the Medicine Bow permit with a BACT analysis for sulfur dioxide emissions from the flares is a violation of law and reversible error. *In re Tallmadge* at *9-*10 ("The administrative record here, as in *RockGen*, is devoid of evidence that the permit issuer (here MDEQ) considered ways to eliminate or reduce excess emissions during startup and shutdown, as it is obliged to do to ensure compliance with the CAA."); *In re Indeck-Elwood, LLC*, 2006 WL 3073109 at *33 (E.A.B. 2006).

Although DEQ admits it did not perform a BACT analysis for emissions from the flares, DEQ nevertheless claims that the SSEM plan is BACT for the flares. The SSEM plan is not BACT for the flares for at least three reasons. First, it was not subject to a proper BACT analysis. A BACT analysis requires consideration of

all potentially available control options. *See In re Indeck, LLC*, 2006 WL 3073109 at n.116 (E.A.B. 2006); *Tallmadge* at *9-10.

Second, DEQ did not determine that an emissions limitation was technically infeasible before choosing a work practice plan, as the Wyoming regulations require. 6 WAQSR § 4(a) (“Best Available Control Technology”) (“If the Administrator determines that ...imposition of an emission standard [is] 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”); *In re Indeck-Elwood, LLC*, 2006 WL 3073109 at *32-37 (E.A.B. 2006)(remanding permit because record did not contain analysis why emissions limits were infeasible for SSM events before substituting work practices).

Third, the SSEM plan itself cannot possibly be BACT because it is not enforceable. 6 WAQSR § 4(a) (“Best Available Control Technology”) (“[a work practice 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...(emphasis added).

B. Questions of Fact

Was a top-down BACT analysis conducted for the flares? *See In re Indeck, LLC*, 2006 WL 3073109 at n.116 (E.A.B. 2006).

Does DEQ's decision-making record contain a determination that an emission limitation is infeasible? 6 WAQSR § 4(a) ("Best Available Control Technology").

Is the SSEM plan enforceable? *Id.*

C. Questions of Law

Does the SSEM plan represent the "maximum degree of reduction...achievable," and therefore BACT, for SO₂ emissions from the flares? 6 WAQSR § 4(a) ("Best Available Control Technology").

D. Elements That Sierra Club Must Establish to Carry its Burden of Proof

The Sierra Club must show that DEQ did not apply a BACT analysis to the flares that considered control alternatives to the selected SSEM plan, that DEQ's selection of the SSEM was not supported by a determination in the decision-making record that an emissions limitation would be infeasible for the flares, or that the SSEM plan is unenforceable.

The Sierra Club will show at the hearing that DEQ did not apply a BACT analysis to the flares, it did not consider any other control options besides the SSEM plan, and it did not consider strengthening the SSEM plan. DEQ admits as much. Further, the Sierra Club will show there is no determination in DEQ's decision-making record that an emissions limitation is technically infeasible for the flares. Finally, the Sierra Club will show that the SSEM plan cannot be BACT because it contains a number of unenforceable provisions. DEQ admits as much.

IV. Whether DEQ Improperly Approved Medicine Bow's Estimate of Potential Hazardous Air Pollutant Emissions from the Facility, and Thus Improperly Determined that the Facility Will be a Minor Source of HAPs

A. Background on HAP PTE Claim

Hazardous air pollutants (HAPs) are those that may present, "a threat of adverse human health effects (including, but not limited to, substances which are known to be, or may reasonably be anticipated to be, carcinogenic, mutagenic, teratogenic, neurotoxic, which cause reproductive dysfunction, or which are acutely or chronically toxic) or adverse environmental effects whether through ambient concentrations, bioaccumulation, deposition, or otherwise." 42 U.S.C § 7412(b)(2).

If permitted, constructed, and operated, Medicine Bow is expected to emit Acetaldehyde, Acrolein, Benzene, Formaldehyde, Hexane, Methanol, Naphtalene, PAH, Propylene Oxide, Toluene, Xylene, among other HAPs. Application at 1-7 (AR-28).

Major sources of HAPs are those with the potential to emit (PTE) 10 tons per year (tpy) or more of any single regulated HAP, or 25 tpy or more of any combination of HAPS. 42 U.S.C. § 7412 (a)(1); *see* § 7412(b) for list of pollutants; *see also* 6 WAQSR § 6(f)(iv) (definition of "construct a major source"). Major sources of HAPs are required to comply with MACT regulations that must, where achievable, eliminate such emissions entirely. 42 U.S.C. § 7412(d)(2). New sources subject to MACT must achieve emissions reductions that are at least as stringent as "the emission control achieved in practice by the best controlled similar source." 42 U.S.C. § 7412(d)(3).

A source's PTE, in turn, is defined as "the *maximum* capacity of a stationary source to emit a pollutant under its physical and operational design." 40 C.F.R. 51.165(a)(1)(iii), 51.166(b)(4), and 52.21(b)(4); *see also* 6 WAQSR § 3(b)(xxi) (emphasis added). The concept of potential to emit "refers to the *maximum* emissions a source can generate when being operated within the constraints of its design." *USA v. Louisiana-Pacific (L-P) Corp.*, 682 F. Supp. 1141, 1157 (Colo. 1988) (emphasis added). The definition on its face does not authorize a permitting agency to accept, as a proper PTE, anything less than a maximum estimate of potential emissions.

