



Environmental Protection Agency

John R. Kasich, Governor  
Mary Taylor, Lt. Governor  
Scott J. Nally, Director

2/17/2011

Certified Mail

Mr. John Hendricks  
Cardinal Power Plant (Cardinal Operating Company)  
1 Riverside Plaza  
Columbus, OH 43215

RE: FINAL AIR POLLUTION PERMIT-TO-INSTALL  
Facility ID: 0641050002  
Permit Number: P0104412  
Permit Type: Administrative Modification  
County: Jefferson

No	TOXIC REVIEW
No	PSD
No	SYNTHETIC MINOR TO AVOID MAJOR NSR
Yes	CEMS
No	MACT/GACT
No	NSPS
No	NESHAPS
No	NETTING
No	MAJOR NON-ATTAINMENT
Yes	MODELING SUBMITTED

Dear Permit Holder:

Enclosed please find a final Air Pollution Permit-to-Install (PTI) which will allow you to install or modify the described emissions unit(s) in a manner indicated in the permit. Because this permit contains several conditions and restrictions, we urge you to read it carefully. Please complete a survey at [www.epa.ohio.gov/dapc/permitsurvey.aspx](http://www.epa.ohio.gov/dapc/permitsurvey.aspx) and give us feedback on your permitting experience. We value your opinion.

The issuance of this PTI is a final action of the Director and may be appealed to the Environmental Review Appeals Commission pursuant to Section 3745.04 of the Ohio Revised Code. The appeal must be in writing and set forth the action complained of and the grounds upon which the appeal is based. The appeal must be filed with the Commission within thirty (30) days after notice of the Director's action. The appeal must be accompanied by a filing fee of \$70.00, made payable to "Ohio Treasurer Josh Mandel," which the Commission, in its discretion, may reduce if by affidavit you demonstrate that payment of the full amount of the fee would cause extreme hardship. Notice of the filing of the appeal shall be filed with the Director within three (3) days of filing with the Commission. Ohio EPA requests that a copy of the appeal be served upon the Ohio Attorney General's Office, Environmental Enforcement Section. An appeal may be filed with the Environmental Review Appeals Commission at the following address:

Environmental Review Appeals Commission  
309 South Fourth Street, Room 222  
Columbus, OH 43215

The Ohio EPA is encouraging companies to investigate pollution prevention and energy conservation. Not only will this reduce pollution and energy consumption, but it can also save you money. If you would like to learn ways you can save money while protecting the environment, please contact our Office of Compliance Assistance and Pollution Prevention at (614) 644-3469. If you have any questions regarding this permit, please contact the Ohio EPA DAPC, Southeast District Office. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, [www.epa.ohio.gov/dapc](http://www.epa.ohio.gov/dapc) by clicking the "Issued Air Pollution Control Permits" link.

Sincerely,

Michael W. Ahern, Manager  
Permit Issuance and Data Management Section, DAPC

Cc: U.S. EPA  
Ohio EPA-SEDO; Pennsylvania; West Virginia





**FINAL**

**Division of Air Pollution Control**  
**Permit-to-Install**  
for  
Cardinal Power Plant (Cardinal Operating Company)

Facility ID:	0641050002
Permit Number:	P0104412
Permit Type:	Administrative Modification
Issued:	2/17/2011
Effective:	2/17/2011





Division of Air Pollution Control
Permit-to-Install
for
Cardinal Power Plant (Cardinal Operating Company)

Table of Contents

Authorization ..... 1
A. Standard Terms and Conditions ..... 3
1. Federally Enforceable Standard Terms and Conditions ..... 4
2. Severability Clause ..... 4
3. General Requirements ..... 4
4. Monitoring and Related Record Keeping and Reporting Requirements ..... 5
5. Scheduled Maintenance/Malfunction Reporting ..... 6
6. Compliance Requirements ..... 6
7. Best Available Technology ..... 7
8. Air Pollution Nuisance ..... 7
9. Reporting Requirements ..... 7
10. Applicability ..... 8
11. Construction of New Sources(s) and Authorization to Install ..... 8
12. Permit-To-Operate Application ..... 9
13. Construction Compliance Certification ..... 9
14. Public Disclosure ..... 9
15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations ..... 9
16. Fees ..... 10
17. Permit Transfers ..... 10
18. Risk Management Plans ..... 10
19. Title IV Provisions ..... 10
B. Facility-Wide Terms and Conditions ..... 11
C. Emissions Unit Terms and Conditions ..... 13
1. B001, Unit 1 Main Boiler ..... 14
2. B002, Unit 2 Main Boiler ..... 19





## Authorization

Facility ID: 0641050002  
Facility Description: Electric Power.  
Application Number(s): M0000376  
Permit Number: P0104412  
Permit Description: Admin Mod to reduce SO2 emissions limitations and add requirements from Federal NSR Consent Decree  
Permit Type: Administrative Modification  
Permit Fee: \$9,000.00  
Issue Date: 2/17/2011  
Effective Date: 2/17/2011

This document constitutes issuance to:

Cardinal Power Plant (Cardinal Operating Company)  
306 County Road 7 East  
Jefferson County  
Brilliant, OH 43913-1088

of a Permit-to-Install for the emissions unit(s) identified on the following page.

