

**BEFORE THE ADMINISTRATOR  
UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

IN THE MATTER OF THE TITLE V AIR )  
QUALITY PERMIT AND ACID RAIN )  
PERMIT FOR )  
)  
MONTANA DAKOTA UTILITIES CO., )  
NORTHWESTERN ENERGY, AND OTTER )  
TAIL CORPORATION d.b.a. OTTER TAIL )  
POWER COMPANY'S BIG STONE )  
POWER PLANT )  
)  
ISSUED BY THE SOUTH DAKOTA )  
DEPARTMENT OF ENVIRONMENT AND )  
NATURAL RESOURCES )  
\_\_\_\_\_ )

Permit No. 28.0801-29

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**SIERRA CLUB AND CLEAN WATER ACTION'S  
PETITION TO OBJECT TO THE TITLE V PERMIT FOR THE  
BIG STONE POWER PLANT ISSUED BY THE  
SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT  
AND NATURAL RESOURCES**

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## **INTRODUCTION**

Pursuant to §505(b)(2) of the Clean Air Act, 42 U.S.C. §7661d(b)(2), and 40 C.F.R. §70.8(d), the Sierra Club and Clean Water Action (“Petitioners”) hereby petition the Administrator (“Administrator”) of the United States Environmental Protection Agency (“EPA”) to object to the Title V permit for the Big Stone power plant, Permit Number 28.0801-29, that was issued by the South Dakota Department of Environment and Natural Resources (“DENR”) on behalf of the South Dakota Board of Minerals and Environment (“Board”) and that became effective June 9, 2009.

The Title V permit at issue in this petition renewed the operating permit for the existing 450 MW Big Stone power plant and associated equipment (hereinafter referred to as “Big Stone I”). The permit at issue also purports to govern operations at the proposed 600 MW Big Stone II power plant and its associated equipment (hereinafter referred to as “Big Stone II”). To the best of Petitioners’ knowledge, construction has not yet commenced on the Big Stone II unit. The facility is located in Big Stone City, South Dakota, on the border with the state of Minnesota.

## **THE PETITIONERS**

The Sierra Club is a national non-profit corporation organized and existing under the non-profit corporation laws of the state of California. The Sierra Club, a national conservation organization with over 600,000 members, is dedicated to protecting natural resources, including clean air. Sierra Club’s national office is located at 85 Second Street, San Francisco, CA 94105. Sierra Club’s South Dakota Field Office is located at 508 6th Street, Suite 307, Rapid City, South Dakota 57701. Sierra Club’s North Star Chapter (Minnesota) is located at 2327 East Franklin Avenue, Suite 1, Minneapolis, Minnesota 55406-1024.

Sierra Club exists for the purposes of preserving and protecting the environment and has been actively engaged in protecting air quality and other environmental values throughout South Dakota, Minnesota, and the northern plains for years. Since 1981, Sierra Club's stated purposes in its Articles of Incorporation have been:

to explore, enjoy, and protect the wild places of the earth; to practice and promote the responsible use of the earth's ecosystems and resources; to educate and enlist humanity to protect and restore the quality of the natural and human environment; and to use all lawful means to carry out these objectives.

Sierra Club members reside in, work in, visit, or use the resources of northeast South Dakota, west central Minnesota and other areas within the same region as the Big Stone Plant. Sierra Club has been very involved in the permitting process for this plant.

Clean Water Action, Inc. ("Clean Water Action") is a national non-profit corporation organized and existing under the non-profit corporation laws of the District of Columbia. Clean Water Action is a national environmental advocacy organization with over 1,000,000 members working in 18 states. Clean Water Action's goals include working for clean, safe and affordable water, prevention of health-threatening pollution, and the creation of environmentally safe jobs and businesses. Clean Water Action's national office is located at 4455 Connecticut Ave NW, A300, Washington, DC 20008. Clean Water Action's South Dakota Field Office is located at 405 South 3rd Ave., Suite 102A, Sioux Falls, South Dakota 57104. Clean Water Action also maintains offices in Minneapolis, Minnesota, Fargo, North Dakota, Duluth Minnesota and LaCrosse, Wisconsin. Clean Water Action's members have been actively involved in the Big Stone permitting process.

## **PROCEDURAL BACKGROUND**



DENR issued a draft prevention of significant deterioration (“PSD”) permit for Big Stone II for public review and comment in April 2006 and issued a revised draft PSD permit for public review and comment in January of 2008. Concurrent with issuance of its revised draft PSD permit for Big Stone II, DENR also issued a draft Title V permit for the Big Stone power plant (which covered both Big Stone I and Big Stone II) for public review and comment in January of 2008. On June 23, 2006, Sierra Club submitted written comments on the 2006 draft PSD permit for Big Stone II. **Exhibit 1.** Sierra Club submitted written comments to DENR on the draft Title V permit and the second draft PSD permit on March 14, 2008. **Exhibit 2.** Sierra Club’s March 14, 2008 comment letter reiterated and incorporated by reference the majority of the comments it submitted to DENR on June 23, 2006. Subsequent to DENR’s issuance of the draft PSD and Title V permits in 2008, a contested case hearing ensued, after which the South Dakota Board of Minerals and Environment (“Board”) issued the PSD permit for Big Stone II and issued a proposed Title V permit for the Big Stone power plant on November 20, 2008.<sup>1</sup> EPA objected to that proposed Title V permit on January 22, 2009. **Exhibit 3.** DENR subsequently issued a new draft Title V permit intended to address EPA’s objections in February 2009 for public review and comment. To address one of EPA’s objections, DENR’s revised draft Title V permit incorporated most of the terms and conditions from the Big Stone II PSD permit including (1) the best available control technology (“BACT”) requirements, (2) the requirement to develop a startup/shutdown plan within 90 days of commencing operation of Big Stone II (Section 14 of the Big Stone Title V permit), (3) the fugitive dust control requirements which were relied upon

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<sup>1</sup>Although the Board issued the proposed Title V permit on November 20, 2008, it appears EPA did not receive all information necessary to review the permit until December 8, 2008 so its 45 day review period did not start until that time.

by Otter Tail and DENR along with the particulate matter BACT limits in the air quality modeling analyses conducted for Big Stone II (Sections 15 and 16 of the Big Stone Title V permit), and (4) a provision allowing for final design changes after permit issuance (Condition 13.2 of the Big Stone Title V permit), among other things. Sierra Club and Clean Water Action submitted written comments to DENR on that February 2009 draft Title V permit in a March 13, 2009 comment letter, which incorporated by reference Sierra Club's and Clean Water Action's 2008 petition for contested case hearing before the Board, all of the motions filed by Sierra Club and Clean Water Action in that contested case hearing, and all of the post-trial briefs and related testimony.<sup>2</sup> Sierra Club and Clean Water Action's comment letter also included significant comments regarding how DENR's revisions to the Big Stone Title V permit were not consistent with applicable requirements of the Clean Air Act.

A second contested case hearing before the Board ensued in April 2009, and the Board then issued a revised proposed Title V permit to EPA on April 21, 2009. EPA failed to object to that proposed Title V permit and DENR issued the Title V permit on behalf of the Board for the Big Stone power plant effective June 9, 2009. The final Title V permit is included as **Exhibit 10**.

Except for any claims regarding PSD or NSPS violations at Big Stone I, which Petitioners

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<sup>2</sup>Sierra Club's March 13, 2009 letter and all attachments are included as **Exhibit 4** to this Petition. Sierra Club's and Clean Water Action's May 2008 petition to the Board for contested case hearing is included as **Exhibit 5**. **Exhibit 6** to this petition includes Sierra Club's and Clean Water Action's July 2008 Motion for Partial Summary Judgment on Legal Issues and Incorporated Memorandum of Support in the 2008 Contested Case Hearing on the Big Stone Permits. **Exhibit 7** to this Petition is Sierra Club's and Clean Water Action's November 1, 2008 Post-Trial Brief in the 2008 Contested Case Hearing. **Exhibit 8** is Sierra Club's and Clean Water Action's November 12, 2008 Post-Trial Reply Brief. **Exhibit 9** is the August 2009 Contested Case Hearing Transcript of all testimony provided at the contested case hearing which began in August and in which testimony concluded in September 2009.

are not making part of this petition, Petitioners base this petition on the comments filed as mentioned above, i.e., the June 23, 2006 redacted version of the Sierra Club comment letter (including all attachments), the March 14, 2008 Sierra Club comment letter on the draft Big Stone Title V permit and the Big Stone II PSD permit (including attachments) and the March 13, 2009 comment letter on the revised draft Big Stone Title V permit. Petitioners also base this petition on the testimony and all briefs filed in those contested case hearings, which Petitioners incorporated by reference into its March 13, 2009 comment letter to DENR on its revised draft Title V permit.

### **REGULATORY FRAMEWORK**

Title V of the Clean Air Act, 42 U.S.C. §§7661 - 7661f, prohibits any person from operating a major stationary air pollution source such as Big Stone without an operating permit. A Title V operating permit must include all applicable requirements including emission limitations and standards for the source and must include provisions assuring compliance with those requirements. 42 U.S.C. §7661c(a), 40 C.F.R. §70.1(b), Administrative Rules of South Dakota (“ARSD”) 74:36:05:02, 74:36:05:06, 74:36:05:16.01. The federal operating permit regulations provide that “[w]hile title V does not impose substantive new requirements. . .[a]ll sources subject to these regulations shall have a permit to operate that assures compliance by the source with all applicable requirements.” 40 C.F.R. §70.1(b).

The regulations in 40 C.F.R. Part 70 which govern state operating permit programs required under Title V of the Clean Air Act require Title V permits to assure compliance with all “applicable requirements.” The term “applicable requirements” is defined in the federal rules as including any provision of the state implementation plan (“SIP”), any term or condition of a

preconstruction permit issued pursuant to regulations approved under Title I of the Clean Air Act including under Parts C and D of the Act, any standard or requirement under Sections 111, 112, 114(a)(3), or 504 of the Act, as well as the Act's Acid Rain program requirements. 40 C.F.R. §70.2.

A Title V permit is issued for up to five years, 40 C.F.R. §70.6(a)(2), and the source owner must submit an application for renewal of a permit "at least six months prior to the date of permit expiration, or such other longer time as may be approved by the Administrator that ensures that the term of the permit will not expire before the permit is renewed," 40 C.F.R. §70.5(a)(1)(iii), ARSD 74:36:05:08(2). Permits being renewed are subject to the same procedural requirements, including those for public participation and affected state and EPA review that apply to initial permit issuance. 40 C.F.R. §70.7(c)(1)(i); ARSD 74:36:05:17. Under the federal and South Dakota Title V regulations, the public has the right to petition EPA to object to a Title V permit if EPA fails to object to the proposed permit during its 45 day review period. 40 C.F.R. §70.8(d); ARSD 74:36:05:23.

This petition is timely. It is being filed within sixty days from the end of EPA's 45 day review period as required by Clean Air Act §505(b)(2) and 40 C.F.R. §70.8(d).<sup>3</sup> (See also ARSD 74:36:05:23.) Accordingly, the Administrator must grant or deny this petition within sixty days after it is filed. 42 U.S.C. §7661d(b)(2). If the Administrator determines that the Big Stone Title V permit does not comply with any applicable requirement or the requirements of 40 C.F.R. Part 70, she must object to the permit and EPA must terminate, modify, or revoke the permit. 40

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<sup>3</sup>EPA's 45-day review period of the Big Stone Title V permit that was proposed to be issued by the Board in 2009 ended on June 5, 2009.

C.F.R. §§70.8(c)(1), 70.8(d).

Along with renewing the Title V permit for the existing Big Stone 450 megawatt unit (hereinafter “Big Stone I”), the Big Stone Title V permit authorizes construction of a proposed 600 megawatt coal-fired electrical generating unit hereinafter referred to as “Big Stone II.” While the Board issued a prevention of significant deterioration (“PSD”) permit for Big Stone II in November 2008, that permit by itself did not authorize construction because DENR and the Board relied on terms and conditions that it placed into the Title V permit to allow Big Stone II to avoid PSD requirements for sulfur dioxide (“SO<sub>2</sub>”) and nitrogen oxides (“NO<sub>x</sub>”) as well as to avoid a case by case determination of maximum achievable control technology (“MACT”) for the hazardous air pollutants (“HAPs”) to be emitted by Big Stone II. All of the grounds for objection provided in this petition pertain to Big Stone II. Thus, we request that EPA act on this petition as expeditiously as practicable and within the timeframe required by the Clean Air Act to avoid the problems that may arise if EPA should object after Otter Tail begins construction of Big Stone II under the terms of the current Title V permit.

### **GROUND FOR OBJECTION**

#### **Issue #1: The Big Stone Title V Permit Unlawfully Authorizes Construction and Operation of Big Stone II Without Having to Comply with PSD Permitting Regulations for SO<sub>2</sub> and NO<sub>x</sub>.**

The Big Stone Title V permit fails to comply with PSD permitting requirements for the SO<sub>2</sub> and NO<sub>x</sub> to be emitted by the Big Stone II project. DENR’s intent in issuing the Big Stone Title V permit was to impose emission limits sufficient to ensure there would not be a significant net emissions increase of SO<sub>2</sub> or NO<sub>x</sub> from the Big Stone II project. On January 22, 2009, EPA objected to the 2008 proposed Big Stone Title V permit because it lacked a proper PSD

applicability analysis for SO<sub>2</sub> and NO<sub>x</sub>. *See* January 22, 2009 EPA Objection Letter (**Exhibit 3**) at 2, Enclosure at 3-8. As EPA stated, the primary option allowed under the PSD regulations is to “net out” of PSD review by following the requirements in the definition of “net emissions increase” in 40 C.F.R. §52.21(b)(3) and associated definitions, incorporated by reference into ARSD 75:36:09:02, for creating creditable emission increases and decreases. The other option would be for Otter Tail to obtain a plantwide applicability limit (PAL) pursuant to 40 C.F.R. §52.21(aa) for SO<sub>2</sub> and NO<sub>x</sub>. The plantwide limits that were in the 2008 proposed Big Stone Title V permits did not meet either of these options, and thus EPA objected to the proposed Title V permit for the lack of a proper PSD applicability analysis for SO<sub>2</sub> and NO<sub>x</sub>. To correct this deficiency, EPA informed the state it had three options: conduct appropriate PSD netting, establish a PAL, or conduct PSD major modification review for the SO<sub>2</sub> and NO<sub>x</sub> emissions from Unit #13 and revise the PSD permit. *Id.* DENR chose Option 1, to conduct appropriate PSD netting. However, the Big Stone Title V permit as revised in 2009 still fails to properly allow Unit #13 to net out of PSD review for SO<sub>2</sub> or NO<sub>x</sub> properly for several reasons as provided below.

**A. A Title V Permit Cannot Be Used to Create New Requirements to Allow Big Stone II to Net Out of PSD Review.**

DENR used the Title V permit to create emission limits on the potential to emit for SO<sub>2</sub> and NO<sub>x</sub> for both Unit #1 and Unit #13 in order to allow Unit #13 to “net out” of PSD review for those pollutants. *See* Section 9.0 of the Big Stone Title V permit (Exhibit 10). Title V permits, however, cannot be used for this purpose; rather, Title V permits are only meant to consolidate pre-existing requirements into a single, comprehensive document, and then assure compliance

with those requirements:

Each permit issued under this subchapter shall include enforceable emission limitations and standards, a schedule of compliance, a requirement that the permittee submit to the permitting authority, no less often than every 6 months, the results of any required monitoring, ***and such other conditions as are necessary to assure compliance with applicable requirements of this chapter***, including the requirements of the applicable implementation plan.

See 42 U.S.C. § 7661c(a). See also 40 C.F.R. § 70.6(a):

(a) Standard permit requirements. Each permit issued under this part shall include the following elements:

(1) Emission limitations and standards, including those operational requirements and limitations that assure compliance with all applicable requirements at the time of permit issuance.

(i) ***The permit shall specify and reference the origin of and authority for each term or condition, and identify any difference in form as compared to the applicable requirement upon which the term or condition is based.***

*Id.* (emphasis added).

See also ARSD 74:36:05:16.01:

Operating permit requirements. Each permit issued for the operation of a Part 70 source must contain:

\* \* \*

(8) Emission limits and standards, including operational requirements and limits for all regulated emission units, necessary to assure compliance with applicable requirements of the Clean Air Act and including the following:

(a) ***The reference of authority for each term or condition.***

*Id.* (emphasis added).

See also *Romoland Sch. Dist. v. Inland Empire Energy Ctr., LLC*, 548 F.3d 738 (9<sup>th</sup> Cir.

2008)(“Rather than imposing an additional set of requirements on pollution sources, this

permitting scheme was intended to ‘incorporate the requirements of the Act (including SIP

requirements) that are [already] applicable to the source.”)(quoting S. Rep. No. 101-228, at 350

(1989)); *Sierra Club v. Johnson*, 541 F.3d 1257, 1260 (11<sup>th</sup> Cir. 2008) (“Title V does not

generally impose new substantive air quality control requirements.”); *Ohio Pub. Interest Research Group, Inc. v. Whitman*, 386 F.3d 792, 794 (6<sup>th</sup> Cir. 2004) (“Title V does not impose new obligations; rather, it consolidates pre-existing requirements into a single, comprehensive document for each source, which requires monitoring, record-keeping, and reporting of the source’s compliance with the Act.”); *Sierra Club v. Leavitt*, 368 F.3d 1300, 1302(11<sup>th</sup> Cir. 2004)(“Title V imposes no new requirements on sources. Rather, it consolidates existing air pollution requirements into a single document. . . .”); (“*Lafleur v. Whitman*, 300 F.3d 256, 262 (2d Cir. 2002) (“Although these operating permit programs do not impose new substantive air quality control requirements, the permits themselves must include limitations on emissions and other conditions (such as regular monitoring, recordkeeping, and reporting) necessary to ensure compliance with the provisions of the CAA, including the PSD program (if applicable)”); *United States v. E. Ky. Power Coop., Inc.*, 498 F. Supp. 2d 1010, 1011 (E.D. Ky. 2007) (“Title V permits were not intended to impose new substantive requirements.”) (*citing* 57 Fed. Reg. 32,250, 32,250 (July 21, 1992)).

In 2004, EPA sent a Notice of Deficiency to the State of Wisconsin regarding its implementation of the Title V program that confirms that Title V permits cannot be used to create new requirements. *See* Notice of Deficiency for Clean Air Act Operating Permit Program in Wisconsin, 69 Fed. Reg. 10167, 10170 (March 4, 2004) (“Wisconsin’s rules do not ensure these source specific permit terms remain in effect and exist independently of a title V permit. . . . Because Wisconsin’s rules do not assure that construction permit conditions exist independently of title V permits and because its interpretation that its title V program provides the authority to create source specific limitations, the State’s program does not meet the program



approval requirements of title V and part 70.”). *See also* Notice of Deficiency for Clean Air Act Operating Permit Program in Indiana, 66 Fed. Reg. 64039, 64040 (Dec. 11, 2001) (“Because Indiana’s rules do not assure that construction permit conditions exist independently of title V permits, the state’s program does not meet the program approval requirements of title V and 40 CFR part 70.”).

Because the PSD avoidance limits imposed in Section 9.0 of the Big Stone Title V permit have no Clean Air Act antecedent, they are illegal and cannot remain in the Title V permit.

Sierra Club and Clean Water Action commented on this deficiency to DENR during the 2009 comment period on the draft revised Big Stone Title V permit. *See* March 13, 2009 Comment Letter (Exhibit 4) at 2-4. In its response to the comments on this issue, DENR indicated that the State “developed a combined air quality construction and operating permit program for major sources, which also incorporated the Title V permitting program requirements, with the potential to emit 100 tons per year of regulated air emissions or greater and were not subject to the Prevention of Significant Deterioration Program as outlined in ARSD Chapter 74:36:09.” 3/18/09 DENR Response to Comments (Exhibit 13) at four. However, South Dakota’s Title V permit program has never been approved by EPA as part of the SIP.<sup>4</sup> Thus, South Dakota’s SIP fails to meet the requirements of Section 110(a)(2)(C) of the Clean Air Act which requires SIPs contain preconstruction permitting programs, including programs addressing Parts C and D of the Act. Furthermore, Section 74:36:05:03.01 specifically provides that: “A PSD or NSR source must submit a complete application for a Part 70 operating permit within 12 months after commencing operation.” In almost every PSD permitting situation, there

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<sup>4</sup> DENR acknowledged as such in a response to a Sierra Club interrogatory.

will be some pollutants covered by PSD requirements, and others that would not be covered. On the other hand, Part 70 permit applications must cover all applicable requirements, *see* January 22, 2009 EPA Objection Letter (Exhibit 3), Objection #1. Accordingly, if the programs were truly combined, separate Part 70 proceedings would not be possible.

The fact pattern in this case provides a perfect illustration for why Title V permits cannot be used to create PSD avoidance limitations. The permits at issue in this matter are mutually dependent. By itself, the PSD permit is defective because Big Stone II would be a major modification for SO<sub>2</sub> and NO<sub>x</sub>, but the permit does not cover those pollutants. Thus, some unit-specific limitations on the emissions of the Big Stone I boiler (Unit #1) to create creditable emission reductions for netting, as well as unit-specific limitations on the emissions of the Big Stone II boiler (Unit #13), are necessary before the state can issue a PSD permit for Big Stone II that does not address SO<sub>2</sub> and NO<sub>x</sub>.

In addition to the reasons stated above, the Title V permit is not the appropriate vehicle for creating the PSD avoidance limits for Big Stone II because Unit #13 cannot be covered in the Title V permit without the PSD permit (since Unit #13 cannot lawfully exist without a PSD permit). Furthermore, because a Title V permit has been issued to covers the entire facility as modified (Units 1 and 13), then that Title V permit must contain all applicable requirements including the requirements of the PSD permit.

