AIR POLLUTION CONTROL CONSTRUCTION PERMIT

EI FACILITY NO. 737009020 PERMIT NO. 03-RV-248

STACK NO.(S). S04, S25, S26A-S26L, S27, S28, S30, S40,S41-S50, S56, S61-S66

SOURCE NO.(S). B04, B25, B27-B29, P26, P30, P40,P41-P50, P56, P61-P66

THIS CONSTRUCTION PERMIT EXPIRES FORTY EIGHT (48) MONTHS FROM THE DATE OF ISSUANCE OR WHEN THE OPERATION PERMIT IS ISSUED FOR THE EMISSION UNITS INCLUDED IN THIS PERMIT, WHICHEVER COMES FIRST.

Name of Source: Wisconsin Public Service Corporation - Weston Plant

Street Address: 2501 Morrison Avenue
Rothschild, WI 54474

Responsible Official & Title: David Harpole, Vice President - Energy Supply Projects

is authorized to construct and initially operate an Electric Generating Facility referred to as Weston 4 – North Site described in the plans and specifications submitted between September 15, 2003 and October 14, 2004 in conformity with the conditions herein.

This authorization requires compliance by the permit holder with the emission limitations, monitoring requirements and other terms and conditions set forth in Parts I and II hereof.

Dated at Madison, Wisconsin this 19th day of October, 2004.

STATE OF WISCONSIN
DEPARTMENT OF NATURAL RESOURCES
For the Secretary

By /s/ Lloyd L Eagan
Lloyd L. Eagan, Director
Bureau of Air Management

Exhibit 21

PART I: **APPLICABLE LIMITATIONS**

A. S04, B04 – Super Critical Pulverized Coal (SCPC) Boiler (Weston 4).

Pollutant: 1. Particulate Matter Emissions

a. Limitations: 0.02 pound per million Btu heat input (103.52 pounds per hour) averaged over any consecutive 3–hour period. (Best Available Control Technology, BACT) [s. NR 415.06(2)(c), Wis. Adm. Code; s. NR 405.08(2), Wis. Adm. Code; s. NR 440.20(3), Wis. Adm. Code; s. 285.65(3), Wis. Stats.] See Note 1

b. Compliance Demonstration:	**c. Test Methods, Recordkeeping, and Monitoring:**
(1) Initial compliance emission tests shall be conducted within the 180 days after the start of operation of the boiler to show compliance with the emission limitation.1 [s. NR 439.07, Wis. Adm. Code] (2) Stack Parameters: These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed. (a) The height of the stack S04 shall be at least 500 feet above ground level. [s. 285.65(3), Wis. Stats.; s. NR 406.10, Wis. Adm. Code] (b) The inside diameter at the outlet of the stack S04 may Not exceed 20 feet. [s. 285.65(3), Wis. Stats.; s. NR 406.10, Wis. Adm. Code] (3) Particulate matter emissions shall be controlled using a fabric filter baghouse system to meet the BACT emission limit. [s. NR 405.08(2), Wis. Adm. Code] (4) The fabric filter baghouse system shall be in line and shall be operated at all times when the boiler is in operation and coal is being fired. [s. NR 406.10, Wis. Adm. Code; s. NR 407.09(4)(a).1, Wis. Adm. Code] (5) The operating pressure drop range across the fabric filter baghouse system shall be determined during the initial testing period. [s. 285.65(3), Wis. Stats.] (6) The pressure drop across the fabric filter baghouse system shall be maintained within the range identified by condition I.A.1.b.(5). [s. NR 407.09(4)(a)1., Wis. Adm. Code] (7) The permittee shall perform the compliance emission tests required under condition I.A.1.b.(1) every 24 months within 60 days from the date of the last stack test as long as the permit remains valid. [s. 285.65(10), Wis. Stats.; s. 285.65(3), Wis. Stats.]	(1) Reference Test Method for Particulate Matter Emissions: Whenever compliance emission testing is required, US EPA Method 5 or 5B including backhalf (Method 202) or an alternate method approved in writing by the Department, shall be used to demonstrate compliance. Wisconsin Public Service Corporation has raised concerns that Method 5 and 202 (including use of the "nitrogen purge", the subtraction of ammonium chloride and ammonium sulfates, as optional procedures allowed under Method 202) may not adequately account for "artifacts" being created in the test methods and has requested that another alternative method be approved for testing particulates. If WPSC can demonstrate that artifacts are not adequately accounted for in Method 5 and 202, the DNR will support WPSC's request and will work with EPA to identify acceptable alternative methods for testing particulates to address the artifacts issue, such as a controlled condensation system, and DNR will actively pursue resolution of this issue with EPA and WPSC and will make any necessary adjustment to the permit conditions to address this issue. [s. NR 439.06(1), Wis. Adm. Code; s. NR 440.20(8)(b)2., Wis. Adm. Code; s. 285.65(7), Wis. Stats.] (2) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code] (3) The permittee shall record the pressure drop across the fabric filter baghouse system once for every 8 hours of operation. [s. NR 439.055(2)(b)1., Wis. Adm. Code] (4) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the fabric filter baghouse system, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code] (5) The permittee shall continuously monitor the operating pressure drop across the fabric filter system and shall sound an audible alarm, whenever the operating pressure drop is below minimum pressure drop identified in I.A.1.b.(5) is exceeded. [s. NR 439.055(1)(b)1., Wis. Adm. Code] (6) The permittee shall respond to every "out of range" pressure drop alarm in accordance with the provisions of 40 CFR 64.7(d)(1). [s. 285.65(3), Wis. Stats.] (7) The permittee shall comply with the NSPS monitoring, recordkeeping and reporting requirements per s. NR 440.20(9), Wis. Adm. Code. A copy of the requirements attached with the permit. [s. 285.65(3), Wis. Stats.] (8) The permittee shall keep appropriate records on the manufacturer's

