



1/6/2014

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

RE: DRAFT AIR POLLUTION PERMIT-TO-INSTALL

Facility ID: 0641050002
Permit Number: P0113983
Permit Type: OAC Chapter 3745-31 Modification
County: Jefferson

Certified Mail

Table with 2 columns: Status (No) and Category (TOXIC REVIEW, PSD, SYNTHETIC MINOR TO AVOID MAJOR NSR, CEMS, MACT/GACT, NSPS, NESHAPS, NETTING, MAJOR NON-ATTAINMENT, MODELING SUBMITTED, MAJOR GHG, SYNTHETIC MINOR TO AVOID MAJOR GHG)

Dear Permit Holder:

A draft of the Ohio Administrative Code (OAC) Chapter 3745-31 Air Pollution Permit-to-Install for the referenced facility has been issued for the emissions unit(s) listed in the Authorization section of the enclosed draft permit. This draft action is not an authorization to begin construction or modification of your emissions unit(s). The purpose of this draft is to solicit public comments on the permit. A public notice will appear in the Ohio Environmental Protection Agency (EPA) Weekly Review and the local newspaper, The Herald Star. A copy of the public notice and the draft permit are enclosed. This permit can be accessed electronically on the Division of Air Pollution Control (DAPC) Web page, www.epa.ohio.gov/dapc by clicking the "Search for Permits" link under the Permitting topic on the Programs tab. Comments will be accepted as a marked-up copy of the draft permit or in narrative format. Any comments must be sent to the following:

Andrew Hall and Ohio EPA DAPC, Southeast District Office
Permit Review/Development Section 2195 Front Street
Ohio EPA, DAPC Logan, OH 43138
50 West Town Street, Suite 700
P.O. Box 1049
Columbus, Ohio 43216-1049

Comments and/or a request for a public hearing will be accepted within 30 days of the date the notice is published in the newspaper. You will be notified in writing if a public hearing is scheduled. A decision on issuing a final permit-to-install will be made after consideration of comments received and oral testimony if a public hearing is conducted. Any permit fee that will be due upon issuance of a final Permit-to-Install is indicated in the Authorization section. Please do not submit any payment now. If you have any questions, please contact Ohio EPA DAPC, Southeast District Office at (740)385-8501.

Sincerely,

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

Cc: U.S. EPA Region 5 -Via E-Mail Notification
Ohio EPA-SEDO; Pennsylvania; West Virginia



PUBLIC NOTICE  
Issuance of Draft Air Pollution Permit-To-Install  
Cardinal Power Plant (Cardinal Operating Company)

Issue Date: 1/6/2014  
Permit Number: P0113983  
Permit Type: OAC Chapter 3745-31 Modification  
Permit Description: This is a Chapter 31 modification to PTI 06-08020 to adjust the minimum heating value of fuel oil received and associated emissions; and incorporate the revised Industrial Boiler MACT requirements (40 CFR part 63 subpart DDDDD). Requesting federally enforceable operating restriction to qualify as a "limited use boiler" per 40 CFR Part 63, subpart DDDDD with an annual capacity factor of no more than 10 percent.

Facility ID: 0641050002  
Facility Location: Cardinal Power Plant (Cardinal Operating Company)  
306 County Road 7 East, Jefferson County  
Brilliant, OH 43913-1088

Facility Description: Fossil Fuel Electric Power Generation

The Director of the Ohio Environmental Protection Agency issued the draft permit above. The permit and complete instructions for requesting information or submitting comments may be obtained at: <http://epa.ohio.gov/dapc/permitsonline.aspx> by entering the permit # or: Daniel Canter, Ohio EPA DAPC, Southeast District Office, 2195 Front Street, Logan, OH 43138. Ph: (740)385-8501





## Permit Strategy Write-Up

1. Check all that apply:

Synthetic Minor Determination

Netting Determination (from original PTI)

2. **Source Description:** Babcock & Wilcox Model FM 220-124, Auxiliary Boiler - 652.58 million Btu/hr heat input using only distillate oil (number 2 fuel oil and diesel fuel), or a blend of number 2 fuel oil and biodiesel fuel. This is a Chapter 31 modification to PTI 06-08020 to reduce the minimum heating value of fuel oil received and associated increase in emissions; and incorporate the revised Industrial Boiler MACT requirements (40 CFR part 63 subpart DDDDD). Requesting federally enforceable operating restriction to qualify as a "limited use boiler" per 40 CFR Part 63, subpart DDDDD with an annual capacity factor of no more than 10 percent.

