BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
AMENDMENTS TO	)	R18-20
35 ILL. ADM. CODE 225.233	)	(Rulemaking – Air)
MULTI-POLLUTANT STANDARDS	)	
(MPS)	)	

NOTICE OF FILING

PLEASE TAKE NOTICE that on this 3rd day of April 2018, I have filed with the Clerk of the Illinois Pollution Control Board, the Pre-Filed Testimony of Andrew Armstrong on behalf of the Illinois Attorney General's Office in the above-referenced case, a copy of which is hereby served upon you.

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS
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CERTIFICATE OF SERVICE

I, STEPHEN J. SYLVESTER, an attorney, do certify that on April 3, 2018, I caused the Pre-Filed Testimony of Andrew Armstrong on behalf of the Illinois Attorney General's Office and the Notice of Filing to be served upon the persons listed in the attached Service List by email for those who have consented to email service and by U.S. Mail for all others.

/s/ Stephen J. Sylvester
STEPHEN J. SYLVESTER

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

The Illinois Attorney General's Office, on behalf of the People of the State of Illinois ("People"), hereby files the pre-filed testimony of Assistant Attorney General Andrew Armstrong, as provided by the Hearing Office Order issued on March 14, 2018.

I. INTRODUCTION

During the March 7, 2018 hearing, witnesses for the People were asked by counsel for Dynegy Midwest Generation, LLC, Illinois Power Generating Company, Illinois Power Resources Generating, LLC and Electric Energy, Inc. (collectively, "Dynegy") whether the Illinois Attorney General would support Illinois EPA's proposed annual mass-based emission caps for sulfur dioxide ("SO_2") and nitrogen dioxide ("NOx"), should the Illinois Pollution Control Board ("Board") move forward with the Illinois Environmental Protection Agency's ("Illinois EPA") October 2, 2017 proposal to amend the Multi-Pollutant Standards ("MPS"). *See*, *e.g.*, March 7, 2018 R18-20 Hearing Transcript at 41, line 24, to 42, line 4. We do not support the Illinois EPA's proposed SO_2 annual emission cap of 49,000 tons nor the NOx annual emission cap of 25,000 tons.

This testimony, first and foremost, restates the position in the People's Pre-Filed Testimony filed December 11, 2017: the Board should reject the Illinois EPA's proposed amendments and this rulemaking. Illinois EPA's proposal would have a negative environmental impact. By removing annual fleet-wide emission rate limits for SO_2, the proposed amendments

would authorize prospective new owner Vistra Energy Corporation to close down up to four power plants that are relatively well-controlled for SO_2—Baldwin, Coffeen, Duck Creek, and Havana—and increase the utilization of higher-polluting plants. *See, e.g.*, March 6, 2018 R18-20 Hearing Transcript at 140, line 1, to 141, line 16 (Illinois EPA's witness agreeing that its proposed amendments would newly allow Vistra or Dynegy to close down controlled plants while continuing to operate higher-polluting plants).

Moreover, Illinois EPA's proposed annual mass-based emission caps would immediately permit SO_2 and NOx pollution from the current MPS units to significantly increase in excess of actual emissions under the current MPS. Below, we offer an analysis of actual emissions under the current MPS, using actual historical heat inputs and unit-level emission rates. This analysis demonstrates that Illinois EPA's proposed caps of 49,000 tons of SO_2 and 25,000 tons of NOx far exceed the current MPS units' actual emissions of both pollutants for each of the past five years, from 2013 through 2017.

