

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

An Operating Permit for the Edgewater
Power Plant, Sheboygan County, Wisconsin.

Source I.D. 460033090

Permit No. 460033090-P20

Proposed by the Wisconsin Department of
Natural Resources on August 18, 2009.

Petition No. V-2009-_____

PETITION REQUESTING THAT THE ADMINISTRATOR OBJECT TO ISSUANCE OF
THE PROPOSED TITLE V OPERATING PERMIT FOR THE EDGEWATER POWER
PLANT

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Pursuant to Clean Air Act § 505(b)(2) and 40 CFR § 70.8(d), the Sierra Club hereby petitions the Administrator (“the Administrator”) of the United States Environmental Protection Agency (“U.S. EPA” or “EPA”) to object to a proposed Title V Operating Permit for the Edgewater Power Plant (“Edgewater”), Permit Number 460033090-P20 (“Permit”). The Permit was proposed to U.S. EPA by the Wisconsin Department of Natural Resources (“DNR”) more than 45 days ago. A copy of the proposed Permit is attached as Exhibit A.

Sierra Club provided comments to the DNR on the draft permit and the revised draft permit. A true and accurate copy of Sierra Club’s comments is attached at Exhibit B.¹ DNR’s response to comments is attached as Exhibit C.

This petition is filed within sixty days following the end of U.S. EPA’s 45-day review period, as required by Clean Air Act (“CAA”) § 505(b)(2).² The Administrator must grant or deny this petition within sixty days after it is filed. If the Administrator determines that the Permit does not comply with the requirements of the CAA, or fails to include any “applicable requirement,” he must object to issuance of the permit. 42 U.S.C. § 7661b(b); 40 C.F.R. § 70.8(c)(1) (“The [U.S. EPA] Administrator will object to the issuance of any permit determined by the Administrator not to be in compliance with applicable requirements or requirements of this part.”). “Applicable requirements”

¹ The exhibits to this Petition were also exhibits to Sierra Club’s comments. Sierra Club is not including those exhibits to its comments to DNR as they are already included as exhibits hereto.

² DNR proposed the permit to EPA on August 18, 2009. EPA’s forty-five (45) comment period expired on October 2, 2009.

include, *inter alia*, any provision of the Wisconsin State Implementation Plan (“SIP”), including any term or condition of any preconstruction permit, any standard or requirement under Clean Air Act sections 111, 112, 114(a)(3), or 504, acid rain program requirements. 40 C.F.R. § 70.2.

This petition seeks an objection by the Administrator for two reasons:

- 1) The permit fails to include gross generation, heat input, and fuel throughput limits applicable to the Edgewater boilers that were included in the application for and final Prevention of Significant Deterioration permit issued by EPA in 1977.
- 2) The particulate monitoring in the permit is deficient.
- 3) The permit incorporates by reference various “plans” that were not included in the application, not subject to public comment, and not reviewed by DNR and EPA as part of the permit issuance.

I. THE MAXIMUM GROSS GENERATION, HEAT INPUT, AND FUEL USEAGE REPRESENTED IN THE PERMIT APPLICATION FOR EPA-ISSUED PSD PERMIT EPA-5-77-A-3 AND DNR-ISSUED PERMIT NS-79-60-05 MUST BE INCLUDED AS ENFORCEABLE PERMIT REQUIREMENTS.

Title V permits must include all applicable requirements for each emission source at a facility. 40 C.F.R. § 70.2 (applicable requirements include “[a]ny standard or other requirement provided for in [the SIP] or promulgated by EPA... [and] [a]ny term or condition of any preconstruction permits issued pursuant to [the PSD program]...”).

This includes all requirements of preconstruction permits. *Id.*

A. Background on Permit History for Edgewater

In 1977, U.S. EPA issued a Prevention of Significant Deterioration (PSD) permit for the Edgewater plant, providing for construction of Unit 5, and issued a revised PSD permit in 1984. Both the original and revised PSD permits authorized WPL to construct

a 400 MW unit (Unit 5) and required that WPL construct and operate pursuant to the permit and the application submitted by WPL. The 1977 PSD permit issued by USEPA provided:

Approval to construct a 400 MW electrical generating unit is hereby granted to the Wisconsin Power and Light Company subject to the conditions expressed herein and consistent with the materials and data included in the application filed by the Company. Any departure from the conditions of this approval or the terms expressed in WP&L's application must receive the prior written authorization of U.S. EPA.

Approval to Construct EPA-5-77-A-3 (attached as Exhibit D).

The Wisconsin DNR also issued a permit allowing Wisconsin Power & Light to modify the Edgewater plant to add Unit 5, pursuant to the state's construction permit program. The DNR-issued permit provides:

A review of your notice of intent to install and operate a 400 MW coal-fired power plant... has been completed by the Bureau of Air Management of the Department of Natural Resources... the proposed facility is hereby approved with the following conditions:

1) The system shall be installed in accordance with the submitted plans and specifications or subsequent modifications of said plants that have been reviewed and approved by the Department.

...

Any construction or operation of this facility which proceeds at variance with the submitted specifications or approval conditions will be regarded as a violation of the approval and is subject to enforcement action.

Permit NS-79-60-05 (March 16, 1979) (attached as Exhibit E).