Thus, to lawfully permit the construction of Big Stone II without covering SO<sub>2</sub> and NO<sub>x</sub>, some other legal mechanism, such as a source-specific SIP revision would first have to be adopted limiting the emissions of those pollutants from Unit 1 and from the anticipated Unit 13. Then the state could issue the PSD permit, and then the Title V permit. In the absence of such a

legal mechanism, the Big Stone Title V permit does not lawfully allow Big Stone II to net out of PSD review for SO<sub>2</sub> and NO<sub>x</sub>.

**B. The Big Stone Title V Permit Fails to Require that the SO<sub>2</sub> and NO<sub>x</sub> Emission Reductions at Unit #1 Be Enforceable as a Practical Matter at and After the Time Construction Commences on Unit #13.**

Even if the Title V permit could be used to create PSD avoidance limits, the limitations in the permit are flawed because they only begin to apply upon the “initial startup of Unit #13.” *See* Big Stone Title Permit (Exhibit 10) Conditions 9.2 and 9.5. To be valid, these reductions actually must be in place before construction commences on Unit 13.

The definition of “net emissions increase,” 40 C.F.R. § 52.21(b)(3), requires that increases and decreases in actual emissions be taken into account to the extent they are “contemporaneous” *and* “otherwise creditable.” Subsection (vi) of this provision specifically covers *decreases* and provides that “a decrease in actual emissions is **creditable** only to the extent that . . . it is enforceable as a practical matter at and after the time that **actual construction on the particular change begins.**” 40 C.F.R. § 52.21(b)(3)(vi)(b)(emphasis added). The conditions placed in the Title V permit fail to meet this requirement because they only take effect once Unit #13 commences operation.

This distinction is important because, among other things, Otter Tail is relying on one scrubber to control SO<sub>2</sub> emissions from both Unit #1 and #13, but that scrubber will not be in place when construction on Unit #13 begins. Sierra Club and Clean Water Action raised this issue to DENR in its March 13, 2009 comment letter (Exhibit 4) at 5. In its response to comments on this issue, DENR asserted that under the federal regulations, “actual reduction is not required to occur until the Big Stone II project becomes operational.” 3/18/09 DENR

Response to Comments (Exhibit 13) at 5-6. In support, DENR did not actually cite to the regulations, but rather the preamble to the 1980 PSD Regulations. *Id.* at 6 (*citing* 45 Fed. Reg. 52680, 52698 (1980)). However, on the very next page of that same Federal Register notice, EPA says the following:

[T]he definitions of “net emissions increase” in the new PSD regulations specify the extent to which any contemporaneous and otherwise creditable increase or decrease is creditable. Any such increase is creditable to the extent that the new level of “actual emissions” exceeds the old level of “actual emissions.” Any such decrease is creditable only to the extent that (1) the old level of “actual emissions” (or the old level of “allowable emissions,” if it is lower) exceeds the new level of “actual emissions,” **(2) the decrease is federally enforceable at the time construction begins on the proposed physical or operational change which it is intended to offset**, and 3) the decrease has roughly the same health and welfare significance as the increase from the proposed change.

*Id.* at 52699 (emphasis added). Two pages later, EPA adds:

[A] decrease is creditable only to the extent that it is “federally enforceable” **from the moment that actual construction begins** on the physical or operational change which causes the “actual emissions” increase in question. The purpose of that rule is to ensure that the decrease is real and that it remains in effect.

*Id.* at 52701 (emphasis added).

The regulation is clear. The preamble is clear. The Big Stone Title V permit unlawfully allows Otter Tail to wait to implement the emission reductions on Unit #1 until the time Unit #13 begins operation rather than at the time construction commences on Unit #13. Thus, the Big Stone Title V permit fails to properly comply with federal and state PSD permitting regulations and does not legitimately allow Big Stone II to net out of PSD review for SO<sub>2</sub> or NO<sub>x</sub>.

**C. The Big Stone II Netting Analysis and SO<sub>2</sub> and NO<sub>x</sub> Emission Limitations Are Based on Improper Baseline Actual Emissions for Big Stone.**

Even if one ignores the legal issues raised above, DENR’s netting analysis is still flawed

because the proposed SO<sub>2</sub> and NO<sub>x</sub> emission limits fail to comply with other regulatory requirements to net Big Stone II (Unit #13) out of PSD review. As mentioned above, the definition of “net emissions increase” requires that, to be creditable in netting out a particular change from PSD review, emission increases and decreases must be contemporaneous with the particular change and otherwise creditable. 40 C.F.R. §52.21(b)(3)(i)(b). The contemporaneous timeframe is defined as beginning on the date five years before construction on a particular change commences and ending on the date the increase on the particular change occurs. 40 C.F.R. § 52.21(b)(3)(ii). The definition of net emissions increase also provides that “baseline actual emissions” as defined in 40 C.F.R. §52.21(b)(48) shall apply for calculating emission and decreases. “Baseline actual emissions” are defined for existing electric utility steam generating units such as Unit #1 as:

the average rate, in tons per year, at which the unit actually emitted the pollutant during any consecutive 24-month period selected by the owner or operator within the 5-year period immediately preceding when the owner or operator begins actual construction of the project. . . .

40 C.F.R. §52.21(b)(48)(i); ARSD 74:36:09:02.

The absolute earliest that actual construction could begin on Unit #13 would be after the final Title V permit was issued by DENR in June 2009. Thus, DENR should not have looked back at Unit #1's SO<sub>2</sub> and NO<sub>x</sub> emissions any earlier than May of 2004. Yet, DENR relied on emissions at Unit #1 from calendar years 2003 and 2004 to reflect baseline actual emissions. *See* DENR’s 2009 Statement of Basis for Draft Revised Big Stone Title V Permit (**Exhibit 14**) at 6. Specifically, DENR relied on baseline actual emissions for Unit #1 of 13,278 tpy of SO<sub>2</sub> and 16,448 tpy of NO<sub>x</sub>. *Id.* Sierra Club and Clean Water Action submitted comments on this issue to

DENR in its March 13, 2009 comment letter. **Exhibit 4** at 5-8.

In response to the comments on this issue, DENR identified three short periods (i.e., one to two months in duration) during the proper five year lookback period which it claimed were “not representative of baseline actual emissions.” 3/18/09 DENR Response to Comments (**Exhibit 13**) at 6-7. Specifically, DENR claimed that in October through December 2005, Big Stone I did not operate much because of the HP-IP turbine efficiency project that was conducted at Big Stone I during that time. *Id.* DENR also claimed that in March through May 2006, Otter Tail had to cut back operations of Big Stone I due to an issue with coal supplies. *Id.* Last, DENR claimed that Big Stone I cut back operations in October through December 2007 to replace its advanced hybrid particulate collector with a baghouse. *Id.* Thus, DENR found that “[b]ased on the three occurrences of uncommon events, the time frame that the Sierra Club specified from May 2004 through September 2008 are not representative of baseline actual emissions.” *Id.* at 7.

DENR’s analysis is flawed. The PSD regulation states that: “The Administrator shall allow the use of a different time period upon a determination that it is **more representative** of normal source operation. 40 C.F.R. § 52.21(b)(48)(i)(emphasis added). The regulation requires a finding that another period beyond the five-year period is “more representative” of Big Stone I’s normal operation. As EPA has stated in the NSR Workshop Manual and in several policy documents, use of an earlier time period as representative of normal source operations should only be allowed “in limited circumstances” such as periods of “strikes, retooling, major industrial accidents and other catastrophic occurrences.” October 1990 NSR Workshop Manual at A.39. Further, although EPA adopted a ten-year lookback period for sources other electric utility steam

generating units (EUSGUs) in its December 31, 2002 New Source Review rulemaking, EPA retained a five-year lookback period for baseline emissions for EUSGUs that EPA originally allowed in a July 21, 1992 rulemaking (57 Fed.Reg. 32314) stating that:

The data we collected to support the 1992 rule changes show that allowing EUSGUs to use any 2-year period out of the preceding 5 years is a sufficient period of time to capture normal business cycles at an EUSGU.

67 Fed.Reg. 80200 (December 31, 2002).

While EPA retained the provision that allows the permitting authority the use of a different two-year period of emissions for EUSGUs in its December 31, 2002 rulemaking, EPA never stated that it was changing its longstanding policy on the limitations to using a different time period reflective of baseline emissions discussed above.

DENR did not provide *any* demonstration that calendar years 2003 and 2004 were more representative of normal source operation at Big Stone I, and therefore it failed to justify use of a different time period other than the 5 years immediately preceding the date construction will begin on Big Stone II.

Indeed, Big Stone I's 2003-2004 emissions could in no way be considered as more representative of normal source operations for several reasons. Otter Tail began operating its overfire air system more aggressively in October 2006. A review of Attachment 1 to Petitioners' March 13, 2009 comment letter to DENR (**Exhibit 4**) on the revised Big Stone Title V permit shows that NO<sub>x</sub> emission rates at Big Stone I fell from approximately 0.83 lb/MMBtu down to 0.71 lb/MMBtu or lower beginning in October 2006 and continuing through the most recent data available on EPA's Clean Air Markets Database (i.e., through December 2008). In addition, DENR previously has stated that emissions have decreased after the HP-IP Turbine Efficiency

Project. *See* 4/15/08 DENR Response to Comments (**Exhibit 12**) at 14.

An evaluation of DENR's claims of the three 1-2 month periods in the last five years which it claims are "not representative of baseline actual emissions" shows that there is a lack of justification for DENR's claims for at least two of these periods. DENR's claims regarding the coal supply problem in 2006 exemplify this. DENR claimed that Otter Tail had to cut back production at Big Stone I due to coal supply issues in March through May 2006. Yet, a comparison of emissions during March through May 2006 to other time periods of emissions in the last five years shows that there have been other months with emissions as low or lower for which DENR did not make any claims about. For example, NO<sub>x</sub> emissions were 839 tons in April 2006, and NO<sub>x</sub> emissions ranged from 651 tons to 887 tons in March through May of 2007. *See* Attachment 1 to Petitioner's March 13, 2009 comment letter to DENR (Exhibit 4). Yet, DENR did not claim any events that made March through May of 2007 as not reflective of baseline actual emissions. In fact, this data just shows that Big Stone I's emissions during March through May 2006 were not out of the norm during the past five years.

In addition, while DENR claimed that the replacement of the advanced hybrid particulate collector with a baghouse in the fall of 2007 was an uncommon event, DENR neglected to state that Otter Tail also conducted other activities during that scheduled outage including the rewinding of generator stators and replacement of condenser tubes which Otter Tail claimed were routine industry practices. *See* October 23, 2006 letter from Otter Tail to DENR (**Exhibit 15**) at 4.



In summary, DENR failed to demonstrate that 2003 and 2004 emissions at Big Stone were more representative of normal source operation than emissions during the five-year lookback period and, based on the information provided above and in Sierra Club's/Clean Water Action's comment letter, there is no way to justify such a determination. Therefore, based on the definition of "baseline actual emissions," the baseline emissions based on the highest consecutive 24-month period of emissions out of the 5 years immediately preceding when construction would commence on Big Stone II should be 11,720 tons per year (tpy) for SO<sub>2</sub> and 14,609 tpy for NO<sub>x</sub>.<sup>5</sup>

When proper baseline actual emissions are evaluated in a netting analysis for Big Stone II, the NO<sub>x</sub> and SO<sub>2</sub> limits on the Big Stone I boiler (Unit #1) in the Title V permit do not create sufficient emission reductions to net out the potential/allowable emissions of the Big Stone II boiler (Unit #13) as shown in Table 1 below:

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<sup>5</sup> This is based on the 12 month average emissions based on the highest consecutive 24-month period during the five year lookback period. *See* Attachment 1 to Sierra Club's and Clean Water Action's March 13, 2009 comment letter to DENR (**Exhibit 4**).

**Table 1: Calculation of Net Emissions Increase Due to Big Stone II Project Using Proper Baseline Emissions for the Existing Big Stone Facility.**

	<b>SO<sub>2</sub>, tons per year</b>	<b>NO<sub>x</sub>, tons per year</b>
Increase in Emission Increases Due to Big Stone II (Allowable Emissions Based on Title V Permit Conditions 9.2 and 9.5)	2,268	1,314
Creditable Emission Decreases at Big Stone I <sup>6</sup>	-715	0
<b>Net Emissions Increase Due to Big Stone II Addition</b>	1,553	1,314

As demonstrated above, the emission limits of the Big Stone Title V permit do not create sufficient creditable emission reductions to allow Big Stone II to net out of PSD review for either SO<sub>2</sub> or NO<sub>x</sub> because they were based on improper baseline actual emissions for the Big Stone facility. Therefore, the Big Stone Title V permit fails to comply with federal and state PSD permitting regulations and does not legitimately allow Big Stone II to net out of PSD review for SO<sub>2</sub> or NO<sub>x</sub>.

**D. DENR Failed to Take Into Account All Creditable Emission Increases and Decreases in Determining Net Emissions Increase of SO<sub>2</sub> and NO<sub>x</sub>.**

According to EPA's New Source Review Workshop Manual, one of the common errors in netting analyses is the failure to consider all other contemporaneous emission increases in determining net emissions increase. *See* October 1990 NSR Workshop Manual at A.44. DENR did not review any other emissions increases and decreases at the Big Stone facility over the last 5 years as part of determining the net emissions increase of SO<sub>2</sub> and NO<sub>x</sub>. This is a major error.

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<sup>6</sup> Creditable reductions were determined by subtracting the Title V permit emission limits for Unit #1 (the Big Stone I boiler) from the proper baseline actual emissions. That is, creditable SO<sub>2</sub> reductions are equal to 11,720 tpy - 11,005 tpy (Big Stone I SO<sub>2</sub> limit in Condition 9.1 of Title V permit) = 715 tpy. Creditable NO<sub>x</sub> reductions are equal to 14,609 tpy - 15,104 tpy (Big Stone I NO<sub>x</sub> limit in Condition 9.5 of Title V permit) = 0 creditable reductions.

Petitioners are aware of at least one change that occurred at Big Stone facility during the contemporaneous period which should have been evaluated in determining net emissions increase of SO<sub>2</sub> and NO<sub>x</sub> by DENR. Specifically, the ethanol plant that is co-located with and receives steam from the Big Stone facility undertook modifications and received an air quality permit to significantly increase its capacity. According to a Poet Biorefining press release, the Big Stone ethanol plant was modified to increase its ethanol production capacity from 40 million gallons to 75 million gallons in 2007, with construction completed by June 2007. A copy of that press release was included as Attachment 2 to Sierra Club's and Clean Water Action's March 13, 2009 comment letter to DENR (in **Exhibit 4** to this petition). According to DENR's 2008 Statement of Basis for revisions to the Northern Lights Ethanol Title V permit, DENR issued a permit on September 8, 2006 that allowed Northern Lights Ethanol to increase production to up to 80 million gallons per year. See Attachment 3 to Sierra Club's and Clean Water Action's March 13, 2009 letter (in **Exhibit 4**) at 1. Because the Big Stone facility provides steam to the ethanol plant for use in producing ethanol, an almost doubling of the capacity of the ethanol plant would require more steam production from Unit #1 which would in turn require an increase in the amount of coal burned and an increase in emissions. According to EPA's NSR Workshop Manual, an increase in operation should be evaluated to determine whether there was a creditable emission increase. October 1990 NSR Workshop Manual at A.46. In this case, the amount of steam that Otter Tail could provide to the Northern Lights Ethanol plant was limited by the ethanol production capacity of the Northern Lights facility. Once the ethanol plant was permitted and modified to increase ethanol production capacity, the amount of steam that Otter Tail could provide to the ethanol plant increased.

Sierra Club and Clean Water Action raised this issue to DENR in its March 13, 2009 comment letter (**Exhibit 4**) at 8-10. DENR's response to this comment was that "Northern Lights Ethanol's expansion did not require any additional steam from Otter Tail Power Company above the amount already permitted." 3/18/09 DENR Response to Comments (Exhibit 13) at 8. Then DENR concluded that "[t]herefore, Otter Tail Power Company did not have to make a physical change or change its method of operation to accommodate Northern Lights Ethanol's increase in ethanol production." *Id.*

Neither the existing Big Stone Title V permit nor the Northern Lights Ethanol permit specify a limit on the amount of steam Otter Tail can provide to the ethanol plant. *See* 10/30/07 Northern Lights Ethanol Title V Permit (**Exhibit 16**). Furthermore, even if one or both of these permits did have such a limit, that is not the appropriate test to determine whether there has been a contemporaneous increase in emissions at Big Stone due to the expansion of the ethanol plant. DENR's review equates to a comparison of allowable emissions before the ethanol plant expansion to allowable emissions after the expansion. Instead, to determine whether there are creditable emission increases due to the ethanol plant expansion, one would need to evaluate the baseline actual emissions at Big Stone I before the expansion of the ethanol plant and compare to the potential emissions increase at Big Stone I due to the increased capacity of the ethanol plant after the ethanol plant expansion. *See* 40 C.F.R. §52.21(b)(3)(i)(b); §52.21(b)(48); NSR Workshop Manual at A.48. The difference between these two levels of actual emissions are the creditable emissions increases that must be included in determining the net emissions increase of SO<sub>2</sub> and NO<sub>x</sub> at the Big Stone facility.

Although EPA revised the term "net emissions increase" in its December 31, 2002

rulemaking to be based on “baseline actual emissions,” EPA did not revise its longstanding requirement that, for the purposes of determining net emissions increase, actual emissions for modified emission units be based on the potential to emit of the unit. Specifically, the determination of creditable emission increases is based on changes in actual emissions, and the definition of “actual emissions” provides that: “for any emissions unit which has not begin normal operations [as of] a particular date, actual emissions shall equal the potential to emit of the unit on that date.” *See* 40 C.F.R. §52.21(b)(3)(i)(b), (b)(3)(v); §52.21(b)(21)(iv).

Petitioners obtained data on the ethanol produced by the Northern Lights Ethanol plant from DENR during the 2009 Contested Case Hearing. Among other things, Petitioners obtained documents showing that, in the two years prior to 2006 when the ethanol plant expansion was completed, the ethanol plant produced an average (over 2004-2005) of 45,529,641 gallons of ethanol.<sup>7</sup> The emissions from Big Stone I due to supplying steam to the ethanol plant to produce this amount of ethanol reflect the actual emissions before the ethanol plant modification. The emissions from Big Stone I to supply steam to the ethanol plant to meet its allowable ethanol production capacity of 80 million gallons per year reflect the allowable emissions increase at the Big Stone II boiler after the expansion of the ethanol plant. Petitioners obtained data from Otter Tail via discovery in the 2009 contested case hearing before the Board that could be used to calculate the creditable emission increase from the ethanol plant expansion but Petitioners cannot disclose that data because Otter Tail claimed it was confidential information. However, it is clear that there is a creditable emission increase from the Big Stone I boiler based on the

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<sup>7</sup> *See* 2004 Operational Report for Northern Lights Ethanol and 2005 Operational Report for Northern Lights Ethanol (**Exhibit 17**).

allowable production rate of the ethanol plant of 80 million gallons per year as compared to the 2004-2005 ethanol production rate of 45,529,641 gallons. These creditable and contemporaneous emission increases at Big Stone I should have been added in when DENR calculated net emissions increase of SO<sub>2</sub> and NO<sub>x</sub> at the Big Stone facility but DENR failed to do so. Thus, DENR's netting analysis is flawed, and EPA must object to the Big Stone Title V permit. Consequently, the Big Stone Title V permit fails to properly comply with federal and state PSD permitting regulations and does not legitimately allow Big Stone II to net out of PSD review for SO<sub>2</sub> or NO<sub>x</sub>.

**E. Because of the Deficiencies in DENR's Attempt to Net Big Stone II Out of PSD Review for SO<sub>2</sub> and NO<sub>x</sub>, the Big Stone Title V Fails to Provide for Compliance with the PSD Requirements Applicable to the Big Stone II Project for SO<sub>2</sub> and NO<sub>x</sub>.**

To sum up, DENR's determination of baseline actual emissions did not comport with the requirements of PSD permitting regulations and EPA policy. DENR failed to provide any justification for its assumption that 2003-2004 emissions were more representative of normal source operation of the Big Stone facility than emissions during the preceding five years. Second, DENR failed to take into account any creditable and contemporaneous emission increases when determining net emissions increase due to the Big Stone II project. As Petitioners described above, there was a credible emission increase due to the increase in the capacity of the co-located ethanol plant that uses steam from the Big Stone I facility. Third, the emission limitations imposed on the Big Stone I boiler (Unit #1) which are being relied on to net the Big Stone II project out of PSD review are not required to be met before actual construction commences on the Big Stone II project, which is contrary to the plain language of the

requirements of the PSD regulations.<sup>8</sup> Moreover, the Title V permit is not the appropriate vehicle for creating new emission limits, such as those imposed to net a new emissions unit out of PSD review.

These flaws in DENR's PSD applicability analysis for the Big Stone II project, both individually and collectively, mean that DENR has not lawfully exempted Big Stone II from PSD permitting requirements for SO<sub>2</sub> and NO<sub>x</sub>. Therefore, the Big Stone Title V permit does not ensure compliance with the PSD requirements of the Clean Air Act applicable to the SO<sub>2</sub> and NO<sub>x</sub> emissions from the Big Stone II project, and EPA must object to the Big Stone Title V permit.