Moreover, even if the MPS units in the future could otherwise reach peak historical heat inputs, the current MPS would limit actual emissions of both SO_2 and NOx to amounts well below levels that would be permitted by Illinois EPA's proposed caps. This outcome becomes particularly clear when the MPS's requirement of averaging unit-level emission rates across the MPS groups is taken into account. In a nutshell: under the current MPS, Dynegy cannot operate its higher-polluting uncontrolled units as intensively as it did before, relative to controlled units, because the fleet as a whole could not meet now applicable MPS emission rate limits. Applying 2017 unit-level emission rates and the same 2002 actual unit-level heat inputs earlier relied upon by Illinois EPA to show compliance with the Regional Haze Rule, we have projected actual annual emissions of no more than **34,094 tons of SO_2 and 18,920 tons of NOx** under the

current MPS. *See* Attachment 9. Any annual emission caps that exceed those levels would certainly permit greater emissions from the MPS fleet than would be expected under the current MPS—particularly if such caps are not reduced upon the retirement or mothballing of MPS units.

To be clear: the People do not propose any new rules, or amendments thereto, but rather that the Board reject Illinois EPA's proposal for its failure to provide any environmental benefit. *See In the Matter of Amendments to 35 Ill. Adm. Code 225, Control of Emissions from Large Combustion Sources (Mercury Monitoring)*, R09-10 (Apr. 16, 2009) at 29 (adopting amendments to the MPS where they offered a "net environmental benefit"). If the Board does proceed with this rulemaking, though, the People suggest that the Board significantly revise Illinois EPA's proposed annual mass-based emission caps downward, at least to 34,094 tons for SO_2 and 18,920 tons for NOx, and to require that such caps be reduced upon the retirement or mothballing of MPS units. *See* 35 Ill. Adm. Code 102.600(a).[1]

In addition to responding to Dynegy's question presented at the March 7, 2018 hearing, this testimony also states support for the concept advanced by Board Member Zalewski during the January 18, 2017 hearing of "layering" one or more emission rate limits over mass-based emission caps. January 17, 2018 R18-20 Hearing Transcript at 30, lines 19-23. Bolstering Illinois EPA's proposed mass-based emission caps with emission rate limits would help ensure that the MPS fleet continues utilizing all current pollution controls—including an SO_2 control device at Newton Unit 1 that apparently was in operation during 2017, but not to this

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[1] Section 102.600(a) of the Board's Procedural Rules, 35 Ill. Adm. Code 102.600(a), provides as follows:

> The Board may revise the proposed regulations before adoption upon its own motion or in response to suggestions made at hearing and in written comments made prior to second notice. No additional hearings on the revisions need be held.

point disclosed[2] to the Board.[3] The People at this time are not proposing any specific emission rates for the Board to consider and adopt, as our position has consistently been that the Board should reject the proposal. However, we have provided, for the Board's consideration, unit-level emission rates for each current MPS unit for the past five years, from 2013 through 2017. *See* IAGO Pre-Filed Testimony (Dec. 11, 2017) (2016), Ex. 1; Attachments 3-6 hereto (2013-2015 and 2017). This historical data demonstrates that the MPS units' emission rates are in fact consistent from year to year. Accordingly, in our view, Board Member Zalewski's proposal has merit and should be further considered by the Board, if it determines that the MPS should be revised at all.[4]

II. THE BOARD SHOULD CONSIDER THE IMPACT ILLINOIS EPA'S AMENDMENTS WOULD HAVE ON ACTUAL EMISSIONS.

Illinois EPA in this proceeding has advanced two notable premises in support of its proposed emission caps: (1) that it is required under Section 110(l) of the Clean Air Act, 42 U.S.C. § 7410(l), to compare the emissions that would be "allowable" under its proposed amendments, to those that would be "allowable" under the MPS as it currently stands; and (2) that it would be "problematic" to compare "actual" emissions under the current MPS to projected

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[2] The Board specifically asked Illinois EPA to "[p]rovide a table listing each facility and unit along with the current pollution control equipment." IEPA January 12, 2018 Responses to Pre-Filed Questions at 7, Ques.10.

[3] *See* Attachments 9 and 10 (May 24, 2016 construction permit and June 9, 2017 revised construction permit for SO_2 control equipment issued by Illinois EPA to Dynegy).