B. The PSD Permit Application For the Edgewater Plant.

As noted above, the PSD permit for the Edgewater plant requires construction and operation consistent with the application submitted. The application submitted by WPL (attached as Exhibit F) provided the following parameters for the Edgewater units:

Source Code	Number of Combustion Sources (Boilers)	Size of Unit (Input) 10 ⁶ BTU/hr.	Type of Unit	Installation Date	Percent Excess Air Used In Combustion (Design)	Power Output Megawatts
I-II	2	437	PULVERIZED-DRY BTM	1931	12	32
III	1	816	CYCLONE	1951	12	73
IV	1	2953	CYCLONE	1969	12	324
V	1	4200	PULVERIZED-DRY BTM	1982	20	400

Additionally, WPL's application provided the following description of maximum coal usage:

Source Code	Type of Fuels	Quantity	Annual Consumption				Hourly Consumption	
			Percent Distribution by Season				Maximum	Average
			Spring March/ May	Summer June/ Aug.	Fall Sept./ Nov.	Winter Dec./ Febr.		
I-II	Bituminous Coal	6500	40	10	40	10	21.5	8.8
III	Bituminous Coal	160000	23	28	23	26	40.2	21.1
IV	Bituminous Coal	820000	23	28	23	26	145.4	101.5
V	Sub Bituminous Coal	800000	22	29	22	27	261.8	109.1

Furthermore, WPL submitted air quality impact modeling with its PSD application.

The modeling analysis, performed by WPL's consultant, Enviroplan, Inc., and attached as Exhibit G hereto, identifies the following parameters that were used as the basis for the air quality analysis:

TABLE 2-1: WISCONSIN POWER & LIGHT COMPANY'S EDGEWATER POWER PLANT OPERATING DATA USED IN THE PREDICTION OF MAXIMUM SHORT-TERM AIR POLLUTION CONCENTRATIONS BASED ON CONSTANT MAXIMUM POSSIBLE GENERATION RATES AND MAXIMUM ASH AND SULFUR CONTENT COAL

<u>Plant Operating Data Based on Maximum Possible Generation Rates</u>	<u>Units 1 & 2 Through Stack 1</u>	<u>Unit 3 Through Stack 2</u>	<u>Unit 4 Through Stack 3</u>	<u>Unit 5 Through Stack 4</u>
Maximum Generation Rate (megawatts)	31.8	73.1	324.1	400.0
Maximum Heat Input (10 ⁶ BTU's/Hr.)	437.4	815.5	2952.9	4200.0
Stack Height (feet)	200	250	360	550
Stack Diameter (feet)	15.0	9.0	16.0	17.3
Stack Location (X,Y coordinates in U.S.G.S. UTM coordinate system)	(443.174, 4840.274)	(443.164, 4840.303)	(443.170, 4840.350)	(443.101, 4840.494)
Stack Base Elevation (feet above sea-level)	595	595	595	597
Exit Velocity (feet/second)	15.4	75.4	79.6	100.0
Exit Temperature (°F)	326	284	274	300
SO ₂ Emission Rate (tons/hr.)	1.46542	2.73252	9.89402	2.38803
NO ₂ Emission Rate (tons/hr.)	0.18267	1.04076	3.76845	1.47000
Total Particulate Emission Rate (tons/hr.)	0.08122	0.00121	0.02933	0.07122

WPL later submitted a permit to revise the PSD permit issued for construction of Unit 5 to incorporate a different particulate matter (then expressed as TSP) limit for Units 3 and 4. In support of that application to revise, WPL submitted a screening analysis on March 10, 1981, which stated:

The proposed new configuration for stacks of the Edgewater Plant will include two stacks -one stack serving both Units 3 and 4, another stack serving Unit 5, and the retirement of Un: Units 1 and 2. Table 2-1 presents the maximum net generation of all three units and the time-invariant parameters for each stack.

...

**TABLE 2-1: TIME INVARIANT EMISSIONS INVENTORY
DATA FOR THE EDGEWATER PLANT**

<u>Unit</u>	<u>UTM Coordinates</u>		<u>Maximum Net Generation (MW)</u>	<u>Stack Height (ft)</u>	<u>Stack Diameter (ft)</u>
	<u>Easting (km)</u>	<u>Northing (km)</u>			
3	443.234	4840.264	73.1	551 ^(a)	17
4	443.234	4840.264	324	551 ^(a)	17
5	443.111	4840.464	400	549	18

...

In this study three operating rates for Units 3, 4 and 5 were analyzed. They were 100%, 75%, and 50% of design rated capacity.

March 10, 1981 Screening Analysis at pages 2-1 to 2-3 (attached as Exhibit H³).

In support of its PSD application, WPL also relied upon the Certificate of Public Convenience and Necessity from the Public Service Commission of Wisconsin, which also described Unit 5 as “a 400-Megawatt (MW) coal-fired intermediate-load-range power plant.” *See In re Application of Wisconsin Power & Light Co. for Authority to Construct and Place in Operation a 400,00-Kilowatt Coal-fired Electric Generation Station in Sheboygan County*, Docket No. 6680-CE-3, Order at 2 (January 18, 1980). Following meetings and correspondence between EPA Region 5 and WPL, EPA issued a revised PSD permit for EGS on May 22, 1984 (Exhibit I). That modification provided:

A complete application has been submitted by the Wisconsin Power and Light Company (WP&L) to construct a 400 megawatt (MW) generating unit (Unit 5) at its Edgewater Generating Station in Sheboygan, Wisconsin.

...

³ Note that no averaging time was provided for the maximum generation, and that the modeling was done in 1-hour increments; therefore making the maximum generation assumptions either instantaneous or, at most, 1-hour averages.

Approval to construct a 400 MW electrical generating unit is hereby granted to the Wisconsin Power and Light Company, subject to the conditions expressed herein, and consistent with the materials and data included in the application filed by the Company. Any departure from the conditions of this approval or the terms expressed in WP&L's application must receive the prior written authorization of U.S. EPA.

C. The Permits and Applicable Regulations Require WPL to Construct and Operate The Edgewater Plant According to the Plans and Specifications Submitted With The PSD Permit Application.