**Issue #2: The Big Stone Title V Permit Is Deficient Because it Fails to Include BACT Emission Limits for PM<sub>2.5</sub>**

Each Title V permit must contain conditions sufficient to assure the source's compliance with each applicable requirement. *See, e.g.*, 42 U.S.C. § 7661a(b) (a state must "issue permits and assure compliance by all sources . . . with each applicable standard, regulation, or requirement under [the Act]."). *See also* 40 C.F.R. § 70.6(a). The Big Stone Title V permit is defective because it fails to contain BACT emission limits for PM<sub>2.5</sub>. The Clean Air Act requires BACT emission limitations for each pollutant regulated under the Act. *See* 42 U.S.C. § 7475(a)(4). *See also* 40 C.F.R. § 52.21(j)(3). Although during the public comment period, Sierra Club notified DENR that its draft PSD and Title V permits were deficient for their failure to include a BACT emission limit for PM<sub>2.5</sub>, *see* March 14, 2008 comment letter (**Exhibit 2**) at 4-5, the Title V permit contains neither a PM<sub>2.5</sub> BACT limit nor limits on PM<sub>2.5</sub> precursors based

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<sup>8</sup> *See* 40 C.F.R. § 52.21(b)(3)(vi)(b).

upon a PM<sub>2.5</sub> BACT determination.

By U.S. EPA's own admission, the promulgation of the PM 2.5 NAAQS in 1997 triggered the duty to apply the PSD requirements to fine particulate matter. 70 Fed. Reg. 65,984, 66,043 (Nov. 1, 2005). There is no doubt that the addition of the Big Stone II unit will make the Big Stone facility a major modification for PM<sub>2.5</sub>. Accordingly, the statute and regulations require that a BACT emission limitation for PM<sub>2.5</sub> be established for PM<sub>2.5</sub>.

In response to Sierra Club's comments, DENR stated that under an October 23, 1997 memo from John Seitz ("Seitz Memo") and an April 5, 2005 memo from Stephen Page, DENR found that Otter Tail need only submit a BACT analysis for PM<sub>10</sub> in order to satisfy the statutory BACT requirement for PM<sub>2.5</sub>. See **Exhibit 12** at 2. As shown below, it was and is inappropriate for DENR to rely upon this so-called "surrogate policy" to avoid imposing a BACT emission limit for PM<sub>2.5</sub> on the Big Stone II unit.

The surrogate policy can only excuse a specific BACT determination for PM<sub>2.5</sub> to the extent it is consistent with statutory and regulatory language and is otherwise allowed by law. By itself, the policy has no binding legal effect. *Appalachian Power Co. v. EPA*, 208 F.3d 1015, 1020 (D.C. Cir. 2000). (Indeed, by its terms, the Seitz memo does "not bind State and local governments and the public as a matter of law." Seitz Memo, at 3.

Turning to the merits of using PM<sub>10</sub> as a surrogate for PM<sub>2.5</sub> with respect to BACT, the federal courts have ruled that surrogate limits may be used in lieu of directly imposed limits only under limited circumstances. *National Lime Ass'n v. EPA*, 233 F.3d 625, 637-39 (D.C. Cir. 2000); see also *Sierra Club v. EPA*, 353 F.3d 976, 982-985 (D.C. Cir. 2004). In *National Lime*, the DC Circuit established a three-part test (with reference to hazardous air pollutants) explaining



when it is appropriate to use a surrogate. The concepts are applicable here. A surrogate may be used only if:

- (1) the primary pollutant is invariably present in the surrogate pollutant;
- (2) the control technology for the surrogate pollutant “indiscriminately captures” the primary pollutant; and
- (3) the control technology for the surrogate pollutant “is the only means by which facilities ‘achieve’ reductions” of the primary pollutant.

*National Lime*, 233 F.3d at 639.

As a surrogate for PM<sub>2.5</sub> BACT, PM<sub>10</sub> fails the second and third elements of the *National Lime* test. Because PM<sub>10</sub> and PM<sub>2.5</sub> are different sized particles (PM<sub>2.5</sub> is a component of PM<sub>10</sub>), technologies and work practices designed to control PM<sub>10</sub> have different and lower control efficiencies for PM<sub>2.5</sub>. In other words, a technology may do very well at controlling overall PM<sub>10</sub>, but do poorly at controlling the PM<sub>2.5</sub> fraction. Therefore, an analysis focused solely on PM<sub>10</sub> will not identify the control options needed to achieve the maximum emission reductions of PM<sub>2.5</sub>. In addition, a number of PM<sub>2.5</sub> precursors, such as SO<sub>2</sub>, NH<sub>3</sub>, and NO<sub>x</sub>, must be evaluated as part of a PM<sub>2.5</sub> BACT analysis, but would not be included in a PM<sub>10</sub> analysis. It is worth noting that when EPA promulgated its final implementation rule for PM<sub>2.5</sub> in May 2008 (parts of which, as mentioned above, are being reconsidered), one of the reasons EPA gave for finding that PM<sub>10</sub> would be an “adequate” surrogate was because “both of the precursors designated in the final rule— SO<sub>2</sub> and NO<sub>x</sub> (presumptively)—are already regulated under State NSR programs for other criteria pollutants.” 73 Fed. Reg. 28321, 28341/3 (May 16, 2008). In *this* case, of course, DENR has not imposed a BACT emission limitation for either SO<sub>2</sub> or NO<sub>x</sub>,

making it all the more imperative that the permit contain BACT emission limits set specifically for PM<sub>2.5</sub>.

Petitioners note the high level of regulatory activity relating to the policy that has occurred in the past fourteen months, but in this particular context, none of that activity has enhanced the legal status of the surrogate policy or justified its use in this case. In May 2008, EPA issued a rule regarding implementation of the NSR program for PM<sub>2.5</sub>. 73 Fed. Reg. 28321 (May 16, 2008). For delegated NSR states, this rule created a “grandfathering” provision regarding PM<sub>2.5</sub> BACT allowing some use of the PM<sub>10</sub> surrogate policy for applications filed prior to July 2008. For SIP-approved states like South Dakota, EPA said:

During this SIP development period, the PM<sub>2.5</sub> NAAQS must still be protected under the PSD program in such States. We are finalizing our proposed option 1 that *if a SIP-approved State is unable to implement a PSD program for the PM<sub>2.5</sub> NAAQS* based on these final rules, the State may continue to implement a PM<sub>10</sub> program as a surrogate to meet the PSD program requirements for PM<sub>2.5</sub> pursuant to the 1997 guidance mentioned previously.

*Id.* (emphasis added). South Dakota can implement a PSD program for the PM<sub>2.5</sub> NAAQS under its existing authority. While the South Dakota SIP does not incorporate all of the features of the 2008 rule (e.g., it lacks a PM<sub>2.5</sub> significance level), the South Dakota program was and is adequate to protect the PM<sub>2.5</sub> NAAQS. As mentioned above, the program simply incorporates the federal regulation, 40 C.F.R. § 52.21 as of 2005 by reference. Under subsection (j), the BACT requirement applies to any “NSR pollutant,” which includes PM<sub>2.5</sub>. Bottom line, then, the May 2008 rulemaking did not enhance the legal status of the surrogate policy in South Dakota, and as explained above, it is inappropriate in this case to use that policy to argue that a PM<sub>10</sub> BACT analysis is an adequate surrogate for a PM<sub>2.5</sub> BACT analysis.

EPA's later actions regarding the May 2008 rulemaking confirm this analysis. Note that when Administrator Johnson denied a Petition for Reconsideration regarding this rule in January 2009, he said: "Many states have already indicated that they have the general authority to regulate PM<sub>2.5</sub> under their existing SIPs even though specific regulatory changes are needed to fully implement the program in accordance with EPA's newly amended rules." *See* Letter from Johnson to Cort, (Jan. 14, 2009) (<http://www.epa.gov/nsr/documents/20090115cort.pdf> ). South Dakota, with its incorporation-by-reference approach for the PSD program, would be one of those states. Furthermore, Johnson confirmed that the surrogate policy "does not 'waive' or 'exempt' sources from complying with the statutory requirements." *Id.* He added:

We emphasize that the continued use of the PM<sub>10</sub> surrogate policy is not mandatory, and case-by-case evaluation of the use of PM<sub>10</sub> in individual permits is allowed to determine its adequacy of as a surrogate for PM<sub>2.5</sub>. . . . Each permit that relies on the adequacy of the PM<sub>10</sub> surrogate policy to satisfy the new PM<sub>2.5</sub> requirements is subject to review as to the adequacy of such presumption.

*Id.* DENR's presumption that the PM<sub>10</sub> surrogate policy satisfies PM<sub>2.5</sub> requirements cannot withstand scrutiny because, as explained above, PM<sub>10</sub> is an inappropriate surrogate under the D.C. Circuit test and the permit lacks a BACT analysis for SO<sub>2</sub> and NO<sub>x</sub>.

EPA's action granting reconsideration of the 2008 rule and staying the grandfathering provision, which had allowed facilities in delegated states to rely on the surrogate policy, is also significant. In granting this stay, Administrator Jackson said: "the Agency intends to propose to repeal the grandfathering provision on the grounds that it . . . is no longer substantially justified in light of the resolution of the technical issues with respect to PM<sub>2.5</sub> monitoring, emissions estimation, and air quality modeling that led to the PM<sub>10</sub> Surrogacy Policy in 1997." Letter from Jackson to Cort (April 24, 2009) (<http://www.epa.gov/nsr/documents/Earthjustice.pdf> ). As

mentioned above, in this case there was no technical justification why a specific PM<sub>2.5</sub> BACT determination could not have for the Big Stone II modification.

In summary, for the reasons stated above, the Title V permit is defective because it does not contain BACT emission limitations for PM<sub>2.5</sub>.

**Issue #3: The Big Stone Title V Permit Is Deficient Because it Fails to Include BACT Requirements for Greenhouse Gases.**

**A. Introduction**

The Title V permit is defective because it contains no BACT emission limits for CO<sub>2</sub> and methane even though, as shown below, those pollutants are subject to regulation under the Clean Air Act, and even though the addition of the Big Stone II unit to the Big Stone facility will increase the emission of these pollutants significantly. Petitioners raised this issue in their public comments, *see, e.g.*, **Ex. 1** at 32, and at the combined contested case hearing, but the Board refused to impose such limits on legal grounds. Thus, the issue here is simply one of law: are CO<sub>2</sub> and methane pollutants subject to regulation under the Act? Because the answer is “yes,” this petition must be granted.

Indeed, at this point, it must be pointed out that in its Response to Comments Document, DENR acknowledged that methane is subject to regulation under the New Source Performance Standards. **Exhibit 12**, at 39 (Subject to Subparts Cc and WWW. Accordingly, for this pollutant, there is no reason whatsoever for the Title V permit not to contain an emission limit for methane. The discussion below, therefore, focuses on the lack of an emission limit for CO<sub>2</sub>.

## **B. Analysis**

### 1. Greenhouse Gases Are Air Pollutants under the Clean Air Act.

The Clean Air Act defines “air pollutant” expansively to include “any physical, chemical, biological, radioactive . . . substance or matter which is emitted into or otherwise enters into the ambient air.” 42 U.S.C. § 7602(g)(emphasis added). The U.S. Supreme Court recently confirmed in *Massachusetts v. EPA*, 549 U.S. 497 (2007), that greenhouse gases fit within this expansive definition. The Court held that it is “unambiguous” that the “sweeping definition” of air pollutant found in the Act “embraces all airborne compounds of any stripe,” including CO<sub>2</sub> and other greenhouse gases.” *Id.* at 529.

### 2. CO<sub>2</sub> is Currently Regulated Under the Clean Air Act.

In addition to being an “air pollutant,” CO<sub>2</sub> qualifies as a pollutant *subject to regulation under the Clean Air Act* because it is subject to regulations issued under the authority of the Act. Below, petitioners detail the numerous ways in which CO<sub>2</sub> is subject to regulation, both in terms of regulations that require the monitoring and reporting of CO<sub>2</sub> emissions and also in terms of regulations that limit the emission of CO<sub>2</sub>. In addressing this issue, *see* DENR Response to Comments, **Exhibit 12**, at 39, DENR mistakenly assumed that there were no regulations in the latter category and that such regulations would be necessary to trigger a BACT determination for CO<sub>2</sub>. Even if DENR had been correct about the lack of regulations controlling the emission of CO<sub>2</sub>, it was wrong as a matter of law that this type of regulation is necessary to trigger the BACT requirement because “subject to regulation” means *governed or affected by a regulating principle or precept*.

There is no doubt that provisions that provide for the monitoring and reporting of emissions are “regulation.” The term “regulation” means: “a regulating principle; a precept.” See Black’s Law Dictionary 1158 (5th ed. 1978):

Regulation. The act of regulating: a rule or order prescribed for management or government: a regulating principle: a precept. Rule or order prescribed by superior or competent authority relating to action of those under its control. Regulation is rule or order having force of law issued by executive authority of government.

*Id.* (emphasis added) (citing *State ex rel. Villines v. Freeman*, 370 P.2d 307, 309 (Okla. 1962)).

In other contexts, the U.S. Supreme Court has found recordkeeping and reporting requirements to constitute regulation. *Buckley v. Am. Constitutional Law Found., Inc.*, 525 U.S. 182, 204 (1999) (holding that compelled reporting of ballot initiative petition circulators’ names was impermissible regulation of speech and association rights); *Riley v. Nat’l Fed’n of the Blind, Inc.*, 487 U.S. 781, 798-99 (1988) (compelled reporting of professional fundraiser status is impermissible regulation of speech); *Buckley v. Valeo*, 424 U.S.1, 66-68 (1976) (evaluating recordkeeping, reporting, and disclosure requirements as regulation of political speech).

Furthermore, the clause “subject to” means “governed or affected by.” The Ninth Circuit reached this conclusion after an extensive case law review:

In *Northwest Forest Resource Council v. Glickman*, 82 F.3d 825 (9th Cir. 1996) (as amended), we considered the definition and scope of the words “subject to section 318” in § 2001(k)(1) of the 1995 Rescissions Act, Pub. L. 104-19, 109 Stat. 194 (1995). We concluded, inter alia, that the phrase “subject to” means “governed or affected by.” *Nw. Forest Res. Council*, 82 F.3d at 833; see also *U.S. ex rel. Totten v. Bombardier Corp.*, 351 U.S. App. D.C. 30, 286 F.3d 542, 547 (D.C. Cir. 2002) (“[A]n entity is ‘subject to’ a particular legal regime when it is regulated by, or made answerable under, that regime.”); *Texaco Inc. v. Duhe*, 274 F.3d 911, 918-19 (5th Cir. 2001) (holding that natural gas became “‘subject to’ an existing contract” within the meaning of the Natural Gas Policy Act when it was “governed by” terms of that contract); *Michelin Tires (Canada) Ltd. v. First Nat’l Bank of Boston*, 666 F.2d 673, 677 (1st Cir. 1981) (“The words ‘subject to,’ used in their ordinary sense, mean ‘subordinate to,’ ‘subservient to,’ or ‘limited by.’”);

*Burgess Constr. Co. v. M. Morrin & Son Co.*, 526 F.2d 108, 113 (10th Cir. 1975) (“The words ‘subject to’ usually indicate a condition to one party’s duty of performance and not a promise by the other.”). And we concluded in *Northwest Forest Resource Council* that a contrary conclusion would make mere surplusage of the provision. *See* 82 F.3d at 834; *see also id.* (“[A] statute must be interpreted to give significance to all of its parts.”).

Portland GE Co. v. Bonneville Power, 501 F.3d 1009, 1028-29 (9<sup>th</sup> Cir. May 3, 2007).

That the clause “subject to regulation under this Act,” 42 U.S.C. § 7475(a)(4) means ‘governed or affected by a regulating principle or precept promulgated under the Act’ is borne out by a review other places in the Act where the “subject to regulation” formulation is used. In Section 112 of the Act, 42 U.S.C. § 7412, Congress uses the phrase “subject to regulation” to exclude motor vehicles and nonroad engines from the area source category of sources. 42 U.S.C. § 7412(a)(2)(“[T]he term ‘area source’ shall not include motor vehicles or nonroad vehicles subject to regulation under title II.”). Here, where the issue is whether a source is “subject to regulation under Title II” (the mobile source provisions of the Act), it is evident that Congress means affected by regulations promulgated under Title II, not simply those regulations that actually control emissions from mobile sources. *See also* 42 U.S.C. § 7412(b)(2) (using “subject to regulation” to exclude sources covered by Section 112(r) planning provision). Consequently, when Congress uses the “subject to regulation” formulation, Congress means *subject to the regulatory scheme*, not simply subject to emissions limitations.

In concluding that CO<sub>2</sub> is not “subject to regulation,” DENR looked not to the statute, but rather the PSD regulations, assuming that in creating the definition of “NSR pollutant,” EPA somehow intended to narrowly interpret the “subject to regulation” construction in the statute. The EAB rejected this notion in *In re Deseret Power Cooperative*, PSD Appeal No. 07-03, 2008 EPA App. LEXIS 47. \*88-\*89, Slip Op. at 46 (EAB Nov. 13, 2008), noting that nothing in the

preamble when EPA created the *NSR pollutant* definition indicated any such intention. The EAB also correctly observed that since part (iv) of the definition of *NSR Pollutant* simply parrots the statute, it is inappropriate to rely on regulatory language. *See id. (citing Gonzales v. Oregon, 546 U.S. 243, 257 (2006))* (“An agency does not acquire special authority to interpret its own words when, instead of using its expertise and experience to formulate a regulation, it has elected merely to paraphrase the statutory language.”).

Consequently, under the correct understanding of the clause “subject to regulation under this Act,” the question is: are there regulations that govern or affect the emission of CO<sub>2</sub>? The answer, shown below, is that there are several.

### 3. CO<sub>2</sub> is Regulated Under the Act Through Part 75.

In section 821 of the 1990 Amendments to the Act, Congress made CO<sub>2</sub> “subject to regulation” for purposes of the Act’s Section 165 BACT provisions. Enforcement of Section 821 is accomplished through the enforcement mechanism in the Act, 42 U.S.C. §§ 7413(a)(4), (b)(2), 7604(a)(1), and a violator is subject to the penalty provisions of the Act. 42 U.S.C. § 7651k(e). In 1993, EPA issued the regulations required by Section 821. 40 C.F.R. Part 75. Those regulations generally require monitoring of carbon dioxide emissions through installation, certification, operation, and maintenance of a continuous emission monitoring system or an alternative method, 40 C.F.R. §§ 75.1(b), 75.10(a)(3); preparation and maintenance of a monitoring plan, 40 C.F.R. § 75.33; maintenance of certain records, 40 C.F.R. § 75.57; and reporting of certain information to EPA, including electronic quarterly reports of carbon dioxide emissions data, 40 C.F.R. §§ 75.60 - 64. Additionally, 40 C.F.R. § 75.5 prohibits operation of an affected source in the absence of compliance with the substantive requirements of Part 75, and provides that a



violation of any requirement of Part 75 is a violation of the Clean Air Act. These regulations are located in Title 40, Chapter I, Subchapter C, which makes them “regulation[s] under the Act,” according to EPA’s only official interpretation. *See* 43 Fed. Reg. 26,388, 26,397 (June 19, 1978); *Deseret*, Slip Op. at 41 (holding that the fact that CO<sub>2</sub> is regulated by rules contained in 40 C.F.R. Subchapter C “augers in favor” of a conclusion that CO<sub>2</sub> is “subject to regulation under the Act,” based on EPA’s official interpretation in its 1978 rulemaking).

Furthermore, EPA has identified the CO<sub>2</sub> monitoring and reporting requirements in Part 75 as applicable Clean Air Act requirements that must be incorporated into Title V operating permits. 40 C.F.R. § 71.2. South Dakota requires such monitoring in this very Title V permit. *See* Permit Condition 8.4. EPA has enforced CO<sub>2</sub> monitoring regulations under the Clean Air Act on a number of occasions. It is, therefore, undeniable that CO<sub>2</sub> is subject to regulation under the Clean Air Act.

4. Greenhouse Gases Are Regulated Under the Act Through the NSPS Standard for Landfill Gases.

In addition to section 821 of the Act, and its implementing regulatory requirements, greenhouse gases such as CO<sub>2</sub> and methane are also regulated as a component of landfill gases. EPA also promulgated emission standards for municipal solid waste (MSW) landfill emissions in Subchapter C. 40 C.F.R. §§ 60.33c, 60.752. “MSW landfill emissions” are defined as “gas generated by the decomposition of organic waste deposited in an MSW landfill or derived from the evolution of organic compounds in the waste.” 40 C.F.R. § 60.751. EPA has specifically identified CO<sub>2</sub> as one of the components of the regulated “MSW landfill emissions.” *See* Air Emissions from Municipal Solid Waste Landfills - Background Information for Final Standards

and Guidelines, U.S. EPA, EPA-453/R-94-021 (Dec. 1995) (explaining “MSW landfill emissions, or [landfill gas], is composed of methane, CO<sub>2</sub>, and NMOC.”). Thus, CO<sub>2</sub> is regulated through the landfill emission regulations at 40 C.F.R. Part 60 Subparts Cc, WWW. *See also* 56 Fed. Reg. 24468 (May 30, 1991) (“Today’s notice designates air emissions from MSW landfills, hereafter referred to as ‘MSW landfill emissions,’ as the air pollutant to be controlled”).