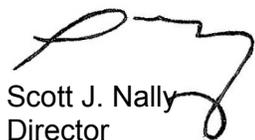
Ohio EPA District Office or local air agency responsible for processing and administering your permit:

Ohio EPA DAPC, Southeast District Office  
2195 Front Street  
Logan, OH 43138  
(740)385-8501

The above named entity is hereby granted a Permit-to-Install for the emissions unit(s) listed in this section pursuant to Chapter 3745-31 of the Ohio Administrative Code. Issuance of this permit does not constitute expressed or implied approval or agreement that, if constructed or modified in accordance with the plans included in the application, the emissions unit(s) of environmental pollutants will operate in compliance with applicable State and Federal laws and regulations, and does not constitute expressed or implied assurance that if constructed or modified in accordance with those plans and specifications, the above described emissions unit(s) of pollutants will be granted the necessary permits to operate (air) or NPDES permits as applicable.

This permit is granted subject to the conditions attached hereto.

Ohio Environmental Protection Agency



Scott J. Nally  
Director



## **Authorization (continued)**

Permit Number: P0104412  
Permit Description: Admin Mod to reduce SO2 emissions limitations and add requirements from Federal NSR Consent Decree

Permits for the following Emissions Unit(s) or groups of Emissions Units are in this document as indicated below:

<b>Emissions Unit ID:</b>	<b>B001</b>
Company Equipment ID:	Unit 1 Main Boiler
Superseded Permit Number:	06-07697
General Permit Category and Type:	Not Applicable
<b>Emissions Unit ID:</b>	<b>B002</b>
Company Equipment ID:	Unit 2 Main Boiler
Superseded Permit Number:	06-07697
General Permit Category and Type:	Not Applicable



## **A. Standard Terms and Conditions**



**1. Federally Enforceable Standard Terms and Conditions**

- a) All Standard Terms and Conditions are federally enforceable, with the exception of those listed below which are enforceable under State law only:
  - (1) Standard Term and Condition A.2.a), Severability Clause
  - (2) Standard Term and Condition A.3.c) through A. 3.e) General Requirements
  - (3) Standard Term and Condition A.6.c) and A. 6.d), Compliance Requirements
  - (4) Standard Term and Condition A.9., Reporting Requirements
  - (5) Standard Term and Condition A.10., Applicability
  - (6) Standard Term and Condition A.11.b) through A.11.e), Construction of New Source(s) and Authorization to Install
  - (7) Standard Term and Condition A.14., Public Disclosure
  - (8) Standard Term and Condition A.15., Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations
  - (9) Standard Term and Condition A.16., Fees
  - (10) Standard Term and Condition A.17., Permit Transfers

**2. Severability Clause**

- a) A determination that any term or condition of this permit is invalid shall not invalidate the force or effect of any other term or condition thereof, except to the extent that any other term or condition depends in whole or in part for its operation or implementation upon the term or condition declared invalid.
- b) All terms and conditions designated in parts B and C of this permit are federally enforceable as a practical matter, if they are required under the Act, or any of its applicable requirements, including relevant provisions designed to limit the potential to emit of a source, are enforceable by the Administrator of the U.S. EPA and the State and by citizens (to the extent allowed by section 304 of the Act) under the Act. Terms and conditions in parts B and C of this permit shall not be federally enforceable and shall be enforceable under State law only, only if specifically identified in this permit as such.

**3. General Requirements**

- a) The permittee must comply with all terms and conditions of this permit. Any noncompliance with the federally enforceable terms and conditions of this permit constitutes a violation of the Act, and is grounds for enforcement action or for permit revocation, revocation and re-issuance, or modification.

- b) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the federally enforceable terms and conditions of this permit.
- c) This permit may be modified, revoked, or revoked and reissued, for cause. The filing of a request by the permittee for a permit modification, revocation and reissuance, or revocation, or of a notification of planned changes or anticipated noncompliance does not stay any term and condition of this permit.
- d) This permit does not convey any property rights of any sort, or any exclusive privilege.
- e) The permittee shall furnish to the Director of the Ohio EPA, or an authorized representative of the Director, upon receipt of a written request and within a reasonable time, any information that may be requested to determine whether cause exists for modifying or revoking this permit or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Director or an authorized representative of the Director, copies of records required to be kept by this permit. For information claimed to be confidential in the submittal to the Director, if the Administrator of the U.S. EPA requests such information, the permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