1If the compliance emission tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s).

	design specifications information for the natural gas burners to demonstrate compliance with permit condition I.A.1.b. (9). [s. 285.65(7), Wis. Stats., s. 285.65(10), Wis. Stats.]

Note 1:The boiler is subject to New Source Performance Standards (NSPS) requirements for particulate matter under s. NR 440.20(3), Wis. Adm. Code and is 0.03 pound per million Btu and 99% reduction when combusting solid fuel. The BACT limit for particulate matter is more restrictive then the particulate matter emission limits under NSPS, thus the boiler is expected to meet the particulate matter emission limits under NSPS.

A. S04, B04 – Super Critical Pulverized Coal (SCPC) Boiler (Weston 4).	
Pollutant: 1. Particulate Matter Emissions [CONTINUED]	
b. Compliance Demonstration:	**c. Test Methods, Recordkeeping, and Monitoring:**
(8) The permittee shall comply with the NSPS compliance determination procedures and methods per s. NR 440.20(6), Wis. Adm. Code and s. NR 440.20(8), Wis. Adm. Code. A copy of the requirements attached with the permit. [s. 285.65(3), Wis. Stats.] (9) The total heat input capacity for all natural gas heaters on B04 may not exceed 500 mmBtu/hr. This condition is established to ensure the particulate matter limit is not exceeded when natural gas is fired in the boiler and the baghouse is not on line. [s. 285.65(3), Wis. Stats., s. 285.65(7), Wis. Stats.]	

A. S04, B04 – Super Critical Pulverized Coal (SCPC) Boiler (Weston 4).

Pollutant: 2. Particulate Matter Emissions less than 10 microns (PM_{10})

a. Limitations: 0.018 pound per million Btu heat input averaged over any consecutive 3–hour period. (BACT) [s. NR 405.08(2), Wis. Adm. Code and s. 285.65(3), Wis. Stats.]