Greenhouse gas emissions-- including CO<sub>2</sub>-were central to the landfill NSPS. The NSPS Rule was designed, in part, to control emissions of the trace amounts of non-methane organic compounds in the gas. When EPA issued its final rule requiring control of landfill gas emissions-consisting almost entirely of two greenhouse gases, including CO<sub>2</sub>, and only traces of other compounds-it was doing so based on the agency’s determination that the emissions “contribute[] to global climate change.” In fact, based on quantities of gas, the rule can best be described as a limit on CO<sub>2</sub> and methane and secondarily a limit on other constituents of landfill gas. Landfill gas emissions contain approximately 50% methane, 50% carbon dioxide, and less than 1% non-methane organic compounds. In a background technical document for that regulatory process, EPA, as early as March 1991, acknowledged that air emissions of greenhouse gases, including carbon dioxide and methane “contribut[ed] to the phenomenon of global warming,” and that the “global warming effects” of those emissions posed “potential adverse health and welfare effects.” *See* Exhibit 25 at 2-15. EPA noted that while, at the time, there was uncertainty as to the timing and ultimate magnitude of global warming, there was already a “strong scientific agreement” that the increasing emissions of greenhouse gases “will lead to temperature increases” and that efforts were underway to develop control options. One of the specific justifications that EPA articulated for adopting the Rule (particularly at the level of

stringency chosen) was to limit emissions of methane to avoid global warming impacts. *See* 56 Fed. Reg. 24468, 24481 (March 12, 1996) (“[i]n considering which alternative to propose as BDT, EPA decided to consider both NMOC’s and methane reductions”); 61 Fed. Reg. 9905, 9906 (“Briefly, specific health and welfare effects from [landfill gas] emissions are as follows . . . methane emissions . . . contribute to global climate change as a major greenhouse gas”); *id.* at 9914 (anticipated “methane reductions . . . are also an important part of the total carbon reductions identified under the Administration’s 1993 Climate Change Action Plan”). EPA further noted in the preamble to the final rule that “[c]arbon dioxide is also an important greenhouse gas contributing to climate change,” and quantified the benefits of the rule based on “equivalent reduction in CO<sub>2</sub>.” 56 Fed. Reg. at 24472 (stating that “1.1 to 2.0 billion trees would need to be planted . . .to achieve an equivalent reduction in CO<sub>2</sub> as achieved by today’s proposal”). Clearly, then, global warming impacts of landfill gas emissions were central to the NSPS standards. The NSPS standard for landfill gases includes numerous steps and requirements to reduce emissions of methane and CO<sub>2</sub>. As such, under any reasonable interpretation of “regulated,” these pollutants are regulated under the Clean Air Act and a BACT limit is required.

5. CO<sub>2</sub> is regulated under the Act Through Approval of Delaware’s SIP Limits on CO<sub>2</sub> Emissions Into Part 52 Under the Act.

Even applying an incredibly restrictive interpretation to the Clean Air Act that would read “subject to regulation under this Act” to mean ‘capped or controlled,’ CO<sub>2</sub> is still subject to regulation under the Act through EPA’s recent approval of amendments adding various CO<sub>2</sub> regulations to the SIP for the state of Delaware. 73 Fed. Reg. 23,101 (April 29, 2008); 40 C.F.R. § 52.420(c). EPA determined that the submission satisfied the requirements under CAA §

110(a), and published notice of its approval of the SIP revision in the Federal Register on March 5, 2008. 73 Fed. Reg. 11845. EPA allowed for public comment and, on April 29, 2008, EPA published notice of its Final Rule approving the SIP revision, effective May 29, 2008, in the Federal Register. 73 Fed. Reg. 23101 (April 29, 2008). Both the proposed and final rule notices state that EPA’s approval of Delaware’s Regulation 1144 was “under” and “in accordance with the Clean Air Act.” 73 Fed. Reg. at 11845; 73 Fed. Reg. at 23101. This regulatory action was completed before the Board issued either the PSD permit (November 20, 2008) or the Title V permit (June 9, 2009).

The Delaware SIP amendments establish CO<sub>2</sub> emission limits and operating requirements, record keeping and reporting requirements, and CO<sub>2</sub> emissions certification, compliance, and enforcement obligations for new and existing stationary electric generators. Del. Admin. Code 7 1000 1144. The approved Delaware SIP limits emissions of CO<sub>2</sub> from certain electric generators to the following rates:

Existing Distributed Generators	1,900 lbs/MWh
New Distributed Generators (if installed between effective date and 1/1/2012)	1,900 lbs/MWh
New Distributed Generators (if installed on or after 1/1/2012)	1,650 lbs/MWh
New Distributed Generators that use Waste, landfill or digester gases	1,900 lbs/MWh

Delaware Department of Natural Resources and Environmental Control, Division of Air and Waste Management, Air Quality Management Section, Regulation No. 1144 § 3.2.1 - 3.2.2.

In adopting Delaware Regulation 1144 into Subchapter C, EPA was clear that it was adopting limits on CO<sub>2</sub> emissions under the Clean Air Act:

Regulation No. 1144 contains provisions to control the emissions of nitrogen oxides (NO<sub>x</sub>), nonmethane hydrocarbons (NMHC), particulate matter (PM), sulfur dioxide (SO<sub>2</sub>), carbon monoxide (CO), and carbon dioxide (CO<sub>2</sub>) from stationary generators in the State of Delaware.

Regulation No. 1144 establishes emission standards in pounds per megawatt-hour (lbs/MWh) of electricity output under full load design conditions or at the total load conditions specified by the applicable testing methods.

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**CONCLUSIONS AND RECOMMENDED AGENCY ACTION:**

Regulation No. 1144 adopted by the State of Delaware will result in the control of NO<sub>x</sub>, NMHC, PM, SO<sub>2</sub>, CO, and CO<sub>2</sub> emissions from stationary generators and will help the State in attaining compliance with the 8-hour ozone NAAQS. EPA approval of the SIP revision is recommended.

Memorandum from Rose Quinto, Environmental Engineer Air Quality Planning Branch, U.S.

EPA Region 3, Re: Technical Support Document - Delaware; Regulation No. 1144 - Control of Stationary Generator Emissions (January 25, 2008), attached as **Exhibit 26**.

EPA's approval was made "in accordance with the Clean Air Act," 73 Fed. Reg. 23,101, and by approving inclusion of these provisions into Delaware's SIP, the agency confirmed that CO<sub>2</sub> is "subject to regulation" under the Act, as SIPs are developed pursuant to Sections 110 and 113 of the Act, 42 U.S.C. §§ 7410, 7413, and become federally enforceable parts of federal law upon approval. *El Comite Para El Bienestar de Earlimart v. Warmerdam*, 539 F.3d 1062, 1066 (9<sup>th</sup> Cir. 2008); *Espinosa v. Roswell Tower, Inc.*, 32 F.3d 491, 492 (10<sup>th</sup> Cir. 1994); *Her Majesty the Queen in Right of the Province of Ontario v. City of Detroit*, 874 F.2d 332, 335 (6<sup>th</sup> Cir. 1989). As such, the Delaware SIP approval also demonstrates that CO<sub>2</sub> is subject to regulation under the Clean Air Act for purposes of triggering the BACT requirements.

6. CO<sub>2</sub> Is Regulated Under the Act Through EPA's Approval of California's Greenhouse Gas Emission Standards for Vehicles Pursuant to Section 209 of the Act.

EPA authorized the state of California to implement its motor vehicle greenhouse gas emission standards pursuant to Section 209(b) of the Clean Air Act, 42 U.S.C. § 7609(b), on June 30, 2009. 74 FR 32744. As a result, carbon dioxide was immediately subject to emission limits not only in California, but also in ten of the 14 other states that have imposed these same standards pursuant to their independent authority under Section 177 of the Act, 42 U.S.C. § 7507.

California's greenhouse gas emissions standards establish allowable grams per mile ("gpm") levels for greenhouse gas emissions, including tailpipe emissions of carbon dioxide (CO<sub>2</sub>), nitrous oxide (N<sub>2</sub>O), and methane (CH<sub>4</sub>), as well as emissions of CO<sub>2</sub> and hydrofluorocarbons (HFCs) related to operation of the air conditioning system.

74 FR 32752.

California's grams-per-mile standards (the "CO<sub>2</sub> Emission Limits") are effective for model years 2009 through 2016:

[California's] regulation covers large-volume motor vehicle manufacturers beginning in the 2009 model year, and intermediate and small manufacturers beginning in the 2016 model year and controls greenhouse gas emissions from two categories of new motor vehicles -- passenger cars and the lightest trucks (PC and LDT1) and heavier light-duty trucks and medium-duty passenger vehicles (LDT2 and MDPV).

*Id.* at 32746. Because Model Year 2010 began on January 2, 2009 (and Model Year 2009 began on January 2, 2008, *see* 40 CFR 85.2304), the "CO<sub>2</sub> Emission Limits" are currently in effect and govern CO<sub>2</sub> emissions from all new motor vehicle sales and registrations.

The CO<sub>2</sub> Emission Limits are in effect not only in California, but also in 10 other states that have also promulgated these standards for Model Years 2009 or 2010: Connecticut, Maine, Massachusetts, New Jersey, New York, Oregon, Pennsylvania, Rhode Island, Vermont, and Washington.

Each of these states adopted the CO<sub>2</sub> Emission Limits pursuant to Section 177 of the

Clean Air Act, 42 U.S.C. § 7507. Section 177 expressly grants other states the authority to adopt California's vehicle emission standards:

Section 177 of the Act contains an "opt-in" provision that allows any other state to "adopt and enforce for any model year standards relating to control of emissions from new motor vehicles" if "such standards are identical to the California standards for which a waiver has been granted for such model year" and are adopted "at least two years before commencement of such model year." 42 U.S.C. § 7507.

*American Automobile Manufacturers Association v. Cahill*, 152 F.3d 196, 198 (2d Cir. 1998).

States have been exercising their Section 177 authority for almost two decades; the first to do so was New York, adopting California's original Low Emission Vehicle standards in 1992.

*Motor Vehicle Manufacturers Association v. New York State Department of Environmental Conservation*, 17 F.3d 521, 529 (2d Cir. 1994). Not only have states adopted these emission standards under their Section 177 authority, but each state has historically incorporated these standards into their State Implementation Plans ("SIP") under Section 110 of the Act, 42 U.S.C. § 7410. *See, e.g.*, 40 C.F.R. § 52.370(c)(79) (EPA approval of §177-adopted standards as part of Connecticut's SIP); 40 C.F.R. § 52.1020(c)(58) (Maine); 40 C.F.R. § 52.1120(c)(132) (Massachusetts); 40 C.F.R. §52.1570(c)(84)(i)(A) (New Jersey); 40 C.F.R. § 52.2063(c)(141)(i)(C) (Pennsylvania). Once incorporated into a SIP, these requirements become CAA standards, and numerous provisions authorize both EPA and citizens to enforce such SIP requirements, *e.g.*, 42 U.S.C. § 7413; 42 U.S.C. § 7604(a)(1), (f)(3).

Because the CO<sub>2</sub> emission limits are no different than any other vehicle emission standards that states have been adopting and enforcing under the Clean Air Act for decades, it is clear that CO<sub>2</sub> is now "subject to regulation" under the Act. In fact, two federal courts have found that these very CO<sub>2</sub> Emission Limits are indeed federal Clean Air Act standards. In

*Central Valley Chrysler-Jeep, Inc. v. Goldstene*, 529 F. Supp.2d 1151, 1165 (E.D. Cal. 2007), the court rejected the notion that even when approved under Section 209 of the Act, the CO<sub>2</sub> Emission Limits “are and remain state regulations and therefore subject to preemption” by the federal Energy Policy and Conservation Act (“EPCA”): “The court can discern no legal basis for the proposition that an EPA-promulgated regulation or standard functions any differently than a California-promulgated and EPA-approved standard or regulation.” *Id.* at 1173.

Faced with the identical argument, the court in *Green Mountain Chrysler v. Crombie*, 508 F. Supp.2d 295, 350 (D.Vt. 2007), also rejected the idea that the CO<sub>2</sub> emission limits were not federal standards, concluding “that the preemption doctrine does not apply to the interplay between Section 209(b) of the CAA and EPCA, in essence a claim of conflict between two federal regulatory schemes.”

Here then is yet another reason why carbon dioxide is “subject to regulation” under the Clean Air Act.

#### **Issue #4: The Big Stone Title V Permit Fails to Include a Compliance Assurance Monitoring (CAM) Plan.**

##### **A. Legal Background.**

A Title V permit must include the following with respect to monitoring (among other requirements):

All monitoring and analysis procedures or test methods required under applicable monitoring and testing requirements, **including part 64** of this chapter and any other procedures and methods that may be promulgated pursuant to sections 114(a)(3) or 504(b) of the Act. If more than one monitoring or testing requirement applies, the permit may specify a streamlined set of monitoring or testing provisions provided the specified monitoring or testing is adequate to assure compliance at least to the same extent as the monitoring or testing applicable requirements that are not included in the permit as a result of such streamlining.



40 C.F.R. §70.6(a)(3)(i)(A) (emphasis added). A similar requirement can be found in South Dakota rules at ARSD 74:36:05:16.01(9)(a), and South Dakota has incorporated by reference the federal compliance assurance monitoring (CAM) requirements of 40 C.F.R. Part 64 at ARSD 74:36:13:08.

**B. The Big Stone Title V Permit is Deficient Because It Does Not Include a CAM Plan.**

Condition 13.4 of the Big Stone Title V permit indicates that the CAM plan does not need to be submitted until 12 months after commencing operation. However, DENR has issued a final Title V permit authorizing operation of the Big Stone II boiler (Unit #13). The Title V permit must ensure compliance with all applicable requirements of the Clean Air Act including “[a]ny monitoring, reporting, and certification requirements established pursuant to § 504(b) or 114(a)(3) of the Clean Air Act.” ARSD 74:36:01:05(6). The CAM requirements of 40 C.F.R. Part 64 were established pursuant to §504(b) of the Clean Air Act.

The Unit #13 boiler is subject to CAM requirements for at least PM<sub>10</sub>,<sup>9</sup> SO<sub>2</sub>, NO<sub>x</sub>, carbon monoxide, sulfuric acid mist (H<sub>2</sub>SO<sub>4</sub>), fluorides, HF, and HCl. That is because this unit is subject to emission limits for these pollutants, the unit will have pollution controls to meet the emission limits, and the unit would emit these pollutants in major source amounts absent the

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<sup>9</sup> Unit #13 is required to install a continuous opacity monitoring system (COMS) under permit Condition 13.14. While EPA has stated that a COMS may satisfy the CAM requirement for PM emissions from a unit (62 Fed.Reg. 54900 (October 22, 1997), the Big Stone permit would have to specify a lower opacity standard consistent with BACT for PM<sub>10</sub> than what applies under Condition 13.16 of the draft permit for Unit #13 in order for COMS to satisfy CAM requirements. Although the definition of BACT requires the imposition of a visible emissions standard, DENR failed to specify an opacity standard reflective of PM<sub>10</sub> BACT for Unit #13 in the Unit #13 PSD permit. See DENR’s 4/15/08 Response to Comments on the Big Stone Permits (Exhibit 12) at 30, 45. Thus, COMS could not be used to satisfy CAM requirements for Unit #13 without the establishment of an opacity standard that reflects BACT for PM<sub>10</sub> and ensures compliance with the PM<sub>10</sub> BACT emission limit.

effect of the pollution controls. *See* 40 C.F.R. §64.2; ARSD 75:36:13:08.

The Big Stone Title V permit only requires annual performance testing for all of these pollutants at Unit #13 except for SO<sub>2</sub>, NO<sub>x</sub>, and carbon monoxide which will be monitored by CEMS. Without CAM methods in place and in the absence of continuous emission monitoring data, it is impossible to determine whether Unit #13 is complying with these emission limits on an ongoing basis. Absent a monitoring plan, for example, a stack test performed once per year under ideal conditions does little to assess whether the unit is actually complying with these emission limits that must be met on a short term basis.

Petitioners raised this issue to DENR in its March 13, 2009 comment letter on the draft revised Big Stone Title V permit. *See* March 13, 2009 Comment Letter from Sierra Club and Clean Water Action to DENR (Exhibit 4) at 30-31. DENR's response to Petitioners' comment on this issue was essentially that compliance assurance monitoring was not required until Big Stone II is constructed and operational. 3/18/09 DENR Response to Comments (**Exhibit 13**) at 17-18. That would be true if DENR did not issue the Title V permit until after Big Stone II became operational. But DENR has issued the Title V permit authorizing operation Big Stone II now and therefore the Title V permit must contain all terms and conditions necessary to assurance Big Stone II's compliance with all applicable requirements including CAM.

Consequently, EPA must object to the Title V permit for Big Stone due to the absence of a CAM plan for the Big Stone II Unit #13 boiler as well as for all of the other emission units at the Big Stone facility that are subject to 40 C.F.R. Part 64 and ARSD 74:36:13:08.

**Issue #5: The Big Stone Title V Permit Fails to Include Monitoring Requirements Sufficient to Ensure Compliance with the PSD Requirements Incorporated into Section 13.0 of the Title V Permit.**

The Big Stone Title V permit fails to include sufficient monitoring requirements to assure compliance with the emission limitations and requirements of PSD permit terms incorporated into Section 13.0 of the Title V permit.

**A. Legal Background.**

40 C.F.R. §70.6(a)(3)(i)(B) requires a Title V permit to include the following requirement with respect to monitoring (among other requirements):

Where the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of recordkeeping designed to serve as monitoring), periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source's compliance with the permit, as reported pursuant to paragraph (a)(3)(iii) of this section. Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement. Recordkeeping provisions may be sufficient to meet the requirements of this paragraph (a)(3)(i)(B) of this section.

*See also* ARSD 74:36:05:16.01(9)(b).

Further, 40 C.F.R. §70.6(c) provides as follows:

Compliance requirements. All part 70 permits shall contain the following elements with respect to compliance:

(1) Consistent with paragraph (a)(3) of this section, compliance certification, testing, monitoring, reporting, and recordkeeping requirements sufficient to assure compliance with the terms and conditions of the permit. Any document (including reports) required by a part 70 permit shall contain a certification by a responsible official that meets the requirements of §70.5(d) for this part.

*See also* ARSD 74:36:05.16:01(14)(a).

On August 19, 2008, the D.C. Circuit Court of Appeals struck down an EPA rule that would have prohibited DENR and permitting authorities from adding monitoring provisions to Title V permits if needed to “assure compliance.” *See Sierra Club v. EPA*, 536 F 3d 673 (D.C.

Cir. 2008). The opinion emphasized the statutory duty to include adequate monitoring in Title V permits:

By its terms, this mandate means that a monitoring requirement insufficient “to assure compliance” with emission limits has no place in a permit unless and until it is supplemented by more rigorous standards.

*Id.* at 677.

The D.C. Circuit opinion makes clear that Title V permits must include monitoring requirements that assure compliance with emission limits. The Court specifically noted that annual testing is unlikely to assure compliance with a daily emission limit and found that state permitting authorities have a statutory duty to include monitoring requirements that ensure compliance with emission limits in Title V operating permits. *Id.* In other words, the frequency of monitoring must bear some relationship to the averaging time used to determine compliance.

**B. The Big Stone Title V Permit Fails to include Sufficient Monitoring to Ensure Compliance with the PSD Requirements Incorporated into the Permit.**

The Big Stone Title V permit fails to include sufficient monitoring to ensure compliance with the PSD requirements incorporated into the Title V permit. Petitioners raised this issue to DENR in its March 13, 2009 comment letter on the draft revised Big Stone Title V permit. *See* March 13, 2009 Comment Letter from Sierra Club and Clean Water Action to DENR (Exhibit 4) at 28-29. For example, numerous PM<sub>10</sub> BACT limits apply to both existing and new emission units at the Big Stone facility as listed in Table 14-1 of the Big Stone Title V permit, but the permit only requires performance testing to show compliance with these limits initially within 180 days after startup and then not again for 5 years for Unit Nos. 7a, 7b, 7c, 7d, 14, 15, 17, 20, 21, 22, 23, 24, 25, 26, 27, 29, 30, 33, 34 and 35. *See* Conditions 13.11 and 13.12 of the Big

Stone Title V Permit (Exhibit 10). The same level of testing applies to the opacity, NO<sub>x</sub>, volatile organic compound (VOC) and carbon monoxide emission limits that apply to these units.

Condition 13.11 of the Big Stone Title V Permit. Testing once every five years is not sufficient to ensure compliance with the various BACT and other emission limits that apply to these units.

Further, the Big Stone Title V permit includes limitations on the opacity from fugitive dust sources. *See* Condition 15.4 of the Title V Permit. However, the Title V permit fails to definitively require *any* monitoring of opacity from fugitive sources at the Big Stone facility.

DENR did not respond in much detail to this comment - DENR simply stated the Title V permit included periodic monitoring requirements and that the permit requires an application within 12 months after beginning operation to include periodic monitoring. 3/18/09 DENR Response to Comments (**Exhibit 13**) at 18. It is not clear how DENR can claim that the Big Stone Title V permit has periodic monitoring requirements when it only requires testing once every five years for the majority of the PSD permit emission limits and requires no monitoring of opacity for fugitive dust sources. Further, because DENR has issued the Title V permit authorizing operation of Big Stone II now, the permit must include monitoring requirements sufficient to assure compliance with all emission limits.

Thus, EPA must object to the Big Stone Title V permit because it fails to include adequate terms and conditions to ensure compliance with the applicable requirements of the PSD permit, as required by 40 C.F.R. §§70.6(a)(3)(i)(B) and 70.6(c) and ARSD 74:36:05:16.01(9)(b) and ARSD 74:36:05:16.01(14)(a).