3. **Facility Emissions and Attainment Status:** The Cardinal Power Plant is located on the shore of the Ohio River at Brilliant, Ohio, and consists of three electric generating units. Ohio Power Company, dba American Electric Power owns Cardinal’s nominally rated 600-megawatt (MW) Unit 1. Buckeye Power Inc. owns the nominally rated 600 MW Unit 2, as well as Unit 3 rated at a nominal 630 MW. Cardinal Operating Company manages and operates all Cardinal units. Unit 1 began commercial operation in 1967. Units 2 and 3 began supplying customers with electricity in 1967 and 1977 respectively. Approximately 4.2 million tons of coal a year are converted to electricity at the Cardinal Plant. The Cardinal Power Plant is classified as a “major” stationary source for particulate, SO<sub>2</sub>, NO<sub>x</sub>, and CO.

The Steubenville-Weirton area, including Jefferson County is classified as non-attainment for the 8-hour ozone and PM 2.5 standards.

4. **Source Emissions:** The “projected actual emissions” were calculated using a 10% capacity factor restriction. The rolling 12-month emission limitations are as follows: NO<sub>x</sub> – 42.87 tons; CO – 89.18 tons; SO<sub>2</sub>- 14.86 tons; PE – 5.72 tons; and VOC – 1.43 tons. Since this is modification, the facility already has records to demonstrate compliance with the 12-month rolling limits. A netting demonstration was also included with the original PTI (06-08020) for this emissions unit:

Installation and operation of this emission unit (B010) is contingent upon the permanent shutdown of the existing auxiliary boilers (designated as B003 and B004) that serve the Unit 1 (B001) and Unit 2 (B002) main boilers. The new emissions increase as a result of this equipment shutdown and installation is as follows:

<b>Project Emissions (TPY)</b>	<b>NO<sub>x</sub></b>
Project Increase B010	42.87
B003 & B004 Shutdown	-3.05



Project Emissions (TPY)	NOx
Net Emissions Increase	39.82

As a result of the net emissions increase, the proposed installation of B010 is not a new major source and the permittee has “netted” out of Federal Prevention of Significant Deterioration requirements.

- 5. **Conclusion:** A review of all applicable requirements was conducted and the controlling limitations (most stringent) and monitoring requirements are contained in the permit. The Cardinal Power Plant is a major source under the New Source Review regulations, however, PSD is not triggered for the proposed modification due to the proposed voluntary emission limits (rolling 12-month heat input limit) for B010. The annual capacity factor limit of 10% will be monitored by recordkeeping of fuel consumed and fuel heating value.
- 6. Please provide additional notes or comments as necessary:  
  
None
- 7. Total Permit Allowable Emissions Summary (for informational purposes only):

<u>Pollutant</u>	<u>Tons Per Year</u>
NO <sub>x</sub>	42.87
CO	89.18
SO <sub>2</sub>	14.86
PE	5.72
VOC	1.43



**DRAFT**

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

Facility ID:	0641050002
Permit Number:	P0113983
Permit Type:	OAC Chapter 3745-31 Modification
Issued:	1/6/2014
Effective:	To be entered upon final issuance





**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 .....	8
9. Reporting Requirements .....	8
10. Applicability .....	8
11. Construction of New Sources(s) and Authorization to Install .....	8
12. Permit-To-Operate Application .....	9
13. Construction Compliance Certification .....	10
14. Public Disclosure .....	10
15. Additional Reporting Requirements When There Are No Deviations of Federally Enforceable Emission Limitations, Operational Restrictions, or Control Device Operating Parameter Limitations .....	10
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. B010, Unit 1-2 Auxiliary Boiler.....	14





**Draft Permit-to-Install**  
Cardinal Power Plant (Cardinal Operating Company)  
**Permit Number:** P0113983  
**Facility ID:** 0641050002  
**Effective Date:** To be entered upon final issuance

## Authorization

Facility ID: 0641050002  
Facility Description: Electric Power.  
Application Number(s): A0047261  
Permit Number: P0113983  
Permit Description: This is a Chapter 31 modification to PTI 06-08020 to adjust the minimum heating value of fuel oil received and associated emissions; and incorporate the revised Industrial Boiler MACT requirements (40 CFR part 63 subpart DDDDD). Requesting federally enforceable operating restriction to qualify as a "limited use boiler" per 40 CFR Part 63, subpart DDDDD with an annual capacity factor of no more than 10 percent.  
Permit Type: OAC Chapter 3745-31 Modification  
Permit Fee: \$3,750.00 *DO NOT send payment at this time, subject to change before final issuance*  
Issue Date: 1/6/2014  
Effective Date: To be entered upon final issuance

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 Environmental Protection Agency (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



**Draft Permit-to-Install**  
Cardinal Power Plant (Cardinal Operating Company)  
**Permit Number:** P0113983  
**Facility ID:** 0641050002  
**Effective Date:** To be entered upon final issuance

## Authorization (continued)

**Permit Number:** P0113983  
**Permit Description:** This is a Chapter 31 modification to PTI 06-08020 to adjust the minimum heating value of fuel oil received and associated emissions; and incorporate the revised Industrial Boiler MACT requirements (40 CFR part 63 subpart DDDDD). Requesting federally enforceable operating restriction to qualify as a "limited use boiler" per 40 CFR Part 63, subpart DDDDD with an annual capacity factor of no more than 10 percent.