b. Compliance Demonstration:	**c. Test Methods, Recordkeeping, and Monitoring:**
(1) Initial compliance emission tests shall be conducted within 180 days after the start of operation of the boiler to show compliance with the emission limitation.1 [s. NR 439.07, Wis. Adm. Code] (2) Stack Parameters: These requirements are included because the source was reviewed with these stack parameters and it was determined that no increments or ambient air quality standards will be violated when constructed as proposed. (a) The height of the stack S04 shall be at least 500 feet above ground level. [s. 285.65(3), Wis. Stats.; s. NR 406.10, Wis. Adm. Code] (b) The inside diameter at the outlet of the stack S04 may not exceed 20 feet. [s. 285.65(3), Wis. Stats. s. NR 406.10, Wis. Adm. Code] (3) Particulate matter emissions shall be controlled using a fabric filter baghouse system to meet the BACT emission limit. [s. NR 405.08(2), Wis. Adm. Code] (4) The fabric filter baghouse system shall be in line and shall be operated at all times when the boiler is in operation and coal is being fired. [s. NR 406.10, Wis. Adm. Code; s. NR 407.09(4)(a).1, Wis. Adm. Code] (5) The operating pressure drop range across the fabric filter baghouse system shall be determined during the initial testing period. [s. 285.65(3), Wis. Stats.] (6) The pressure drop across the fabric filter baghouse system shall be maintained within the range identified by condition I.A.2.b.(5). [s. NR 407.09(4)(a)1., Wis. Adm. Code] (7) The permittee shall perform the compliance emission tests required under condition I.A.2.b.(1) every 24 months within 60 days from the date of the last stack test as long as the permit remains valid. [s. 285.65(10), Wis. Stats., s. 285.65(3), Wis. Stats.] (8) The total heat input capacity for all natural gas heaters on B04 may not exceed 500 mmBtu/hr. This condition is established to ensure the PM10 limit is not exceeded when natural gas is fired in the boiler and the baghouse is not on line. [s. 285.65(3), Wis. Stats.]	(1) Reference Test Method for Particulate Matter Emissions: Whenever compliance emission testing is required, US EPA Method 5 or 5B including backhalf (Method 202) , or Method 201A and 202 ,or Method CTM 039, or an alternate method approved in writing by the Department, shall be used to demonstrate compliance. [s. NR 439.06(1), Wis. Adm. Code; s. NR 440.20(8)(b)2., Wis. Adm. Code; s. 285.65(7), Wis. Stats.] (2) The permittee shall keep and maintain on site technical drawings, blueprints or equivalent records of the physical stack parameters. [s. NR 439.04(1)(d), Wis. Adm. Code] (3) The permittee shall record the pressure drop across the fabric filter baghouse system once for every eight hours of operation hours whenever the boiler is in operation.[s. NR 439.055(2)(b)1., Wis. Adm. Code] (4) The permittee shall keep records of all inspections, checks and any maintenance or repairs performed on the fabric filter baghouse system, containing the date of the action, initials of inspector, and the results. [s. NR 439.04(1)(d), Wis. Adm. Code] (5) The permittee shall continuously monitor the pressure drop across the fabric filter system and shall sound an audible alarm, whenever the operating pressure drop is below the minimum pressure drop identified in I.A.2.b.(5) is exceeded. [s. NR 439.055(1)(b)1., Wis. Adm. Code] (6) The permittee shall respond to every “out of range” pressure drop alarm in accordance with the provisions of 40 CFR 64.7(d)(1). [s. 285.65(3), Wis. Stats.] (7) The permittee shall keep appropriate records on the manufacturer’s design specifications information for the natural gas burners to demonstrate compliance with permit condition I.A.2.b. (8). [s. 285.65(7), Wis. Stats., s. 285.65(10), Wis. Stats.] (8) The permittee shall keep appropriate records on the manufacturer’s design specifications information for the natural gas burners to demonstrate compliance with permit condition I.B.1.b. (8). [s. 285.65(7), Wis. Stats., s. 285.65(10), Wis. Stats.]

1 If the compliance emission tests cannot be conducted within 180 days after the start of initial operation, the permit holder may request and the Department may approve, in writing, an extension of time to conduct the test(s).

A. S04, B04 – Super Critical Pulverized Coal (SCPC) Boiler (Weston 4).

Pollutant: 3. Sulfur Dioxide (SO2)

a. Limitations: (1) 0.10 pound per million Btu heat input for all periods, including startup, shut down and routine atomizer change out, averaged over any consecutive 30-day period, and 0.09 pound per million Btu heat input for all periods, including startup, shut down and routine atomizer change out, averaged over any 12 consecutive months. (BACT) (2) Uncontrolled sulfur dioxide emission rate in the coal shall be limited to 1.23 pounds per million Btu, averaged over any consecutive 30-day period. (BACT) (3) 3491.8 pounds per hour on a 3-hour average and 1508.9 pounds per hour on a 24-hour average. (BACT) These pounds per hour and pounds per 24-hour emission limits are only applicable to days when scheduled routine maintenance of the sulfur control system is required (routine atomizer change out). **(BACT)** [s. NR 405.08(2), Wis. Adm. Code; s. NR 440.20(4), Wis. Adm. Code; s. 285.65(3), Wis. Stats.]

When determining compliance with the limits on an hourly and daily average, the permittee shall only account for the hours, and days when the boiler operated.