**Issue #6: The Administrator Must Object to the Big Stone Title V Permit Because it Allows for Exemptions from Demonstrating Compliance with Numerical Emission Limits During Periods of Startup and Shutdown and Instead Allows Compliance with Numerical**

**Emission Limits to be Based on a Startup/Shutdown Plan that Has Not Yet Been Developed and Is Not Part of the Permit.**

The Big Stone Title V permit allows for compliance with numerical emission limits applicable to the new Big Stone II unit during startup and shutdown to be based on a yet-to-be-developed startup, shutdown, and malfunction plan. Specifically, Conditions 11.3 and 11.4 of the permit provide that compliance with the pound per hour (“lb/hr”) limits on hydrogen chloride (“HCl”) and hydrogen fluoride (“HF”) emission limits during startup and shutdown is to be “based on [the] startup, shutdown, and malfunction plan in permit condition 14.8.” Similarly, compliance with the best available control technology (“BACT”) emission limits applicable to Big Stone II for particulate matter, volatile organic compounds (VOCs), sulfuric acid mist (SAM), and fluorides during startup and shutdown is to be based on the startup, shutdown, and malfunction plan required by Condition 14.8 of the permit. *See* Conditions 14.1, 14.3, 14.4 and 14.5 of the Big Stone Title V permit. These permit conditions essentially provide for exemptions from the numerical emission limits during startup and shutdown. There are numerous problems with these permit conditions, not the least of which is that the startup, shutdown, and malfunction plan has not yet been developed and is not part of the permit. Condition 14.8 of the Big Stone Title V permit simply requires Otter Tail to develop a startup, shutdown, and malfunction plan that must be submitted to and approved by DENR ninety days prior to initial startup of the Big Stone II boiler (i.e., Unit #13), long after issuance of the 2009 Big Stone Title V permit. By allowing compliance with the BACT emission limits during startup and shutdown to be based on an undefined startup and shutdown plan rather than having to meet the numerical BACT emission limits applicable to Big Stone II, the permit essentially provides for an exemption from

meeting BACT limits during startup and shutdown. Further, DENR has not (and could not possibly have) determined that the startup/shutdown plan is reflective of BACT during startup and shutdown. Similarly, the permit also essentially provides for an exemption from meeting the hourly HCl and HF emission limits during startup and shutdown, which in turn provides an exemption from meeting the annual ton per year limits on HCl and HF that were imposed to keep the Big Stone II boiler from triggering case-by-case maximum achievable control technology (“MACT”) requirements as a major source of hazardous air pollutants (“HAPs”). Petitioners provided extensive comments on this topic in its March 14, 2008 comment letter (Exhibit 2), its July 2009 motion for summary judgment in the 2008 contested case hearing before the Board (Exhibit 6), its November 1, 2008 post-hearing brief in its 2008 contested case hearing before the Board (Exhibit 7) and its March 13, 2009 comment letter to DENR<sup>10</sup> (Exhibit 4).

**A. The Title V Permit Unlawfully Exempts Big Stone II from Complying with BACT Requirements During Startup and Shutdown, and DENR Unlawfully and Improperly Relies on a Yet-to-be-Developed Startup, Shutdown, and Malfunction Plan as Sufficient to Meet BACT Requirements.**

**1. Legal Background.**

To implement the Clean Air Act’s PSD program, 42 U.S.C. §§ 7470-7492, South Dakota has incorporated the federal PSD permitting regulations into state regulation and into the South Dakota SIP. ARSD 74:36:09:02; 40 C.F.R. §52.21 *et seq.*; 72 Fed. Reg. 4671 (Feb. 1, 2007); 72 Fed. Reg. 72617 (Dec. 21, 2007). Under the Clean Air Act, the SIP is the state’s plan to

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<sup>10</sup> As noted above, the version of the draft Big Stone Title V permit noticed for public comment by DENR in 2009 included most of the terms of the Big Stone II PSD permit as part of the Title V permit, and Sierra Club, in submitting its March 13, 2009 comments to DENR on the draft Title V permit, incorporated by reference the comments and briefs from the 2008 contested case hearing regarding the deficiencies in the PSD permit terms including the startup/shutdown exemption.

implement, maintain, and enforce the primary and secondary national ambient air quality standards (“NAAQS”). 42 U.S.C. §7410(a)(1).

“BACT” is defined under the South Dakota SIP as:

an ***emissions limitation*** (including a visible emission standard) based on the maximum degree of reduction for each pollutant subject to regulation under Act which would be emitted from any proposed major stationary source or major modification which the Administrator, on a case-by-case basis, taking into account energy, environmental, and economic impacts and other costs, determines is achievable for such source or modification through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of such pollutant. In no event shall application of best available control technology result in emissions of any pollutant which would exceed the emissions allowed by any applicable standard under 40 CFR parts 60 and 61. ***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 emissions standard infeasible, a design, equipment, work practice, operational standard, or combination thereof, may be prescribed instead to satisfy the requirement for the application of best available control technology. Such standard shall, to the degree possible, set forth the emissions reduction achievable by implementation of such design, equipment, work practice or operation, and shall provide for compliance by means which achieve equivalent results.***

ARSD 74:36:09:02 (emphasis added); 40 C.F.R. §52.21(b)(12); 42 U.S.C. §7479(3).

The term “emission limitation” is a defined term in the Clean Air Act, meaning:

a requirement established by the State or Administrator ***which limits the quantity, rate, or concentration of emissions of air pollutants on a continuous basis***, including any requirement relating to the operation and maintenance of a source to assure continuous emission reduction, and any design, equipment, work practice or operational standard promulgated under [the Clean Air Act].

42 U.S.C. §7602(k) (emphasis added.) Accordingly, BACT emission limitations must be met ***on a continuous basis***.

The EAB has reviewed permit provisions that essentially provided for exemptions from numerical BACT emission limits during startup, shutdown, and malfunction – permit provisions



very similar to the provisions DENR has incorporated into the Big Stone Title V permit. Specifically, the EAB has concluded that, in order to provide for any different requirements than BACT emission limits for periods of startup, shutdown, and malfunction, state and local permitting authorities implementing the federal PSD regulations at 40 C.F.R. §52.21 must first make a determination, available to the public for review and comment, to show that compliance with BACT emission limits during startup, shutdown and malfunction is infeasible. Further, permitting authorities should, in such cases, establish secondary numerical emission limits or work practice standards that the agency must justify as BACT. The agency must also show that such secondary requirements or standards will provide for compliance with NAAQS and the PSD increments. In cases where a permitting agency would allow the development and submittal of a plan to address emissions during startup, shutdown, and malfunction similar to Condition 14.8 of the Big Stone Title V permit, the EAB has stated that the contours of plans be noticed and fully subjected to public review and comment as well as to right to appeal such a plan. *See In Re Tallmadge Generating Station*, PSD Appeal No. 02-12, at 24-28 (EAB, May 21, 2003); *In Re Indeck-Niles Energy Center*, PSD Appeal No. 04-01, at 15-18 (EAB, September 30, 2004); *In Re RockGen Energy Center*, 8 E.A.D. 536, at 551-555 (EAB, August 25, 1999).

As recently as September 10, 2008, EPA reaffirmed and expounded upon these longstanding legal principles in the context of issuing an order granting in part a challenge to a combined PSD and Title V operating permit for a coal-fired power plant in Trimble County, Kentucky. *See In the Matter of Louisville Gas and Electric Company, Trimble County, Kentucky, Title V/PSD Permit #V-02-043 Revision 2*, at 9-11 (EPA September 10, 2008). In EPA's *Trimble* Order, it stated in pertinent part:

EPA's long held interpretation is that emission limitations in PSD permits apply at all times and may not be waived during periods of startup and shutdown. *See, e.g.,* Memorandum from John B. Rasnic, EPA Stationary Source Compliance Division, to Linda M. Murphy, EPA Region 1, *Automatic or Blanket Exemptions for Excess Emissions During Startup, and Shutdowns Under PSD* (January 28, 1993); *see also Tallmadge Energy Center*, slip op. at 24. A PSD BACT limit must apply at all times, unless the permitting authority determines the need to establish alternative BACT limits for periods of startup or shutdown, **and justifies such limits as part of a complete BACT analysis.** *RockGen Energy Center*, 8 E.A.D. at 554. To establish a work practice standard as an alternative BACT limit during such periods, the permitting authority must determine that technological or economic limitations on the application of a measurement methodology to a particular unit would make the imposition of an emissions standard infeasible during such periods.

*Id.* at 10 (emphasis added). EPA then went on to conclude in the *Trimble* order that the permitting authority had not provided “a sufficient analysis to justify [the] exemption as an alternative BACT limit for periods of startup and shutdown.” *Id.*

In addition, in its recent order responding to a petition on the Wisconsin Energies Oak Creek Power Plant permit, EPA made clear that startup, shutdown, and malfunction plans must be part of a Title V permit application and public noticed with the draft Title V permit in order for a permitting authority to rely on such plans to demonstrate compliance with applicable emission limits. Specifically, EPA referred to 40 C.F.R. §70.6(a)(1) which requires a Title V permit to include “emission limits and standards, *including those operational requirements and limitations that assure compliance with all applicable requirements*” [emphasis added] and found that startup, shutdown and malfunction plans must be public noticed and included in a Title V permit. *See In the Matter of: WE Energies Oak Creek Power Plant, Permit No. 241007690-P-10* at 24-5 (EPA, June 12, 2009).

## **2. The Big Stone Title V Permit Conditions regarding the BACT Emission Limits During Periods of Startup and Shutdown Do Not Comply with Applicable Requirements of the**

## Clean Air Act.

Although DENR contends that the numeric BACT emission limits apply at all times, it is clear that the Big Stone Title V permit does not require Big Stone II to demonstrate compliance with the numerical BACT limits in the permit during periods of startup, shutdown, or malfunction. Indeed, as the Board's November 20, 2008 Order makes clear: "compliance with the numeric limits during [startup, shutdown, and malfunction] shall be demonstrated by compliance with the work practice provision" which was in Condition 4.8 of the PSD permit and is Condition 14.8 of the Big Stone Title V permit.<sup>11</sup>

Condition 14.8 of the Big Stone Title V Permit states:

Compliance with BACT limits during startup, shutdown, and malfunction. In accordance with ARSD 74:36:09:02, as referenced to ARSD 74:36:05:16.01(8), the owner or operator shall utilize good work and maintenance practices and manufacturers recommendations to minimize emissions during, and the frequency and duration of, startup, shutdown, and malfunction events for Unit #13, #14, #15, #25 and #33. The owner or operator shall develop and implement a startup, shutdown, and malfunction plan for Unit #13, #14, #15, #25 and #33. The startup, shutdown, and malfunction plan shall describe, in detail, procedures for operating and maintaining Unit #13, #14, #15, #25 and #33 during periods of startup, shutdown, and malfunction; a program of corrective action for malfunctions; and record keeping requirements identifying that the procedures and corrective actions were completed. The startup, shutdown, and malfunction plan shall be submitted to and approved by the Secretary at least 90 days prior to the initial startup of Unit #13.

DENR's justification for failing to require compliance with the numerical BACT limits during startup and shutdown was that certain EPA regulations provide that stack performance testing is to be done during normal source operation, and normal source operation does not include startup, shutdown, or malfunction. *See* 4/15/08 DENR Response to Comments, at XV.2,

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<sup>11</sup> *See* November 20, 2009 Board Order (included as Exhibit 11) at 57-58, paragraph 182.

page 51-52 (**Exhibit 12**). Thus, DENR claims that an alternative standard needs to be imposed during startup, shutdown, and malfunction. *Id.* DENR’s justification is flawed and inconsistent with applicable law, for the following reasons.

First, DENR admitted at the 2008 Contested Case Hearing that startups and shutdowns are part of normal operations for a coal-fired power plant. 2008 Contested Case Hearing Transcript at 296 (**Exhibit 9**).

Second, DENR’s alleged regulatory prohibition against performance stack testing at Big Stone II during startup, shutdown, and malfunctions does not apply under the South Dakota SIP to the Big Stone II BACT emission limits. The EPA regulation regarding performance tests that DENR refers to is the New Source Performance Standard (“NSPS”) performance testing requirements in 40 C.F.R. § 60.8(c). These requirements specifically exempt sources from the NSPS standards during periods of startup, shutdown, and malfunction. The NSPS standards are not approved as of South Dakota’s SIP. The NSPS are “technology-based” standards, not standards designed to ensure compliance with the NAAQS. *Alabama Power Co. v. Costle*, 636 F.2d 323, 346 (D.C. Cir. 1979). Therefore, the startup, shutdown, and malfunction exemptions contained in the NSPS standards are not appropriate in programs that are part of a SIP such as the PSD permitting program, because SIP emission limitations are intended to ensure attainment and maintenance of the NAAQS on a continuous basis – a goal which cannot be effectively accomplished with intermittent emission limitations. 42 U.S.C. § 7410(a)(2)(A); 42 U.S.C. § 7602(k); House Report No. 95-294, 95th Cong. 1st Sess., p. 92 (1977 Amendments to CAA make clear that “*constant or continuous* means of reducing emissions must be used to meet these requirements. . . . Without an enforceable emission limitation which will be complied with

*at all times*, there can be no assurance that ambient standards will be attained and maintained.”); *Sierra Club v. Public Serv. Co.*, 894 F. Supp. 1455, 1460 (D. Colo. 1995) (“continuous compliance . . . [with a limitation promulgated to assure compliance with the NAAQS] is the goal here.”); *Sierra Club v. Tennessee Valley Authority*, 430 F.3d 1330, 1348 (11<sup>th</sup> Cir. 2005) (recognizing that Clean Air Act mandates continuous compliance with SIP emission limitations) (citing 42 U.S.C. § 7602(k)).

Indeed, South Dakota has not even incorporated provisions similar to 40 C.F.R. § 60.8 (c) into its SIP. South Dakota’s performance testing requirements are found in ARSD 74:36:11:01. This provision states that all stack testing “must be made in accordance with the applicable method specified in 40 C.F.R. § 60.17; Part 60, Appendix A; § 63.14; Part 63, Appendix A; and Part 51, Appendix M (all July 1, 2005).” This state rule, which has been approved as part of the South Dakota SIP (72 Fed. Reg. 57864, Oct. 11, 2007), does not refer to 40 C.F.R. § 60.8(c) and South Dakota’s SIP does not contain any other provisions similar to 40 C.F.R. § 60.8(c). Accordingly, the stack testing limitation that DENR relies on to justify its alternative requirements that would apply during startup, shutdown, and malfunction is not legally applicable under South Dakota’s laws and regulations to the numerical BACT emission limits on Big Stone II.

Third, neither DENR nor Otter Tail provided any demonstration to establish that there are technological or economic limitations on the application of measurement methods to show compliance with the numerical BACT limits during startup, shutdown, and malfunction. Such a demonstration is required in the BACT definition to justify an alternative to a numerical BACT emission limit. *See* 40 C.F.R. § 52.21(b)(12), ARSD 74:36:09:02. DENR indicated in its

response to comments that “the startup and shutdown process for some equipment does not occur over a long enough period of time to complete a valid performance test,” 4/15/08 DENR Response to Comments, at XV.1, page 50 (Exhibit 12). However, there is no reason that a performance test could not begin with startup of the boiler and continue until the testing period was done because, as DENR’s Kyric Rombough testified at the contested case hearing, a typical startup at a coal-fired power plant would last longer than the required one to three hour period necessary to conduct a stack performance test. 2008 Contested Case Hearing Transcript (Exhibit 9) at 292-294. Furthermore, if the BACT limit applied at all times, then one would not need to conduct a performance test *only* during a period of startup, shutdown, or malfunction. Instead, such a test could be applied across all stages of operation of Big Stone II. Furthermore, if continuous emission monitoring systems (“CEMS”) are installed at Big Stone II for any of these pollutants subject to BACT emission limits, the CEMS could readily measure compliance with the applicable BACT limits on a continuous basis including during startup, shutdown, and malfunctions.

Fourth, the fact that EPA’s technology-based NSPS regulations provide for exemptions from NSPS emission standards during periods of startup, shutdown or malfunction does not demonstrate that there are “technological or economic limitations on the application of measurement methodology” to the Big Stone II boiler. DENR has provided no support for that conclusion.

Fifth, even if DENR had adequately shown that application of measurement methodology was technically or economically infeasible during periods of startup, shutdown, and malfunction at Big Stone II, DENR still has failed to demonstrate that such alternative standards “satisfy the

requirement for the application of best available control technology.” 40 C.F.R. §52.21(b)(12), ARSD 74:36:09:02. Neither Otter Tail nor DENR has provided any demonstration that Condition 14.8 of the Big Stone Title V permit reflects application of BACT for PM<sub>10</sub>, VOCs, SAM or fluorides. It is not clear how DENR could even make such a demonstration, given that the contours of the startup/shutdown plan have not yet been developed by Otter Tail.

As the EAB and EPA decisions cited above have found, the details of any startup/shutdown plan intended to be relied upon as an alternative to a numerical BACT limit must be adequately spelled out in the permit and subjected to notice and public comment. These requirements have clearly not been met; the startup/shutdown plan will not even be formulated until ninety (90) days prior to startup of Big Stone II’s boiler (Unit #13), and public notice and opportunity to appeal such a plan will not be available until the context of another Title V permit renewal for Big Stone II.<sup>12</sup>

Last, it is also important to note that Otter Tail testified at the August 2008 contested case hearing that it would be operating its pollution control equipment and would be able to comply with the numerical BACT emission limits during startup and shutdown. 2008 Contested Case Hearing Transcript (Exhibit 9) at 602-603, 617-618. Indeed, Otter Tail’s Environmental Manager, Terry Graumann, testified that Otter Tail was not requesting an interpretation from the Board that the numerical BACT emission limits did not apply during startup or shutdown. *Id.* at 679.

For all the reasons set forth above, the Big Stone Title V permit, which provides an

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<sup>12</sup>According to testimony from Kyrik Rombough, DENR, given at the 2008 contested case hearing, 2008 Contested Case Hearing Transcript (Exhibit 9) at 408-11.

unlawful exemption to Big Stone II from the legal requirement to demonstrate compliance with its BACT limits on a continuous basis and which instead relies on a yet-to-be-developed startup and shutdown plan, is legally invalid. Accordingly, EPA must object to the Big Stone Title V permit.

**B. The Big Stone Title V Permit Conditions regarding the HCl and HF Emission Limits During Periods of Startup and Shutdown Do Not Comply with Applicable Requirements of the Clean Air Act.**

**1. Legal Background.**

Pursuant to federal law, no person may begin construction of a major source of HAPs in a listed industry for which no nationally applicable regulations have been promulgated, without being subject to maximum achievable control technology-based emissions standards determined on a case-by-case basis (MACT). 42 U.S.C. § 7412(g)(2); 40 C.F.R. § 63.43(a); ARSD 74:36:08:03.01. On December 20, 2000, electric utility steam generating units such as Big Stone II were added to the list of source categories pursuant to Section 112(c) of the Clean Air Act (42 U.S.C. § 7412(c)) for which EPA must establish emission standards under Section 112(d) of the Clean Air Act. *See* 65 Fed. Reg. 79825, 79,827 (December 20, 2000); *see also* 67 Fed. Reg. 6521, 6522 (February 12, 2002).

For the purpose of determining applicability to case-by-case MACT regulations, a major source is defined as:

any stationary source or group of stationary sources located within a contiguous area and under common control that emits or has the potential to emit considering controls, in the aggregate, 10 tons per year or more of any hazardous air pollutant or 25 tons per year or more of any combination of hazardous air pollutants. . . .

40 C.F.R. § 63.2; ARSD 74:36:08:03. Under the same set of regulations, the “potential to emit”



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 stationary source to emit a pollutant, including air pollution control equipment and restrictions on hours of operation or on the type or amount of material combusted, stored, or processed, shall be treated as part of its design if the limitation or the effect it would have on emissions is federally enforceable.

40 C.F.R. § 63.2; ARSD 74:36:08:03. The definition of potential to emit in 40 C.F.R. § 63.2 is identical to the definition in the PSD permitting regulations at 40 C.F.R. §52.21(b)(4). Potential to emit clearly includes emissions due to startups and shutdowns because the potential to emit calculation must be based on the worst case emissions that could occur from a source under its physical and operational design.

In the Big Stone Title V permit, DENR established emission limits on HCl and HF emissions as well as on total HAP emissions. With these requirements, DENR intended to limit the emissions of these pollutants from the Big Stone II boiler to less than major source emissions levels, in turn exempting the emissions unit from case-by-case MACT requirements. *See* 4/15/08 DENR Response to Comments on Big Stone permits at 75 (**Exhibit 12**); *see also* Section 11.0 of the Big Stone Title V Permit (**Exhibit 10**). Because startup and shutdown emissions must be included in determining the potential to emit of a source, those emissions must be addressed by any emission limitation that is intended to keep the potential to emit of the Big Stone II boiler below major source HAP emissions levels.

The limits on emissions of HCl and HF apply on a short term basis (i.e., pounds per hour) and on a rolling 12-month average basis. Conditions 11.3, 11.4 and 11.5 of the Big Stone Title V permit (**Exhibit 10**). DENR imposed the short term limits to ensure that emissions of these

pollutants from the Big Stone II boiler did not exceed the annual 10 tpy major source threshold.<sup>13</sup> Since the Big Stone permit does not require use of CEMS to monitor HCl and HF continuously,<sup>14</sup> the short term average emission limits are to make the annual emission limit enforceable as a practical matter.

## **2. The Big Stone Title V Permit Conditions regarding the HCl and HF Emission Limits During Periods of Startup and Shutdown Do Not Comply with Applicable Requirements of the Clean Air Act.**

EPA, in its January 22, 2009 objection to the Big Stone Title V permit that was proposed and submitted to EPA for review in December of 2008, affirmed that emissions during startups and shutdowns need to be included in determining potential to emit of HAPs. Specifically, EPA stated:

The State must include a discussion of how emissions during startup, shutdown or malfunctions were considered in determining the potential to emit HAP for Unit #13, and if periods of startup and shutdown were not considered, the state must explain how the source will comply with the potential to emit limitation if such events occur in any 12-month period.

January 22, 2009 letter from EPA Region VIII to DENR, Enclosure at 11 (**Exhibit 3**). The Sierra Club and Clean Water Action also commented to DENR during the public comment period on the February 2009 draft Big Stone Title V permit that the permit failed to respond to EPA's objection by explaining how Otter Tail is to determine compliance with the HCl and HF limits during periods of startup and shutdown.<sup>15</sup>

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<sup>13</sup> See 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 429, 432, 445, 458-459.

<sup>14</sup> The Big Stone Title V permit does include a requirement that may require Otter Tail to install and utilize HCl or HF CEMS but only if the Big Stone II's boiler emissions are more than 8 tons in any rolling 12-month period. Condition 11.5 of the Big Stone Title V permit.

<sup>15</sup> See March 13, 2009 letter from George Hays to DENR (**Exhibit 4**) at 12.

