

**Supplemental Statement of Basis for the
Planned Significant Modification of the
Clean Air Act Permit Program (CAAPP) Permit for**

**Illinois Power Generating Company
Newton Energy Center**

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Permit No.: 95090066

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Illinois Environmental Protection Agency
Bureau of Air, Permit Section
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INTRODUCTION

This Supplemental Statement of Basis addresses the Illinois EPA's reconsideration of the changes to Condition 7.1.9(c) (ii) (B) that were identified as part of the planned significant modification of the Clean Air Act Permit Program (CAAPP)¹ permit for the Newton Energy Center. The Draft Revised CAAPP Permit for the Newton Energy Center was provided for public review and comment on February 25, 2015, along with a Statement of Basis.

This reconsideration is the result of a public inquiry received by the Illinois EPA during the public comment period on this action. The inquiry requested copies of certain results for concurrent particulate matter (PM) and opacity testing for the coal-fired boilers, as cited in the Statement of Basis that was prepared for this planned action. The Illinois EPA subsequently determined that the Statement of Basis incorrectly indicated that such testing had been relied on to support the revisions to Condition 7.1.9(c) (ii) (B).

For the coal-fired boilers at the Newton Energy Center, the Statement of Basis indicated that the results of PM testing, with accompanying data for opacity, had been provided to the Illinois EPA. In fact, such testing to evaluate the relationship between PM emissions and levels of opacity had not been provided for the Newton Energy Center.

Because of this error in the Statement of Basis, the Illinois EPA has reconsidered the selected opacity value identified in Condition 7.1.9(c) (ii) (B). No further changes to the conditions of the permit would be made as result of this reconsideration. However, the text in the accompanying Statement of Basis is being revised to reflect a more accurate explanation of why the selected opacity value in the condition is believed appropriate. The Illinois EPA is providing an additional 30 days for interested persons to submit comments on this matter, i.e., the planned changes to Condition 7.1.9(c) (ii) (B) in the CAAPP Permit for the Newton Energy Center.

¹ The Clean Air Act Permit Program (CAAPP) is Illinois' operating permit program for sources of emissions pursuant to Title V of the federal Clean Air Act.

BACKGROUND

The initial CAAPP permit for the Newton Energy Center was issued by the Illinois EPA in September 2005. This permit was appealed by Illinois Power Generating Company² and subsequently stayed in its entirety by the Illinois Pollution Control Board. The Illinois EPA and Illinois Power Generating Company, with the assistance of the Office of the Illinois Attorney General, have been engaged in negotiations to settle the appeal of the CAAPP permit for the Newton Energy Center with the goal of having a CAAPP permit take effect for this source. Agreement has tentatively been reached on the content of a modified permit that would provide the basis for settling the appeal. This agreement is tentative because the process for a significant modification to a CAAPP permit requires a public comment period on a draft of the planned changes to the permit, followed by review of a proposed permit by USEPA.

The Illinois EPA initiated a public comment period on planned modifications of the CAAPP permit for the Newton Energy Center on February 25, 2015. During this comment period a public inquiry requested certain test results for particulate matter (PM) emissions and opacity for the two coal-fired boilers at the Newton Energy Center.³ The Statement of Basis indicated that historical test data for Newton Energy Center supported Illinois EPA's selection of a value of 20 percent opacity, 3-hour average, for the purposes of periodic monitoring for PM emissions.

In responding to this request, the Illinois EPA determined that references to historical and recent test data in the Statement of Basis were incorrect as no such test data or results of testing was available for the coal boilers at the Newton Energy Center. The Statement of Basis for Newton Energy Center had been developed from an earlier Statement of Basis for another coal-fired boiler for which available test data had been relied upon in selection of an opacity value for periodic monitoring of such coal-fired boiler. That statement was inadvertently carried over to the Newton Statement of Basis.

DISCUSSION

Since the Statement of Basis for the planned significant modification of the CAAPP permit for the Newton Energy Center did not accurately describe the basis for the selected opacity value independent of source-specific test data, IEPA is beginning a new public comment period for the revised portions of the Statement of Basis to avoid any question as to whether it provided for meaningful public comment on this matter.