#### 4. Monitoring and Related Record Keeping and Reporting Requirements

- a) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall maintain records that include the following, where applicable, for any required monitoring under this permit:
  - (1) The date, place (as defined in the permit), and time of sampling or measurements.
  - (2) The date(s) analyses were performed.
  - (3) The company or entity that performed the analyses.
  - (4) The analytical techniques or methods used.
  - (5) The results of such analyses.
  - (6) The operating conditions existing at the time of sampling or measurement.
- b) Each record of any monitoring data, testing data, and support information required pursuant to this permit shall be retained for a period of five years from the date the record was created. Support information shall include, but not be limited to all calibration and maintenance records and all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Such records may be maintained in computerized form.
- c) Except as may otherwise be provided in the terms and conditions for a specific emissions unit, the permittee shall submit required reports in the following manner:
  - (1) Reports of any required monitoring and/or recordkeeping of federally enforceable information shall be submitted to the Ohio EPA DAPC, Southeast District Office.
  - (2) Quarterly written reports of (i) any deviations from federally enforceable emission limitations, operational restrictions, and control device operating parameter limitations,

excluding deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06, that have been detected by the testing, monitoring and recordkeeping requirements specified in this permit, (ii) the probable cause of such deviations, and (iii) any corrective actions or preventive measures taken, shall be made to the Ohio EPA DAPC, Southeast District Office. The written reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. See A.15. below if no deviations occurred during the quarter.

- (3) Written reports, which identify any deviations from the federally enforceable monitoring, recordkeeping, and reporting requirements contained in this permit shall be submitted (i.e., postmarked) to the Ohio EPA DAPC, Southeast District Office every six months, by January 31 and July 31 of each year for the previous six calendar months. If no deviations occurred during a six-month period, the permittee shall submit a semi-annual report, which states that no deviations occurred during that period.
  - (4) This permit is for an emissions unit located at a Title V facility. Each written report shall be signed by a responsible official certifying that, based on information and belief formed after reasonable inquiry, the statements and information in the report are true, accurate, and complete.
- d) The permittee shall report actual emissions pursuant to OAC Chapter 3745-78 for the purpose of collecting Air Pollution Control Fees.

## 5. Scheduled Maintenance/Malfunction Reporting

Any scheduled maintenance of air pollution control equipment shall be performed in accordance with paragraph (A) of OAC rule 3745-15-06. The malfunction, i.e., upset, of any emissions units or any associated air pollution control system(s) shall be reported to the Ohio EPA DAPC, Southeast District Office in accordance with paragraph (B) of OAC rule 3745-15-06. (The definition of an upset condition shall be the same as that used in OAC rule 3745-15-06(B)(1) for a malfunction.) The verbal and written reports shall be submitted pursuant to OAC rule 3745-15-06.

Except as provided in that rule, any scheduled maintenance or malfunction necessitating the shutdown or bypassing of any air pollution control system(s) shall be accompanied by the shutdown of the emission unit(s) that is (are) served by such control system(s).

## 6. Compliance Requirements

- a) The emissions unit(s) identified in this Permit shall remain in full compliance with all applicable State laws and regulations and the terms and conditions of this permit.
- b) Any document (including reports) required to be submitted and required by a federally applicable requirement in this permit shall include a certification by a responsible official that, based on information and belief formed after reasonable inquiry, the statements in the document are true, accurate, and complete.
- c) Upon presentation of credentials and other documents as may be required by law, the permittee shall allow the Director of the Ohio EPA or an authorized representative of the Director to:



- (1) At reasonable times, enter upon the permittee's premises where a source is located or the emissions-related activity is conducted, or where records must be kept under the conditions of this permit.
  - (2) Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit, subject to the protection from disclosure to the public of confidential information consistent with ORC section 3704.08.
  - (3) Inspect at reasonable times any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
  - (4) As authorized by the Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit and applicable requirements.
- d) The permittee shall submit progress reports to the Ohio EPA DAPC, Southeast District Office concerning any schedule of compliance for meeting an applicable requirement. Progress reports shall be submitted semiannually or more frequently if specified in the applicable requirement or by the Director of the Ohio EPA. Progress reports shall contain the following:
- (1) Dates for achieving the activities, milestones, or compliance required in any schedule of compliance, and dates when such activities, milestones, or compliance were achieved.
  - (2) An explanation of why any dates in any schedule of compliance were not or will not be met, and any preventive or corrective measures adopted.

## **7. Best Available Technology**

As specified in OAC Rule 3745-31-05, new sources that must employ Best Available Technology (BAT) shall comply with the Applicable Emission Limitations/Control Measures identified as BAT for each subject emissions unit.

## **8. Air Pollution Nuisance**

The air contaminants emitted by the emissions units covered by this permit shall not cause a public nuisance, in violation of OAC rule 3745-15-07.

## **9. Reporting Requirements**

The permittee shall submit required reports in the following manner:

- a) Reports of any required monitoring and/or recordkeeping of state-only enforceable information shall be submitted to the Ohio EPA DAPC, Southeast District Office.
- b) Except as otherwise may be provided in the terms and conditions for a specific emissions unit, quarterly written reports of (a) any deviations (excursions) from state-only required emission limitations, operational restrictions, and control device operating parameter limitations that have been detected by the testing, monitoring, and recordkeeping requirements specified in this permit, (b) the probable cause of such deviations, and (c) any corrective actions or preventive measures which have been or will be taken, shall be submitted to the Ohio EPA DAPC, Southeast District Office. If no deviations occurred during a calendar quarter, the permittee

shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted (i.e., postmarked) quarterly, by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters. (These quarterly reports shall exclude deviations resulting from malfunctions reported in accordance with OAC rule 3745-15-06.)