[4] In our December 11, 2017 Pre-Filed Testimony, we also suggested the Board might consider combining the two existing MPS Groups into a single group, under new emission rates. The Board in its Pre-filed Questions to Illinois EPA sought the Agency's position on this issue. Illinois EPA rejected this approach claiming that it would not provide the "operational flexibility" Dynegy sought. IEPA January 12, 2018 Responses to Pre-Filed Questions at 2-3, Ques. 1.b. At this point, since there has been no further interest expressed in that concept, we do not provide any additional suggestions to the Board along those lines.

"actual" emissions if the MPS amendments were adopted. *See, generally*, IEPA Technical Support Document at 8-12.

Both premises are faulty. First, as discussed in this section of our testimony, there is no requirement under the Clean Air Act that Illinois EPA or the Board consider only an "allowable-to-allowable" comparison in evaluating Illinois EPA's proposed amendments. Rather, the United States Environmental Protection Agency ("USEPA") has consistently taken the position that an "anti-backsliding" analysis under Section 110(l) requires consideration of a proposed SIP amendment's impact on "actual," not allowable, emissions. Second, as discussed below, the actual emissions from the MPS fleet for the past three years have been significantly below the caps proposed by Illinois EPA and, moreover, would remain so under the current MPS even if the fleet were otherwise capable of increasing heat inputs to historical peaks.

As an initial point, the Board's decision of whether to move forward with Illinois EPA's proposed amendments is not in any case constrained to an analysis under Section 110(l). When the Board previously adopted amendments to the MPS in 2009, it did so because it found the amendments offered a "net environmental benefit," based on an analysis of projected actual—not allowable—emissions. *In the Matter of Amendments to 35 Ill. Adm. Code 225, Control of Emissions from Large Combustion Sources (Mercury Monitoring)*, R09-10 (Apr. 16, 2009) at 16, 29. The Board made the same finding when it granted variances from the MPS in 2012 and 2013. *Ameren Energy Resources v. IEPA*, PCB 12-126 (Sept. 20, 2012); *Illinois Power Holdings, LLC v. IEPA*, PCB 14-10 (Nov. 21, 2013) at 37. There is no reason for the Board to impose a lesser standard in assessing the amendments Illinois EPA now proposes.

Moreover, though, Illinois EPA's interpretation of Section 110(l) of the Clean Air Act is inconsistent with USEPA's. Illinois EPA asserts that "the methodology used by the Agency to

calculate **allowable** emissions was chosen because it is the method the State is required to use to demonstrate that this SIP revision is approvable by USEPA." IEPA Responses and Information Requested from the January Hearings (Feb. 16, 2018), at 2 n.1 (emphasis added). USEPA, though, has long taken the position that the appropriate inquiry when conducting an "anti-backsliding" analysis pursuant to Section 110(l) is whether "**actual**" emissions, not allowable emissions, will increase. *See, e.g., Kentucky Resources Council, Inc. v. EPA*, 467 F.3d 986, 995 (6th Cir. 2006) ("As long as **actual** emissions in the air are not increased, EPA believes that equivalent (or greater) emissions reductions will be acceptable to demonstrate non-interference.") (quoting 70 Fed. Reg. 28429, 28430 (May 15, 2005)) (emphasis added); USEPA, *Approval and Revision of Air Plans; Arizona; Regional Haze State and Federal Implementation Plans; Reconsideration*, 83 Fed. Reg. 15139, 15149 (Mar. 27, 2017) (cited by Dynegy to Illinois EPA on page 3 of memorandum attached as Attachment 9 to IEPA Responses to Pre-Filed Questions (Jan. 12, 2018)).