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>B010</b>
Company Equipment ID:	Unit 1-2 AuxiliaryBoiler
Superseded Permit Number:	06-08020
General Permit Category and Type:	Not Applicable



**Draft Permit-to-Install**  
Cardinal Power Plant (Cardinal Operating Company)  
**Permit Number:** P0113983  
**Facility ID:** 0641050002  
**Effective Date:** To be entered upon final issuance

## **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) 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 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 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) All applications, notifications or reports required by terms and conditions in this permit to be submitted or "reported in writing" are to be submitted to Ohio EPA through the Ohio EPA's eBusiness Center: Air Services web service ("Air Services"). Ohio EPA will accept hard copy submittals on an as-needed basis if the permittee cannot submit the required documents through the Ohio EPA eBusiness Center. In the event of an alternative hard copy submission in lieu of the eBusiness Center, the post-marked date or the date the document is delivered in person will be recognized as the date submitted. Electronic submission of applications, notifications or reports required to be submitted to Ohio EPA fulfills the requirement to submit the required information to the Director, the appropriate Ohio EPA District Office or contracted



local air agency, and/or any other individual or organization specifically identified as an additional recipient identified in this permit unless otherwise specified. Consistent with OAC rule 3745-15-03, the electronic signature date shall constitute the date that the required application, notification or report is considered to be "submitted". Any document requiring signature may be represented by entry of the personal identification number (PIN) by responsible official as part of the electronic submission process or by the scanned attestation document signed by the Authorized Representative that is attached to the electronically submitted written report.

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

- b) 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.
- c) 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 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) not exempt from the requirement to obtain a Permit-to-Install.

**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 permittee 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 "Air Services" along with the date the emissions unit(s) was permanently removed and/or disabled. Submitting the facility profile update electronically will constitute notifying the Director 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.

Unless otherwise exempted, no emissions unit certified by the responsible official as being permanently shut down may resume operation without first applying for and obtaining a permit pursuant to OAC Chapter 3745-31 and OAC Chapter 3745-77 if the restarted operation is subject to one or more applicable requirements.

- 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 operation of the proposed new or modified source(s) as authorized by this permit would be prohibited by the terms and conditions of an existing Title V permit, a Title V permit modification of such new or modified source(s) pursuant to OAC rule 3745-77-04(D) and OAC rule 3745-77-08(C)(3)(d) must be obtained before operating the source in a manner that would violate the existing Title V permit requirements.



**13. Construction Compliance Certification**

The applicant shall identify the following dates in the “Air Services” 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 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**



**Draft Permit-to-Install**  
Cardinal Power Plant (Cardinal Operating Company)  
**Permit Number:** P0113983  
**Facility ID:** 0641050002  
**Effective Date:** To be entered upon final issuance

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**



**Draft Permit-to-Install**  
Cardinal Power Plant (Cardinal Operating Company)  
**Permit Number:** P0113983  
**Facility ID:** 0641050002  
**Effective Date:** To be entered upon final issuance

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.
2. The following emissions unit contained in this permit is subject to 40 CFR Part 60, Subpart Db: B010. The complete NSPS requirements may be accessed via the internet from the Electronic Code of Federal Regulations (e-CFR) website <http://ecfr.gpoaccess.gov> or by contacting the appropriate Ohio EPA District Office or local air agency.
3. The permittee shall comply with the applicable provisions of the National Emissions Standards for Hazardous Air Pollutants (NESHAP) for Industrial, Commercial, and Institutional Boilers and Process Heaters, as promulgated by the United States Environmental Protection Agency under 40 CFR Part 63, Subpart DDDDD. The final rules found in 40 CFR Part 63, Subpart DDDDD establish national emission standards for hazardous air pollutants (NESHAP), operational limits, work practice standards, and compliance requirements for industrial, commercial, and institutional boilers located at a major source of hazardous air pollutants (HAP).