As noted above, the Title I permits issued by U.S. EPA (PSD permit) and the Wisconsin DNR (state preconstruction permit) require WPL to construct and operate the Edgewater plant consistent with the plans and specifications submitted with the application to add Unit 5. Additionally, the applicable regulations require that a PSD applicant construct and operate the source consistent with and according to the specifications provided in its permit application. 40 C.F.R. § 52.21(r); Notice of Violation Issued to East Kentucky Power Cooperative at ¶ 6 (January 24, 2003) (attached as Exhibit J); *see also* Letter from Beverly H. Banister, Directors Air, Pesticides and Toxics Management Division, U.S. EPA Region IV, to John S. Lyons, Kentucky Department for Environmental Protection (February 18, 2006) (objecting to a Title V permit for the Tennessee Valley Authority's Plant Paradise because the permit did not include applicable maximum heat input limits) (attached as Exhibit K). Therefore, pursuant to the permits issued for the Edgewater plant by EPA and DNR and 50 C.F.R. § 52.21(r), each of WPL's representations of the maximum generation, maximum fuel

use, and maximum heat rates for the Edgewater units become enforceable limits and requirements. These plans and specifications, as set forth in WPL's application, are:

Unit	Maximum Hourly Gross Generation	Maximum Hourly Coal Usage	Average Hourly Coal Usage	Maximum Hourly Heat Input
Unit 3	73.1	40.2 tons /hr	21.1 tons/hr	815.1 MMBtu/hr
Unit 4	324.1 MW	145.4 tons/hr	101.5 tons/hr	2952.9 MMBtu/hr
Unit 5	400 MW	261.8 tons/hr	109.1 tons/hr	4200.0 MMBtu/hr

See Exs. F, G, H, I. Additionally, in the modeling submitted to show compliance with air quality standards and PSD increments, WPL represented the following maximum hourly emission rates:

Unit	Total PM	NOx	SO2
Unit 3	0.00121 tons/hr	1.04076 tons/hr	2.73252 tons/hr
Unit 4	0.02933 tons/hr	3.76845 tons/hr	9.89402 tons/hr
Unit 5	0.07122 tons/hr	1.47000 tons/hr	2.38803 tons/hr

See Ex. G at Table 2-1.⁴

EPA has repeatedly noted that heat rate, production rate, and fuel usage rates relied upon when issuing Title I permits are enforceable requirements.

[A PSD permit issued by EPA], in effect, limits increases beyond certain parameters (e.g., heat input, steam production, megawatt production) proposed by [the applicant] in its PSD permit application. The permit clearly states that the permit is issued for the project "as proposed" by the company. It also states that operation of the source not in accordance with what was proposed by the company

⁴ WPL later applied for a permit revision, based on a modified and combined PM (TSP) emission rate for Units 3 and 4. It is not clear whether EPA relied upon those revised rates to issue a revised PSD permit because EPA's revised PSD permit (Exhibit I) did not adopt the limits proposed by WPL or the modeling assumptions WPL purportedly used. Those modeling assumptions are set forth in Table 2-2 to Exhibit H. Regardless, there was no request by WPL to change the heat input, gross electric generation output, coal usage, or SO2 or NOx rates for any units and no request to change PM/TSP emission rates for Unit 5.

and what was reviewed/approved by EPA would be subject to enforcement action. (NOTE: This mentioned text is probably contained in each PSD permit issued by EPA/Region VII). As such, the permit prohibits increases of production rates that were proposed and reviewed/approved.

Memorandum Re: PSD-Sunflower Electric, Holcomb, KS (from files of U.S. EPA Region VII Air Permitting and Compliance Branch) (attached hereto in relevant part as Exhibit L).

The requirement that a plant construct and operate according to its permit lends validity to the permit review process, which determines pollution controls and emission rate impacts based on assumptions on the size and operation of the unit. If a unit is operated above the size, production rate, and/or emission rate assumed during the permitting review, there is no enforceable measures ensuring that air quality is protected and the pollution control determinations were correct. As EPA has explained:

A boiler's maximum heat input rate is thus a measure of its size or capacity. Clearly, then, a coal-fired boiler's heat input rate is directly related to the amount of pollution it can emit. Congress' understanding of this fact in the context of the Clean Air Act is evidenced by the fact that heat input is used to determine which sources are potentially subject to the statutory PSD program. See 42 U.S.C. § 7479(1) (defining "fossil-fuel fired steam electric plants of more than two hundred and fifty million British thermal units per hour heat input" as a type of stationary source). As an example of the direct relationship between heat input capacity and the amount of pollution, [a boiler] permitted to burn coal containing a specific amount of sulfur dioxide (SO₂), as measured in pounds of SO₂ per mmBtu. For any given coal SO₂ content (i.e., pounds of SO₂ per mmBtu), there is a direct and linear relationship between heat input and SO₂

emissions. By increasing its heat input capacity, [the boiler] increases its capacity to generate steam and SO₂...

The rated heat input capacity of a boiler is not a meaningless number. Rather, it is directly related to the capacity of the boiler to emit pollution. In the absence of a boiler heat input capacity in the description, [the boiler] could be a unit of any size, which would translate into widely ranging impacts on the environment. Common sense thus dictates that a permit concerned with emissions must limit the heat input of the boiler. Otherwise, the regulated unit is not really limited in its capacity to pollute... The greater the capacity of the boiler, the more tons of SO₂ that will be emitted into the atmosphere. Thus, heat input capacity plays a very real role in effectively limiting a source's capacity to emit pollution.

...

United State's Memorandum in Support of its Sixth Motion for Summary Judgment, *United States v. East Kentucky Power Cooperative, Inc.*, Case No. 04-34 KSF (E.D. Ky), pp. 16-17, 20-21 (attached hereto as Exhibit M).

By increasing the heat input over the levels identified in its applications, [the company] has fundamentally changed the assumptions upon which approval to construct the unit was based. If air quality modeling were to be done using a higher heat input capacity and the same coal sulfur content that was identified in [the company's] permit application... the unit would have been modeled at a higher emissions rate because increasing the heat input rate is directly proportional to the amount of emissions from a unit.