In response to EPA's objection cited above (and Sierra Club's comment) which essentially stated that DENR must ensure startup and shutdown emissions are considered in determining the potential to emit HAP from the Big Stone II boiler, DENR added a statement to Conditions 11.3 and 11.4 that "[c]ompliance with the hydrogen fluoride [or hydrogen chloride] emission limit during startup and shutdown is based on startup, shutdown, and malfunction plan in permit condition 14.8." As discussed above, Condition 14.8 does not include the startup, shutdown, and malfunction plan and instead requires Otter Tail to develop and submit such a plan within 90 days of startup of the Big Stone II boiler - which will be well after issuance of the Big Stone Title V permit given that construction of Big Stone II has not even begun yet. DENR added this statement to permit conditions 11.3 and 11.4 based on the same reasoning it relied on for including such a condition in the BACT emission limits as discussed above.<sup>16</sup> DENR also stated in its response to comments on the permit that startup and shutdown emissions would be included in the calculation of total tpy emissions of HCl and HF because the emissions would be based upon total heat input and coal usage.<sup>17</sup> DENR's response is significantly deficient, and the permit revisions fail to ensure that startup and shutdown emissions will be included in assessing compliance with the HCl and HF emission limits.

As discussed in the above section of this petition regarding demonstrating compliance with the numerical BACT limits during startup and shutdown, there is no reason that stack

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<sup>16</sup> Specifically, DENR stated that the Board found that stack testing could not be done to determine compliance during startup or shutdown, so it was acceptable to instead rely on the startup/shutdown plan that is required to be developed by Otter Tail. See 3/18/09 DENR Response to Comments on Big Stone permits (**Exhibit 13**) at 15.

<sup>17</sup>*Id.*

testing could not be done that covered a period of startup or shutdown. Furthermore, if HCl and HF CEMs were definitively required instead of stack testing, then determination of emissions during all periods of operation including malfunctions would be readily available.

As stated above, the short term average HCl and HF limits were imposed to ensure compliance with the potential to emit (i.e., tpy) limits on emissions of any one HAP imposed in Condition 11.5 of the Big Stone Title V permit. Indeed, the emissions equations provided in the Title V permit to ensure enforceability of the annual limit on emissions of any one HAP are specifically based on the results of stack testing done to show compliance with the lb/hr HCl and HF limits. *See* Condition 11.8, Equations 11-3 and 11-4, and Condition 7.12.<sup>18</sup> Accordingly, because the permit specifically allows Otter Tail to not have to demonstrate compliance with the numerical lb/hr HCl and HF emission limits during periods of startup and shutdown and instead allows Otter Tail to rely on the yet-to-be-developed startup/shutdown plan required by Condition 14.8 of the permit, it follows that the calculations of annual HCl and HF emissions will not include emissions during startup and shutdown during which pollutant loadings are typically higher (and control efficiencies lower). In addition, DENR has provided absolutely no demonstration that the yet-to-be-developed startup, shutdown, and malfunction plan will ensure compliance with the lb/hr HCl and HF emission limits or the tpy HCl and HF limits. Indeed, DENR could not possibly have provided such a demonstration given that Otter Tail has not yet developed or submitted such a plan to DENR and is not required to do so until 90 days before operation of Big Stone II commences. Thus, the permit is invalid because it essentially exempts

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<sup>18</sup> Specifically, these equations rely on the HCl and HF control efficiencies determined via the stack testing required by Condition 7.12, which is also required to demonstrate compliance with the lb/hr HCl and HF emission limits (*see* Conditions 11.3 and 11.4 of the permit).

compliance with limits intended to limit potential to emit HAPs below major source levels during periods of startup and shutdown and instead bases compliance on a startup/shutdown plan that has not even been developed and for which the contours are not detailed in the Title V permit. Further, as stated above, EPA recently objected to a Title V permit for failure to include the contours of a startup, shutdown, and malfunction plan in the Title V permit. *See In the Matter of: WE Energies Oak Creek Power Plant, Permit No. 241007690-P-10* at 24-5 (EPA, June 12, 2009).

For all the reasons set forth above, the Big Stone Title V permit, which provides an unlawful exemption to Big Stone II from the legal requirement to demonstrate compliance with its HCl and HF limits on a continuous basis and which instead relies on a yet-to-be-developed startup and shutdown plan, is legally invalid. Accordingly, EPA must object to the Big Stone Title V permit.

**Issue #7: The Big Stone Permit Fails to Include Adequate Terms and Conditions to Assure Compliance with the Hourly and Annual Limits on HF and HCl.**

**A. Background.**

As discussed in Issue #6, DENR established emission limits on HCl and HF emissions as well as on total HAP emissions that are intended to limit the Big Stone II boiler's emissions of these pollutants to less than major source emissions levels, to exempt the emissions unit from case-by-case MACT requirements. *See* 4/15/08 DENR Response to Comments on Big Stone permits at 75 (**Exhibit 12**); *see also* Section 11.0 of the Big Stone Title V Permit (**Exhibit 10**). The limits on emissions of HCl and HF that apply on a short term basis (i.e., pound per hour limits) and on a rolling 12-month average basis. Conditions 11.3, 11.4 and 11.5 of the Big Stone

Title V permit (**Exhibit 10**). The short term average (i.e., lb/hr) emission limits on HCl and HF emissions from the Big Stone II boiler in Conditions 11.3 and 11.4 of the Big Stone Title V permit were imposed to ensure that the Big Stone II boiler's emissions of these pollutants did not exceed the annual 9.5 tpy limit and the 10 tpy major source threshold.<sup>19</sup> Since the Big Stone permit does not require use of CEMS to monitor HCl and HF continuously<sup>20</sup>, the short term average emission limits are to make the 9.5 tpy emission limit enforceable as a practical matter.

The Big Stone Title V permit fails to include adequate terms and conditions necessary to assure compliance with the HCl and HF emission limits. Such terms and conditions are required by 40 C.F.R. §70.6(c); ARSD 74:36:05:16.01(14)(a). This requirement is underscored by the fact that these HCl and HF emission limits are to ensure that the Big Stone II boiler's emissions of these HAPs stay under major source levels.

**B. The Monitoring Requirements of the Big Stone Title V Permit Are Not Adequate to Ensure Compliance with the HCl and HF Emission Limits Applicable to the Big Stone II Boiler.**

The Big Stone Title V permit requires annual stack testing at Big Stone II to demonstrate compliance with the 2.17 lb/hr limits on HCl and HF. *See* Conditions 7.12 and 11.5 of the Big Stone Title V Permit. If the results of the annual performance test are greater than 1.83 lb/hr for HCl or HF, then testing must be done on a quarterly basis for that pollutant. If two successive quarterly test results are less than 1.83 lb/hr, then testing may revert back to an annual schedule. Condition 7.12 of the Big Stone Title V Permit. The permit also requires weekly coal composite

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<sup>19</sup> *See* 2008 Contested Case Hearing Transcript (Exhibit 9) at 429, 432, 445, 458-459.

<sup>20</sup> The Big Stone Title V permit does include a requirement that may require Otter Tail to install and utilize HCl or HF CEMS but only if the Big Stone II's boiler emissions are more than 8 tons in any rolling 12-month period. Condition 11.5 of the Big Stone Title V permit.

sampling to determine the amount by weight of chlorine and fluorine in the coal. Condition 11.7 of the Big Stone Title V Permit. The stack test results are to be used along with coal sampling data conducted during the performance test to determine HCl and HF control efficiencies. *See* Condition 7.12 of the permit. Compliance with the annual 9.5 tpy limit, which will be determined on a rolling 12-month basis, will be based on the control efficiencies determined by the annual (or quarterly if required) stack tests and the average of four weekly coal composite samples. *See* Condition 11.5 and Condition 11.8, Equations 11-3 and 11-4, of the Big Stone Title V Permit. If 12-month total emissions exceed 80% of the 9.5 tpy limit for either HCl or HF, the permit also requires that CEMs be installed for that pollutant. Condition 11.5 of the Big Stone Title V permit. These permit conditions that do not definitively require compliance to be based on HCl and HF CEMs fail to adequately ensure compliance with the HCl and HF emission limits or to ensure that the Big Stone II boiler's emissions of HCl and HF remain under the major source threshold of 10 tpy. In the absence of enforceable limits on HCl or HF, the Big Stone II boiler must be subject to case-by-case MACT requirements as a major source of HAPs. Petitioners submitted extensive comments to DENR during the public comment period on the revised Big Stone Title V permit on these deficiencies. March 13, 2009 Comment Letter From Sierra Club and Clean Water Action to DENR (**Exhibit 4**) at 11-16.

The annual, or even quarterly, testing of stack emissions of HCl and HF is inadequate to ensure compliance with the HCl and HF limits for several reasons:

1. As was discussed at the 2008 contested case hearing, the chloride and fluoride content of the coal can vary. 2008 Contested Case Hearing Transcript (Exhibit 9) at 442, 822-23, 850, 1247-8. Furthermore, the HF and HCl emissions out of a coal-fired power plant can

also vary on an hour-by- hour basis, as well as a day-to-day basis. *Id.* at 851-2. Given this variability of the chloride and fluoride in the coal as well as with the HF and HCl emissions, a once-per-year stack test or even a quarterly stack test and determination of HF and HCl removal efficiencies cannot be considered as monitoring of sufficient frequency to ensure continuous compliance with the 2.18 lb/hr HF and HCl limits. This deficiency is especially significant given that these are short term average emission limits. Stack testing on an annual or even every 3 month basis does not provide sufficient monitoring to ensure that these limits are being met on an hour-by-hour basis. In addition, the control efficiencies determined during this testing also will not reflect the variations in HCl and HF control efficiencies that can occur on a day-to-day basis, especially with varying levels of chlorine and fluorine in the coal and varying heat input levels.

2. The coal sampling requirement in Condition 11.7 of the Title V permit fails to specify coal sampling procedures to ensure representative samples are tested. EPA has specified such requirements in 40 C.F.R. Part 60, Subpart A, Method 19 for an “as-fired fuel monitoring system” to ensure proper collection of uncontrolled emission data based on coal analysis for NSPS standards. In response to Petitioners’ comment on this issue, DENR included the following statement in Condition 11.7 of the Big Stone Title V permit: “A statement verifying that the methods used to sample and analyze the chlorine and fluoride content of the coal was based on ASTM method D6721-01(2006) and ASTM method D5987-96(2007), respectively.” It is not clear that this statement specifically requires Otter Tail to follow those test methods but, in any case, this does not



address the need for the permit to specify procedures to ensure that Otter Tail collects representative samples of coal in determining chlorine and fluorine content. Otter Tail is going to be using this data to determine uncontrolled emissions from which it will determine HCl and HF control efficiency based on the stack performance tests. Furthermore, this data is going to be used to determine monthly tallies of emissions which will, in turn, be used to determine total emissions over each 12-month period. *See* Equations 11-3 and 11-4 of the Big Stone Title V permit. Without defined procedures in place to ensure representative coal sampling, it is quite possible that Otter Tail's assessment of chlorine and fluorine content of the coal burned may not accurately reflect chlorine and fluorine content of the coal, which will then affect all other calculations of HCl and HF control efficiencies and the 12-month tallies of emissions. *See* Conditions 7.12, 11.5, 11.7, and 11.8 of the Big Stone Title V permit.

3. The stack performance testing requirements and determination of HCl and HF control efficiencies fail to take into account the variations in the control efficiencies that will occur when the Big Stone I gas stream is merged with the Big Stone II gas stream and when it is not. The control efficiencies could be quite different under these two scenarios due to differences in gas stream characteristics and pollutant loadings. In response to this comment, DENR acknowledged that the control efficiency of the wet scrubber could be different when the Big Stone I gas stream is merged with Big Stone II. *See* 3/18/09 DENR Response to Comments on Big Stone Permits (**Exhibit 13**) at 14. Although DENR revised the permit to require stack performance testing under both conditions (*see* Condition 7.12 of the permit), the permit utterly fails to specify which of the two test

results should be used to determine the control efficiencies that will be used in the monthly HCl and HF emissions calculations required by Condition 11.8 of the permit. The permit fails to distinguish between those scenarios in the monthly calculations of emissions. The fact that HCl and HF emissions are calculated on a monthly basis further complicates these calculations given the likelihood that the gas streams may not be merged only for short periods, such as due to a malfunction and shutdown of Big Stone I. Indeed, this scenario provides a perfect example of how HCl and HF control efficiencies across the scrubber could vary significantly over a short time period between the time when both units' gas streams are merged and when Big Stone I is taken off line.

4. The equations in Condition 11.8 for the determination of monthly emissions of HCl and HF emissions allow the fluoride and chloride content of the coal burned to be based on the average of four weekly coal composite samples. However, by averaging the once per week coal composite samples, this condition allows Otter Tail to discount weeks with higher uncontrolled HF and HCl emissions in determining if the rolling 12 month sum of HF or HCl emissions is over the 9.5 tpy synthetic minor emissions threshold. The fact that the permit allows Otter Tail to then assume the same HF and HCl control efficiencies will be obtained on a continuous basis along with the averaging of the chloride and fluoride content in the coal just compounds this issue because control efficiencies will vary with variations in uncontrolled levels of chlorine and fluorine in the coal. Thus, this approach will not ensure that the Big Stone II boiler (Unit #13) is truly complying with the 9.5 tpy synthetic minor limit on emissions of a single HAP.
5. As discussed in Section I.B. of this petition, the permit conditions regarding

determination of 12-month total emissions of HCl and HF are also inadequate because they fail to take into account emissions during startup and shutdown which will likely be higher than during regular source operation. Essentially, the permit provides for an exemption from having to comply with the lb/hr and annual limits on HCl and HF, and so the permit does not require a true tally of total HCl and HF emissions over a 12-month period.

There is only one method that is reliable enough to ensure Big Stone II's emissions do not exceed synthetic minor limit of 9.5 tpy of any one HAP and that is the use of HCl and HF CEMs. Such CEMs would monitor emissions during all times and would account for all of the variability in HCl and HF emissions both in the coal and in the stack, during startup, shutdown, and regular source operation, and when both units' gas streams are merged and when they are not.<sup>21</sup> Recently, EPA Region IV has come to the same conclusion regarding synthetic minor limits for the Cliffside Unit 6 power plant. Specifically, in its review of a similar permit for Cliffside Unit 6, EPA Region IV recommended that CEMs be installed to monitor HCl emissions from this facility. *See* April 30, 2009 letter from EPA Region IV to North Carolina Department of Environment and Natural Resources (**Exhibit 18**).

EPA Region IV only recommended CEMs for HCl emissions for Cliffside Unit 6 and did not recommend CEMs for the HF emissions, but the HF emissions for Cliffside Unit 6 were projected by the owner, Duke Energy, to be 0.50 tpy (in comparison, Duke estimated 8.9 tpy of

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<sup>21</sup> Due to the combined stack and different control equipment before the combined stack, Otter Tail would need to have HF and HCl CEMs on each unit before the add-on control equipment as well as in the common stack, so that Otter Tail could apportion the HF and HCl emissions to Unit #13. Otter Tail has to do the same for SO<sub>2</sub> emissions (*see* Conditions 8.4 and 9.3 of the Big Stone Title V permit).

HCl emissions from Cliffside Unit 6). EPA Region IV's stated reasoning for recommending HCl CEMs for Cliffside Unit 6 was due to the fact that the HCl emissions estimate was based on a very high removal efficiency assumption and that "a small deviation in annual removal efficiency, such as might occur during periods of startup, shutdown, and malfunction, would cause the unit's emissions to exceed the major source threshold for HCl." *Id.* at 1. Similarly, the HCl and HF emission limits in the Big Stone Title V permit are based on Otter Tail's emission estimates for these pollutants which were based on high levels of assumed control efficiency. Specifically, Otter Tail assumed it would achieve an HCl control efficiency of 96.2%<sup>22</sup> and an HF control efficiency of 93.1%. *See* Otter Tail's March 18, 2008 submittal of HAP emission estimates to DENR (Exhibit 19), Enclosure at 1. If Otter Tail was off in its projected control efficiency by 0.3 - 0.4%, it could make the difference between whether Big Stone II would be a major source of one or both of these two HAPs. *See* 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 830-831. In addition, as discussed above, the permit does not require any determination of HCl and HF emissions during startup or shutdown, and it fails to adequately account for the fluctuations in HCl and HF control efficiencies and emission rates that are likely to occur at Big Stone II.

For all of the above reasons, EPA must object to the Big Stone Title V permit for failure to include adequate terms and conditions to assure compliance with the hourly and annual limits on HF and HCl. In the absence of adequate terms and conditions to assure compliance with these

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<sup>22</sup> Cliffside Unit 6 has a different control train than Big Stone II, with two spray dryer absorbers in parallel, followed by two baghouses, followed by a wet scrubber, which likely explains (at least in part) the significant difference between the HF projections for Cliffside Unit 6 and Big Stone II.

limits, the Big Stone II boiler must be considered as a major source of these pollutants and must be required to obtain a case-by-case MACT determination prior to beginning actual construction on Big Stone II.

**Issue #8: The Big Stone Title V Permit Fails to Include Adequate Terms and Conditions to Assure Compliance with the Limit on Total HAP Emissions.**

The Big Stone Title V permit includes a limit on total HAPs of 23.8 tpy. *See* Condition 11.5 of the Big Stone Title V Permit. However, the permit fails to include adequate terms and conditions to assure compliance with this emission limit. Such terms and conditions are required by 40 C.F.R. §70.6(c); ARSD 74:36:05:16.01(14)(a). In the absence of adequate terms and conditions to assure compliance with the 23.8 tpy limit on total HAP emissions, the Big Stone II boiler must be considered a major source of HAPs and must be subject to a case-by-case MACT determination prior to beginning actual construction on Big Stone II. Petitioners submitted extensive comments regarding his issue. *See* Sierra Club and Clean Water Action's March 13, 2009 letter to DENR (**Exhibit 4**) at pages 16-28, Attachments 8-16.

**A. Background.**

There are four components that go into the determination of Big Stone II's compliance with the 23.8 tpy total HAP emissions limit: the 12-month tally of HCl emissions and the 12-month tally of HF emissions, both discussed above (Issue #7), 12 month totals of mercury emissions that will be measured with a CEMS (*see* Condition 11.6 of the Big Stone Title V permit), and 12 month tallies of emissions of all other HAPs. *See* Conditions 11.5 and 11.8 of the Big Stone Title V permit.

Unlike the permit conditions for HCl, HF and mercury, the Big Stone Title V permit

simply includes an emission factor of 137 pounds per trillion British Thermal Units heat input (“lb/TBtu”) to assess the Big Stone II boiler’s emissions of all other HAPs. *See* Condition 11.8, Equation 11-5 of the Big Stone Title V Permit. Thus, the Big Stone permit utterly fails to require any monitoring of the other HAPs or even monitoring of surrogates for those HAPs. Because the 23.8 tpy limit on total HAPs is a synthetic minor limit intended to keep the Big Stone II boiler from having to meet the substantive requirements of a case-by-case MACT analysis, it is imperative that there be adequate terms and conditions to ensure compliance with the limit. An assumed emission factor for the other HAP emissions should only be allowed in lieu of stack testing if it has been demonstrated to be conservative and to err on the side of overestimating emissions - to ensure that the Big Stone II boiler’s emissions truly do stay under the 23.8 tpy limit.

**B. The Big Stone Title V Permit Fails to Include Adequate Terms and Conditions Necessary to Assure Compliance with the Limit on Total HAP Emissions.**

Petitioners have already described the numerous deficiencies in the permit regarding compliance with the lb/hr and 12-month limits on HCl and HF emissions from Big Stone II in the above section of this petition. Because emissions of HCl and HF must be included in determining whether Big Stone II’s total HAP emissions exceed 23.8 tpy, the Big Stone Title V permit lacks adequate terms and conditions to assure compliance with the 23.8 tpy limit on total HAPs due to the deficiencies pertaining to the HCl and HF emission limits.

In addition, the Big Stone Title V permit also fails to include adequate terms and conditions to determine emissions of all other HAPs (i.e., excluding HCl, HF and mercury), which in turn significantly compromises the enforceability and validity of the 23.8 tpy limit on

total HAPs.

DENR has not adequately justified the 137 lb/TBtu other HAP emission factor as being a conservative emission factor that could negate the need for stack testing and monitoring of the other HAPs to be emitted by the Big Stone II boiler. Therefore, the Big Stone Title V permit fails to include adequate terms and conditions to adequately and accurately assess the other HAPs emitted by the Big Stone II boiler.

DENR's other HAP emission factor was, for the most part, based on Otter Tail's March 2008 estimate of HAP emissions that was in turn based on the EPRI LARK TRIPP software.<sup>23</sup> The EPRI LARK TRIPP software is a program used to estimate emissions for reporting under the EPA's Toxics Release Inventory. It is not clear that the EPRI LARK emission factors account for emissions during startup and shutdown which may be higher due to higher pollutant loadings during these times. As was revealed in the 2008 contested case hearing on the 2008 draft Big Stone Title V permit, DENR does not even have a copy of the EPRI LARK TRIPP software program. 2008 Contested Case Hearing Transcript (Exhibit 9) at 429-30. Furthermore, neither Otter Tail nor DENR have the underlying data for the EPRI LARK TRIPP software program. *Id.* at 639-662. Sierra Club submitted extensive comments to DENR that demonstrated DENR's other HAP emission factor is not at all conservative. *See* Sierra Club and Clean Water Action's March 13, 2009 letter to DENR (**Exhibit 4**) at pages 16-28, Attachments 8-16.

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<sup>23</sup> Kyrik Rombough of DENR testified at the April 20, 2009 contested case hearing that the initially proposed 122.7 lb/TBtu emission factor for other HAPs in the draft revised Title V permit was based on Otter Tail's March 18, 2008 HAP estimates. In the final Big Stone permit, DENR increased this emission factor slightly to 137 lb/TBtu to account for discrepancies between Otter Tail's metal HAP emission factors and AP-42/USGS emission factors. *See* DENR's 2009 Response to Comments at 12. A copy of Otter Tail's March 18, 2008 Submittal of HAP Emission Estimates is included as **Exhibit 19**.