**Draft Permit-to-Install**  
Cardinal Power Plant (Cardinal Operating Company)  
**Permit Number:** P0113983  
**Facility ID:** 0641050002  
**Effective Date:** To be entered upon final issuance

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



1. B010, Unit 1-2 Auxiliary Boiler

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

Babcock & Wilcox Model FM 220-124, Auxiliary Boiler - 652.58 million Btu/hr heat input using only distillate oil (number 2 fuel oil and diesel fuel), or a blend of number 2 fuel oil and biodiesel fuel. Chapter 31 Modification to allow a reduction in the minimum heating value of fuel oil received, of no less than 129,000 MMBtu per 1,000 gallons, incorporate revised modeling for HAPs, update BAT requirements, and incorporate the revised Industrial Boiler MACT requirements (40 CFR part 63 subpart DDDDD). Includes federally enforceable operating restriction to qualify as a "limited use boiler" per 40 CFR Part 63, subpart DDDDD with an annual capacity factor of no more than 10 percent which equates to a maximum annual heat input of no more than 571,660 MMBtu/yr. Supersedes PTI 06-08020 issued Final on 08/01/2006.

- 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) d)(3), (d)(4), d)(5), d)(6), and e)(3).
- b) Applicable Emissions Limitations and/or Control Requirements
  - (1) The specific operation(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 are identified below. 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(A)(3) and ORC 3704.03(T)	Install a burner that is designed to meet 0.052 lb SO <sub>2</sub> /MMBtu of actual heat input, as a 3-hour average.  Install a burner that is designed to meet 0.15 lb NO <sub>x</sub> /MMBtu of actual heat input, as a 3-hour average.  Install a burner that is designed to meet 0.312 lb CO/MMBtu of actual heat input, as a 3-hour average.
b.	OAC rule 3745-31-05(A)(3), as effective 11/30/01	The PE and VOC requirements of this rule are equivalent to the rolling, 12-month PE and VOC emission limitations established pursuant to OAC rule 3745-31-05(D).  The requirements of this rule also include compliance with the requirements of OAC rule 3745-17-10(B)(1), and 40 CFR Part 60 Subpart Db.



		See b)(2)a. below.
c.	OAC rule 3745-31-05(A)(3), as effective 12/01/06	See b)(2)b.
d.	OAC rule 3745-31-05(D) (Synthetic Minor restriction to qualify as a "limited use boiler" per 40 CFR Part 63, subpart DDDDD)	<p>NO<sub>x</sub> emissions shall not exceed 42.87 tons per rolling, 12-month period.</p> <p>CO emissions shall not exceed 89.18 tons per rolling, 12-month period.</p> <p>SO<sub>2</sub> emissions shall be shall not exceed 14.86 tons per rolling, 12-month period.</p> <p>PE shall not exceed 5.72 tons per rolling, 12-month period.</p> <p>VOC emissions shall not exceed 1.43 tons per rolling, 12-month period.</p> <p>See c)(1) and c)(2) below.</p>
e.	OAC rule 3745-17-10(B)(1)	PE shall not exceed 0.020 pound per MMBtu of actual heat input.
f.	OAC rule 3745-17-07(A)(1)	The visible emissions limitation specified by this rule is less stringent than the visible emissions limitation established pursuant to 40 CFR Part 60, Subpart Db.
g.	OAC rule 3745-18-47(B)	0.8 pound SO <sub>2</sub> /MMBtu of actual heat input [The SO <sub>2</sub> emission limitation specified by this rule is less stringent than the SO <sub>2</sub> emission limitation established pursuant to 40 CFR Part 60, Subpart Db.]
h.	OAC rule 3745-109	See b)(2)c. below.
i.	<p>40 CFR Part 60, Subpart Db (40 CFR 60.40b – 60.49b)</p> <p>[In accordance with 40 CFR 60.40b(a), this emissions unit is a high heat release industrial boiler for which construction, modification, or reconstruction commenced after June 19, 1984 and that has a maximum design</p>	<p>Visible PE shall not exceed 20 percent opacity, as a 6-minute average except for not more than 6 consecutive minutes in any 60 minutes, but shall not exceed 27 percent opacity, as a 6-minute average, at any time.</p> <p>0.2 lbNO<sub>x</sub>/MMBtu of actual heat input</p> <p>0.32 lb SO<sub>2</sub>/MMBtu of actual heat input</p>



	heat input capacity of greater than 29 megawatts (MW) (100 million British thermal units per hour(MMBtu/hr))]	[The PE limitation specified by this rule is less stringent than the PE limitation established pursuant to OAC rule 3745-17-10(B)(1).]  See d)(7), e)(4), and g)(1) below.
j.	40 CFR 60.1-19	General Provisions.
k.	40 CFR Part 63 Subpart DDDDD (40 CFR 63.7480-7575)  [In accordance 40 CFR 63.7500(c) this emissions unit is a Limited-use boiler subject to the tune-up requirements specified in this section.]	Tune-up requirements specified in Table 3. [40 CFR 63.7540]  See b)(2)e. and b)(2)f. below.
l.	40 CFR 63.1-16 (40 CFR 63.7565)	Table 10 to Subpart DDDDD of 40 CFR Part 63 – Applicability of General Provisions to Subpart DDDDD shows which parts of the General Provisions in 40 CFR 63.1-16 apply.