See Notes 1, 2 and 3

b. Compliance Demonstration:	**c. Test Methods, Recordkeeping, and Monitoring:**
(1) Initial compliance emission tests shall be conducted within 180 days after the start of operation of the boiler to show compliance with the emission limitation. [s. NR 439.07, Wis. Adm. Code] (2) Sulfur Dioxide Emissions shall be controlled by the use of dry flue gas desulfurization (FGD) System to meet the BACT emission limits. [s. NR 405.08(2), Wis. Adm. Code] (3) The flow rate of the aqueous lime/recycled ash slurry to the FGD system and the pressure drop across the scrubber shall be periodically monitored and maintained within the range specified under condition I.A.3.c.(4). [s. 285.65(3), Wis. Stats.] (4) The boiler may be fired on coal and natural gas only. [s. NR 405.08(2), Wis. Adm. Code; s. NR 406.10, Wis. Adm. Code; s. 285.65(3), Wis. Stats (5) (a) The permittee shall demonstrate compliance with the coal sulfur limit in I.A.3.a,(2)] by utilizing coal sampling and analysis of the coal as it is shipped from the mine. (b) The permittee shall provide the sampling and analysis protocol at least four months prior to the initial operation of the boiler to the Department for approval. (c) In the event that mine sampling and analysis is unavailable, the permittee shall use as received fuel sampling and analysis procedures in accordance with s. NR 439.08, Wis. Adm. Code to demonstrate compliance with this limit. (d) In lieu of fuel sampling and analysis, the permittee may demonstrate compliance with the coal sulfur limit in I.A.3.a.(2) by using emissions data measured by a continuous emission monitoring system at the inlet to the FGD system. [s. 285.65(3), Wis. Stats.; s. NR 439.08, Wis. Adm. Code]	(1) <u>Reference Test Method for Sulfur Dioxide Emissions:</u> Whenever compliance emission testing is required, US EPA Method 6, 6A or 6C or an alternate method approved in writing by the Department, shall be used to demonstrate compliance. [s. NR 439.06(2), Wis. Adm. Code] (2) (a) The permittee shall install, calibrate, maintain and operate a continuous emission monitoring system, and record the output of the system, for measuring the sulfur dioxide and oxygen or carbon dioxide content of the flue gases at each location where sulfur dioxide emissions are monitored. (b) Continuous emissions monitoring systems shall be installed and operated in accordance with 40 CFR Part 75, s. NR 440.20(7)(b), Wis. Adm. Code and s. NR 439.06(2), Wis. Adm. Code. (c) Continuos SO2 emission monitors located at the inlet and outlet to the SO2 control device shall be used to measure the control efficiency of the SO2 control device. [s. 285.65(10), Wis. Stats.] (3) The permittee shall use continuous emission monitoring methods and procedures under s. NR 440.20(7)(b), Wis. Adm. Code and s. NR 439.09, Wis. Adm. Code to comply with the NSPS monitoring requirements. [s. NR 439.09, Wis. Adm. Code] (4) The permittee shall provide to the department, at least 4 months prior to the expiration of the construction permit, information on the operational liquid flow rate to the FGD system to be used for monitoring the aqueous lime/recycled ash slurry flow rate to the FGD system, and the pressure drop range across the scrubber and, as required under condition I.A.3.b.(2), and shall incorporate this information into the Malfunction Prevention and Abatement Plan. (MPAP) [s. 285.65(10), Wis. Stats.] (5) The permittee shall submit quarterly reports to the Department on the information required under condition I.A.3.b.(5) for each train of coal received during the calendar quarter. [s. 285.65(3), Wis. Stats., s. 285.65(10), Wis. Stats.]

Note 1: The proposed boiler is subject to NSPS requirement for sulfur dioxide under s. NR 440.20(4), Wis. Adm. Code. The NSPS limit for sulfur dioxide varies depending upon fuel sulfur content, with either a 90% reduction and 1.2 pound per million Btu limitations or a 70% reduction when emissions are below 0.60 pound per million Btu. The NSPS limits apply at all times except during periods of startup, shut down or when emergency conditions exist and the procedures under s. NR 440.20(6)(d), Wis. Adm. Code is implemented. The BACT limits for sulfur dioxide is more restrictive then the sulfur dioxide emission limits under NSPS, thus the boiler is expected to meet the sulfur dioxide emission limits under NSPS.

Note 2: The permittee has indicated in their application that routine maintenance may be required as frequently as 1000 hours, especially during initial operations when they are not yet familiar with the SO2 controls. The permittee