Before an agency can render a PTE calculation – or accept one offered by an applicant in the course of a permitting process – the agency must verify the relevant facts and assess the accuracy of central assumptions. In particular, it "must have before it sufficient information for the finding of those facts upon which it pretends to act, otherwise its action will be arbitrary." *Johnson v. Schrader*, 502 P.2d 371, 374 (Wyo. 1972). Moreover, "*findings of basic facts will not be implied from ultimate findings or conclusions of law; and failure of an agency to meet its responsibilities makes its determination susceptible to the charge that its order is contrary to law.*" *Id.* (emphasis added); *see also In re CertainTeed Corp.*, 1 E.A.D. 743, 747-49 n.11-12 (Adm'r 1982) (PSD permit decisions must be based on detailed, accurate, and site-specific information).

Moreover, the permitting agency is required to ensure that the methods utilized to construct a PTE at minimum apply relevant EPA guidance safeguards. Estimates of fugitive VOC emissions must be based on EPA's correlation equation ap-

proach where actual screening values – those derived from operations at the facility or from testing or use under similar conditions – can be obtained. Average emission factors can be used only where such “specific and/or better data” are not available.²

Where an applicant seeks to establish that it is a minor source, and thereby be relieved of stricter emissions control requirements, the arbitrary review standard demands that a permitting agency must take special care to verify and assess the accuracy of PTE calculations. This is particularly true in the current case where the critical assumptions underlying an applicant’s PTE estimate have changed repeatedly in the course of the permitting process, and where the proffered estimate is exceedingly close to the major source statutory threshold.

A permit may not be granted on the basis of an erroneous or misleadingly low estimate of emissions. EPA has instructed, in particular, that sham permits – those with conditions that restrict a facility to a level of emissions “at which the source does not intend to operate for any extensive time” – are not allowed under the Clean Air Act and its implementing regulations. Terrell Hunt and John Seitz, *Guidance on Limiting Potential to Emit in New Source Permitting*, EPA Memorandum (June 13, 1989), 11-14.

Here, although Medicine Bow’s final Application identified its facility as a major source of HAPs, and although DEQ initially accepted that the Medicine Bow

² STAPPA-ALAPCO-EPA, Emission Inventory Improvement Program, “Preferred and Alternative Methods for Estimating Fugitive Emissions from Equipment Leaks,” Final Report, November 1996 at 4.4-1 (attached as exhibit XX), *available at* <http://www.epa.gov/ttn/chief/eiip/techreport/volume02/ji04.pdf>.

facility would be a major source of HAPs, by March 2009, DEQ had concluded that the Medicine Bow facility would be a minor source of HAP emissions, basing its reversal on “[r]evised emission calculations” that it had received from Medicine Bow. In accepting Medicine Bow’s calculations at each stage, DEQ concurred with Medicine Bow about its: (a) decision to not include in its PTE for HAPs those emissions stemming from flares during shutdown or startup events, (b) assumptions and calculations about VOC/HAP control efficiency of its leak detection and repair program, and other assumptions.

B. Elements of the Claim

To establish its claim, the Sierra Club may show *either* that (1) that Medicine Bow failed to provide supporting information necessary for DEQ and the public to verify Medicine Bow’s calculated PTE for HAP emissions, or (2) that the data or other assumptions underlying Medicine Bow’s calculation was inaccurate and that DEQ failed to verify or assess their accuracy. Either showing establishes that DEQ erroneously approved Medicine Bow’s PTE for HAP emissions. At hearing, Sierra Club intends to establish both points.

C. Questions of Fact

At the outset of the scheduled hearing, Sierra Club intends to answer the following questions of fact.

1. Whether DEQ Reasonably Verified Medicine Bow's Calculations or Independently Determined the Facility Will Be a Minor Source of HAPs.

The evidence at the hearing will establish that DEQ did not render its own accurate count of fugitive emission components and did not verify any of the component counts offered by Medicine Bow in the latter's VOC and HAP PTE calculations. Further, the evidence will show that DEQ did not verify whether the emission factors utilized by Medicine Bow were appropriate for use in its emission estimate for fugitive component leaks.

2. Was Information in the Record at the Time of the Permitting Decision Sufficient to Enable DEQ and the Public to Verify Medicine Bow's PTE Calculation for fugitive HAP emissions?

Sierra Club expects that expert testimony at hearing from Ranajit Sahu will establish that the underlying or supporting documents -- necessary to conduct an engineering evaluation or analysis of the fugitive potential to emit emissions of VOCs or organic HAPs from the Medicine Bow facility -- were not available in the permit record. As a necessary consequence, DEQ could not have conducted an independent engineering analysis or evaluation of Medicine Bow's assumptions, calculations, and conclusions. Relatedly, evidence at hearing also will show that DEQ did not render its own accurate count of fugitive emission components and did not verify any of the component counts offered by Medicine Bow in the latter's VOC and HAP PTE calculations.

3. Did DEQ ensure that Medicine Bow utilized accurate emission factors as the basis for its PTE calculations for VOC and HAP emissions that DEQ accepted?

The Sierra Club expects the testimony of Ranajit Sahu to establish that accurate emission factors and emissions data can be obtained from various vendors of components and/or from measurements and test data that are representative of Medicine Bow's components in question, where such components are in use at other facilities. The undisputed fact that this was not done will demonstrate that the PTE calculation for VOC and HAP emissions from Medicine Bow was not based on the required "specific" and "better" data relevant to the components that Medicine Bow will actually utilize at its facility. The evidence at hearing will show that DEQ accepted Medicine Bow's decision to utilize Synthetic Organic Chemical Manufacturing Industry (SOCMI) averages as emission factors for VOC and HAP PTE determinations, and that DEQ did not independently assess whether it was appropriate to utilize SOCMI average emission factors in its PTE calculations for VOC and HAP emissions at the facility.