Plaintiff United States' Memorandum in Support of Its Fourth Motion for Summary Judgment, *U.S. v. East Kentucky Power Cooperative, Inc.*, Case No. 04-34 KSF, pp. 36-37 (E.D. Ky., filed January 17, 2006) (attached as Exhibit N); *see also id.* at 32-33.

Furthermore, the public and affected states had no opportunity to review and comment on a plant with different capacity, production rate, and emission rates than the one described in the application materials submitted by the permittee. In other words, if a plant is not required to comply with the maximum size, production rate, and emission rates set forth in its application, the substantive and procedural safeguards in the PSD program are undermined. Therefore, EPA has regularly and consistently interpreted the Clean Air Act as requiring that any representation about a plant's maximum capacity in a Title I permit application constitutes an operational limit. Here, WPL's application provided maximum generation output capacity and heat input capacity for Units 3, 4 and 5⁵, the maximum annual and hourly coal usage, and the maximum hourly emission rates for PM, NO_x and SO₂. Those representations were used by both WPL and U.S. EPA (through EPA's contractor) to analyze the PSD permit application submitted by WPL and determine air quality impacts. See EPA Preconstruction Review, *Technical Review of the Proposed Addition of Unit 5 and Retirement of Units 1 and 2 at the Edgewater Power Plant With Respect to Compliance With the Prevention of Significant Deterioration Regulations* (H.E. Cramer Co., Inc, Nov. 19, 1976). Therefore, the heat input, maximum output capacity (MW), coal usage, and maximum hourly emission rates represented by WPL in its application and relied upon by EPA in issuing the PSD permit became applicable requirements for the plant. 40 C.F.R. § 70.2 (applicable requirements include "[a]ny standard or other requirement provided for in

⁵ The application also addressed units 1 and 2, but those units have been retired.

[the SIP] or promulgated by EPA... [and] [a]ny term or condition of any preconstruction permits issued pursuant to [the PSD program]..."); 40 C.F.R. § 52.21(r); Permit EPA-5-77-A-3 (Exhibit D) (requiring the Edgewater plant to be constructed and operated according to the plans and specifications in the application); Permit NS-79-60-05 (March 16, 1979) (Exhibit E) (same). These applicable requirements should have been included in the Title V permit proposed by DNR.

D. Sierra Club Raised This Issue In Its Public Comments and DNR Agreed With Sierra Club But Failed To Amend the Proposed Permit Accordingly.

Sierra Club seeks EPA's objection to the permit for the Edgewater plant because DNR failed to include the heat input, generation output, coal throughput, and maximum hourly emission rate limits applicable from WPL's application.⁶ Sierra Club raised this issue in detail in its public comments. *See* Exhibit B at Section 3. DNR agreed with Sierra Club that the maximum hourly heat input, gross generation and maximum fuel usage representations in the PSD application are enforceable requirements. In its response to comments, DNR provided this summary of Sierra Club's comments and DNR's response:

3. Comment: The permit must include enforceable maximum hourly heat input, gross generation, and fuel usage from original PSD application and permit. **Response:** The conditions identified by the commenter are part of a

⁶ The DNR's proposed permit's permit shield does not provide a "shield" from the heat input, gross generation, and coal usage limits applicable to the Edgewater units. In fact, DNR specifically stated that these requirements remain in effect and apply to the Edgewater plant. Ex. C at 1. Therefore, these requirements are enforceable by DNR, EPA or citizens, notwithstanding DNR's failure to reiterate them in the Title V permit. Sierra Club reserves its right to bring an enforcement action against the owners and operators of the facility to compel compliance with the PSD and state construction permits and with 40 C.F.R. § 52.21, in addition to this petition seeking to have the limits also included in the Title V permit.

construction permit. Conditions in a construction permit do not expire (i.e. these conditions are permanent conditions; see s. 285.66(1), WI Stats.) and continue to be enforceable unless revised or eliminated through a construction permitting review process. Since these conditions have not been eliminated or revised through a construction permit review process, they remain in effect and enforceable today.

Exhibit C at 1. However, despite agreeing with Sierra Club’s comment, DNR failed to revise the draft permit to include these applicable requirements before proposing the permit to EPA. This appears to be a simple oversight but DNR. As a result, however, the proposed permit is deficient and EPA must object and require that the permit be revised to include at least the following applicable requirements:

Unit	Maximum Hourly Gross Generation	Maximum Hourly Coal Usage	Average Hourly Coal Usage	Maximum Hourly Heat Input	Total PM	NOx	SO ₂
Unit 3	73.1	40.2 tons /hr	21.1 tons/hr	815.1 MMBtu/hr	0.00121 tons/hr	1.04076 tons/hr	2.73252 tons/hr
Unit 4	324.1 MW	145.4 tons/hr	101.5 tons/hr	2952.9 MMBtu/hr	0.02933 tons/hr	3.76845 tons/hr	9.89402 tons/hr
Unit 5	400 MW	261.8 tons/hr	109.1 tons/hr	4200.0 MMBtu/hr	0.07122 tons/hr	1.47000 tons/hr	2.38803 tons/hr

II. THE PERMIT LACKS SUFFICIENT PARTICULATE MATTER MONITORING AND DNR HAS NOT PROVIDED SUFFICIENT EXPLANATION FOR THE PERMIT’S MONITORING.