(2) Additional Terms and Conditions

- a. The permittee has satisfied the Best Available Technology (BAT) requirements pursuant to OAC paragraph 3745-31-05(A)(3), as effective November 30, 2001, in this permit. On December 1, 2006, paragraph (A)(3) of OAC rule 3745-31-05 was revised to conform to ORC changes effective August 3, 2006 (S.B.265 changes), such that BAT is no longer required by State regulations for NAAQS pollutants less than ten tons per year. However, that rule revision has not yet been approved by U.S. EPA as a revision to Ohio’s State Implementation Plan (SIP). Therefore, until the SIP revision occurs and the U.S. EPA approves the revisions to OAC rule 3745-31-05, the requirement to satisfy BAT still exists as part of the federally-approved SIP for Ohio. Once U.S. EPA approves the December 1, 2006 version of 3745-31-05, then the emission limits/control measures for VOC no longer apply.
- b. This rule paragraph applies once U.S. EPA approves the December 1, 2006 version of OAC rule 3745-31-05 as part of the State Implementation Plan.

Permit to Install and operate P0113983 for these air contaminant sources takes into account the following voluntary restrictions (including the use of any applicable air pollution control equipment) as proposed by the permittee for the purposes of avoiding BAT requirements under OAC rule 3745-31-05(A)(3) for VOC and PE.



- i. The maximum annual heat input for this emissions unit shall not exceed 571,660 MMBtu, based upon a rolling, 12-month summation of the monthly heat input values.
- ii. PE shall not exceed 5.72 tons per rolling 12-month period.
- iii. VOC emissions shall not exceed 1.43 tons per rolling 12-month period.
- c. The permittee shall ensure that any **emissions unit(s) subject to the Clean Air Interstate Rule (CAIR)** complies/comply with the requirements of **the Ohio Administrative Code (OAC) Chapter 3745-109**, which includes submitting timely permit applications.
- d. The permittee shall comply with the requirements and limits of 40 CFR Part 63, Subpart DDDDD for the facility's new (commenced construction after 6/4/10) boilers by January 31, 2013, or upon startup, whichever is later; and the facility's existing boilers shall be in compliance with this NESHAP no later than January 31, 2016.
  - i. This emissions unit is identified as limited-use boiler and is not subject to the emission limits in Table 2 of the subpart, the operating limits in Table 4 of the subpart, or the energy assessment requirements in Table 3 of the subpart.
  - ii. The limited-use boiler is subject to 5-year tune-up requirements, conducted in accordance with 40 CFR 63.7540(a)(10)(i) through (vi) and Table 3 to the subpart: Each limited-use boiler identified above shall have a federally enforceable average annual capacity factor of no more than 10%.
- e. Each tune-up conducted to demonstrate compliance with the requirements of Part 63 Subpart DDDDD shall include the following elements:
  - i. inspection of the burner(s) (and requirement to clean or replace any necessary components);
  - ii. inspection of the flame pattern and requirement to adjust the burner as necessary to optimize the flame pattern, consistent with the manufacturer's specifications if applicable;
  - iii. inspect the air-to-fuel ratio control system to ensure it is correctly calibrated and functioning properly;
  - iv. optimize total emissions of CO, in correlation with any applicable NOx standards, consistent with the manufacturer's specification if applicable;
  - v. measure the concentration of CO (in ppm, by volume) and oxygen (in volume percent) in the effluent gas stream, at the high-fire or typical operating load, and both before and after any adjustments (measurements can be made using a portable CO analyzer);



- vi. maintain records of the tune-up, inspection, and any corrective actions taken; and
- vii. where more than one type of fuel is used, records of the type and amount of each fuel type burned over the 12 months prior to the tune-up.