4. Did DEQ ensure that Medicine Bow reasonably supported its use of SOCMI average emission factors?

The Sierra Club expects the testimony of Ranajit Sahu to establish that Medicine Bow did not support its choice of the SOCMI *average* emission factors – as opposed to using other SOCMI emission factors that are more appropriate for the HAP PTE estimation at this particular facility. Dr. Sahu is expected to testify that such average emission factors may be useful for certain purposes, but that their use was not appropriate for estimating Medicine Bow's potential to emit VOCs or HAPs. Further, Sierra Club expects the evidence at hearing to establish that Medicine Bow did not even attempt to utilize actual emissions data as opposed to average esti-

mates in its PTE calculations for estimating maximum fugitive VOC and HAP emissions, and that DEQ did not request it make the attempt.

5. Whether DEQ's Acceptance of Medicine Bow's Calculated VOC/HAP Control Efficiency of its LDAR program was reasonable.

Estimated emissions in the PTE calculation for HAPs undertaken by Medicine Bow and approved by DEQ are based not only on the disputed emission factors, but also on an adjustment that Medicine Bow asserts accounts for the control efficiency achieved by the facility's Leak Detection and Repair (LDAR) program.

The Sierra Club expects the testimony of Ranajit Sahu to establish that the asserted LDAR control efficiency utilized in the PTE calculations for HAPs depends on critical assumptions that are both unrealistic and not supported in the record, or else on assumptions that are not reflected in the permit and so not enforceable. These errors render the PTE calculation clearly erroneous and, because they served to bias the HAP PTE downward, cast further doubt on DEQ's determination that Medicine Bow is a minor source of HAP emissions (and, thus, not required to control such emissions using the maximum achievable control technology (MACT)).

6. Whether DEQ's approval of Medicine Bow's exclusion of VOC and HAP potential emissions from startups, shutdowns and malfunctions was reasonable and lawful.

Medicine Bow excluded emissions from startups, shutdowns, and malfunctions in its PTE estimate, Application 1-7, (AR 28). The Sierra Club expects the testimony of Ranajit Sahu to establish that the record provides no support for that exclusion. Sahu is also expected to testify that because no engineering rationale is

provided, all estimates of the VOC or HAP potential to emit from startups, shut-downs, and malfunctions are unsupported.

Evidence presented at the hearing will also establish that the erroneous exclusion of start-up emissions has significant consequences, as the exclusion served to bias the HAP PTE downward, and so casts further doubt on DEQ's determination that Medicine Bow is a minor source of HAP emissions (and, thus, not required to control such emissions using the maximum achievable control technology (MACT)).

7. Whether DEQ's acceptance of Medicine Bow's assumed VOC/HAP control efficiency of flares was reasonable.

Medicine Bow's PTE for HAPs assumes that the facility's flares will destroy VOC (and associated HAP) emissions with an efficiency of 98%.

The Sierra Club expects the testimony of Ranajit Sahu to establish that there is no support for this assumption, and that while VOCs and associated HAPs are destroyed in high temperature devices, the degree of such destruction depends crucially on several factors that are not supported in the record. Dr. Sahu is further expected to explain that destruction of VOC/HAP emissions in the flares is incidental, not controllable, and not predictable, and that no engineering design information in the record exists to support Medicine Bow's claim – and DEQ's acceptance of that claim – that the facility's flares will operate to destroy 98% by volume of VOC emissions directed to the flares.

See also In re The Premcor Refining Group, Order Responding to Petitioners' Request that the Administrator Object to the Issuance of a Title V Operating Per-

mit (May 28, 2009), at 12-13 (rejecting Texas Commission's assurances that VOC's will be destroyed at 98 percent rate in light of flare design and the commitment by facility to operate within manufacturer's specification).

D. Questions of Law

1. **Whether DEQ unlawfully approved Medicine Bow's exclusion of HAP emissions during cold start and shutdown, and/or malfunction events, from the facility's PTE for hazardous air pollutants.**

This question is answered fully by Sierra Club's discussion of points of law and authorities in arguing that the exclusion of SO₂ emissions from flares during cold start, shutdown, and malfunction events was contrary to law. Sierra Club Motion for Summary Judgment at 23-28. While for reasons of brevity that discussion is not repeated here, it clearly counsels the conclusion that DEQ wrongly approved Medicine Bow's exclusion of such HAP emissions from consideration of its maximum potential to emit.

2. **Whether errors in Medicine Bow's PTE calculations for fugitive HAP emissions, and the corresponding errors in DEQ's approval of those estimates and determination that the facility is a minor source of HAPs, are cured by the permit's requirement to calculate actual HAP emissions.**

This is exclusively a question of law that was fully answered in an earlier filing. *See* Sierra Club Response to DEQ's Motion for Summary Judgment at 30. The answer must be "no."

V. Whether DEQ Erroneously Approved Medicine Bow's LDAR Program as the Best Available Control Technology for Fugitive Emissions

Fugitive VOC emissions, including HAP emissions, stem from leaks in valves, pumps, flanges, compressors, connectors, and other components.

DEQ is required, prior to granting a pre-construction PSD permit, to set a BACT emissions limit for VOC and HAP emissions that is supported by an adequate analysis in the record. Medicine Bow is a major source of VOC emissions, so both federal and state law require it to utilize BACT. At Medicine Bow, fugitive sources are expected to account for 60 tpy of VOCs, nearly a third of total VOC emissions. Accordingly, a BACT analysis must be applied to fugitive components.

In this matter, Medicine Bow did not engage in a full top-down BACT analysis that it, in fact, properly employed in other parts of its application. DEQ accepted Medicine Bow's truncated BACT process, with the justification that elements of the selected Leak Detection and Repair (LDAR) program are based on features of such programs required under new source performance standards. Medicine Bow maintained that it did not undertake a top-down analysis of fugitive VOC emissions because it identified only one fugitive VOC/HAP control technology, a LDAR program. DEQ, in turn, accepted Medicine Bow's LDAR program as BACT while asserting that the facility's leak detection levels were based on federal performance standards for new sources.