A. Background on PM Monitoring and Title V.

Title V and its implementing regulations require DNR to include in the permit “terms, test methods, units, averaging periods and other statistical conventions consistent with the applicable requirement,” for the relevant time period, that are sufficient to assure compliance. 40 C.FR. § 70.6(a)(3)(B), (c); Wis. Admin. Code § NR

407.09(1)(c)1.b., NR 407.09(4)(a)1. (all operating permits shall contain compliance requirements “sufficient to assure compliance with the terms and conditions of the permit”)). “Where the applicable requirement does not require periodic testing,’ subsection 70.6(a)(3)(B) obliges the permitting authority to add to the permit ‘periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source’s compliance with the permit.’” *Sierra Club v. EPA*, 536 F.3d 673, 675 (D.C.Cir. 2008); *In re Fort James Camas Mill*, Petition No. X-1999-1 (Dec. 22, 2000); *In re PacifiCorp’s Jim Bridger and Naughton Electric Utility Steam Generating Plants*, Petition No. VIII-00-1 (Nov. 16, 2000).

EPA recently objected to a Title V permit issued by DNR that contained the same unexplained and faulty reliance on ESP parameter monitoring that DNR included in the permit for Edgewater at issue in this petition:

The title V permit must contain sufficient monitoring to assure compliance with the terms and conditions of the permit. 40 C.F.R. § 70.6(c)(1); see also 40 C.F.R. § 70.6(a)(3)(i)(B). The statement of basis (SOB) for the original title V permit, which is referenced in the SOB for the permit at issue, discusses three methods for demonstrating compliance with the PM emissions limit. The SOB states that compliance will be demonstrated by performing compliance emission testing as required by NR 439.075(2) (which requires biennial testing, unless a waiver is granted); by requiring that only coal be used as the primary fuel type; and by operating an ESP whenever the boilers are in operation and by monitoring the primary and secondary voltage, primary and secondary current, and sparking rate. It appears that WDNR may be relying on these three requirements to ensure compliance with the applicable PM limit. However, it is not clear from the permit or the permit record how this monitoring scheme will ensure compliance.

The above referenced SOB provides worst case calculations (using the heating value of coal, the maximum hourly consumption, and the fraction emitted) that seek to demonstrate that the PM limit of 0.15 lb/mmBtu will be met. However, WDNR's calculations appear to be relying on the ESP's achieving a certain control efficiency. The SOB lists the efficiency of the ESP for each of the boilers, (e.g., 98.6% for B2S), and states that efficiencies are based on either manufacturer's guarantee, or a stack test. If that is the case (which would require parametric monitoring of the ESP to assure that the ESP will achieve the efficiency necessary to assure compliance with the applicable emissions limits), then it is not clear why there are no parameter indicator ranges in the permit that establish the correlation between the ESP operating efficiency and the parameters being measured.

In re We Energies Oak Creek Power Plant, Order at 15-16 (EPA Adm'r June 13, 2009); accord U.S. EPA Region 4 Objection Proposed Part 70 Operating Permit International Paper-Vicksburg Mill Permit no. 2780-00015 (Dec. 1999) (hereinafter "IP-Vicksburg")(finding that a Title V permit must "include a periodic monitoring scheme that will provide data which is representative of the source's actual performance."), available at http://www.epa.gov/region4/air/permits/TitleVObjectionLetters/MS_ObjectionLetters/IP-Vicksburg.pdf.

B. The Monitoring of PM Emissions From the Boilers at Edgewater is Deficient.

There is no continuous, direct, monitoring of particulate matter emissions from the Edgewater boilers. The Permit relies, instead, on a stack test every 24 months (or less often), monitoring of electrostatic precipitator (ESP) parameters once every eight hours, an off-permit "plan" for inspections that will be created outside of the public notice and comment process, operation of flue gas conditioning. Ex. A (Permit) §§ I.A.1.b, I.I.1.b. This is insufficient for several reasons.

First, there is no explanation (and no apparent basis) for the monitoring. DNR does not explain how simply monitoring the ESP parameters every 8 hours is sufficient to assure that the ESP is achieving the minimum control efficiency required to achieve the instantaneous emission limit. Therefore, this permit suffers the same deficiency that EPA recently found in another Title V permit issued by DNR:

The title V permit must contain sufficient monitoring to assure compliance with the terms and conditions of the permit. 40 C.F.R. § 70.6(c)(1); see also 40 C.F.R. § 70.6(a)(3)(i)(B). The statement of basis (SOB) for the original title V permit, which is referenced in the SOB for the permit at issue, discusses three methods for demonstrating compliance with the PM emissions limit. The SOB states that compliance will be demonstrated by performing compliance emission testing as required by NR 439.075(2) (which requires biennial testing, unless a waiver is granted); by requiring that only coal be used as the primary fuel type; and by operating an ESP whenever the boilers are in operation and by monitoring the primary and secondary voltage, primary and secondary current, and sparking rate. It appears that WDNR may be relying on these three requirements to ensure compliance with the applicable PM limit. However, it is not clear from the permit or the permit record how this monitoring scheme will ensure compliance.

The above referenced SOB provides worst case calculations (using the heating value of coal, the maximum hourly consumption, and the fraction emitted) that seek to demonstrate that the PM limit of 0.15 lb/mmBtu will be met. However, WDNR's calculations appear to be relying on the ESP's achieving a certain control efficiency. The SOB lists the efficiency of the ESP for each of the boilers, (e.g., 98.6% for B2S), and states that efficiencies are based on either manufacturer's guarantee, or a stack test. If that is the case (which would require parametric monitoring of the ESP to assure that the ESP will achieve the efficiency necessary to assure compliance with the applicable emissions limits), then it is not clear why there are no

parameter indicator ranges in the permit that establish the correlation between the ESP operating efficiency and the parameters being measured.

In re We Energies Oak Creek Power Plant, Order at 15-16 (EPA Adm'r June 12, 2009); *accord* IP-Vicksburg (objecting because the permit did not "specify the procedure used to establish the parameter ranges that would be representative of proper operation of the control equipment and the frequency for re-evaluating the ranges.").