The difference between "allowable" and "actual" emissions can be seen by comparing Sections 203.104 and 203.107 of the Board's Air Pollution Regulations, 35 Ill. Adm. Code 203.104 and 203.107, pertaining to construction and modification of major sources. In this proceeding, Illinois EPA has provided the following definition of "allowable emissions": "Allowable emissions simply means the amount of a given pollutant that a unit source, or in this case, a group of sources, is allowed by rule, law, or permit to emit." January 17, 2018 R18-20 Hearing Transcript at 22, lines 5-8. This definition reflects the definition of "allowable emissions" provided in 35 Ill. Adm. Code 203.107.[5] By contrast, 35 Ill. Adm. Code 203.104

[5] 35 Ill. Adm. Code 203.107 provides the following definition:

provides the following definition for "actual emissions":

> "Actual Emissions" means the actual rate of annual emissions of a pollutant from an emissions unit as of a particular date. Actual emissions are equal to the average rate, in tons per year, at which the emissions unit actually emitted the pollutant during the two-year period which immediately precedes the particular date or such other period which is determined by the Illinois Environmental Protection Agency (Agency) to be representative of normal source operation. Actual emissions shall be calculated using the unit's actual operating hours, production rates, and types of materials processed, stored or combusted during the selected time period; however:
>
> a) The Agency shall allow the use of a different time period upon a demonstration by the applicant to the Agency that the time period is more representative of normal source operation. Such demonstration may include, but need not be limited to, operating records or other documentation of events or circumstances indicating that the preceding two years is not representative of normal source operations . . . .

A key difference, then, between "allowable emissions" and "actual emissions" is that "actual emissions" reflect actual historical "operating hours" and "production rates," as well as historical emission rates. *Id*. Considering actual emissions requires some analysis of how pollution sources operate in the real world, not just the maximum amount of pollution they

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"Allowable emissions" means the emission rate of a stationary source calculated using the maximum rated capacity of the source (unless the source is subject to federally enforceable permit conditions or other such federally enforceable limits which restrict the operating rate, or hours of operation, or both) and the most stringent of the following:

1) Any applicable standards adopted by the United States Environmental Protection Agency (USEPA) pursuant to Sections 111 and 112 of the Clean Air Act (42 U.S.C. 7401, et seq.) and made applicable in Illinois pursuant to Section 9.1 of the Environmental Protection Act (Act) (Ill. Rev. Stat. 1991, ch. 111 1/2, pars. 1001 et seq.) [415 ILCS 5/1 et seq.];

2) The applicable emission standards or limitations contained in this Chapter and approved by USEPA pursuant to Section 110(a)(2) or 110 (a)(3) of the Clean Air Act, including those standards or limitations with a future compliance date and any other emission standard or limitation enforceable under the Environmental Protection Act or by the USEPA under Section 113 of the Clean Air Act; or

3) The emissions rate specified as a federally enforceable permit condition including those emissions rates with a future compliance date.

would legally be allowed to emit in a non-existent reality of maximum operation and emission rates.

Analyzing proposed amendments to a rule regulating specifically coal-fired power plants based solely on "allowable" emissions would paint a particularly distorted picture of those amendments' environmental impact. As USEPA maintained to the Seventh Circuit Court of Appeals in 2014, it was USEPA's "long-standing practice and EPA policy" to use actual emissions data for coal-fired power plants "when demonstrating permanent and enforceable emission reductions." *Sierra Club v. USEPA*, 774 F.3d 383, 396 (7th Cir. 2014) (quoting USEPA brief).[6] USEPA implemented this policy because "assuming that all sources would be operating at maximum capacity at once would result in a gross overestimation of levels." *Id.* The Seventh Circuit concurred with USEPA's approach: "[USEPA] has articulated a rational basis for its conclusion . . . that using maximum allowable emissions levels for power plants would have been unrealistic." *Id*. at 397.

Using maximum allowable emissions in this rulemaking as the sole basis for analyzing the proposal's environmental impact would be equally unrealistic and unreasonable. The Board instead should consider actual emissions and the beneficial impact that the MPS currently has, and reject the proposed amendments.

III. THE MPS FLEET'S ACTUAL EMISSIONS FOR THE PAST THREE YEARS HAVE BEEN WELL BELOW ILLINOIS EPA'S PROPOSED EMISSION CAPS.

