

This would enable a higher sorbent injection rate without increases in particulate matter emissions.

- iii. This permit also authorizes construction of a material handling facility to receive, store, and handle sorbent materials for the affected system, including rail and truck unloading equipment, bulk storage silos and associated fabric filters.
 - iv. This permit also authorizes alterations to the existing fly ash handling facility for Unit 5, including construction of a fly ash silo and associated fabric filters to handle the additional material generated by the sorbent
- b. This permit does not authorize any modifications to existing Powerton Unit 5, which would increase its capacity or criteria pollutant emissions.

1.2 Non-Applicability Provisions

- a.
 - i. This permit is issued based on this project being an emission control project that will reduce emissions of SO₂ from Powerton Units 5 and 6, will not cause a significant increase in emissions of greenhouse gases (GHG), and will not cause emissions increases of any other NSR regulated pollutant. In particular, the construction of the affected systems and ESP enhancements are being undertaken to meet the requirement of the Combined Pollutants Standards (CPS), 35 IAC 225.296(b)(1).
 - ii. This permit is issued based on the new material handling facilities associated with the affected systems for Powerton Units 5 and 6, the increase in throughput of the existing fly ash handling facilities, and the increase in road traffic from handling sorbent and additional fly ash, as constrained by the limitations and requirements in this permit, not being a major modification for purposes of the federal PSD rules (40 CFR 52.21). This is because the increases in emissions of individual pollutants from these units are less than the significant emission rates set in these rules. (See Attachment 1.)
- b. The Illinois EPA has determined that the changes to the affected boilers, as described in the application, will not constitute modifications of the boilers, under the federal New Source Performance Standards, 40 CFR 60, because the changes have the primary function of reducing emissions and therefore are not considered a modification pursuant to 40 CFR 60.14(e)(5).

1.3 Existing Applicable Requirements

This permit does not relax or revise applicable requirements for Powerton Unit 5 and associated control equipment, including requirements in existing permits for the source, including provisions for continuous opacity monitoring systems, startup, malfunction and breakdown, recordkeeping, and reporting.

1.4 Future Applicable Emission Standards under the Combined Pollutant Standards (CPS)

- a. Beginning calendar year 2013, the CPS group annual average SO₂ emission rate of the specified EGUs (i.e. Powerton Units 5 and 6 and the EGUs at the Fisk, Crawford, Joliet, Waukegan and Will County power plants) shall not exceed the applicable limit in 35 IAC 225.295(b).

1.5. Control Practices

- a. The affected systems shall be designed to be able to handle and inject sorbent into the flue gas of the affected boilers at a rate that will achieve 90 percent removal of sulfur dioxide (SO₂) in the emissions of the boilers.
- b. At all times, the Permittee shall maintain and operate the affected boilers with the affected systems and other air pollution control equipment in a manner consistent with good air pollution control practices.

1.6 Emission Testing Requirements

- a.
 - i. Within one year after initial startup of the affected boilers with the affected systems, the particulate matter emissions of Unit 5 shall be measured by an approved testing service.
 - ii. These tests shall be followed by two more tests for particulate matter, which shall be conducted no less than 5 months and no more than 15 months from the previous test.
- b. These tests shall be conducted during conditions that are representative of highest injection rates for sorbent and activated carbon with which the boilers are currently being operated and at full load.
- c. The following methods and procedures shall be used for testing of emissions, unless another method is approved by the Agency: Refer to 40 CFR 60, Appendix A and 40 CFR Part 51, Appendix M for USEPA test methods.

Location of Sample Points	USEPA Method 1
Gas Flow & Velocity	USEPA Method 2
PM (filterable)	USEPA Method 5
PM (condensable)	USEPA Method 202