#### 10. Applicability

This Permit-to-Install is applicable only to the emissions unit(s) identified in the Permit-to-Install. Separate application must be made to the Director for the installation or modification of any other emissions unit(s).

#### 11. Construction of New Sources(s) and Authorization to Install

- a) This permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. This permit does not constitute expressed or implied assurance that the proposed facility has been constructed in accordance with the application and terms and conditions of this permit. The action of beginning and/or completing construction prior to obtaining the Director's approval constitutes a violation of OAC rule 3745-31-02. Furthermore, issuance of this permit does not constitute an assurance that the proposed source will operate in compliance with all Ohio laws and regulations. Issuance of this permit is not to be construed as a waiver of any rights that the Ohio Environmental Protection Agency (or other persons) may have against the applicant for starting construction prior to the effective date of the permit. Additional facilities shall be installed upon orders of the Ohio Environmental Protection Agency if the proposed facilities cannot meet the requirements of this permit or cannot meet applicable standards.
- b) If applicable, authorization to install any new emissions unit included in this permit shall terminate within eighteen months of the effective date of the permit if the owner or operator has not undertaken a continuing program of installation or has not entered into a binding contractual obligation to undertake and complete within a reasonable time a continuing program of installation. This deadline may be extended by up to 12 months if application is made to the Director within a reasonable time before the termination date and the party shows good cause for any such extension.
- c) The permittee may notify Ohio EPA of any emissions unit that is permanently shut down (i.e., the emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31) by submitting a certification from the authorized official that identifies the date on which the emissions unit was permanently shut down. Authorization to operate the affected emissions unit shall cease upon the date certified by the authorized official that the emissions unit was permanently shut down. At a minimum, notification of permanent shut down shall be made or confirmed by marking the affected emissions unit(s) as "permanently shut down" in Ohio EPA's "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update will constitute notifying of the permanent shutdown of the affected emissions unit(s).
- d) The provisions of this permit shall cease to be enforceable for each affected emissions unit after the date on which an emissions unit is permanently shut down (i.e., emissions unit has been physically removed from service or has been altered in such a way that it can no longer operate without a subsequent "modification" or "installation" as defined in OAC Chapter 3745-31). All



records relating to any permanently shutdown emissions unit, generated while the emissions unit was in operation, must be maintained in accordance with law. All reports required by this permit must be submitted for any period an affected emissions unit operated prior to permanent shut down. At a minimum, the permit requirements must be evaluated as part of the reporting requirements identified in this permit covering the last period the emissions unit operated.

No emissions unit certified by the authorized official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31.

- e) The permittee shall comply with any residual requirements related to this permit, such as the requirement to submit a deviation report, air fee emission report, or other any reporting required by this permit for the period the operating provisions of this permit were enforceable, or as required by regulation or law. All reports shall be submitted in a form and manner prescribed by the Director. All records relating to this permit must be maintained in accordance with law.

## 12. Permit-To-Operate Application

The permittee is required to apply for a Title V permit pursuant to OAC Chapter 3745-77. The permittee shall submit a complete Title V permit application or a complete Title V permit modification application within twelve (12) months after commencing operation of the emissions units covered by this permit. However, if the proposed new or modified source(s) would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification must be obtained before the operation of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d).

## 13. Construction Compliance Certification

The applicant shall identify the following dates in the online facility profile for each new emissions unit identified in this permit.

- a) Completion of initial installation date shall be entered upon completion of construction and prior to start-up.
- b) Commence operation after installation or latest modification date shall be entered within 90 days after commencing operation of the applicable emissions unit.

## 14. Public Disclosure

The facility is hereby notified that this permit, and all agency records concerning the operation of this permitted source, are subject to public disclosure in accordance with OAC rule 3745-49-03.

## 15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations

If no deviations occurred during a calendar quarter, the permittee shall submit a quarterly report, which states that no deviations occurred during that quarter. The reports shall be submitted quarterly (i.e., postmarked), by January 31, April 30, July 31, and October 31 of each year and shall cover the previous calendar quarters.



**16. Fees**

The permittee shall pay fees to the Director of the Ohio EPA in accordance with ORC section 3745.11 and OAC Chapter 3745-78. The permittee shall pay all applicable permit-to-install fees within 30 days after the issuance of any permit-to-install. The permittee shall pay all applicable permit-to-operate fees within thirty days of the issuance of the invoice.

**17. Permit Transfers**

Any transferee of this permit shall assume the responsibilities of the prior permit holder. The new owner must update and submit the ownership information via the "Owner/Contact Change" functionality in Air Services once the transfer is legally completed. The change must be submitted through Air Services within thirty days of the ownership transfer date.

**18. Risk Management Plans**

If the permittee is required to develop and register a risk management plan pursuant to section 112(r) of the Clean Air Act, as amended, 42 U.S.C. 7401 et seq. ("Act"), the permittee shall comply with the requirement to register such a plan.