A. Elements of the Claim

Sierra Club must establish:

- (1) That DEQ approved Medicine Bow's LDAR program as BACT for fugitive emissions without ensuring that the LDAR program was the result of a full BACT analysis that considered all reasonable alternatives that may be BACT, or part of BACT. For this, it is sufficient for Sierra Club to identify reasonable alternatives that were not considered by Medicine Bow in its BACT analysis.
- (2) That the assertion that the selected LDAR program is based on, or consistent with, federal new source performance standards is either (a) false, or (b) not dispositive that the LDAR plan is BACT.

B. Questions of Fact

Facts already in the record constitute a sufficient basis for the Council to grant summary judgment to the Sierra Club on this claim. However, assuming summary judgment is not granted on this claim at the outset of the scheduled hearing, Sierra Club intends to answer the following questions of fact.

1. **Whether the LDAR program selected by Medicine Bow and approved by DEQ, was BACT.**

The Sierra Club expects the testimony of Ranajit Sahu to establish that the LDAR program was not selected as a result of a proper (or any) top-down BACT analysis and, accordingly, was not BACT.

2. **Whether alternatives to the selected LDAR program were available that may have better controlled VOC and HAP emissions.**

The Sierra Club expects the testimony of Ranajit Sahu to establish that such alternatives, including the use of leakless technologies, were available and, in fact,

are utilized in other jurisdictions, but that these alternatives were not considered in the record of this matter. The Sierra Club also expects to establish at the hearing that DEQ did not conduct any top-down BACT analysis for fugitive VOC emissions from the Medicine Bow plant, that neither DEQ nor Medicine Bow considered leakless component technology as a means of controlling fugitive VOC emissions from the Medicine Bow facility, and that DEQ did not consider any alternatives to Medicine Bow's selected method for the control of fugitive VOC and HAP emissions.

3. **Should leakless components be considered as part of a proper BACT analysis for an LDAR program, even if such components may not be available for all applications?**

The Sierra Club expects the testimony of Ranajit Sahu to establish that the consideration of leakless technologies as part of LDAR is proper and that such consideration does not require that every component has to be leakless.

4. **Whether the assertion that "facilities making a first attempt at repair on valves with leaks above 100 or 200 ppm ... do not always reduce emissions," Medicine Bow Memo on Summary Judgment at 25, required DEQ to approve Medicine Bow's rejection of lower leak detection thresholds.**

The Sierra Club expects the testimony of Ranajit Sahu to establish that perfect success at repairs is not to be anticipated in this world, but that this fact provides no reason to reject the use of such lower leak detection thresholds that would lead to the identification of additional leaking components in need of repair or replacement.

C. Questions of Law

1. Whether Medicine Bow or DEQ were required to undertake a full top-down or otherwise adequate BACT analysis of VOC emissions.

Sources must undertake a full top-down analysis or else otherwise undertake another adequate process to determine BACT. EPA's New Source Review Workshop Manual B.2-9 (Draft October 1990) (source or regulator must assemble a comprehensive list of control technologies, eliminate those with "[c]learly documented ...technical difficulties [that] would preclude [their] successful use," rank the remaining technologies by their control effectiveness, assess the controls' costs and impacts, and select the most stringent emission limits that are not eliminated by virtue of their costs and impacts); see *also In re Indeck*, 2006 WL 3073109 at n. 116 (BACT requires consideration of all potentially available control options).

2. Whether mere consistency with federal new source performance standards renders the LDAR as BACT and, if not, whether the LDAR is necessarily BACT if it is more stringent than those required by the federal standards.

Sierra Club has fully answered these questions. Sierra Club Motion on Summary Judgment at 44-47 and Sierra Club Response to Medicine Bow's and DEQ's Motions for Summary Judgment at 35. The answer must be "no." One (or two) steps removed from the federally-establish floor for minimum adequacy for new source performance standards does not satisfy the DEQ's requirement to ensure that Medicine Bow's LDAR program is BACT.

VI. Whether DEQ's Failure to Include 24-Hour Fugitive Particulate Emissions Modeling to Demonstrate Compliance with Air Quality Standards Was Unlawful.

In order to comply with applicable federal and state law, a facility applying for a PSD permit must demonstrate compliance with NAAQS and PSD increment standards for particulate matter. 42 U.S.C §7475(a)(3) (requiring demonstration that emissions will not exceed maximum allowable concentrations); 6 WAQSR §4(b), Table 1 (establishing maximum PSD increments (maximum allowable increase in a pollutant's concentration above an established baseline) for particulate matter); *see also* 2 WAQSR §2(c)(2) (allowing a permit to be issued only if “proposed facility will not prevent the attainment or maintenance of any ambient air quality standard”); 42 U.S.C. 7473(a) (setting maximum allowable increase in particulate matter concentration).

These standards require that particulate matter be measured using a 24-hour standard and that fugitive emissions be included in the modeling. *See* 2 WAQSR §2(a), (b) (requiring PM measurement and providing 24-hour standards); 6 WAQSR §4(c)(ii)(A) Table (providing the concentration of particulate matter must not exceed 5 µg/m³ measured as a 24-hour average); 40 C.F.R. §50.6, 50.7 (requiring 24-hour standard for PM10 and PM2.5); *see also* 6 WAQSR §3(a)(xi) (“Fugitive emissions ... shall be included in the permit application”); 6 WAQSR §4(b)(i)(D) (requiring fugitive emissions to be considered in calculating potential to emit for PSD permit for point sources); 6 WAQSR §4(a) (requiring fugitive emissions be included in calculating baseline actual emissions); *see also* 40 C.F.R. §51.165(a)(ix), §51.166(b)(1)(iii) (requiring fugitive emissions to be included when determining net emission increase associated with a fuel conversion plant).