Second, adequate monitoring, or "compliance demonstration," in the permit must be sufficient such that the data collected and recorded can be used to demonstrate compliance or non-compliance with the underlying limit. This incorporates both a quantitative element (emission rate) and a temporal element. The temporal element requires the monitoring to correspond to the averaging period for the emission limit. Here, the applicable PM limits are instantaneous. Therefore, adequate monitoring must be sufficient to show that each boiler is emitting at or below the PM limit at all times. The monitoring in the permit, however, monitors only once every eight hours. Ex. A (Permit) § I.A.1.c.(4), I.I.1.c.(4). Therefore, in addition to failing to explain how monitoring ESP parameters ensures compliance with the underlying limit, DNR also failed to explain how monitoring once every eight hours ensures continuous compliance with a limit expressed as instantaneous (i.e., no averaging time).

Third, when a parametric monitoring scheme is used (such as the ESP parameters here), there must be a determination by DNR that specific parameter ranges ensure compliance. Where compliance depends on continuous effectiveness of the ESP device, and parameters (voltages, amps, spark rate) are reliable indicators of when the ESP is working correctly and achieving adequate emission reductions, the permit must

identify the parameter operating ranges in which DNR is sure that the plant is complying with the applicable limits.

The “periodic monitoring rule,” 40 C.F.R. § 70.6(a)(3)(i)(B), requires that “[w]here the applicable requirement does not require periodic testing or instrumental or noninstrumental monitoring (which may consist of record keeping designed to serve as monitoring), [each title V permit must contain] periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source’s compliance with the permit. . . . Such monitoring requirements shall assure use of terms, test methods, units, averaging periods, and other statistical conventions consistent with the applicable requirement.

In the Matter of Midwest Generation, LLC, Waukegan Generation Station, Order at 19 (September 22, 2005) (hereinafter “*Waukegan*”) (citing 69 Fed. Reg. at 3202, 3204 (Jan. 22, 2004)); *Appalachian Power Co. v. EPA*, 208 F.3d 1015 (D.C. Cir. 2000). EPA has specifically rejected the notion that merely watching and recording control device parameters ensure compliance with an emission limit.

While the permit does include parametric monitoring of emission unit and control equipment operations in the O & M plans for these units... the parametric monitoring scheme that has been specified is not adequate. The parameters to be monitored and the frequency of monitoring have been specified in the permit, but the parameters have not been set as enforceable limits. In order to make the parametric monitoring conditions enforceable, a correlation needs to be developed between the control equipment parameter(s) to be monitored and the pollutant emission levels. The source needs to provide an adequate demonstration (historical data, performance test, etc.) to support the approach used. In addition, an acceptable performance range for each parameter that is to be monitored should be established.

In the Matter of Tampa Electric Co., F.J. Gannon Station, Objection to Proposed Part 70 Operating Permit No. 0570040-002-AV (Sept. 8, 2000) (emphasis added); *see also In the*

Matter of the Huntley Generating Station, Order Objecting to Operating Permit No. II-2002-01 at 21-22 (July 31, 2003) (same).

C. Monitoring of PM Emissions From Other Emission Sources Is Deficient.

Deficient PM monitoring is not limited to the boilers. The Coal Unit Railcar Dumping System (P03) requires a baghouse and “fogger system” to be operated and maintained to “minimize the possibility for the exceedance of any emission limitations.” See Ex. A § I.J.1.b. The permit also requires monitoring of pressure across the liquid inlet to the fogger system to ensure the nozzles are not plugged. *Id.* The source has to merely “inspect” the baghouse and record the pressure differential across the inlet to the fogger once per day. DNR relies on this same monitoring to demonstrate compliance with the pounds-per-hour PM/PM10 limit and the 20% visible emission limit. Ex A §§ I.J.1.a., I.J.2.a. DNR fails to describe how this monitoring ensures continuous compliance with the PM emission limit (lb/hour) and the 20% opacity limit. It is unclear whether DNR concludes that the mere use of these controls always (under any conditions) results in compliance, or, more likely, whether these controls must achieve a minimum control efficiency to meet the pound-per-hour and opacity limits. If a minimum control efficiency is required, DNR must require the source to implement all necessary steps to meet the minimum control and then to also monitor those steps. For example, if minimum moisture and/or maximum silt content are used to assume an emission rate that complies with the permit limits, those parameters must be

enforceable and monitored. Similarly, the baghouse must, presumably, have undamaged bags installed and must achieve a pressure drop indicative of emissions being directed to and captured by the baghouse. These parameters (and likely others) must be specified, enforceable, and monitored.

The same deficient monitoring also exists for the Flyash Handling System (P30, P31) and the Coal Pile Storage and Conveying (P21). The monitoring required by the permit is merely “to keep the records required by condition M.1.c.(1),” which in turn merely requires the source to “maintain records which demonstrate compliance with condition I.M.1.a.(1).” There is no indication what records are sufficient to show compliance and, more importantly, *how* the mere keeping of records ensures compliance with the PM limits applicable to the flyash handling system.