**19. Title IV Provisions**

If the permittee is subject to the requirements of 40 CFR Part 72 concerning acid rain, the permittee shall ensure that any affected emissions unit complies with those requirements. Emissions exceeding any allowances that are lawfully held under Title IV of the Act, or any regulations adopted thereunder, are prohibited.

## **B. Facility-Wide Terms and Conditions**

1. All the following facility-wide terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only:
  - a) None.

## **C. Emissions Unit Terms and Conditions**



**1. B001, Unit 1 Main Boiler**

**Operations, Property and/or Equipment Description:**

Babcock and Wilcox pulverized coal-fired, dry bottom, cell burner boiler, having a nominal capacity of 5275 Million Btu/Hr, equipped with Selective Catalytic Reduction for Nitrogen Oxides Control, Electrostatic Precipitators for Particulate Control, and Flue Gas Desulfurization for Sulfur Dioxide Control. Administrative Modification to PTI 06-07697 to incorporate Consent Decree requirements.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b., b)(2)c.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(F)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 1.056 pounds/million Btu of actual heat input based upon a rolling, 30-day average.  See b)(2)b.
b.	OAC rule 3745-31-05(E)	See b)(2)c.
c.	United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-99-1182 and C2-99-1250 and United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree)	In accordance with the requirements of the Consent Decree, on and after December 31, 2008, Unit 1 shall be equipped with a flue gas desulfurization (FGD) system which shall be continuously operated for the reduction of SO <sub>2</sub> emissions.  See b)(2)d.
d.	United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-99-1182 and C2-99-1250 and United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree)	In accordance with the requirements of the Consent Decree, on and after January 1, 2009, Unit 1 shall be equipped with a selective catalytic reduction (SCR) system which shall be continuously operated for the reduction of nitrogen oxides (NO <sub>x</sub> ) emissions.  See b)(2)d.
e.	United States, et al. v. American	In accordance with the requirements of

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	Electric Power Service Corp., et al., Civil Action Nos. C2-99-1182 and C2-99-1250 and United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree)	the Consent Decree, on and after December 31, 2009, Unit 1 shall be operated such that particulate matter (PM) emissions, as defined by the Consent Decree, shall not exceed 0.030 pound/million Btu heat input.  See b)(2)d. and b)(2)e.

(2) Additional Terms and Conditions

- a. SO<sub>2</sub> emissions from this emissions unit shall be verified by the operation of the certified SO<sub>2</sub> continuous emissions monitoring system (CEMS) and the corresponding record keeping and reporting requirements for the SO<sub>2</sub> CEMS listed in the Title IV and Title V permits for this emissions unit.
- b. The permittee has accepted the SO<sub>2</sub> emission limit listed in b)(1)a. in order to prevent a violation of a National Ambient Air Quality Standard (NAAQS) and/or the Prevention of Significant Deterioration (PSD) increment requirements. The accepted emission limit is based upon the permittee's permit-to-install modification request and air dispersion modeling information, received by Ohio EPA on January 27, 2009.
- c. The permittee shall install an ambient monitoring network for the purpose of demonstrating that SO<sub>2</sub> emissions do not cause or contribute to a violation of a NAAQS and/or cause a public nuisance to the immediate area, specifically, but not limited to, Wells Township, Jefferson County, Ohio. The ambient monitoring network shall be installed and operated consistent with the "Cardinal Power Plant - Quality Assurance Project Plan for Ambient Sulfur Dioxide (SO<sub>2</sub>) Monitoring Network" (Shell Engineering & Associates, Incorporated), dated March 20, 2009 and received by Ohio EPA on May 8, 2009. The ambient monitoring network shall be operated for at least one year prior to and two years after start-up (and continuous operation) of the Unit 3 FGD system. Following completion of at least two years of monitoring during operation of the Unit 3 FGD system, the permittee may apply to discontinue the ambient monitoring required by this term and condition. Upon written approval of Ohio EPA, the ambient monitoring may be discontinued and the monitoring network removed.
- d. Pursuant to the Consent Decree, "continuously operated" means that when SCR, FGD and/or an electrostatic precipitator (ESP) is/are used at a unit, except during a malfunction, it/they shall be operated at all times such unit is in operation, consistent with the technological limitations, manufacturers' specifications, and good engineering and maintenance practices for such equipment and the unit so as to minimize emissions to the greatest extent practicable.
- e. The permittee shall continuously operate the ESP on this emissions unit to maximize PM emission reductions at all times when the emissions unit is in

operation, provided that such operation of the ESP is consistent with the technological limitations, manufacturers' specifications, and good engineering and maintenance practices for the ESP. The permittee shall, at a minimum, to the extent reasonably practicable:

- i. fully energize each section of the ESP for each unit, and repair any failed ESP section at the next planned unit outage (or unplanned outage of sufficient length);
  - ii. operate automatic control systems on each ESP to maximize PM collection efficiency;
  - iii. maintain power levels delivered to the ESP, consistent with manufacturers' specifications, the operational design of the emissions unit, and good engineering practices; and
  - iv. inspect for and repair during the next planned unit outage (or unplanned outage of sufficient length) any openings in ESP casings, ductwork, and expansion joints to minimize air leakage.
- c) Operational Restrictions
- (1) None.
- d) Monitoring and/or Recordkeeping Requirements
- (1) See applicable SO<sub>2</sub> CEMS monitoring and/or record keeping requirements terms in the Title IV and Title V permits for this emissions unit.
  - (2) By December 31, 2012, the permittee shall install, calibrate, operate, certify, and maintain a PM CEMS on the stack for this emissions unit. Each PM CEMS shall be comprised of a continuous particle mass monitor measuring particulate matter concentration, directly or indirectly, on an hourly average basis and a diluent monitor used to convert the concentration to units of pound(s)/million Btu. Defendants shall maintain, in an electronic database, the hourly average emission values produced by all PM CEMS at this facility in pound(s)/million Btu. The permittee shall use reasonable efforts to keep each PM CEMS running and producing data whenever the emissions unit served by the PM CEMS is operating.
  - (3) No later than December 31, 2011, the permittee shall submit to U.S. EPA:
    - a. a plan for the installation and certification of each PM CEMS; and
    - b. a proposed Quality Assurance/Quality Control ("QA/QC") protocol that shall be followed in calibrating such PM CEMS.

In developing both the plan for installation and certification of the PM CEMS and the QA/QC protocol, the permittee shall use the criteria set forth in 40 C.F.R. Part 60, Appendix B, Performance Specification 11, and Appendix F, Procedure 3. Following approval by U.S. EPA of the protocol, the permittee shall thereafter operate each PM CEMS in accordance with the approved protocol.

(4) The permittee shall operate the PM CEMS for at least two years on this emissions unit. After two years of operation, the permittee may attempt to demonstrate that it is infeasible to continue operating the PM CEMS. As part of such demonstration, the permittee shall submit an alternative PM monitoring plan for review and approval by U.S. EPA. The plan shall explain the basis for stopping operation of the PM CEMS. If U.S. EPA disapproves the alternative PM monitoring plan, or if U.S. EPA rejects the permittee's claim that it is infeasible to continue operating PM CEMS, such disagreement is subject to Section XV (Dispute Resolution) of the Consent Decree.

(5) Operation of a PM CEMS shall be considered no longer feasible if:

- a. the PM CEMS cannot be kept in proper condition for sufficient periods of time to produce reliable, adequate, or useful data consistent with the QA/QC protocol; or
- b. the permittee demonstrates that recurring, chronic, or unusual equipment adjustment or servicing needs in relation to other types of continuous emission monitors cannot be resolved through reasonable expenditures of resources.

If U.S. EPA determines that the permittee has demonstrated that operation of the PM CEMS is no longer feasible, the permittee shall be entitled to discontinue operation of and remove the PM CEMS.

(6) Until U.S. EPA approves an alternative monitoring plan, or until the conclusion of any proceeding under Section XV (Dispute Resolution) of the Consent Decree, the permittee shall continue to operate the PM CEMS. If U.S. EPA has not issued a decision regarding an alternative monitoring plan within 120 days, the permittee may initiate action under Section XV (Dispute Resolution) of the Consent Decree.

e) Reporting Requirements

(1) See applicable SO<sub>2</sub> CEMS reporting requirement terms in the Title IV and Title V permits for this emissions unit.

f) Testing Requirements

(1) See applicable SO<sub>2</sub> testing requirement terms in the Title IV and Title V permits for this emissions unit.

(2) The permittee shall conduct an annual stack test for PM on each stack serving this emissions unit. The reference methods and procedures for determining compliance with the allowable PM emission rate from b)(1)e. shall be those specified in 40 C.F.R. Part 60, Appendix A, Method 5, 5B, or 17, or an alternative method that is promulgated by U.S. EPA, requested for use herein by the permittee, and approved for use herein by U.S. EPA. Use of any particular method shall conform to U.S. EPA requirements specified in 40 C.F.R. Part 60, Appendix A and 40 C.F.R. § 60.48Da(b) and (e), or any federally-approved method contained in the Ohio State Implementation Plan. The permittee shall calculate the PM emission rates from the stack test results in accordance with 40 C.F.R. §60.8(f). The results of each PM

stack test shall be submitted to U.S. EPA and Ohio EPA, Southeast District Office within 45 days.

- (3) No later than 90 days after the permittee begins operation of the PM CEMS, the permittee shall conduct, or have conducted, tests of each PM CEMS to demonstrate compliance with the PM CEMS installation and certification plan submitted to and approved by U.S. EPA.
- g) **Miscellaneous Requirements**
- (1) A logbook documenting activities relating to the continuous sulfur dioxide monitoring system must be kept on site and available for inspection during regular office hours.