DEQ failed to require Medicine Bow to utilize the 24-hour standard governing fugitive particulates in its modeling analysis. DEQ Decision 14, ¶ III.14 (AR 43). As a result, Medicine Bow did not demonstrate compliance with NAAQS and PSD increment requirements for particulate matter.

We anticipate respondents will take the position that a 24-hour modeling of fugitive particulates was not required due to the Simpson Amendment (Clean Air Act §234) and a 1994 Memorandum of Agreement between EPA and DEQ. However, that position is without merit because both the Simpson Amendment and the Memorandum of Agreement are completely irrelevant to this case. First, the Memorandum of Agreement only applies to the Powder River Basin, and the proposed location of the Medicine Bow facility is outside of the Powder River Basin. *See* Powder River Basin MOA (AR 3571) (“The purpose of this agreement is to document the ... procedures to be followed by the State of Wyoming and EPA in protecting the National Ambient Air Quality Standards (NAAQS) for PM₁₀ *within the Powder River Basin in Wyoming*.”). (emphasis added); *see also* Medicine Bow PSD Permit Application 1.2 (AR 78-23) (describing the proposed location of the facility).

Second, the Simpson Amendment was a limited duration provision expressly limited to surface coal mines. Since the statutory time limit has passed, and Medicine Bow is an underground coal mine, the Amendment has no applicability to this case. *See, e.g.*, Application at 1-1 (AR 78-22). (“(MBFP) is proposing to construct an underground coal mine. . .”).

Questions of Fact

1. **Whether DEQ modeled fugitive emissions of particulate matter using a 24-hour standard.**

In determining the PSD increment increase for particulate matter, DEQ admits it failed to require 24-hour modeling of Medicine Bow's fugitive emissions.

DEQ Decision 14, ¶ III.14 (AR 43).

2. **Whether the proposed location of the Medicine Bow facility is within the Powder River Basin.**

Medicine Bow is not located in the Powder River Basin. It is approximately 100 miles southwest of that area. *See* Medicine Bow PSD Permit Application 1.2 (AR 78-23) (describing the proposed location of the facility).

Questions of Law

1. **Whether fugitive emissions of particulate matter are required to be modeled using a 24-hour standard.**

The requirement that fugitive emissions of particulate matter be modeled using a 24-hour standard follows from the law requiring 24-hour modeling of particulate matter and the inclusion of fugitives in this modeling. *See* 2 WAQSR §2(a), (b) (requiring PM measurement and providing 24-hour standards); 6 WAQSR §4(c)(ii)(A) Table (providing the concentration of particulate matter must not exceed 5 µg/m³ measured as a 24-hour average); 40 C.F.R. §50.6, 50.7 (requiring 24-hour standard for PM₁₀ and PM_{2.5}); 6 WAQSR §3(a)(xi) ("Fugitive emissions ... shall be included in the permit application"); 6 WAQSR §4(b)(i)(D) (requiring fugitive emissions to be considered in calculating potential to emit for PSD permit for point

sources); 6 WAQSR §4(a) (requiring fugitive emissions be included in calculating baseline actual emissions); *see also* 40 C.F.R. §51.165(a)(ix), §51.166(b)(1)(iii) (requiring fugitive emissions to be included when determining net emission increase associated with a fuel conversion plant).

Particulate matter modeling to determine whether a facility will cause or contribute to a violation of an ambient air quality standard must be done using a 24-hour average standard. *See* 2 WAQSR §2(a), (b) (requiring PM measurement and providing 24-hour standards); 6 WAQSR §4(c)(ii)(A) Table (providing the concentration of particulate matter must not exceed 5 µg/m³ measured as a 24-hour average); *Ober v. U.S. EPA*, 84 F.3d 304, 309 (9th Cir. 1996) (holding Clean Air Act requires attainment of all NAAQS, including a 24 hour standard for particulate matter); *see also* 40 C.F.R. §50.6, 50.7 (requiring 24-hour standard for PM₁₀ and PM_{2.5}).

Both federal and Wyoming regulations require fugitive emissions to be included in the permitting analysis and compliance demonstration. 6 WAQSR §3(a)(xi) (“Fugitive emissions ... shall be included in the permit application”); 6 WAQSR §4(b)(i)(D) (requiring fugitive emissions to be considered in calculating potential to emit for PSD permit for point sources); 6 WAQSR §4(a) (requiring fugitive emissions be included in calculating baseline actual emissions); *see also* 40 C.F.R. §51.165(a)(ix), §51.166(b)(1)(iii) (requiring fugitive emissions to be included when determining net emission increase associated with a fuel conversion plant).

The Wyoming DEQ must ensure that facilities lawfully model particulate matter to ensure that maximum allowable increases and maximum allowable concentrations are not exceeded before issuing a PSD permit. 2 WAQSR §2(c)(2) (allowing a permit to be issued only if “proposed facility will not prevent the attainment or maintenance of any ambient air quality standard”); 42 U.S.C. §7473(a) (setting maximum allowable increase in particulate matter concentration). Therefore, DEQ is required to ensure Medicine Bow models fugitive particulates using a 24-hour standard in its permitting analysis.

Based on the parties’ motion practice in this case, Sierra Club anticipates Respondents will suggest that the Simpson Amendment and the 1994 Memorandum of Agreement allows them to avoid this requirement. However, that position is without merit because neither the Simpson Amendment nor the Memorandum of Agreement have any applicability to this case.