The Illinois EPA continues to believe that the value of 20 percent opacity, three-hour average, as would be established in revised Condition 7.1.9(c) (ii) (B), is appropriate for periodic monitoring for the Newton Energy Center. Opacity being no greater than 20 percent is sufficient to assure compliance with 35 IAC 212.203, the applicable standard for PM emissions.

This conclusion is supported by a review of test data previously submitted to the Illinois EPA, namely, performance test results for the coal-fired boilers

² Illinois Power Generating Company was known as Ameren Energy Generating Company when it filed this appeal. For simplicity, this Supplemental Statement of Basis consistently refers to the company by its current name.

³ See page 22 of Statement of Basis released for public review on February 25, 2015.

at the Kincaid Station and the Powerton Generating Station. This dataset was analyzed to determine whether the opacity value selected for periodic monitoring at the Newton Energy Center was appropriate. The dataset was chosen based on similarities between the boilers at the Newton Energy Center and the boilers at Kincaid and Powerton plants, which include:

- All the electrical generating units have similar rated capacity (~600 MW),
- All boilers have cold-side ESP's and low-NOx combustion technology,
- All boilers commenced operation around late 60's to early 70's,
- All boilers burn low-sulfur coal from the Powder River Basin.
- The test data for the boilers was based on operation without flue gas desulfurization equipment, and such equipment is not installed on the Newton boilers.

For the Newton Energy Center, opacity is an indicator for the PM emissions for the boilers as related to compliance with 35 IAC 212.203. For the purpose of periodic monitoring, the Illinois EPA is again proposing an indicator value of 20 percent opacity, three hour block average. This value, 20 percent, corresponds to the numerical value of the opacity standard that applies to the boilers pursuant to 35 IAC 212.122.

The data used by the Illinois EPA in its analysis were the PM emission rates and concurrent opacity levels measured in each test run during recent testing of the coal-fired boilers at the Kincaid and Powerton power plants.⁴ Based on analysis of these test data, the Illinois EPA concluded that an opacity level of 20 percent is consistent with a PM emission rate of only about half of the PM standard for those boilers. Since the boilers at Newton are similar to those at Kincaid and Powerton, as discussed above, this analysis conservatively suggests that a value of 20 percent opacity is appropriate for periodic monitoring. It should be noted that no further conclusions should be drawn from this analysis, including about whether any particular opacity level demonstrates a PM exceedance.

Source-specific testing for the coal-fired boilers at the Newton Energy Center will be conducted after a revised CAAPP permit is issued. This testing will be required as part of the conditional approval of the

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Test Results for Other Power Plants		
Boiler(s)	PM Emissions (lb/mmBtu)	Opacity, (percent)
Powerton Unit 5	0.029	17
	0.0319	17.5
	0.033	17.4
Powerton Unit 6	0.0161	10
	0.0103	7.6
	0.0077	8.3
Kincaid Units 1 & 2	0.0034	2.6
	0.012	3.4
	0.018	3.5
Kincaid Units 1 & 2	0.0077	5
	0.0085	5
	0.0107	5

Compliance Assurance Monitoring (CAM) Plan that is proposed as part of the issuance of a revised CAAPP Permit for the Newton Energy Center. This testing will need to be completed within 180 days of the issuance of the revised CAAPP Permit.

CONCLUSION

Based on this review of actual test data from similarly configured coal-fired boilers at two other power plants in Illinois and the applicable opacity standard, the 20 percent opacity value currently proposed in Condition 7.1.9(c) (ii) (B) for the coal-fired boilers at the Newton Energy Center is adequate for periodic monitoring for PM emissions.

Further changes are not planned for Condition 7.1.9(c) (ii) (B) or any other condition in the draft of the Revised CAAPP Permit for the Newton Energy Center released for public review and comment on February 25, 2015. However, some changes are needed to the text of the Statement of Basis. The changes are provided in Attachment 1 and reflect what should have been stated in the Statement of Basis that accompanied the Draft Revised CAAPP Permit for Newton Energy Center posted on February 25, 2015.