2. B002, Unit 2 Main Boiler

Operations, Property and/or Equipment Description:

Babcock and Wilcox pulverized coal-fired, dry bottom, cell burner boiler, having a nominal capacity of 5275 Million Btu/Hr, equipped with Selective Catalytic Reduction for Nitrogen Oxides Control, Electrostatic Precipitators for Particulate Control, and Flue Gas Desulfurization for Sulfur Dioxide Control. Administrative Modification to PTI 06-07697 to incorporate Consent Decree requirements.

a) The following emissions unit terms and conditions are federally enforceable with the exception of those listed below which are enforceable under state law only.

(1) b)(1)b., b)(2)c.

b) Applicable Emissions Limitations and/or Control Requirements

(1) The specific operations(s), property, and/or equipment that constitute each emissions unit along with the applicable rules and/or requirements and with the applicable emissions limitations and/or control measures. Emissions from each unit shall not exceed the listed limitations, and the listed control measures shall be specified in narrative form following the table.

	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
a.	OAC rule 3745-31-05(F)	Sulfur dioxide (SO <sub>2</sub> ) emissions shall not exceed 1.056 pounds/million Btu of actual heat input based upon a rolling, 30-day average.  See b)(2)b.
b.	OAC rule 3745-31-05(E)	See b)(2)c.
c.	United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-99-1182 and C2-99-1250 and United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree)	In accordance with the requirements of the Consent Decree, on and after December 31, 2008, Unit 2 shall be equipped with a flue gas desulfurization (FGD) system which shall be continuously operated for the reduction of SO <sub>2</sub> emissions.  See b)(2)d.
d.	United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-99-1182 and C2-99-1250 and United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree)	In accordance with the requirements of the Consent Decree, on and after January 1, 2009, Unit 2 shall be equipped with a selective catalytic reduction (SCR) system which shall be continuously operated for the reduction of nitrogen oxides (NO <sub>x</sub> ) emissions.  See b)(2)d.
e.	United States, et al. v. American	In accordance with the requirements of



	Applicable Rules/Requirements	Applicable Emissions Limitations/Control Measures
	Electric Power Service Corp., et al., Civil Action Nos. C2-99-1182 and C2-99-1250 and United States, et al. v. American Electric Power Service Corp., et al., Civil Action Nos. C2-04-1098 and C2-05-360 (Consent Decree)	the Consent Decree, on and after December 31, 2009, Unit 2 shall be operated such that particulate matter (PM) emissions, as defined by the Consent Decree, shall not exceed 0.030 pound/million Btu heat input.  See b)(2)d. and b)(2)e.

(2) Additional Terms and Conditions

- a. SO<sub>2</sub> emissions from this emissions unit shall be verified by the operation of the certified SO<sub>2</sub> continuous emissions monitoring system (CEMS) and the corresponding record keeping and reporting requirements for the SO<sub>2</sub> CEMS listed in the Title IV and Title V permits for this emissions unit.
- b. The permittee has accepted the SO<sub>2</sub> emission limit listed in b)(1)a. in order to prevent a violation of a National Ambient Air Quality Standard (NAAQS) and/or the Prevention of Significant Deterioration (PSD) increment requirements. The accepted emission limit is based upon the permittee's permit-to-install modification request and air dispersion modeling information, received by Ohio EPA on January 27, 2009.
- c. The permittee shall install an ambient monitoring network for the purpose of demonstrating that SO<sub>2</sub> emissions do not cause or contribute to a violation of a NAAQS and/or cause a public nuisance to the immediate area, specifically, but not limited to, Wells Township, Jefferson County, Ohio. The ambient monitoring network shall be installed and operated consistent with the "Cardinal Power Plant - Quality Assurance Project Plan for Ambient Sulfur Dioxide (SO<sub>2</sub>) Monitoring Network" (Shell Engineering & Associates, Incorporated), dated March 20, 2009 and received by Ohio EPA on May 8, 2009. The ambient monitoring network shall be operated for at least one year prior to and two years after start-up (and continuous operation) of the Unit 3 FGD system. Following completion of at least two years of monitoring during operation of the Unit 3 FGD system, the permittee may apply to discontinue the ambient monitoring required by this term and condition. Upon written approval of Ohio EPA, the ambient monitoring may be discontinued and the monitoring network removed.
- d. Pursuant to the Consent Decree, "continuously operated" means that when SCR, FGD and/or an electrostatic precipitator (ESP) is/are used at a unit, except during a malfunction, it/they shall be operated at all times such unit is in operation, consistent with the technological limitations, manufacturers' specifications, and good engineering and maintenance practices for such equipment and the unit so as to minimize emissions to the greatest extent practicable.
- e. The permittee shall continuously operate the ESP on this emissions unit to maximize PM emission reductions at all times when the emissions unit is in

operation, provided that such operation of the ESP is consistent with the technological limitations, manufacturers' specifications, and good engineering and maintenance practices for the ESP. The permittee shall, at a minimum, to the extent reasonably practicable:

- i. fully energize each section of the ESP for each unit, and repair any failed ESP section at the next planned unit outage (or unplanned outage of sufficient length);
  - ii. operate automatic control systems on each ESP to maximize PM collection efficiency;
  - iii. maintain power levels delivered to the ESP, consistent with manufacturers' specifications, the operational design of the emissions unit, and good engineering practices; and
  - iv. inspect for and repair during the next planned unit outage (or unplanned outage of sufficient length) any openings in ESP casings, ductwork, and expansion joints to minimize air leakage.
- c) Operational Restrictions
- (1) None.
- d) Monitoring and/or Recordkeeping Requirements
- (1) See applicable SO<sub>2</sub> CEMS monitoring and/or record keeping requirements terms in the Title IV and Title V permits for this emissions unit.
  - (2) By December 31, 2012, the permittee shall install, calibrate, operate, certify, and maintain a PM CEMS on the stack for this emissions unit. Each PM CEMS shall be comprised of a continuous particle mass monitor measuring particulate matter concentration, directly or indirectly, on an hourly average basis and a diluent monitor used to convert the concentration to units of pound(s)/million Btu. Defendants shall maintain, in an electronic database, the hourly average emission values produced by all PM CEMS at this facility in pound(s)/million Btu. The permittee shall use reasonable efforts to keep each PM CEMS running and producing data whenever the emissions unit served by the PM CEMS is operating.
  - (3) No later than December 31, 2011, the permittee shall submit to U.S. EPA:
    - a. a plan for the installation and certification of each PM CEMS; and
    - b. a proposed Quality Assurance/Quality Control ("QA/QC") protocol that shall be followed in calibrating such PM CEMS.

In developing both the plan for installation and certification of the PM CEMS and the QA/QC protocol, the permittee shall use the criteria set forth in 40 C.F.R. Part 60, Appendix B, Performance Specification 11, and Appendix F, Procedure 3. Following approval by U.S. EPA of the protocol, the permittee shall thereafter operate each PM CEMS in accordance with the approved protocol.

- (4) The permittee shall operate the PM CEMS for at least two years on this emissions unit. After two years of operation, the permittee may attempt to demonstrate that it is infeasible to continue operating the PM CEMS. As part of such demonstration, the permittee shall submit an alternative PM monitoring plan for review and approval by U.S. EPA. The plan shall explain the basis for stopping operation of the PM CEMS and propose an alternative PM monitoring plan. If U.S. EPA disapproves the alternative PM monitoring plan, or if U.S. EPA rejects the permittees claim that it is infeasible to continue operating PM CEMS, such disagreement is subject to Section XV (Dispute Resolution) of the Consent Decree.
- (5) Operation of a PM CEMS shall be considered no longer feasible if:
- a. the PM CEMS cannot be kept in proper condition for sufficient periods of time to produce reliable, adequate, or useful data consistent with the QA/QC protocol; or
  - b. the permittee demonstrates that recurring, chronic, or unusual equipment adjustment or servicing needs in relation to other types of continuous emission monitors cannot be resolved through reasonable expenditures of resources.
- If U.S. EPA determines that the permittee has demonstrated that operation of the PM CEMS is no longer feasible, the permittee shall be entitled to discontinue operation of and remove the PM CEMS.
- (6) Until U.S. EPA approves an alternative monitoring plan, or until the conclusion of any proceeding under Section XV (Dispute Resolution) of the Consent Decree, the permittee shall continue to operate the PM CEMS. If U.S. EPA has not issued a decision regarding an alternative monitoring plan within 120 days, the permittee may initiate action under Section XV (Dispute Resolution) of the Consent Decree.
- e) Reporting Requirements
- (1) See applicable SO<sub>2</sub> CEMS reporting requirement terms in the Title IV and Title V permits for this emissions unit.
- f) Testing Requirements
- (1) See applicable SO<sub>2</sub> testing requirement terms in the Title IV and Title V permits for this emissions unit.
  - (2) The permittee shall conduct an annual stack test for PM on each stack serving this emissions unit. The reference methods and procedures for determining compliance with the allowable PM emission rate from b)(1)e. shall be those specified in 40 C.F.R. Part 60, Appendix A, Method 5, 5B, or 17, or an alternative method that is promulgated by U.S. EPA, requested for use herein by the permittee, and approved for use herein by U.S. EPA. Use of any particular method shall conform to U.S. EPA requirements specified in 40 C.F.R. Part 60, Appendix A and 40 C.F.R. § 60.48Da(b) and (e), or any federally-approved method contained in the Ohio State Implementation Plan. The permittee shall calculate the PM emission rates from the stack test results in accordance with 40 C.F.R. §60.8(f). The results of each PM

stack test shall be submitted to U.S. EPA and Ohio EPA, Southeast District Office within 45 days.

- (3) No later than 90 days after the permittee begins operation of the PM CEMS, the permittee shall conduct, or have conducted, tests of each PM CEMS to demonstrate compliance with the PM CEMS installation and certification plan submitted to and approved by U.S. EPA.

g) **Miscellaneous Requirements**

- (1) A logbook documenting activities relating to the continuous sulfur dioxide monitoring system must be kept on site and available for inspection during regular office hours.