2. Whether the Simpson Amendment is applicable to this case.

The Simpson Amendment, by its clear terms, does not apply to facilities of the type at issue in this case. Section 234 of the Clean Air Act Amendments of 1990, the so-called “Simpson Amendment,”³ gave the EPA Administrator the authority to

³ The full text of § 234 of the Clean Air Act is as follows:

Prior to any use of the Industrial Source Complex (ISC) Model using AP-42 Compilation of Air Pollutant Emission Factors to determine the effect on air quality of fugitive particulate emissions from *surface coal mines*, for purposes of new source review or for purposes of demonstrating compliance with the national ambient air quality standards for particulate matter applicable to periods of 24 hours or less, under sec-

analyze the accuracy of the Industrial Source Complex Model and issue any necessary revisions to prevent the over-prediction of fugitive emissions of particulate matter in a 24-hour modeling analysis. Its scope was expressly limited to *surface coal mines*. The proposed Medicine Bow facility would involve an *underground coal mine*. *See, e.g.*, Application at 1-1 (AR 78-22). (“(MBFP) is proposing to construct an underground coal mine. . .”).

Moreover, the Administrator’s authority to issue revisions expired in 1993. Clean Air Act Amendments of 1990, § 234 (“*Such revisions shall be completed not later than 3 years* after the date of enactment of the Clean Air Act Amendments of 1990”). In the three-year period between 1990’s amendment of the Clean Air Act and the potential forthcoming revisions, states were permitted to use alternative modeling. *Id.* Sixteen years later, however, this limited-duration provision does not provide an exemption from regulations requiring compliance with the 24-hour NAAQS standard. *Id.* 2 WAQSR §2(a), (b) (requiring PM measurement and providing 24-hour standards); 6 WAQSR §4(c)(ii)(A) Table (providing the increase in the concentration of particulate matter must not exceed 5 µg/m³ measured as a 24-hour

tion 110 or parts C or D of title I of the Clean Air Act, the Administrator shall analyze the accuracy of such model and emission factors and make revisions as may be necessary to eliminate any significant over-prediction of air quality effect of fugitive particulate emissions from such sources. *Such revisions shall be completed not later than 3 years* after the date of enactment of the Clean Air Act Amendments of 1990. *Until such time* as the Administrator develops a revised model for *surface mine* fugitive emissions, the State may use alternative empirical based modeling approaches pursuant to guidelines issued by the Administrator. Section 234 of the Clean Air Act Amendments of 1990 (emphasis added).

average); *see also* 40 C.F.R. §50.6, 50.7 (requiring 24-hour standard for PM₁₀ and PM_{2.5}); 40 C.F.R. §51.165(a)(iv)(C) (requiring inclusion of fugitive emissions).

3. Whether the Memorandum of Agreement applies outside the Powder River Basin.

Respondents have previously asserted that they are relieved from what they agree would otherwise be their legal obligation to provide 24-hour modeling for fugitive PM emissions due to the 1994 Memorandum of Agreement between EPA and DEQ. *See, e.g.*, MB Memo at 26, DEQ Memo at 38. However, the Memorandum of Agreement clearly does not apply to the proposed Medicine Bow facility's location. The MOA governed PM₁₀ policy only in the Powder River Basin. Powder River Basin MOA (AR 3571) ("The purpose of this agreement is to document the ... procedures to be followed by the State of Wyoming and EPA in protecting the National Ambient Air Quality Standards (NAAQS) for PM₁₀ *within the Powder River Basin in Wyoming.*"). (emphasis added). Medicine Bow is not located in the Powder River Basin. It is approximately 100 miles southwest of that area.

The MOA contemplated the use of NAAQS monitoring to replace modeling practice entirely unrelated to the 24-hour modeling at issue here; a thirty-year life-of-mine modeling study. Powder River Basin MOA (AR 3571) ("The approach outlined in this agreement is based on continued ambient air quality monitoring, rather than the implementation of *a 30-year life-of-mine modeling study.*") (emphasis added).

4. Whether the Memorandum of Agreement is a Valid agreement.

An agency's interpretation of the Clean Air Act must be consistent with the law. *Chevron U.S.A. Inc. v. Natural Resources Defense Council, Inc.*, 467 U.S. 837, 844 (1984) (holding that agency interpretation must be "rational and consistent with the statute" in order to be granted deference).

Both federal and state law require 24 hour modeling of particulate matter to determine compliance with the Clean Air Act. *See* 2 WAQSR §2(a), (b) (requiring PM measurement and providing 24-hour standards); 6 WAQSR §4(c)(ii)(A) Table (providing the increased concentration of particulate matter must not exceed 5 $\mu\text{g}/\text{m}^3$ measured as a 24-hour average); *Ober v. U.S. EPA*, 84 F.3d 304, 309 (9th Cir. 1996) (holding Clean Air Act requires attainment of all NAAQS, including a 24 hour standard for particulate matter); *see also* 40 C.F.R. §50.6, 50.7 (requiring 24-hour standard for PM₁₀ and PM_{2.5}).

The Memorandum effectively voids applicable law by not requiring DEQ to enforce a 24-hour modeling standard for fugitive emissions of particulate matter. *See* 40 C.F.R. §50.6, 50.7 (requiring 24-hour standard for PM₁₀ and PM_{2.5}); 40 C.F.R. §51.165(a)(ix), §51.166(b)(1)(iii) (requiring fugitive emissions to be included when determining net emission increase associated with a fuel conversion plant). Therefore, under *Chevron*, the EPA does not have the authority to enter into the Memorandum of Agreement because it is clearly inconsistent with federal and state law.

Sierra Club anticipates Respondents will argue that the statutory language is ambiguous and its decision approving the permit should be granted deference.

However, that position is without merit because the statutory and regulatory mandates are clear. Therefore, under *Chevron*, the decision must be rational and consistent with the Clean Air Act and applicable state and federal regulations.