Inspections may be delayed until the next scheduled shutdown; and units that produce electricity for sale may delay the inspection until the first outage, but may not exceed 36 months from the previous inspection. The frequency of tune-ups shall be based on the frequency identified in Table 3 to the subpart. An initial tune-up must be completed for an existing unit no later than 1/31/16, unless the boiler is not in operation at that time, where a tune-up must be completed within 30 days after the re-start of the boiler.

c) Operational Restrictions

- (1) The maximum annual heat input for this emissions unit shall not exceed 571,660 MMBtu, based upon a rolling, 12-month summation of the monthly heat input values. The permittee has sufficient records to demonstrate compliance with the annual heat input limitation upon permit issuance in order to qualify as a "limited use boiler" per 40 CFR Part 63, subpart DDDDD.
- (2) The permittee shall perform all maintenance activities as specified per the manufacturer's recommendations.
- (3) See 40 CFR Part 63, Subpart DDDDD (40 CFR 63.7480-7575).

d) Monitoring and/or Recordkeeping Requirements

- (1) The permittee shall maintain records of all maintenance activities performed in accordance with manufacture's recommendations. Maintenance records for B010 shall be made available to the Ohio EPA's Southeast District Office upon request.
- (2) The permittee shall maintain monthly records of the following information for this emissions unit:
  - (a) the monthly heat input rate, in MMBtu; and
  - (b) the rolling, 12-month summation of the monthly heat input rates (in MMBtu).
- (3) The permit to install (PTI) application for this emissions unit, B010, was evaluated based on the actual materials and the design parameters of the emissions unit's(s') exhaust system, as specified by the permittee. The "Toxic Air Contaminant Statute", ORC 3704.03(F), was applied to this/these emissions unit(s) for each toxic air contaminant listed in OAC rule 3745-114-01, using data from the permit application; and modeling was performed for each toxic air contaminant(s) emitted at over one ton per year using an air dispersion model such as SCREEN3, AERMOD, or ISCST3, or other Ohio EPA approved model. The predicted 1-hour maximum ground-level concentration result(s) from the approved air dispersion model, was compared to the Maximum Acceptable Ground-Level Concentration (MAGLC), calculated as described in the Ohio EPA



guidance document entitled “Review of New Sources of Air Toxic Emissions, Option A”, as follows:

- a. the exposure limit, expressed as a time-weighted average concentration for a conventional 8-hour workday and a 40-hour workweek, for each toxic compound(s) emitted from the emissions unit(s), (as determined from the raw materials processed and/or coatings or other materials applied) has been documented from one of the following sources and in the following order of preference (TLV was and shall be used, if the chemical is listed):
  - i. threshold limit value (TLV) from the American Conference of Governmental Industrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices”; or
  - ii. STEL (short term exposure limit) or the ceiling value from the American Conference of Governmental Industrial Hygienists (ACGIH) “Threshold Limit Values for Chemical Substances and Physical Agents Biological Exposure Indices”; the STEL or ceiling value is multiplied by 0.737 to convert the 15-minute exposure limit to an equivalent 8-hour TLV.
- b. The TLV is divided by ten to adjust the standard from the working population to the general public (TLV/10).
- c. This standard is/was then adjusted to account for the duration of the exposure or the operating hours of the emissions unit(s), i.e., “24” hours per day and “7” days per week, from that of 8 hours per day and 5 days per week. The resulting calculation was (and shall be) used to determine the Maximum Acceptable Ground-Level Concentration (MAGLC):

$$TLV/10 \times 8/X \times 5/Y = 4 TLV/XY = MAGLC$$

- d. The following summarizes the results of dispersion modeling for the significant toxic contaminants (emitted at 1 or more tons/year) or “worst case” toxic contaminant(s):

Toxic Contaminant: Ammonia (NH<sub>3</sub>)

TLV (mg/m<sup>3</sup>): 17.4

Maximum Hourly Emission Rate (lbs/hr): 4.05\*\*

Predicted 1-Hour Maximum Ground-Level Concentration (ug/m<sup>3</sup>): 49.02

MAGLC (ug/m<sup>3</sup>): 413.75

\*\*Based on an emission factor of 0.8 pound ammonia per 1,000 gallons of fuel burned. The emission factor was obtained from a study conducted by the National Acid precipitation Assessment Program.



The permittee, has demonstrated that emissions of ammonia from emissions unit B010 is calculated to be less than eighty per cent of the maximum acceptable ground level concentration (MAGLC); any new raw material or processing agent shall not be applied without evaluating each component toxic air contaminant in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F).