- d. The test plan shall be submitted to the Illinois EPA for review at least 60 days prior to the actual date of testing. This plan shall describe the specific procedures for testing and shall, at a minimum, include the following information:
 - i. The person(s) who will be performing sampling and analysis and their experience with similar tests.
 - ii. The specific conditions, e.g., operating rate and control device operating conditions, under which testing shall be performed including a discussion of why these conditions will be representative and the means by which the operating parameters will be determined.
 - iii. The specific determinations of emissions that are intended to be made, including sampling or monitoring locations. As part of this plan, the Permittee may set forth a strategy for also performing emission testing in the normal load range of the boiler.
 - iv. The test method(s) that will be used, with the specific analysis method if the method can be used with different analysis methods.
- e. Prior to carrying out these tests, the Illinois EPA's Regional Office and Source Emission Test Specialist shall be notified a minimum of 30 days prior to the expected date of these tests and further notified a minimum of 5 working days prior to the tests of the exact date, time and place of these tests, to enable the Agency to witness these tests.
- f. Three copies of the Final Report(s) for these tests shall be submitted to the Illinois EPA within 14 days after the test results are compiled and finalized. The following information shall be submitted with the results:
 - i. The gross power generation and the steam generation rate, including the key operating data for Unit 5 during the test.
 - ii. Significant operating parameters of the affected systems and ESPs and the existing ACI systems, such as location and injection rate of each dry sorbent material during the period of testing, as measured during the tests.
 - iii. Significant operating parameters of the ESPs, such as the ESPs voltage and current flows, and spark rates during the period of testing, as measured during the tests.
 - iv. SO₂ emission data during the periods of testing based on emission monitoring, and the calculated SO₂ control efficiency on a daily basis.

- v. Opacity data collected by the continuous opacity monitoring systems during each test run, on a minute-by-minute basis, and if conditions are suitable for such observation, observations of opacity at the stack (two 6-minute averages) for each test run.

1.7 Monitoring and Instrumentation Requirements

- a. The Permittee shall install, operate and maintain instrumentation on each affected system for sorbent injection rates, by volume or mass, which may either be measured directly or indirectly, e.g., by measuring feeder speed.
- b. This permit does not authorize any relaxation to the monitoring systems or instrumentation that are already present on the ESPs.

1.8 Recordkeeping Requirements

- a. The Permittee shall keep a file that contains documentation for the design of the affected systems confirming compliance with Condition 1.5(a).
- b. The Permittee shall maintain the following records for the ESPs:
 - i. A maintenance and repair log for the ESPs, which shall list the activities performed, with date and description.
 - ii. An operating log, including:
 - A. The status of each ESP field shall be recorded at least once per shift.
 - B. The following numerical data shall be recorded at least once per day: (1) Primary voltages and current flows, (2) Secondary voltages and current flows, and (3) Sparking rates.
- c. All records required by this permit shall be retained at a readily accessible location at the source for at least three years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request. Any records retained in an electronic format (e.g., computer) shall be capable of being retrieved and printed on paper during normal source office hours so as to be able to respond to an Illinois EPA request for records during the course of a source inspection.

1.9 Notifications

- a. The Permittee shall notify the Illinois EPA in writing within 21 days of the initial startup of an affected system.

- b. The Permittee shall notify the Illinois EPA in advance of using a sorbent other than Trona in the affected systems. This notification shall be submitted at least three months in advance if possible or otherwise promptly after the Permittee learns that an alternative sorbent will need to be used. This notification shall identify the alternative sorbent and include an explanation of the reason for use of an alternate sorbent, the expected duration for use of the alternative sorbent (if temporary), and the expected changes in sorbent injection rates.

1.10 Reporting Requirements

- a. If there is a deviation from the requirements of this permit, the Permittee shall promptly submit a report of the deviation to the Illinois EPA. Unless otherwise specified, this report shall be submitted within 30 days of the deviation. The report shall describe the deviation, the probable cause of the deviation, corrective actions that were taken and any actions to prevent future occurrences.

1.11 Report/Notifications Submittals

Two copies of all notifications and reports required by the Permit shall be sent to:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Compliance Section (#40)
P.O. Box 19276
Springfield, Illinois 62794-9276

Telephone: 217/782-5811 Fax: 217/782-6348

and one copy of all required notifications and reports shall be sent to the Illinois EPA's regional office at the following address, unless otherwise indicated:

Illinois Environmental Protection Agency
Division of Air Pollution Control
Regional Field Office
5415 North University,
Peoria, Illinois 61614

Telephone: 309/693-5463 Fax: 309/693-5467

1.12 Authorization for Operation

- a. The affected boilers with affected systems may be operated for one year under this construction permit, during which period initial emissions testing shall be completed and the Permittee shall apply for a revised CAAPP permit addressing the changes to the control system for the affected boilers, which application

shall include a compliance assurance monitoring (CAM) plan for the affected boiler for emissions of particulate matter.