5. Elements that Sierra Club Must Establish to Carry its Burden of Proof

Sierra Club has the burden of proof to establish 24-hour modeling of fugitive particulates is required for a valid permitting decision and to establish that DEQ did not do so. However, the burden is on Respondents to show compliance with the law. *See Grams v. Environmental Quality Council*, 730 P.2d 784, 789 (Wyoming 1986) (stating "burden of proof rests upon the applicant to show that the application is in compliance with applicable law" in a coal mine permitting decision). Therefore, the burden of proof is on Respondent to show valid exceptions to the law, including reliance on the Memorandum of Agreement and Simpson Amendment. *Id.*

Sierra Club must establish that (1) a 24-hour standard must be utilized in fugitive particulate emissions modeling, and (2) DEQ failed to require 24-hour modeling of fugitive particulates in the Medicine Bow permitting analysis. If Sierra Club establishes both of the proceeding, it is sufficient to establish that DEQ failed to require 24-hour modeling of fugitive particulates as required by law.

We expect the evidence to show that DEQ did not use short term modeling of fugitive particulates in its permitting analysis for the Medicine Bow facility. We further expect to show that the Simpson Amendment and the Memorandum of Agreement offered by DEQ and Medicine Bow as justifications for not complying with applicable law are invalid as applied as a defense to this claim.

WITNESSES

1. Ranajit Sahu, Ph.D., 311 North Story Place, Alhambra, CA 91801, Phone: 626-382-0001. Sierra Club **will** call Dr. Sahu to testify about issues relating to the contested Medicine Bow permit.

Dr. Sahu has over eighteen years of experience in the fields of environmental, mechanical, and chemical engineering including: program and project management services; design and specification of pollution control equipment; soils and groundwater remediation; combustion engineering evaluations; energy studies; multimedia environmental regulatory compliance (involving statutes and regulations such as the Federal CAA and its Amendments, Clean Water Act, TSCA, RCRA, CERCLA, SARA, OSHA, NEPA as well as various related state statutes); transportation air quality impact analysis; multimedia compliance audits; multimedia permitting (including air quality NSR/PSD permitting, Title V permitting, NPDES permitting for industrial and storm water discharges, RCRA permitting, etc.), multimedia/multi-pathway human health risk assessments for toxics; air dispersion modeling; and regulatory strategy development and support including negotiation of consent agreements and orders.

2. Sierra Club **may** call any of the other parties' witnesses to testify about issues relating to the contested Medicine Bow permit.

3. Sierra Club **may** call any other witness for purposes of rebuttal, impeachment, or foundation.

EXHIBITS

1. **Exhibit 1** Jason Lillegraven’s Declaration of Standing.
2. **Exhibit 2** Martha Martinez del Rio’s Declaration of Standing.
3. **Exhibit 3** Memorandum from John S. Seitz (October 21, 1997).
4. **Exhibit 4** *In re Louisville Gas & Electric Co.*, Order Responding to Issues raise in April 28, 2008 and March 2, 2008 Petitions, and Denying in part and Granting in Part Requests For Objection to Permit (August 12, 2009) (“Trimble”).
5. **Exhibit 5** Memorandum from Stephen D. Page (April 5, 2005)
6. **Exhibit 6** Letter from Stephen Johnson to Paul Cort (Jan. 14, 2009).
7. **Exhibit 7** Letter from Lisa Jackson to Paul Cort (April 24, 2009).
8. **Exhibit 8** Wyoming’s Interstate Transport Declaration (Dec. 11. 2006).
9. **Exhibit 9** *BP Products North America, Inc.*, Order Responding to Petitioner’s Request that the Administrator Object to Issuance of State Operating Permit, Permit No. 089-254880—453 (Oct. 16, 2009) (“*In re BP Products*”).
10. **Exhibit 10** EPA Memorandum from Terrell E. Hunt and John S. Seitz to Regional Counsels, *Guidance on Limiting Potential to Emit in New Source Permitting* (June 13, 1989).
11. **Exhibit 11** EPA Memorandum from Steven Riva to William O’Sullivan, *Accounting for Emergency Generators in the Estimate of Potential to Emit* (Feb. 14, 2006) (“Riva Memo”).

12. **Exhibit 12** EPA Memorandum from John B. Rasnic to Linda M. Murphy, *Automatic or Blanket Exemptions for Excess Emissions During Startup, and Shutdowns Under PSD* (Jan. 28, 1993)
13. **Exhibit 13** EPA Memorandum from Steven A. Herman and Robert Perciasepe to Regional Administrators, *State Implementation Plans (SIPs): Policy Regarding Excess Emissions During Malfunctions, Startup, and Shutdown* (September 20, 1999) (“Herman Memo”)
14. **Exhibit 14** EPA Enforcement Alert, Volume 2, Number 9, October 1999.
15. **Exhibit 15** EPA, July 28, 1987, Letter Concerning Best Available Control Technology (BACT) Determinations.
16. **Exhibit 16** “Preferred and Alternative Methods for Estimating Fugitive Emissions from Equipment Leaks,” Final Report, November 1996.
17. **Exhibit 17** MARAMA Model Rule for Enhanced LDAR.
18. **Exhibit 18** “Protocol for Equipment Leak Emission Estimates,” pp 1 to 55.
19. **Exhibit 19** EPA, AP 42, Fifth Edition Compilation of Air Pollutant Emission Factors, Volume 1: Stationary Point and Area Sources, (Jan. 1995).
20. **Exhibit 20** Medicine Bow Response to Sierra Club’s Request for Admissions (August 19, 2009).
21. **Exhibit 21** Southcoast Air Quality Management District, BACT, BARCT Rule.