D. EPA Should Require Use of PM CEMS.

Sierra Club requests that as part of the objection to the Edgewater permit, the Administrator order DNR to require particulate matter continuous emission monitoring systems (CEMS). EPA has objected to proposed permits in the past and requested that the state include CEMS as periodic monitoring under 40 C.F.R. § 70.5(a)(3)(B). For example, in the IP-Vicksburg objection, EPA stated that it “believes that continuous emission monitors (CEMs) should be used to assure compliance with the NO_x requirements contained in the permit for these units.” See http://www.epa.gov/region4/air/permits/TitleVObjectionLetters/MS_ObjectionLetters/IP-Vicksburg.pdf. This request by EPA was based on the fact that other similar facilities

(boilers at other paper mills and for power generation) use CEMs. Similarly here, PM CEMS are being used at other electric generating station and provide better indication of PM emissions than other parametric measures contemplated in DNR's Edgewater permit.⁷ EPA recently proposed the following facts to a federal district court:

- Continuous emissions monitors (“CEMS”) have long been used for SO₂ and NO_x. Trial Tr., Vol. 5-1040:13-18 (Direct Exam of Richard McRanie) (Feb. 6, 2009).
- A number of coal-fired utilities have installed or are in the process of installing PM CEMS. Trial Tr., Vol. 5-1046:11-15 (Cross Exam of Richard McRanie) (Feb. 6, 2009).
- EPA has approved the use of PM CEMS to determine compliance with PM limits for coal-fired utilities, at the source's option. Trial Tr., Vol. 5-1047:11-15 (Cross Exam of Richard McRanie) (Feb. 6, 2009). In approving a certification method for PM CEMS, EPA stated that “for rules that establish PM emission limits, we believe that PM CEMS are the appropriate technology for compliance monitoring.” 69 Fed. Reg. 1786, 1791 (Jan. 12, 2004).
- The averaging time is a key component in any emissions limit. Trial Tr., Vol. 5-1043:1-14 (Direct Exam of Richard McRanie) (Feb. 6, 2009). As Cinergy's expert witness Richard McRanie described: “A longer averaging time enables you to squish the error out of measurement and arrive at the truth.” *Id.*
- Mr. McRanie testified that EPA recommends a 24-hour averaging time. Trial Tr., Vol. 5-1044:22-24 (Direct Exam of Richard McRanie) (Feb. 6, 2009).
- The method 5 stack test currently used to determine compliance at Beckjord units 1 and 2 is based on averaging three hours of data. Trial Tr., Vol. 5-1042:17-25 (Direct Exam of Richard McRanie) (Feb. 6, 2009). Cinergy's expert Richard McRanie testified that a year's worth of PM CEMS data would provide more

⁷ Continuous emissions monitoring systems (CEMS) are the preferred method for determining compliance with PM limits. *See e.g.*, 40 CFR §§ 60.42, *et seq.* American Electric Power agreed to install PM CEMS on some of its existing coal plants and EPA has secured commitments from up to 30 existing coal-fired utility installations to install PM CEMS over the next couple of years. There are many other facilities that operate PM CEMS and have demonstrated that the systems are reliable and accurate. These include Tampa Electric power plant (Florida), Eli Lilly Corporation (Indiana), and the U.S. Department of Energy (Tennessee). EPA has strongly urged PM CEMS, and determined that PM CEMS are reliable and accurate.

information about the unit's PM emissions than three hours of stack test data obtained from an annual stack test. Trial Tr., Vol. 5-1046:7-10 (Cross Exam of Richard McRanie) (Feb. 6, 2009).

- Because the stack tests are only performed periodically, there is no certainty as to whether Cinergy is in compliance with its PM limit on the vast majority of days when no test is performed. Trial Tr., Vol. 5-1050:17-1051:4 (Cross Exam of Richard McRanie) (Feb. 6, 2009).

U.S. v. Cinergy Corp., Case No. 1:99-cv-1693-LJM-JMS, Plaintiffs' Proposed Findings of Fact ¶¶ 272-80, Dkt # 1592 (S.D.Ind. March 3, 2009) (attached as Exhibit P). For the reasons set forth by EPA in its proposed findings of fact in the *U.S. v. Cinergy* trial, EPA should require DNR to include PM CEMS to measure compliance with the filterable PM/PM10 limits in the Edgewater permit, and establish a correlation between the PM CEMS filterable PM measurements and total PM to measure compliance with the total PM/PM10 limits in the permit.

E. The Permit Improperly Exempts Periods of Startup and Shutdown From the Requirement to Operate the ESPs.

DNR has also inexplicably exempted the plant from operating the ESP devices during periods of startup and shutdown, despite the fact that the underlying, instantaneous, SIP limits on PM emissions apply at all times, including startup and shutdown. *See e.g.*, Ex. A (Permit) § I.A.1.b.(2), I.I.1.b.(2). DNR cannot exempt the boilers from compliance with the PM limits during periods of startup or shutdown, but fails to explain how the boilers can meet the instantaneous limits in Permit §§ I.A.1.a.

and I.I.1.a. without operating the ESPs.⁸ See e.g., *In re Tennessee Valley Authority-Paradise*, Order on Petition at 10-11, Petition No. IV-2007-3 (Adm'r, July 13, 2009) (objecting to a permit that failed to include monitoring for all periods of operation). In fact, the maximum theoretical emissions, which will occur if no pollution controls are operated, far exceed the applicable instantaneous limits. Compare Permit (Ex. A) § I.A.1.a.(2) (0.13 lb/MMBtu total PM), I.I.a.1. (0.10 lb/MMBtu total PM) with U.S. EPA AP-42 Emission Factor Tables 1.1-4 and 1.1-5 (uncontrolled emission factors for PM/PM10 from wall and cyclone boilers), available at <http://www.epa.gov/ttn/chief/ap42/ch01/final/c01s01.pdf>⁹ Therefore, it is virtually impossible that the plant can meet the applicable PM emission limits without operating pollution controls. This means that by exempting the plant from operating the ESPs during startup and shutdown periods, DNR is effectively ensuring violations of the PM limit. EPA must object for this reason too.

F. Sierra Club's Comments and DNR's Response.

Sierra Club raised the issue of deficient PM emission monitoring in its comments.

See Ex. B at § 6. DNR's response states that:

The Department has placed the standard monitoring for particulate matter sources controlled by an ESP in the permit. The Department has been using these monitoring

⁸ As set forth above, DNR has also not explained how operating the ESPs ensures compliance with the underlying limit and, if it does, what ESP operating ranges ensure sufficient particulate capture to ensure compliance.