- (4) Prior to making any physical changes to or changes in the method of operation of the emissions unit(s), that could impact the parameters or values that were used in the predicted 1-hour maximum ground-level concentration, the permittee shall re-model the change(s) to demonstrate that the MAGLC has not been exceeded. Changes that can affect the parameters/values used in determining the 1-hour maximum ground-level concentration include, but are not limited to, the following:
- a. changes in the composition of the materials used or the use of new materials, that would result in the emission of a new toxic air contaminant with a lower Threshold Limit Value (TLV) than the lowest TLV previously modeled;
  - b. changes in the composition of the materials, or use of new materials, that would result in an increase in emissions of any toxic air contaminant listed in OAC rule 3745-114-01, that was modeled from the initial (or last) application; and
  - c. physical changes to the emissions unit(s) or its/their exhaust parameters (e.g., increased/ decreased exhaust flow, changes in stack height, changes in stack diameter, etc.).

If the permittee determines that the "Toxic Air Contaminant Statute" will be satisfied for the above changes, the Ohio EPA will not consider the change(s) to be a "modification" under OAC rule 3745-31-01 solely due to a non-restrictive change to a parameter or process operation, where compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), has been documented. If the change(s) meet(s) the definition of a "modification", the permittee shall apply for and obtain a final PTI prior to the change. The Director may consider any significant departure from the operations of the emissions unit, described in the permit application, as a modification that results in greater emissions than the emissions rate modeled to determine the ground level concentration; and he/she may require the permittee to submit a permit application for the increased emissions.

- (5) The permittee shall collect, record, and retain the following information for each toxic evaluation conducted to determine compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F):
- a. a description of the parameters/values used in each compliance demonstration and the parameters or values changed for any re-evaluation of the toxic(s) modeled (the composition of materials, new toxic contaminants emitted, change in stack/exhaust parameters, etc.);
  - b. the Maximum Acceptable Ground-Level Concentration (MAGLC) for each significant toxic contaminant or worst-case contaminant, calculated in accordance with the "Toxic Air Contaminant Statute", ORC 3704.03(F);



- c. a copy of the computer model run(s), that established the predicted 1-hour maximum ground-level concentration that demonstrated the emissions unit(s) to be in compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), initially and for each change that requires re-evaluation of the toxic air contaminant emissions; and
    - d. the documentation of the initial evaluation of compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), and documentation of any determination that was conducted to re-evaluate compliance due to a change made to the emissions unit(s) or the materials applied.
  - (6) The permittee shall maintain a record of any change made to a parameter or value used in the dispersion model, used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1-hour maximum ground-level concentration. The record shall include the date and reason(s) for the change and if the change would increase the ground-level concentration.
  - (7) See 40 CFR 60.47b (1) – (4), 60.48b
  - (8) See 40 CFR Part 63, Subpart DDDDD (40 CFR 63.7480-7575).
- e) Reporting Requirements
  - (1) The permittee shall submit quarterly deviation (excursion) reports that identify the following:
    - a. all exceedances of the rolling, 12-month heat input limitation for this emissions unit;

The quarterly deviation (excursion) reports shall be submitted in accordance with the reporting requirements of the Standard Terms and Conditions of this permit.
  - (2) The permittee shall submit annual reports that include any changes to any parameter or value used in the dispersion model used to demonstrate compliance with the "Toxic Air Contaminant Statute", ORC 3704.03(F), through the predicted 1 hour maximum concentration. The report should include:
    - a. the original model input;
    - b. the updated model input;
    - c. the reason for the change(s) to the input parameter(s); and
    - d. a summary of the results of the updated modeling, including the input changes; and
    - e. a statement that the model results indicate that the 1-hour maximum ground-level concentration is less than 80% of the MAGLC.



If no changes to the emissions, emissions unit(s), or the exhaust stack have been made during the reporting period, then the report shall include a statement to that effect.

- (3) See 40 CFR 60.49b).
- (4) See 40 CFR Part 63, Subpart DDDDD (40 CFR 63.7480 - 7575).

f) Testing Section

- (1) Compliance with the emissions limitations and/or control requirements specified in section b) of these terms and conditions shall be determined in accordance with the following methods:

- a. Emissions Limitation:

Install a burner that is designed to meet 0.052 lb SO<sub>2</sub>/MMBtu of actual heat input, as a 3-hour average.

0.32 lb SO<sub>2</sub>/MMBtu of actual heat input

Applicable Compliance Method:

If required, compliance with the SO<sub>2</sub> emissions above shall be determined in accordance with test Methods 1 - 4, and 6 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

Compliance with the 0.32 lb SO<sub>2</sub>/MMBtu limitation may also be demonstrated based on the record keeping in d).

- b. Emissions Limitation:

Install a burner that is designed to meet 0.15 lbNO<sub>x</sub>/MMBtu of actual heat input, as a 3-hour average.