22. **Exhibit 22** Texas Commission on Environmental Quality, publication RG-360 # Revised # January 2006
23. **Exhibit 23** RTP Environmental Associations, letter, Feb. 28, 2007.
24. **Exhibit 24** EPA letter announcing settlement with Chevron, August 23, 2000.
25. **Exhibit 25** Southcoast Air Quality Management District, Reg 11/Rule 1173, available at <http://www.aqmd.gov/rules/reg/reg11/r1173.pdf>
26. **Exhibit 26** Bay Area Air Quality Management District, Reg 8/Rule 18, available at <http://www.baaqmd.gov/Divisions/Planning-and-Research/Rules-and-Regulations.aspx>
27. **Exhibit 27** Decision In the Matter of a Permit Application (AP-5873) from Medicine Bow Fuel & Power, LLC to Construct an Underground Coal Mine and Industrial Gasification and Liquefaction Plant to be Known as the Medicine Bow IGL Plant.
28. **Exhibit 28**: Revised Application for Medicine Bow Facility (AR 78-1 to 78-382); excerpts to be provided at trial due to size.
29. **Exhibit 29**: Order Responding to Petitioner's Request that the Administrator Object to the Issuance of a Title V Operating Permit (May 28, 2009).
30. **Exhibit 30**: EPA, Health and Environmental Impacts of SO₂, available at <http://www.epa.gov/air/sulfurdioxide/health.html>
31. **Exhibit 31**: EPA, Particulate Matter, *available at* <http://www.epa.gov/particles/health.html>.

32. **Exhibit 32:** EPA's New Source Review Workshop Manual (Draft October 1990); excerpts to be provided at trial due to size.

33. **Exhibit 33:** DEQ Application Analysis (AR 506-582); excerpts to be provided at trial due to size.

34. **Exhibit 34:** Conditional Test Method (CTM) 039 Measurement Of PM_{2.5} And PM₁₀ Emissions By Dilution Sampling (Constant Sampling Rate Procedures), available at <http://www.epa.gov/ttn/emc/ctm/ctm-039.pdf> (excerpt pages 1-4)

35. **Exhibit 35:** DKRW Letter to DEQ Response to Public Comment, October 14, 2008 (AR 1520-1531).

36. **Exhibit 36:** DKRW letter to DEQ, November 11, 2008 (AR 1485).

37. **Exhibit 37:** Highwood Generating Station, Great Falls, Montana¹, Southern Montana Electric Cooperative Inc. Final EIS prepared in January 2007 (excerpts to be provided at trial due to size). Available at <http://www.deq.mt.gov/eis/HighwoodGeneratingStation/VolII/H%20-%20FEIS%20Vol.%20I%20-%20Chapter%204%20Environmental%20Consequences.pdf>

38. **Exhibit 38:** Ely Energy Center, Ely, Nevada. Sierra Pacific Resources. Appendix 9 – Air Quality Impact Analysis prepared in October 2007 (excerpts to be provided at trial due to size). Available at <http://ndep.nv.gov/bapc/download/ely/A9.pdf>

39. **Exhibit 39:** White Pine Energy Station, Ely, Nevada. White Pine Energy Associates/LS Power. Appendix 8 – Environmental Evaluation and Dispersion

Modeling Files prepared in December 2006 (excerpts to be provided at trial due to size). Available at <http://ndep.nv.gov/bapc/download/ls/app8.pdf>

40. **Exhibit 40:** Plant Washington, Sandersville, Georgia Power4Georgia, LLC. PSD Permit Application prepared in January 2008 (excerpts to be provided at trial due to size). Available at:

<http://www.air.dnr.state.ga.us/airpermit/downloads/permits/psd/dockets/plantwashington/facilitydocs/30300051app.pdf>

41. **Exhibit 41:** Longleaf Energy Station, Hilton, Georgia. LS Power. PSD Permit Application prepared in November 2004 (excerpts to be provided at trial due to size). Available at:

http://www.air.dnr.state.ga.us/airpermit/downloads/permits/psd/dockets/longleaf/facilitydocs/Longleaf_PSD_Applic.pdf

42. **Exhibit 42:** Hyperion Energy Center, Union County, South Dakota. Hyperion Refining LLC. PSD Permit Application prepared in December 2007 (excerpts to be provided at trial due to size). Available at:

http://www.hyperionec.com/files/HEC_SD_PSD_App.pdf

43. **Exhibit 43:** Advanced Supercritical Pulverized Coal (ASCPC) Project, Essexville, Michigan. Consumers Energy. PSD Permit Application – Section 6 Ambient Impact Analysis. prepared in October 2007(excerpts to be provided at trial due to size). Available at:

<http://www.deq.state.mi.us/aps/downloads/permits/CFPP/2007/341-07/Section%206%20-%20Ambient%20Impact%20Analysis.pdf>

44. **Exhibit 44:** Any documents, including exhibits and/or attachments thereto, filed with the EQC in this case by DEQ or Medicine Bow, which are not specifically listed here.

45. **Exhibit 45:** Any other exhibits needed for purposes of rebuttal, impeachment, or foundation.

PENDING MATTERS

Pending is Sierra Club's motion to strike the expert report of Katrina Winborn offered by Medicine Bow in support of its summary judgment motion and references thereto in Ms. Winborn's affidavit and Medicine Bow's summary judgment briefing.

Respectfully submitted this 3rd day of December, 2009.

/s/ David Bahr
David Bahr
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CERTIFICATE OF SERVICE

I hereby certify that I have caused to be served a true and correct copy of the forgoing *Sierra Club's Pre-Hearing Memorandum* and associated documents via electronic mail on this the 1st day of December, 2009 to the following:

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