The Illinois EPA will take comments regarding this reconsideration for 30 days following release of this document for public review.

ATTACHMENT 1: REVISIONS TO THE STATEMENT OF BASIS

(Changes to relevant portions of the Statement of Basis for the planned significant modification of the CAAPP permit for the Newton Energy Center)

Revision 1:

The third paragraph on page 22 of the Statement of Basis, and associated footnotes, under the heading below:

Conditions 7.1.9(c) (ii) and (c) (iii) (B) and 7.1.10-2(a) (i) (E)

...

Instead of developing an opacity value in the future through the use of an established methodology, the revised permit achieves the same result through the selection of a specific value, 20 percent opacity, 3-hour average. ~~based on prior test data~~. This approach continues to rely on a relationship between opacity and PM compliance for the coal-fired boilers when the PM control technology is functioning properly and the opacity remains within below 20 percent.²² Recent test data for the coal-fired boilers at two other coal-fired power plants, Kincaid Generating Station and Powerton Generating Station, suggests that opacity values above 20 percent reflect compliance with a PM emission rate of 0.10 lb/mmBtu, conservatively supporting the selection of a 20 percent, 3-hour average value. For both ease and conservatism, the selected numerical value of opacity corresponds to the applicable state opacity standard in 35 IAC 212.122. This is adequate to assure compliance with the PM standard that applies to the boilers pursuant to 35 IAC 212.203, i.e., 0.10 lb/mmBtu. Accordingly, compliance with the PM standard is reasonably assured if the opacity of emissions from the boilers does not exceed 20 percent on a 3-hour block average.

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~~Footnote 22:~~

~~The Illinois EPA reached this conclusion by comparing the 3-run average results of PM testing for the boilers to the concurrent 3 hour average value of opacity. Although the data was sufficient to confirm the adequacy of the relationship between 20 percent opacity and compliance for PM, it is not appropriate to draw additional conclusions from this data.~~

Revisions 2:

From the second paragraph on page 45 of the Statement of Basis, and associated footnotes, under the heading below:

Condition 7.1.9(c) (ii) (B)

...

In Condition 7.1.9(c) (ii) (B), a specific value for the level of opacity, 20 percent, 3-hour average, is now set as part of the Periodic Monitoring to assure compliance with the PM standard. This value takes the place of the statistical criterion or "method" that would have been required by the initial CAAPP Permit for the future establishment by Illinois Power

Generating Company of value(s) of opacity that would serve to assure compliance with the PM standard.⁵⁸ The "alternative" approach to Periodic Monitoring for PM that is now present in the revised permit is consistent with the relevant conclusion from the USEPA's decision in *In the Matter of Midwest Generation, LLC, Waukegan Generating Station*.⁵⁹ ~~The selected value for opacity, 20 percent, was determined considering available results for PM testing for the boilers. These results indicate that the boilers would comply with the PM standard if the opacity is no more than 20 percent, 3-hour average.~~⁶⁰ Because 35 IAC 212.122 generally constrains opacity of the boilers to no more than 20 percent, it would have been of limited value to further consider the PM emission rates that might accompany higher levels of opacity. Such an evaluation would have addressed circumstances in which opacity exceedances were occurring and Illinois Power Generating Company should already be taking corrective actions.⁶¹

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Footnotes:

⁵⁸ By way of further explanation, Newton Energy Center appealed Condition 7.1.9(c) (ii) in the initial CAAPP permit, which would have required it to develop a value for opacity based on the results of emissions testing, with a numerical value for opacity set at the "upper bound of the 95 percent confidence interval". Illinois Power Generating Company argued that this requirement imposed an "unreasonable burden" and would not generate information that could be used in conjunction with other actions to address compliance with the PM standard(s). Settlement discussions confirmed the difficulties in this condition of the initial permit. Among other things, it required the correlation between opacity and PM emissions to meet a statistical criterion as related to the confidence interval. This criterion would not necessarily be able to be met given the nature of the correlation between opacity and PM emissions and the data that would be available from emissions testing to develop the correlation.