Specifically, Petitioners compared the EPRI LARK TRIPP emission factors cited in Otter Tail's March 2008 submittal of HAP emission estimates (**Exhibit 19**) to HAP emission factors from EPA's AP-42 Emission Factors and from EPA's 1998 Study of Hazardous Air Pollutant Emissions from Electric Utility Steam Generating Units-Final Report to Congress, Appendix A, Table A-4.<sup>24</sup> Petitioners' review found that Otter Tail's HAP emission estimates omitted numerous HAPs from its HAP estimates, including pollutants such as cyanide compounds for which AP-42 identifies an emission factor for coal-fired boilers of 147.15 lb/TBtu<sup>25</sup> and phosphorus for which AP-42 identifies an emission factor for coal-fired boilers of 6.7 lb/TBtu.<sup>26</sup> See Sierra Club's and Clean Water Action's March 13, 2009 comment letter (**Exhibit 4**) at 18-21. The sum of the emission factors for the HAPs omitted from Otter Tail's emission estimates is 187.39 lb/TBtu, more than double the 137 lb/TBtu other HAP emission factor in the Big Stone Title V permit. *Id.* at 20.

Petitioners also compared the EPRI LARK TRIPP emission factors to the available emission factors in AP-42 and EPA's Report to Congress and found that the EPRI LARK TRIPP emission factors were much lower in most cases. *Id.* at 24-25 and Attachment 13. If one relied on EPA's AP-42 emission factors for the HAPs that are covered in AP-42, EPA's Report to

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<sup>24</sup> Sierra Club used the highest of the three median factors listed in Table A-4 for 1990, 1994 and projected for 2010. The appendices in Volume 2 of the 1998 EPA Report to Congress are included as Attachment 11 to Sierra Club's and Clean Water Action's March 13, 2009 comment letter (**Exhibit 4**).

<sup>25</sup> From AP-42 Section 1.1, Table 1.1-14, converted from lb/ton to lb/TBtu with Otter Tail's Coal Usage Data.

<sup>26</sup> From Documentation for AP-42 Section 1.1, reference 39, field test on western bituminous coal fired PC boiler with baghouse.



Congress for those HAPs for which AP-42 has no emission factors, and then Otter Tail's EPRI LARK emission factors for the HAPs for which emission factors cannot be found in either AP-42 or EPA's Report to Congress, a more appropriate emission factor for the other HAPs to be emitted by the Big Stone II boiler would be 786.8 lb/TBtu as compared to DENR's other HAP emission factor of 137 lb/TBtu. This emission factor, which is at least grounded for most of the HAPs in EPA's AP-42 and 1998 Report to Congress (as opposed to the EPRI LARK data for which neither DENR nor Otter Tail has the underlying data) is almost six times higher than the 137 lb/TBtu emission factor for other HAPs in the Big Stone Title V permit.

Petitioners also compared Otter Tail's EPRI LARK emission factors to HAP emission factors relied on in air permit applications for other coal-fired power plants and found that Otter Tail's emission factors were much lower than assumed in other coal plant HAP calculations. *See* Sierra Club's and Clean Water Action's March 13, 2009 comment letter (**Exhibit 4**) at 25-27.

DENR ignored most of Petitioners' comments and analysis based on an anecdotal review. In discounting Petitioners' comments, DENR appears to have relied on the unjustified assumption that many of the AP-42 and EPA Report to Congress emission factors cannot be relied upon because the emission factors are not clearly tied to testing from a facility burning subbituminous coal as will be utilized at Big Stone II. *See* 3/18/09 DENR Response to Comments on Big Stone Permits (**Exhibit 13**) at 10-11.

DENR did do a comparison of the test results for subbituminous coal-fired boilers from source specific test results provided in the background documentation for AP-42 (*Id.* at 11 (Table 1-3)) and DENR found that the test results for some of the organic HAPs were lower than Otter Tail's assumed emission factors. But DENR discounted the fact that, for a few of the organic

HAPs (most notably carbon disulfide and methylene chloride), the test results showed much higher emission factors than Otter Tail's emission factors. DENR's justified its discounting of these discrepancies by claiming, without providing any supporting citations or documentation, that sulfides and chlorides would be controlled by the wet scrubber at Big Stone II. *Id.*

In response to Petitioners' comments regarding Otter Tail's emission factors for metal HAPs,<sup>27</sup> DENR compared Otter Tail's metal HAP emission factors to EPA's AP-42 emission factors based on USGS data and EPA's AP-42 background test data with subbituminous coal. *See* 3/18/09 DENR Response to Comments (**Exhibit 13**) at 12 (Table 1-4). Even though the AP-42 emission factors are higher for several metal HAPs (including cobalt, lead, and manganese), DENR concluded that Otter Tail's metal HAP emission factors are supported. *Id.* DENR then went on to contradict its finding, and it increased the other HAP emission factor in the permit from 122.7 lb/TBtu to 137 lb/TBtu to purportedly account for the higher emission factors for the metal HAPs based on USGS data and AP-42 emission factors. *Id.* *See also* Condition 11.8 of the Big Stone Title V Permit. DENR failed to explain how it arrived at the 137-LB/TBtu emission factor or what AP-42 USGS metal HAP emission factors it relied on to increase its original 122.7 other HAP emission factor up to 137 lb/TBtu. Indeed, to account properly for the higher AP-42 USGS metal HAP emission factors, DENR should have increased the other HAP emission factor by 19.5 lb/TBtu to a total of 142.2 lb/TBtu.<sup>28</sup>

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<sup>27</sup> *See* Sierra Club's and Clean Water Action's March 13, 2009 comment letter to DENR (**Exhibit 4**) at 22-23.

<sup>28</sup> This reflects the difference between the sum of the AP-42 USGS emission factors and the sum of the Otter Tail emission factors only for the metal HAPs identified in Table 1-4 of DENR's 3/18/09 Response to Comments (at 12) – this does not address the difference between Otter Tail's emission factors and EPA's emission factors for the other HAPs.

All of the analysis described above and provided in greater detail in Sierra Club's and Clean Water Action's March 13, 2009 comment letter to DENR (**Exhibit 4**) demonstrate that the "other HAP" emission factor of 137 lb/TBtu that the permit allows Otter Tail to rely on to demonstrate compliance with the 23.8 tpy total HAP cap is not a conservative emission factor. In fact, the analysis and comparisons provided in the March 13, 2009 letter to DENR demonstrate that DENR's emission factor will likely result in a significant underestimate of "other HAP" emissions from Unit #13. Furthermore, DENR has not provided sufficient demonstration to show that this emission factor of 137 lb/TBtu will accurately reflect actual emissions of the other HAPs from Big Stone II during all periods of operation including during startup and shutdown. DENR also failed to provide any demonstration as to why monitoring and reporting of the other HAP emissions is not necessary to show compliance with the total HAP limit.

Because DENR is not requiring Otter Tail to conduct *any* stack testing for emissions of HAPs other than mercury, HCl, and HF and is instead relying solely on an emission factor and the heat input of the coal burned to determine emissions of all other HAPs emitted by Unit #13, it is imperative that the other HAP emission factor be conservative to insure that all HAP emissions are accounted for. Based on the documentation Petitioners have researched and included in the Big Stone Title V permit record, the 137 lb/TBtu emission factor is far from conservative. Therefore, it cannot be relied upon to ensure Big Stone II's compliance with the 23.8 tpy total HAP limit.

For all of the above reasons, EPA must object to the Big Stone Title V permit for failure to include adequate terms and conditions to assure compliance with the 23.8 tpy limit on

emissions of total HAPs. In the absence of adequate terms and conditions to assure compliance with this limit, the Big Stone II boiler must be considered as a major source of HAPs and must be required to obtain a case-by-case MACT determination prior to beginning actual construction on Big Stone II.

**Issue #9: Condition 13.2 of the Big Stone Title V Permit, Which Allows Otter Tail to Make Design Changes to Big Stone II that Differ from the Design that Otter Tail Provided in its Permit Applications, Fails to Ensure Compliance with Applicable Requirements of the Clean Air Act.**

Condition 13.2 of the Big Stone Title V permit provides:

[T]he owner or operator is authorized to construct and operate the units, controls, and processes as described in Table 13-1 that differ from the design described in the application without obtaining approval from the Secretary provided the final design does not significantly differ from those described in the application and the final design would still demonstrate compliance with the National Ambient Air Quality Standards and PSD Increments. The term “final design does not significantly differ” is limited to the physical parameters of the units, controls, and processes such as the stack locations, stack heights, stack diameters, etc. The term does not include changes to emission limits, operational limits, recordkeeping requirements, reporting requirements, performance testing requirements, etc. The owner or operator shall notify the Secretary of any such changes and submit documentation that demonstrates compliance with the National Ambient Air Quality Standards and PSD Increments within 60 days of initial startup.

This provision allows Otter Tail to build the Big Stone II power plant differently than represented in its permit application without having to go through a permit revision and public notice and comment. This provision circumvents the PSD permitting process and is illegal. Therefore, we request EPA object to this permit condition of the Big Stone Title V permit.

This condition was added to the Big Stone PSD permit at Otter Tail’s request during the 2008 contested case hearing before the Board. *See* 2008 Contested Case Hearing Transcript at 25-26, 224-6. Because this provision was not in the PSD permit that was publicly noticed,

Sierra Club did not submit comments on this provision in its 2006 and 2008 comment letters on the permits, although Sierra Club and Clean Water Action did identify issues with this provision in its post-trial brief submitted during the 2008 contested case hearing (*see Exhibit 7* at 89-92. DENR subsequently proposed to include this provision in Condition 13.2 of the Big Stone Title V permit in February of 2009, and Sierra Club's comments on the 2009 draft Big Stone permit incorporated by reference its post-trial brief from the 2008 contested case hearing, among other things (*see Exhibit 4* at 1).

**A. Legal Background.**

The PSD regulations that require that the PSD requirements be met *before* construction commences on a new or modified major source, not after. Specifically, 40 C.F.R. §§ 52.21

(a)(2)(ii) and (iii) provide in pertinent part that:

the requirements of paragraphs (j) through (r) of this section apply to the construction of any new major stationary source or the major modification of any existing major stationary source . . . [and n]o new major stationary source or major modification to which the requirements of paragraphs (j) through (r)(5) apply shall begin actual construction without a permit that states that the major stationary source or major modification will meet those requirements.

These provisions include requirements to conduct air modeling analyses to demonstrate compliance with the PSD increments and NAAQS. Specifically 40 C.F.R. § 52.21 (k) provides that:

The owner or operator of the proposed source or modification shall demonstrate that allowable emission increases from the proposed source or modification, in conjunction with all other applicable emissions increases or reductions . . . would not cause or contribute to air pollution in violation of . . . any national ambient air quality standard . . . or . . . any applicable maximum allowable increase over the baseline concentration in any area.

These provisions, which are all incorporated by reference into the ARSD 74:36:09:02 and the

South Dakota SIP, require that before actual construction of a major modification to a major stationary source such as Big Stone II may begin, a permit must be issued which provides that the major modification will, *inter alia*, satisfy the air quality demonstration requirements of 40 C.F.R. § 52.21 (k).

**B. Condition 13.2 of the Big Stone Title V Permit Subverts the PSD Permitting Requirements of the Clean Air Act.**

Condition 13.2 of the Big Stone Title V permit allows Otter Tail to unilaterally make design changes to Big Stone II during construction so that what is ultimately constructed could differ from the permit application in terms of the physical parameters of the units, controls, and processes such as the stack locations, stack heights, stack diameters, and other unspecified changes. *See* 2008 Contested Case Hearing Transcript (Exhibit 9) at 472-473. In addition, this permit condition, in allowing design changes that do not “significantly differ” from the design provided in the permit application, is vague and difficult to enforce. The term “significantly differ” is very difficult to define in any meaningful manner, as the cross examination of DENR’s Kyrik Rombough demonstrated (*see* 2008 Contested Case Hearing Transcript (Exhibit 9) at 463-471). This provision provides no standard to govern DENR as it evaluates proposed design changes.

Moreover, under Condition 13.2 of the Title V permit, if a design change occurred during construction, all of the modeling to demonstrate compliance with the national ambient air quality standards (“NAAQS”) and PSD increments that was conducted under the PSD permitting requirements could be rendered irrelevant. While Condition 13.2 requires Otter Tail to submit a new air modeling demonstration establishing that no NAAQS or PSD increment violations

would occur as a result of the design changes, that modeling would not be required to be submitted until sixty days *after Big Stone II was constructed and started up*, which is expected to be approximately four years from issuance of the Big Stone permits. 2008 Contested Case Hearing Transcript (Exhibit 9) at 466. Further, under Condition 13.2, the public would be denied an opportunity to review or challenge any subsequent NAAQS or PSD increment modeling used to demonstrate that Big Stone II, as constructed, will not result in violations of those standards or to contend that the modeling demonstrations submitted did not support granting Otter Tail the authority to construct and operate Big Stone II. *Id.* Instead, the public would have to challenge the air modeling worked out behind closed doors by DENR and Otter Tail after Big Stone II is constructed, in the context of Big Stone II's Title V renewal application which is expected to be submitted in approximately five years. *Id.*

Condition 13.2 allows construction on Big Stone II to be completed prior to the submission of a final and conclusive air quality demonstration pursuant to ARSD 74:36:09:02 and 40 C.F.R. § 52.21(k), and thus it violates the clear requirements of ARSD 74:36:09:02 and the South Dakota SIP and the federal PSD permitting requirements. This provision essentially rewrites the PSD permitting requirements that would typically apply to such design changes in permitted source. In addition, this permit condition unlawfully insulates the evaluation of Otter Tail's air quality demonstration pursuant to ARSD 74:36:09:02 and 40 C.F.R. § 52.21 (k) from the public review process required by the PSD permitting regulations.

For the foregoing reasons, Condition 13.2 of the Big Stone Title V permit is unlawful and EPA must therefore object to the Big Stone Title V permit for failing to ensure compliance with applicable requirements of the Clean Air Act (namely, the PSD permitting requirements).

**Issue #10: The Big Stone Title V Permit Was Based on Deficient Analyses of Compliance with the Ambient Air Quality Standards for PM<sub>10</sub>.**

The Big Stone Title V permit was issued based on deficient modeling analyses for the PM<sub>10</sub> ambient air quality standards. As such, the Big Stone Title V permit fails to provide for compliance with applicable requirements of the Clean Air Act and, accordingly, EPA must object to the permit.

**A. Legal Background.**

Under the PSD permitting regulations, new and modified major stationary sources are required to provide an adequate demonstration following EPA's modeling guidelines that the new or modified source won't cause or contribute to a violation of the NAAQS or the PSD increments. *See* 40 C.F.R. §§52.21(k), (l) which are incorporated by reference into the South Dakota SIP at ARSD 74:36:09:02. Such analysis is required to be made available to the public for review along with all other application materials at the time DENR issues a draft determination to issue a PSD permit. *See* ARSD 74:36:09:03 and 40 C.F.R. §51.166(q)(2)(ii) and (iii).

Further, South Dakota's Title V operating permit regulations provide in part that:

A Part 70 operating permit for a new source or permit modification may be issued only if it has been shown that the operation of the new source or permit modification will not prevent or interfere with the attainment or maintenance of an applicable ambient air quality standard. . . .

ARSD 74:36:05:06. This provision is part of the operating permit regulations that EPA approved for South Dakota under Title V of the Clean Air Act. *See* 60 Fed.Reg. 15066 (3/22/95) and 61 Fed.Reg. 2720 (Jan. 29, 1996).

The NAAQS are health- and welfare-based ambient air quality standards. EPA has



promulgated NAAQS for PM<sub>10</sub> at 40 C.F.R. §50.6. The PSD increments (also known as “maximum allowable increases over baseline concentration”) are another set of ambient air quality standards that apply to new or modified sources locating in clean air areas, in addition to the NAAQS. The PSD increments are one the primary mechanisms EPA has implemented to meet the mandate of Part C of the Clean Air Act that the air quality in clear air areas must not significantly deteriorate. 42 U.S.C. §7473; 40 C.F.R. §52.21(c), ARSD 74:36:09:02.

EPA has promulgated increments for PM<sub>10</sub>. ARSD 74:36:09:02; 40 C.F.R. §52.21(c). Under both the PSD permitting requirements of the Clean Air Act (and the South Dakota SIP) and South Dakota’s Title V permitting regulations, the proposed Big Stone II project, which is a major modification for particulate matter, cannot be allowed to construct or operate without a demonstration sufficient to ensure the modified Big Stone facility won’t cause or contribute to a violation of the NAAQS or any PSD increment. ARSD 74:36:09:02; 40 C.F.R.

§§ 52.21(a)(2)(iii) and 52.21(k); *see also* 42 U.S.C. §7475(a)(8). In addition, the PSD program requires that all estimates of ambient air quality impacts shall be based on applicable air quality models, data bases, and other requirements specified in EPA’s Guideline on Air Quality Models in 40 C.F.R. Part 51, Appendix W. ARSD 74:36:09:02; 40 C.F.R. §52.21(l)(1). As of December 9, 2005, the AERMOD dispersion model replaced the Industrial Source Complex (“ISC3”) model as the recommended model in EPA’s Guideline on Air Quality Models in 40 C.F.R. Part 51, Appendix W. 70 Fed. Reg. 68218 (November 9, 2005). *See also* Section 4.2.2.b and Appendix A of 40 C.F.R. Part 51, Appendix W.

Any evaluation of potential PSD increment consumption must begin with a review of “baseline concentration.” This term is defined as:

(i) that ambient concentration level which exists in the baseline area at the time of the applicable minor source baseline date. A baseline concentration is determined for each pollutant for which a baseline date is established and shall include:

(a) the actual emissions representative of sources in existence on the applicable minor source baseline date except as provided in paragraph (b)(13)(ii) of this section;

(b) the allowable emissions of major stationary sources which commenced construction before the major source baseline date but were not in operation by the applicable minor source baseline date.

(ii) The following will not be included in the baseline concentration and will affect the applicable maximum allowable increase(s):

(a) Actual emissions from any major stationary source on which construction commenced after the major source baseline date; and

(b) Actual emissions increases and decreases at any stationary source occurring after the minor source baseline date.

ARSD 74:36:09:02; 40 C.F.R. §52.21(b)(13); *see also* Section 169(4) of the Clean Air Act.

The baseline concentration generally reflects the concentration at the time of the “minor source baseline date.” However, the definition of “baseline concentration” also specifically provides that actual emissions associated with construction at a major stationary source after the “major source baseline date” affect the available PSD increment. 40 C.F.R. §52.21(b)(13)(ii)(a). The major source baseline date is defined in the PSD regulations as January 6, 1975 for particulate matter. ARSD 74:36:09:02, 40 C.F.R. §52.21(b)(14)(i).

The minor source baseline date is defined as the date of the first complete PSD permit application submitted after August 7, 1977, for a source proposing to locate in an area designated as attainment/unclassified under section 107 of the Clean Air Act (i.e., a clean air area). ARSD 74:36:09:02; 40 C.F.R. §52.21(b)(14)(ii). The minor source baseline date is set on a pollutant-specific basis. Only a source that will have significant emissions of a particular pollutant can

trigger the minor source baseline date for that pollutant in an area. ARSD 74:36:09:02; 40 C.F.R. 52.21(b)(14)(iii)(b). The minor source baseline date, which reflects *when* the baseline concentration is to be determined, is set for the entire “baseline area,” and baseline area is defined as:

any intrastate area (and every part thereof) designated as attainment or unclassifiable under section 107(d)(1) (D) or (E) of the [Clean Air] Act in which the major source or major modification establishing the minor source baseline date would construct or would have an air quality impact equal to or greater than  $1 \mu\text{g}/\text{m}^3$  (annual average) of the pollutant for which the minor source baseline date is established.

ARSD 74:36:09:02, 40 C.F.R. § 52.21(b)(15).

Areas designated as attainment or unclassifiable under Section 107(d)(1)(D) or (E) of the Clean Air Act are promulgated at 40 C.F.R. Part 81, Subpart C. 40 C.F.R. § 81.300.

40 C.F.R. § 81.300(b) provides:

Designated areas which are listed below as attainment (“Better than national standards”) or unclassifiable (“Cannot be classified”) for total suspended particulate (TSP), sulfur dioxide (SO<sub>2</sub>), and nitrogen dioxide (NO<sub>2</sub>), represent potential baseline areas or portions of baseline areas which are used in determining compliance with maximum allowable increases (increments) in concentrations of the respective pollutants for the prevention of significant deterioration of air quality (PSD). With respect to areas identified as “Rest of State” it should be assumed that such reference comprises a single area designation for PSD baseline area purposes. However, for PM<sub>10</sub>, the use of the term “Rest of State” is an interim measure to designate as unclassifiable all locations not originally designated nonattainment for PM<sub>10</sub> in accordance with section 107(d)(4)(B) of the Act.

Although this indicates that the term “Rest of State” for PM<sub>10</sub> is an interim measure, such is not the case for South Dakota. On November 3, 1995, the EPA promulgated revisions to the Section 107 attainment area designations for South Dakota, replacing the total suspended particulate Section 107 attainment areas that represented potential baseline areas with PM<sub>10</sub>

Section 107 attainment areas that represented potential baseline areas in 40 C.F.R. § 81.342. 60 Fed. Reg. 55792-55800 (November 3, 1995). South Dakota's attainment and unclassifiable areas for PM<sub>10</sub> include the Rapid City area and the "rest of state" area, and the designation for "rest of state" clearly indicates that the "rest of state" area "denotes a single area designation for PSD baseline purposes." 40 C.F.R. § 81.342 (South Dakota - PM<sub>10</sub> Table).