- b. Following completion of required emission testing, the Permittee may operate the affected boilers with the affected systems under this permit until the operation of this control equipment is addressed by a CAAPP permit.
- c. These conditions supersede Standard Condition 6.

Unit-Specific Conditions for the Material Handling Facilities

2.1 Introduction

The affected facilities for the purpose of these Unit-Specific Conditions are a new facility for handling sorbent for the affected systems and the modified facility for handling fly ash from Unit 5, which would handle additional material and have an additional silo.

2.2 Applicable Federal Emission Standards

- a. The mills, storage silos and conveying system at the affected sorbent handling facility are subject to the NSPS for Nonmetallic Mineral Processing Plants, 40 CFR 60, Subpart 000 and related provisions of 40 CFR 60, Subpart A.
- b. Pursuant to the NSPS, 40 CFR 60.672(b) and (d), fugitive emissions of PM from subject units shall not exceed 7 percent.
- c. Pursuant to the NSPS, 40 CFR 60.672(f), stack emissions of PM, as defined by 40 CFR 60.671, from the subject units shall not exceed 7 percent.
- d. At all times, the Permittee shall maintain and operate subject units, including associated air pollution control equipment, in a manner consistent with good air pollution control practices for minimizing emissions, pursuant to 40 CFR 60.11(d).

Note: These conditions would not apply if mills or grinding equipment are not present at the affected facility. See Condition 2.4(a).

2.3 Applicable State Emission Standards

- a. The affected facilities are subject to 35 IAC 212.301, which provides that no person shall cause or allow the emission of fugitive particulate matter from any emission unit, that is visible by an observer looking generally toward the zenith (i.e. looking at the sky directly overhead) from a point beyond the property line of the source pursuant to 35 IAC 212.301.

- b. The emission units at the affected facilities are subject to 35 IAC 212.123 (a) which provides that no person shall cause or allow the emission of smoke or other particulate matter, with an opacity greater than 30 percent into the atmosphere from the affected facility, pursuant to 35 IAC 212.123(a).
- c. The emission units at the affected facilities are subject to 35 IAC 212.321(a), which provides that no person shall cause or allow the emission of particulate matter into the atmosphere in any one hour period from any new process emission unit which, either alone or in combination with the emission of particulate matter from all other new similar process emission units at a source or premises, exceeds the allowable emission rates specified in 35 IAC 212.321(c).

2.4 Non-Applicability Provisions

- a. If the affected sorbent handling facility does not include mills or grinding equipment, which would reduce the size of sorbent, this permit is issued based on this facility not being subject to the federal NSPS, 40 CFR 60 Subpart 000, because it would not crush or grind a non-metallic mineral so that it would not constitute a nonmetallic mineral processing plant, as defined by 40 CFR 60.671. Accordingly, the requirements of Conditions 2.2, 2.7(a) and 2.9(a) would not be applicable.

2.5 Operational and Emission Limitations

- a. The amount of dry sorbent received by the affected sorbent handling facility shall not exceed 219,000 tons per year for the Unit 5 affected boilers. Compliance with this limit and other annual limits set by this permit shall be determined from the sum of the data for the current month plus the preceding 11 months (running 12 months total).
- b.
 - i.
 - A. There shall be no visible emissions of fugitive particulate matter from the affected sorbent handling facility.
 - B. The filters for the affected sorbent handling facility shall have a design outlet loading for particulate matter of no more than 0.01 grains/scf, as shown by the manufacturer's performance specifications for the device or representative emission test data for similar filter devices.
 - ii.
 - A. Emissions of PM, PM₁₀ and PM_{2.5} from the affected sorbent handling facility, each shall not exceed the following limits:

Operation	Limit	
	Lb/Hr	Ton/Yr
Storage Silos w/filter	0.86	1.38

- B. This permit is issued based upon minimal emissions of PM due to vehicle traffic on plant roadways associated with transport of sorbent. For this purpose, PM, PM₁₀ and PM_{2.5} emissions shall not exceed 1.0, 0.20 and 0.05 tons per year, respectively.
- c. The transport of dry sorbent and fly ash from the affected boilers shall be on paved roads, which shall be maintained in good condition to control emissions of particulate matter.
- d. i. Emissions of PM, PM₁₀ and PM_{2.5} increase from the affected fly ash handling facility shall each not exceed the following limits:

Limit	
Lb/Hr	Ton/Yr
0.51	2.25

- ii. This permit is issued based upon a minimal increase in emissions of PM due to the increase in vehicle traffic on plant roads for transport of fly ash. For this purpose, the increase in PM, PM₁₀ and PM_{2.5} emissions shall not exceed 0.80, 0.16 and 0.04 tons per year, respectively.
- e. At all times, the Permittee shall maintain and operate the emission units at affected facilities including associated air pollution control measures, in a manner consistent with good air pollution control practices for minimizing emissions.

2.6 Inspection and Maintenance Requirements

- a. Inspections of each affected facility including emission control measures shall be conducted at least once per month when the facility is in operation to confirm compliance with the requirements of this permit.
- b. Maintenance and repair of filters and other control measures shall be performed to assure that such measures function properly when material is being handled.
- c. The Permittee shall maintain records of the above inspections and maintenance/repair activity in an operating and maintenance log. This log shall contain, at a minimum, the time and description of the inspections or maintenance/repair activities.

2.7 Opacity Measurements

- a. For the affected sorbent handling facility, the Permittee shall comply with applicable requirements of the NSPS related to observation of opacity.
- b. Upon written request by the Illinois EPA, the Permittee shall conduct opacity observations for specific operation(s) or unit(s) at the affected facilities within 45 calendar days of the request or on the date agreed upon by the Illinois EPA, whichever is later.

2.8 Recordkeeping Requirements

- a. The Permittee shall maintain a file containing documentation for the emission guarantee for each filter in the affected facilities in grains/dscf, as provided by the supplier of the device.
- b. The Permittee shall maintain operating records for the following items for the affected sorbent handling facility:
 - i. Amount of sorbent received, tons/month and tons/year.
 - ii. Amount of sorbent transferred to the affected system, tons/month and tons/year.
- c. The Permittee shall keep records for the implementation of fugitive dust control measures on roadways used by trucks that handle sorbent and fly ash.
- d. The Permittee shall keep the following records related to particulate matter emissions (tons/month and tons/year), with supporting calculations. For this purpose, roadway emissions shall be calculated using USEPA methods.
 - i. Records of emissions of PM, PM₁₀ and PM_{2.5} from each affected facility.
 - ii. Records of emissions of PM, PM₁₀ and PM_{2.5} from roadways/truck traffic associated with each affected facility.
 - iii. Records of PM, PM₁₀ and PM_{2.5} emissions from roadways/truck traffic associated with handling of fly ash from the affected boilers.

2.9 Reporting Requirements

- a. If the affected sorbent handling facility includes mills, the Permittee shall comply with applicable reporting requirements of the NSPS. (See condition 2.4(a).)

Note: Reporting of deviations by the affected facilities is addressed by Condition 1.10(a).

2.10 The affected facilities may be operated pursuant to this construction permit until an operating permit becomes effective that addresses these facilities. This condition supersedes Standard Condition 6.

If you have any questions on this permit, please contact Shashi Shah at 217/782-2113.

Edwin C. Bakowski, P.E.
Manager, Permit Section
Division of Air Pollution Control

Date Signed: _____

ECB:SRS:jws

cc: FOS - Region 2, Illinois EPA
Permit File - 95090074

Attachment 1

Combined emissions for both Units 5 and 6

Unit	Operation	Limit		
		PM	PM ₁₀	PM _{2.5}
		Ton/Yr	Ton/Yr	Ton/Yr
Unit 5	Sorbent handling facility	1.38	1.38	1.38
	Fly ash facility (increase)	2.25	2.25	2.25
	Sorbent truck traffic	1.0	0.20	0.05
	Additional fly ash truck traffic	0.8	0.16	0.04
	Subtotal	5.43	3.99	3.72
Unit 6	Sorbent handling facility	1.38	1.38	1.38
	Fly ash facility (increase)	2.25	2.25	2.25
	Sorbent truck traffic	1.0	0.20	0.05
	Additional fly ash truck traffic	0.8	0.16	0.04
	Subtotal	5.43	3.99	3.72
	Total	10.86	7.98	7.44