0.2 lbNO<sub>x</sub>/MMBtu of actual heat input

Applicable Compliance Method:

If required, compliance with the NO<sub>x</sub> emission limitations above shall be determined in accordance with test Methods 1 - 4, and 7E as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

Compliance with the 0.2 lbNO<sub>x</sub>/MMBtu emission limitation may also be demonstrated based on the record keeping in d).



c. Emissions Limitation:

Install a burner that is designed to meet 0.312 lb CO/MMBtu of actual heat input, as a 3-hour average.

Applicable Compliance Method:

If required, compliance with the CO emission limitation shall be determined according to test Methods 1 - 4, and 10 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

d. Emissions Limitation:

PE shall not exceed 0.020 pound per MMBtu of actual heat input

Applicable Compliance Method:

If required, nitrogen oxides emissions shall be determined according to test Methods 1 - 4, and 5 as set forth in the "Appendix on Test Methods" in 40 CFR, Part 60 "Standards of Performance for New Stationary Sources". Alternative U.S. EPA-approved test methods may be used with prior approval from Ohio EPA, Southeast District Office.

e. Emissions Limitation:

Visible PE shall not exceed 20 percent opacity, as a 6-minute average except for not more than 6 consecutive minutes in any 60 minutes, but shall not exceed 27 percent opacity, as a 6-minute average, at any time.

Applicable Compliance Method:

Compliance with the visible PE limitation above shall be demonstrated as outlined in g)(1) below.

f. Emissions Limitations:

NOx emissions shall not exceed 42.87 tons per rolling, 12-month period.

CO emissions shall not exceed 89.18 tons per rolling, 12-month period.

SO2 emissions shall be shall not exceed 14.86 tons per rolling, 12-month period.

PE shall not exceed 5.72 tons per rolling, 12-month period.

VOC emissions shall not exceed 1.43 tons per rolling, 12-month period.



Applicable Compliance Method:

Compliance with the annual emission limitations above shall be demonstrated by the record keeping required pursuant to section d)(2) above and the associated emission factors derived from the emission testing as specified in f)(2) below.

- (2) Testing to demonstrate compliance with the short-term emission limitations for PE, NOx, CO, and VOC was completed on 02/01/2007. The emission factors established for PE, NOx, CO and VOC based on the results of the emission testing were 0.02 lb/MMBtu, 0.15 lb/MMBtu, 0.312 lb/MMBtu and 0.005 lb/MMBtu, respectively.

g) Miscellaneous Requirements:

- (1) Cardinal Operating Company has submitted a petition request to U.S. EPA for an alternative opacity monitoring requirement in lieu of the continuous opacity monitoring system that is required by Subpart Db.

Pursuant to that request, U.S. EPA granted an alternative opacity monitoring protocol via a letter, dated March 15, 2006, to Mr. Douglas Shearn, Cardinal Plant Manager. This letter contained the following operating conditions and requirements:

- a. At the auxiliary boiler, Cardinal must not exceed a total annual heat input of 571,660 MMBtu, or 10 percent of its annual capacity. If Cardinal exceeds 571,660 MMBtu of total annual heat input, Cardinal must immediately submit to Ohio EPA and U.S. EPA a schedule for installing and certifying a continuous opacity monitor (COM) within 6 months or less. Cardinal must immediately notify Ohio EPA and U.S. EPA that Cardinal exceeded the 571,660 MMBtu limit.
- b. Cardinal must conduct its routine operational checks during daytime hours only.
- c. At least once every 4 hours of operation, during daylight hours, an observer certified in accordance with Method 9 must perform three 6-minute observations of the auxiliary boiler stack. If any 6-minute average opacity exceeds 20%, the observer must collect two additional 6-minute sets of visible emissions readings.
- d. Cardinal must maintain on-site for a period of 5 years from the date of observation, records of the date and time of visible emissions observations, along with the results of each observation.
- e. Cardinal must maintain on-site, for a period of 5 years, records of the auxiliary boiler's heat input.
- f. Within 30 days of the end of each calendar quarter, Cardinal must submit to Ohio EPA and U.S. EPA excess emission reports. The excess emission reports must identify the total heat input and number of hours of operation in that quarter, the total heat input and number of hours of operation in previous quarters within the same calendar year, the total number of observations performed under the above conditions and any excess opacity readings observed. The excess emission reports shall denote that the boiler must comply with a 20 percent opacity limit as a 6-minute average.



**Draft Permit-to-Install**  
Cardinal Power Plant (Cardinal Operating Company)  
**Permit Number:** P0113983  
**Facility ID:** 0641050002  
**Effective Date:** To be entered upon final issuance

- g. American Electric Power (AEP) shall maintain the boilers in accordance with good air pollution control practices.