The first complete PSD permit application for a major stationary source of PM<sub>10</sub> proposing to locate in the "rest of state" area in South Dakota was submitted on September 16, 1991 by Northern States Power Company to install four combustion turbines near Sioux Falls, South Dakota. *See* 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 1236; *see also* 4/15/08 DENR Response to Comments on Big Stone Permits (**Exhibit 12**) at 62. Thus, the minor source baseline date for the "rest of state" particulate matter attainment area in South Dakota was triggered on September 16, 1991.

**B. Otter Tail's PM<sub>10</sub> Modeling Analyses that DENR Relied on in Issuing the Big Stone Permits is Significantly Flawed and Inconsistent with Regulatory Requirements.**

1. Background of Otter Tail's Modeling Analyses.

Otter Tail submitted several versions of modeling analyses to demonstrate whether Big Stone II would cause or contribute to a violation of the PM<sub>10</sub> NAAQS or PM<sub>10</sub> increments. Otter Tail's initial PM<sub>10</sub> modeling submitted with its July 2005 PSD permit application became obsolete (1) because Otter Tail changed the design of Big Stone II, necessitating changes to the modeling and (2) because ISCST3 was no longer an EPA-approved Guideline Model. *See* 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 1028-1030, 1262-63. Otter Tail's PM<sub>10</sub> modeling conducted with ISCST3 that was submitted to DENR in July 2005 was also erroneous

because it was based on an incorrect form of the precipitation factor. *Id.* at 1086, 1126, 1342-43; *see also* 9/9/08 Supplemental Expert Report of Patrick Hanrahan at 4 (**Exhibit 20**).

Subsequently, in July 2007, Otter Tail submitted revised modeling to DENR to demonstrate that Big Stone II would comply with the PM<sub>10</sub> NAAQS and the PM<sub>10</sub> increments. *See Exhibit 21*, Otter Tail's 7/12/07 Submittal to DENR of Revised Air Modeling for PM<sub>10</sub> and PM<sub>2.5</sub>. DENR relied on the July 2007 modeling provided by Otter Tail when DENR noticed the permit for public comment in January of 2008. This modeling utilized AERMOD. However, the modeling was erroneous because it was based on the incorrect assumption that the PM<sub>10</sub> minor source baseline date had not yet been triggered and that the only PM<sub>10</sub> increment consuming sources in the Big Stone area were those associated with Big Stone II. 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 1031; *see also* 9/9/08 Supplemental Expert Report of Patrick Hanrahan at 4 (**Exhibit 20**). As stated in the above section, the particulate matter minor source baseline date was triggered for the South Dakota "rest of state" attainment area on September 16, 1991.

After the public comment period on the draft PSD permit for Big Stone II and after a contested case hearing was initiated before the Board for the Big Stone permits, Otter Tail conducted new PM<sub>10</sub> and PM<sub>2.5</sub> modeling, which Otter Tail made available to DENR and to petitioners in July 2008. 7/16/08 Otter Tail Report Regarding Supplemental Air Dispersion Modeling (**Exhibit 22**). The July 2008 PM<sub>10</sub> increment modeling was intended to reflect the proper PM<sub>10</sub> minor source baseline date of September 16, 1991 and thus included additional increment consuming sources in determining whether the Big Stone II facility would cause or contribute to a violation of the PM<sub>10</sub> increments. *Id.* at 2. However, Otter Tail's July 2008

modeling analyses were never reviewed by DENR and are not considered to be part of the Big Stone II permit application that was reviewed by DENR or that was subject to public notice and comment. *See* 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 1218-19, 1263-65.

2. The PM<sub>10</sub> Modeling Upon Which DENR Based Issuance of the Big Stone II PSD Permit Is Legally Flawed.

As stated above, DENR issued the draft Big Stone II PSD permit and the draft Title V permit for public review and comment in January 2008, and it was based on Otter Tail's permit applications submitted by that time including the July 2007 PM<sub>10</sub> modeling submittal. DENR never reviewed or determined the adequacy of Otter Tail's July 2008 modeling submittal. *See* 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 1218-19, 1263-65. The Sierra Club submitted numerous comments on the deficiencies in the PM<sub>10</sub> NAAQS and increment modeling in its June 23, 2006 comment letter to DENR which were relied upon and incorporated in its March 14, 2008 comment letter to DENR. *See* June 23, 2006 Sierra Club Redacted Version of Comment Letter (**Exhibit 1**) at 55-70 and March 14, 2008 Sierra Club Comment Letter (**Exhibit 2**) at 46. The Sierra Club and Clean Water Action also provided expert reports and testimony on the PM<sub>10</sub> modeling in the 2008 contested case hearing on the Big Stone permits.

The July 2007 PM<sub>10</sub> modeling submitted by Otter Tail was legally flawed because it was based on the improper assumption that Big Stone II triggered the PM<sub>10</sub> minor source baseline date, and it failed to take into account increment consuming sources in the area.<sup>29</sup> At the 2008

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<sup>29</sup> In its July 2008 modeling, Otter Tail made clear that there were some increment-consuming sources that needed to be covered in the increment modeling including two sources constructed after the 1991 minor source baseline date (the POET - Northern Lights Ethanol emission units and one dryer at Saputo Cheese) as well as emission unit 12 (lime storage silo) at Big Stone I, emissions associated with Big Stone Unit 7a\_d (rotary car dumper building) which is to be modified to increase capacity to serve both Big Stone I and II, and all emissions from the

contested case hearing, DENR's Kyrik Rombough stated that DENR had been implementing the PM<sub>10</sub> minor source baseline dates on a county-by-county basis. 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 1237, 1239. However, there is no basis in the PSD regulations to support DENR's interpretation or in South Dakota's Section 107 attainment/unclassifiable designations. As discussed above, in a November 3, 1995 rulemaking, EPA replaced South Dakota's total suspended particulate attainment/unclassifiable areas with PM<sub>10</sub> attainment/unclassifiable areas,<sup>30</sup> and the South Dakota "rest of State" unclassifiable PM<sub>10</sub> area was specifically identified as a "a single area designation for PSD baseline purposes." 60 Fed. Reg. 55792-55800 (November 3, 1995). Thus, the "rest of State" PM<sub>10</sub> area in South Dakota represents a single PSD baseline area, and the minor source baseline date for PM<sub>10</sub> was set in the "rest of State" PM<sub>10</sub> area by the PSD permit application for Northern States Power Company's combustion turbine facility near Sioux Falls, South Dakota which was submitted on September 16, 1991. 4/15/08 DENR Response to Comments (Exhibit 12) at 62.

Consequently, the issuance of the Big Stone PSD permit was based on an inadequate determination of whether Big Stone II would cause or contribute to a violation of the PSD increments because the PM<sub>10</sub> increment modeling analysis incorrectly assumed the PM<sub>10</sub> minor source baseline date had not yet been triggered in the Big Stone area.

### 3. No Modeling Analysis Was Done to Determine Whether Big Stone II Would Cause or Contribute to a Violation of the NAAQS or PSD Increment During Periods of Startup and

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limestone pile (Unit LS\_WE) at the Big Stone facility. *See* 7/16/08 Otter Tail Report Regarding Supplemental Air Dispersion Modeling at 2 (**Exhibit 22**).

<sup>30</sup> This rulemaking was done to reflect the fact that EPA had replaced the NAAQS and PSD increments for total suspended particulate with NAAQS and increments for PM<sub>10</sub>. *See* 60 Fed. Reg. 55793 (November 3, 1995).

Shutdown.

As discussed in Section I above, the Big Stone Title V permit essentially provides for an exemption from having to meet the numerical PM<sub>10</sub> BACT limits during periods of startup and shutdown. *See* Conditions 14.1 and 14.8 of the Big Stone Title V Permit. Those numerical PM<sub>10</sub> emission limits are what Otter Tail modeled as the Big Stone II boiler's allowable emission rate in its PM<sub>10</sub> modeling analyses. *See* Otter Tail's 7/12/07 Submittal to DENR of Revised Air Modeling for PM<sub>10</sub> and PM<sub>2.5</sub> (**Exhibit 21**) at 6-2 ("All emissions were modeled to correspond to their BACT emission levels"). Otter Tail did not conduct any additional modeling analyses to verify that Big Stone II would not cause or contribute to a violation of the PM<sub>10</sub> NAAQS or PSD increments during periods of startup and shutdown. The emissions of PM<sub>10</sub> can be higher during startup and shutdown and also the plume height can be lower, both of which can cause increased pollutant concentrations. *See* 8/15/08 Expert Report of Patrick Hanrahan at 9-10 (**Exhibit 23**). Thus, the lack of any modeling analysis to verify compliance with the PM<sub>10</sub> NAAQS and increments during periods of startup and shutdown, given that the permit does not require Otter Tail to comply with the numerical PM<sub>10</sub> emission limits during startup and shutdown, is a significant deficiency, especially given the other flaws noted by Sierra Club's and Clean Water Action's expert, Mr. Patrick Hanrahan, in Otter Tail's PM<sub>10</sub> modeling which are discussed below.

4. Otter Tail's PM<sub>10</sub> Modeling Is Technically Deficient, and Petitioners' Expert's Modeling Analyses that Addressed Some of the Deficiencies Shows that Big Stone II Would Cause or Contribute to a Violation of the PM<sub>10</sub> Increment and the PM<sub>10</sub> NAAQS.

As stated above, DENR relied on Otter Tail's July 2007 modeling in proposing issuance of the permits for Big Stone. While DENR never reviewed Otter Tail's July 2008 modeling



analysis and it was never subject to public review and comment (including EPA review), the Board appears to have relied on this modeling, at least in part, in deciding to issue the PSD permit for Big Stone II pursuant to the 2008 contested case hearing. *See* Board's Findings of Facts and Conclusions of Law, November 20, 2008 (**Exhibit 24**) at 60-61, para. 194.

Sierra Club and Clean Water Action retained an air modeling expert, Patrick L. Hanrahan,<sup>31</sup> who found both Otter Tail's July 2007 and July 2008 PM<sub>10</sub> modeling analysis to be significantly flawed on numerous grounds. First, Mr. Hanrahan found that the meteorological conditions at the Huron airport (which is the location of meteorological data relied upon in all of Otter Tail's modeling analyses) were not representative of the meteorological conditions at the Big Stone site. *See* 2008 Contested Case Hearing Transcript (**Exhibit 9**) at 1337-1342, 1363-1365; 8/15/08 Expert Report of Patrick Hanrahan at 5 (**Exhibit 23**). Mr. Hanrahan also found that the meteorological input data used in Otter Tail's July 2008 PM<sub>10</sub> modeling analysis was not representative of the surface characteristics around the Big Stone facility. 2008 Contested Case Hearing Transcript at 1349-1350; 8/15/08 Expert Report of Patrick Hanrahan (**Exhibit 23**) at 6.<sup>32</sup>

Mr. Hanrahan did his own modeling analysis using Otter Tail's meteorological input data from Otter Tail's July 2007 AERMOD modeling submittal, which he felt was more representative than the meteorological input data used in Otter Tail's July 2008 modeling. *See*

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<sup>31</sup> Patrick L. Hanrahan was formerly the lead air quality modeling coordinator for the Oregon Department of Environmental Quality from 1979 until he retired in 2002 and is currently a college instructor and a consultant. *See* 8/15/08 Expert Report of Patrick Hanrahan (**Exhibit 23**) at 2.

<sup>32</sup> Specifically, Mr. Hanrahan wrote that the use of surface characteristics that do not reflect the area around Big Stone "is expected to lead to a large underestimation of impacts from low level emissions sources in the AERMOD model." *See* **Exhibit 23** at 6.

2008 Hearing Transcript at 1345-6, 1350; 8/15/08 Expert Report of Patrick Hanrahan at 7. He used Otter Tail's PM<sub>10</sub> emissions input data from its July 2008 modeling exactly as it was presented by Otter Tail (even though he found the emissions assumptions for certain emissions sources at Big Stone to be flawed, as discussed below). See 2008 Hearing Transcript at 1349-50; 8/15/08 Expert Report of Patrick Hanrahan at 8. Mr. Hanrahan's modeling analysis of this scenario showed that Big Stone II would cause or contribute to a violation of the 24-hour average PM<sub>10</sub> PSD increment. Specifically, his modeling of this scenario predicted a 24-hour average high-second-high PM<sub>10</sub> concentration of 31.15 µg/m<sup>3</sup> as compared to the 24-hour average PM<sub>10</sub> increment of 30 µg/m<sup>3</sup>. *Id.*

Mr. Hanrahan also found that Otter Tail's July 2007 and its July 2008 modeling analyses were based on underestimates of silt loading on the Big Stone haul roads because Otter Tail used EPA silt loading emission factors for ubiquitous roads rather than for industrial facilities<sup>33</sup>. 2008 Hearing Transcript at 1330-1334; 8/15/08 Expert Report of Patrick Hanrahan at 4-6. Mr. Hanrahan re-ran the Big Stone PM<sub>10</sub> modeling with more appropriate silt loading factors for industrial facilities as well as with Otter Tail's meteorological input data from its July 2007 modeling which, as stated above, Mr. Hanrahan contended was more representative of the Big Stone area. This modeling showed that Big Stone II would cause or contribute to violations of the 24-hour average PM<sub>10</sub> increments with a predicted 24-hour average high-second-high PM<sub>10</sub> concentration of 69.00 µg/m<sup>3</sup>. Contested Case Hearing Transcript at 1348-1349; 8/15/08 Expert Report of Patrick Hanrahan at 8.

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<sup>33</sup> This deficiency applied to Otter Tail's July 2007 modeling, which DENR relied on and made available for public comment in issuing the proposed PSD permit, as well as to Otter Tail's July 2008 modeling. 2008 Contested Case Hearing Transcript at 1334.

Mr. Hanrahan also found that Otter Tail's July 2007 and its July 2008 modeling analyses were flawed because Otter Tail reduced the PM<sub>10</sub> emissions from haul roads by 50% based on a paved road and parking area control requirement of the Big Stone permit that is unenforceable and is unlikely to result in any reduction in PM<sub>10</sub> emissions. Specifically, Condition 15.1 of the Big Stone Title V permit<sup>34</sup> only requires implementation of the fugitive dust control measures (which include road flushing and/or street sweeping) on an "as needed" basis to comply with the 20% opacity standard of Condition 15.4 of the Big Stone Title V permit. *See* 2008 Contested Case Hearing Transcript at 1272-73. Yet, DENR's Kyrik Rombough testified that he has never seen a paved road exceed 20% opacity. *Id.* at 1293. Further, the permit fails to require Otter Tail to conduct periodic assessments of opacity from paved roads and parking areas, so Otter Tail will not even know if it needs to implement the paved road and parking area controls. Accordingly, Otter Tail cannot rely on an assumption of 50% reduction in haul road emissions based on the road dust control measures of Condition 15.1 of the Title V permit that are not definitively required to be implemented by the permit and may in fact never be implemented.

To take into account the likelihood that Otter Tail will never implement the paved road controls since the permit does not definitively require implementation of these measures, Mr. Hanrahan ran another modeling scenario in which he assumed no control from paved road emissions. He also used more appropriate silt loading factors for an industrial facility rather than silt loadings for ubiquitous roads as Otter Tail used, and he used Otter Tail's meteorological input data from its July 2007 modeling which he thought was more representative of the Big Stone area. This modeling again showed that Big Stone II would cause or contribute to

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<sup>34</sup> *See also* Conditions 7.1 and 7.4 of the Big Stone II PSD permit.

violations of the PM<sub>10</sub> increments, and also showed that Big Stone II would cause or contribute to a violation of the PM<sub>10</sub> NAAQS. Specifically, with this scenario, Mr. Hanrahan's modeling predicted a high-second-high 24-hour average PM<sub>10</sub> concentration 134.73  $\mu\text{g}/\text{m}^3$  as compared to the Class II 24-hour average PM<sub>10</sub> increment of 30  $\mu\text{g}/\text{m}^3$ , and he also predicted a high-second-high 24-hour average PM<sub>10</sub> concentration with background concentrations added in of 201.99  $\mu\text{g}/\text{m}^3$  as compared to the 24-hour average PM<sub>10</sub> NAAQS of 150  $\mu\text{g}/\text{m}^3$ . *See* 2008 Contested Case Hearing Transcript at 1344-1348; 8/15/08 Expert Report of Patrick Hanrahan at 7-8.

In addition, Mr. Hanrahan found other deficiencies in Otter Tail's July 2007 modeling which he did not attempt to address in his revised modeling. These deficiencies include that the modeling was based on "underestimates of worst-case 24-hour haul road emissions because of a reduction factor derived based on number of days of rainfall." 8/15/08 Expert Report of Patrick Hanrahan (**Exhibit 23**) at 5. *See also* 2008 Contested Case Hearing Transcript at 1342-3.

Further, Mr. Hanrahan found that the permit did not include enforceable conditions consistent with the assumption in the modeling that the haul roads would only be traveled on 8 hours per day. 8/15/08 Expert Report of Patrick Hanrahan (**Exhibit 23**) at 5; 2008 Contested Case Hearing Transcript at 1336-7.

Thus, as shown by the expert report and testimony of Patrick Hanrahan, Otter Tail's PM<sub>10</sub> modeling analyses are significantly flawed, and modeling that addressed just one of the flaws shows that Big Stone II would cause or contribute to a violation of the PM<sub>10</sub> increments. When three of the deficiencies were accounted for in a revised modeling analysis, it showed that Big Stone II not only would cause or contribute to a violation of the PM<sub>10</sub> increment, but also would cause or contribute to a violation of the PM<sub>10</sub> NAAQS.

In summary, the only PM<sub>10</sub> increment modeling analysis put forth by Otter Tail that reflects the proper minor source baseline date for PM<sub>10</sub> in the “rest of state” area is Otter Tail’s July 2008 modeling, since all of Otter Tail’s other modeling analyses are based on the legally incorrect assumption that the PM<sub>10</sub> minor source baseline date was not triggered until July of 2005. Yet, DENR never reviewed or provided notice and opportunity for public comment on Otter Tail’s July 2008 modeling, so it cannot be relied upon or form the basis for the Big Stone permitting decisions. Even if the July 2008 modeling could be relied upon without going through DENR review or public notice and comment, Sierra Club’s and Clean Water Action’s modeling expert found the July 2008 modeling to be technically deficient on numerous grounds. Therefore, EPA must object to the Big Stone Title V permit because the PM<sub>10</sub> emissions allowable under the permit could allow Big Stone II to cause and contribute to a violation of the PM<sub>10</sub> increment and the PM<sub>10</sub> NAAQS.

### **CONCLUSION**

For the reasons set forth above, this Petition should be granted.

Respectfully submitted,

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## **Exhibit List**

- Exhibit 1: June 23, 2006 Redacted Version of Comment Letter from Sierra Club to DENR and all Non-Confidential Attachments.
- Exhibit 2: March 14, 2008 Comment Letter From Sierra Club to DENR and all Attachments
- Exhibit 3: January 22, 2009 EPA Letter and Enclosure to DENR Objecting to Big Stone Title V permit.
- Exhibit 4: March 13, 2009 Comment Letter from Sierra Club and Clean Water Action to DENR, including all Attachments.
- Exhibit 5: Sierra Club's and Clean Water Action's May 2008 petition to the Board for Contested Case Hearing on the 2008 Draft PSD and Title V Permits for Big Stone.
- Exhibit 6: Sierra Club's and Clean Water Action's July 2008 Motion for Partial Summary Judgment on Legal Issues and Incorporated Memorandum of Support.
- Exhibit 7: Sierra Club's and Clean Water Action's November 1, 2008 Post-Trial Brief.
- Exhibit 8: Sierra Club's and Clean Water Action's November 12, 2008 Post-Trial Reply Brief.
- Exhibit 9: 2008 Contested Case Hearing Transcript.
- Exhibit 10: June 9, 2009 Final Big Stone Title V Permit.
- Exhibit 11: November 20, 2008 Board of Minerals and Environment Order in the Contested Case Hearing of the Big Stone Permits.
- Exhibit 12: 4/15/08 DENR Response to Comments on Big Stone Permits.
- Exhibit 13: 3/18/09 DENR Response to Comments on Big Stone Permits.
- Exhibit 14: DENR's 2009 Statement of Basis for Draft Revised Big Stone Title V Permit.
- Exhibit 15: October 23, 2006 letter from Otter Tail to DENR .
- Exhibit 16: 10/30/07 Northern Lights Ethanol Title V Permit
- Exhibit 17: 2004 Operational Report and 2005 Operational Report for Northern Lights

Ethanol.

- Exhibit 18: April 30, 2009 letter from EPA Region IV to North Carolina Department of Environment and Natural Resources.
- Exhibit 19: Otter Tail's March 18, 2008 submittal of HAP emission estimates to DENR.
- Exhibit 20: 9/9/08 Supplemental Expert Report of Patrick Hanrahan..
- Exhibit 21: Otter Tail's 7/12/07 Submittal to DENR of Revised Air Modeling for PM<sub>10</sub> and PM<sub>2.5</sub>.
- Exhibit 22: 7/16/08 Otter Tail Report Regarding Supplemental Air Dispersion Modeling.
- Exhibit 23: 8/15/08 Expert Report of Patrick Hanrahan.
- Exhibit 24: Board's Findings of Facts and Conclusions of Law, November 20, 2008.
- Exhibit 25: Landfill Gas Technical Support Document
- Exhibit 26: Memorandum from Rose Quinto, Environmental Engineer Air Quality Planning Branch, U.S. EPA Region 3, Re: Technical Support Document - Delaware; Regulation No. 1144 - Control of Stationary Generator Emissions (January 25, 2008)

## Certificate of Service

I certify that on August 3, 2009, I sent, via e-mail, a copy of the foregoing, including all exhibits, to the addressees listed below.

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George E. Hays

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