Simply put: coal-fired power plants do not operate all of the time. In a chart attached to the Illinois Attorney General's Responses to Questions Raised During First Set of Hearings, the People provided capacity factors for current MPS units, from 2008 through 2017, calculated

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[6] The court's decision related to USEPA's redesignation of areas as having attained the 1997 National Ambient Air Quality Standards for ozone. *Id*. at 383.

using publicly available data. *See* IAGO Responses at 2-3 (explaining methodology) and Exhibit 1. This chart with the capacity factors for current MPS units, from 2008 through 2017, is reattached as Attachment 1 hereto. For 2008 through 2014, the overall capacity factors for current MPS units ranged from 71% to 78%—significantly below maximum capacity. Over the past three years, the units' overall capacity factors declined, ranging between only 55% to 59% (2015: 59%; 2016: 55%; 2017: 57%).

One of the consequences of the MPS fleet's steep decline in capacity factor is annual SO_2 and NOx emission levels that have been far below Illinois EPA's proposed caps of 49,000 tons of SO_2 and 25,000 tons of NOx. A note on these calculations: we filed as Exhibit 1 to our December 11, 2017 Pre-Filed Testimony a spreadsheet including data from USEPA's Air Markets Program Data tool for the current MPS units for the year 2016. Included here as Attachments 3 through 6 are spreadsheets including the same information for the current MPS units, for the years 2013 through 2015 and 2017, again prepared through the same procedure described on pages 8 to 9 of our December 11, 2017 Pre-Filed Testimony. The following table is based on those spreadsheets:

Table 1:

Year	SO_2 Annual Tons	NOx Annual Tons
2013	43,324	18,849
2014	44,382	18,085
2015	35,706	15,309
2016	27,621[7]	13,925
2017	30,578	15,900

The disparity between Illinois EPA's proposed caps and the MPS units' actual emissions over the past five years should give the Board pause. This five-year period even includes two years—2013 and 2014—of relatively higher heat inputs. Looking at the most recent year, Illinois EPA's proposed SO_2 and NOx caps are respectively 60% and 57% higher than MPS units' actual emissions in 2017. The proposed caps bear little relation to the MPS fleet's real-world operations and, instead, would immediately allow for a significant increase in pollution.

IV. EVEN IF THE MPS FLEET RETURNED TO HISTORICAL PEAK HEAT INPUTS, ILLINOIS EPA'S PROPOSED CAPS EXCEED PROJECTED ACTUAL EMISSIONS UNDER THE CURRENT MPS.

Illinois EPA and Dynegy have contended in this rulemaking that the MPS fleet's operations in recent years have not been representative of normal conditions. *Cf.* 35 Ill. Adm. Code 203.104(a). This premise is questionable, at best, given the seismic changes in energy

[7] SO_2 emissions for 2013 through 2016 reflect that the Old Ameren Group was not yet at those times subject to the current MPS rate of 0.23 lb/mmBtu SO_2, which became applicable during 2017.

markets Dynegy itself has testified to as a justification for Illinois EPA's proposed amendments. *See*, *generally*, Pre-filed Testimony of Dean Ellis (Dec. 11, 2017) at 6-11. Even accepting the premise for the sake of argument, though, Illinois EPA's proposed caps are too high compared even with expected emissions under the current MPS at historical peak heat inputs.

Attachment 2 to this testimony is an expanded version of Attachment 1, the table showing historical capacity factors for the current MPS units. Attachment 2 further includes historical annual unit-level heat inputs, and historical annual heat inputs for the current MPS groups, overall. Like the heat inputs in Attachments 3 through 6, these historical heat inputs were obtained from USEPA's Air Markets Program Data tool. Based on those historical heat inputs, Attachment 2 then calculates what levels of annual SO_2 and NOx emissions **would have been** permissible under the overall group MPS emission rate limits currently applicable to the Dynegy and Old Ameren Groups, disregarding the Groups' actual unit-level emission rates.