⁵⁹ The USEPA's Order in *In the Matter of Midwest Generation, LLC, Waukegan Generating Station*, is considered appropriate guidance from USEPA for this proceeding. This is because it addresses Title V permitting of a coal-fired power plant in Illinois.

~~⁶⁰ These test reports for the boilers provide data for the measured PM emission rates and the monitored levels of opacity during the period of testing. The review of this data initially focused on a numerical value of 20 percent because this is the numerical value of the opacity standard set by 35 IAC 212.122(a). Because it was concluded that the boilers would comply with the PM standard if the opacity was 20 percent, 3-hour average, it was not necessary to consider values for opacity lower than 20 percent.~~

~~⁶¹ It is also unlikely that a further evaluation of PM emissions at higher levels of opacity would lead to definitive determinations of the levels of opacity that are indicative of a violation of the PM standard by the coal-fired boilers at the Newton Energy Center. This is because of the small amount of data for PM emissions upon which such an evaluation would currently be based.~~ The nature of the relationship between opacity and PM emissions also means that a level of opacity at which compliance with the PM standard is reasonably assured can be more readily determined than a level of opacity that constitute clear evidence of a real violation of the PM standard. In this regard, the fact that levels of opacity from the boilers at or below 20 percent reasonably assure compliance with the PM standard does not mean that the converse also applies, i.e., that opacity above 20 percent indicates real violations of the PM standard. At the present time, it is not appropriate to draw additional conclusions beyond

the narrow conclusion that opacity within 20 percent should assure compliance with the PM standard.

Revision 3:

From the first paragraph on page 46 of the Statement of Basis, and associated footnotes, under the heading below:

Condition 7.1.13-1 - Conditional Approval of CAM Plan

In new Condition 7.1.13-1, the Illinois EPA is proposing to "conditionally approve" the CAM Plan submitted by Illinois Power Generating Company for the PM emissions of the coal-fired boilers, as discussed above.⁶² This plan would be conditionally approved because there is currently ~~not sufficient~~ no test data for the coal-fired boilers for PM emissions with concurrent data for opacity.⁶³ Therefore, Illinois Power Generating Company must conduct further testing for PM emissions to confirm the ability of the monitoring to provide data sufficient to satisfy 40 CFR Part 64 and/or confirm the appropriateness of indicator ranges or designated conditions to satisfy 40 CFR 64.3(a) (2) and (3).

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Footnotes:

⁶² Conditional approval of CAM Plans is provided for by the CAM Rule. See 40 CFR 64.7(a), 64.6(d) and 64.4(e).

⁶³ Illinois Power Generating Company now operates additional air pollution control systems on the coal-fired boilers. These systems were recently installed pursuant to Construction Permits 08010049 and 11070007~~10070051~~. These systems further control emissions of NO_x, Hg, and SO₂~~and PM~~. The use of these systems potentially affects the PM emissions of the boilers, acting to either raise or lower the PM emission rates. ~~Most of the PM emission data that is available for the boilers is from testing conducted prior to installation of these systems.~~ Because of the limited test data that is available for operation with these systems, Illinois Power Generating Company has proposed to conduct additional testing to support selection of an appropriate indicator value for opacity and potentially other operating parameters of the boilers to address compliance with the PM standard.

Revision 4:

From the fourth paragraph on page 52 of the Statement of Basis under the heading below:

a. Coal-Fired Boilers

...

For PM, for which continuous emissions monitoring is not performed, emissions testing is required. ~~Recent testing of the boilers for PM showed compliance with the applicable limit (0.1 lb/mmBtu) with a significant margin of compliance.~~ Initial PM testing under the CAAPP is to be performed within one year of Condition 7.1.7(a) becoming effective. The time interval between subsequent stack testing is, in part, dictated by the results of the prior test. CO testing is also

required for the boilers and shall be performed in conjunction with PM testing unless a CO test was completed during a prior relative accuracy test audit (RATA) for the continuous emissions monitoring systems. Required testing is to be conducted in the maximum operating load range and during other operating conditions that are consistent with normal operation of the boilers.

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