⁹ Assuming typical PRB coal ash of 5.5% and heat content of 8100 Btu/lb, the uncontrolled filterable PM emissions are 3.4 lb/MMBtu for wall-fired and 0.7 lb/MMBtu for the cyclone. Condensable PM would add another approximately 0.03 lb/MMBtu uncontrolled PM.

methods in both operating and construction permits since the mid-1990s.

Recently, USEPA has objected to another Title V permit (i.e. WE Energies Oak Creek facility) with similar monitoring requirements. The Department is presently evaluating USEPA's objection to that permit and is planning to address this issue over the next few months with USEPA and stakeholders.

Since the issue is much larger than a single permit, the Department will retain the same monitoring requirements in the final proposed permit as were in the draft permit. Depending on the results of the Department's review of these requirements, changes may be made in the future to these permit conditions.

Ex. C at 1-2. In other words, DNR admits that the monitoring in the Edgewater permit is the same monitoring that EPA found deficient in its June 12, 2009, objection to the Wisconsin Electric Oak Creek permit. Nevertheless, DNR refuses to address this deficiency before issuing the permit for Edgewater – deferring, instead, to an undefined future process and *possible* reopening of the permit at an undefined future date. This is unlawful and requires EPA to object.

The DNR must establish monitoring *in the permit*, and provide a sufficient explanation for that monitoring *in the Statement of Basis*. 42 U.S.C. § 7661c(c); 40 C.F.R. § 70.6(c)(1); *Sierra Club v. EPA*, 536 F.3d 673, 675 (D.C.Cir. 2008) (“[w]here the applicable requirement does not require periodic testing,” subsection 70.6(a)(3)(B) obliges the permitting authority to add to the permit ‘periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of the source’s compliance with the permit.’”); *In re Fort James Camas Mill*, Petition No. X-1999-1 (Dec.

22, 2000); *In re PacifiCorp's Jim Bridger and Naughton Electric Utility Steam Generating Plants*, Petition No. VIII-00-1 (Nov. 16, 2000). Moreover, the public and EPA have a right to review and comment on the monitoring scheme as a part of the Title V permit. DNR's attempt to punt determinations of monitoring and compliance demonstration to some later date is unlawful.

III. THE PLANS REFERENCED IN THE PERMIT AND RELIED UPON BY DNR IN ISSUING THE PERMIT MUST BE SUBJECT TO PUBLIC NOTICE AND COMMENT.

Throughout the permit, DNR references, and appears to rely on, various "plans" to conclude that the Edgewater plant will comply with applicable requirements. These include the following:

- Startup and Shutdown Plan (see e.g., § I.A.1.b.(2))
- Plan for "periodic" inspections of the ESP (e.g., § I.A.1.b.(4), (5))
- Quality Control and Quality Assurance Plan (e.g., § I.A.2.b.(3))
- Fugitive Dust Control Plan (e.g., § I.O.§ I.O.5)

DNR did not include these plans in the draft permit or anywhere else in the permit record for public comment. Nor were these plans made part of the application or, it appears, reviewed by DNR prior to proposing the permit to EPA. This is the same error that caused EPA to object to the Wisconsin Electric Oak Creek permit on June 12, 2009. See *In re We Energies Oak Creek Power Plant*, Order at 24-27 (EPA Adm'r June 12, 2009). Specially, because Startup and Shutdown Plans define when opacity limits apply, and contain additional requirements during startup and shutdown periods, they must be included in the application. 40 C.F.R. § 70.5(a)(2), (c), 70.6(a)(1). The application, including the SSP, must be available for public notice and comment. 40 C.F.R. § 70.7(h)(2). The "periodic inspection" plans for the ESPs similarly contain requirements applicable to the boilers. See Ex. A §§ I.A.1.b.(4), (5), I.I.1.b.(4), (5). These requirements

must be contained in the Title V permit, 40 C.F.R. §§ 70.5(c), 70.6(a)(1), and subject to public review and comment. 40 C.F.R. § 70.7(h)(2). The same is true for the Quality Control and Quality Assurance Plan. In short, for the same reasons that EPA objected to the Oak Creek permit that failed to incorporate and make these “plans” subject to public review and comment, the EPA must object to the Edgewater permit.

Sierra Club raised this issue in its public comments. See e.g., Ex. B at section 9. DNR’s response to comments essentially concedes that the permit is in error, based on the EPA’s objection to the Oak Creek permit, but refuses to address this issue here. Instead, DNR states that DNR has not historically included these plans in the permit and plans to “address this issue over the next few months with USEPA and stakeholders” and to possibly make changes “in the future.” See Exhibit C at 2. This is insufficient. Each Title V permit must comply with the Clean Air Act. It is not sufficient for DNR to propose complying with the law in the future.

Conclusion

For the foregoing reasons, the permit fails to meet federal requirements in numerous ways. These deficiencies require that the Administrator object to issuance of the permit pursuant to 40 C.F.R. § 70.8(c)(1). Each of the issues raised by Sierra Club in this petition result in a deficient permit. Most of the deficiencies result in unlawful emissions of air pollutants that negatively affect the health and welfare of Sierra Club members. Others result in illegal monitoring and reporting that make it difficult for Sierra Club to monitor and enforce air pollution limits applicable to the plant.

Dated this 3rd day of October, 2009.

Attorneys for Sierra Club
MCGILLIVAY WESTERBERG & BENDER LLC

A handwritten signature in black ink, appearing to read 'D.C. Bender', with a long horizontal stroke extending to the right.

David C. Bender

Green Bay, WI 54307-9001

Wisconsin Electric Power Company
231 W. Michigan Street
Milwaukee, WI 53203

Dated : October 5, 2009.

A handwritten signature in black ink, appearing to read "D.C. Bender". The signature is stylized with a large, sweeping "D" and "C" that connect to the "Bender" part of the name.

David C. Bender