As Attachment 2 shows, if the current MPS emission rate limits had been in place for the past ten years, then the current MPS units would at no point during the past ten years have been permitted to emit either 49,000 tons of SO_2 or 25,000 tons of NOx annually, based on the actual overall heat inputs for the Dynegy and Old Ameren Groups for each year in that period. To be clear: as discussed further below, when the current MPS's requirement to average together unit-level emission rates is taken into account, the current MPS units could not in any event return to peak historical capacity factors and still comply with the now effective MPS emission rate limits. Even assuming, though, that the current MPS units could otherwise return to their past-decade peak overall heat input (from 2011) of 445,904,570 mmBtu (194,717,709 mmBtu for the Dynegy Group and 251,186,861 for the Old Ameren Group), in compliance with MPS emission rate limits, the MPS would still limit the units to no more than 47,385 tons of SO_2 emissions and

23,551 tons of NOx emissions annually. So, even disregarding the units' actual emission rates, Illinois EPA's proposed annual caps on SO_2 and NOx exceed what the current MPS would permit even under the highest actual heat inputs of the past ten years.[8]

This analysis is also confirmed by the updated tables Illinois EPA included as Attachment 7 to its Responses to Pre-filed Questions filed January 12, 2018 (for convenience's sake, reattached as Attachment 7 hereto). These tables calculated projected actual emissions from the current MPS units using 2002 actual unit-level heat inputs and currently applicable MPS emission rate limits. The resulting projections were 44,920 tons of SO_2 and 22,469 tons of NOx. Again: the disparity between Illinois EPA's proposed caps and emissions reflecting real-world heat inputs should give the Board pause.

V. THE BOARD FURTHER SHOULD CONSIDER THE MPS UNITS' ACTUAL HISTORICAL EMISSION RATES.

In considering the environmental impact of Illinois EPA's proposed amendments, the Board also should consider the MPS units' actual historical emission rates. The units' emission rates are one of the basic components of their actual emissions. Moreover, the MPS requirement that unit-level emission rates be averaged to meet fleet-wide emission rate limits is one of the current rule's central features. While Illinois EPA and Dynegy have implied in this proceeding that the MPS units' emission rates are too variable to yield meaningful analysis, they have provided no evidence of the units' historical emission rates. Our analysis of actual emission rates from 2013 through 2017 demonstrates the opposite: MPS unit-level emission rates have been quite consistent. *See* IAGO Pre-Filed Testimony (Dec. 11, 2017), Ex. 1 (2016);

[8] The 2011 combined heat input of 445,904,570 mmBtu is 42% higher than 2017's combined heat input of 314,776,210 mmBtu.

Attachments 3-6 (2013-2015, 2017). The sole exception is Newton Unit 1's 2017 SO_2 emission rate, which appears to have been influenced by a newly installed pollution control device which has not been disclosed by Illinois EPA[9] or Dynegy to the Board in this proceeding.

Considering unit-level emission rates is key to understanding the current MPS's full environmental impact. The MPS is a fleet-wide standard. It requires an operator of MPS units to average the emission rate of each individual unit in order to meet the fleet-wide emission rate limits for the Dynegy and Old Ameren Groups. Determining compliance with the MPS therefore requires considering the annual heat input and SO_2 and NOx emissions of each individual MPS unit. If Dynegy operates a unit that emits either SO_2 or NOx at a rate higher than the applicable MPS emission rate limit, it must then also operate a unit that emits that pollutant at a rate below the limit, to comply with the limit. The consequence of this rule is that an operator of MPS units cannot run exclusively uncontrolled units; there must also be cleaner units in the generation mix. *See*, *e.g.*, March 6, 2018 R18-20 Hearing Transcript at 140, line 1, to 141, line 16.

This requirement to average individual units' emission rates to meet fleet-wide emission rate limits is not some unforeseen consequence of the MPS; it is a central feature. In fact, it was this averaging requirement that prompted Dynegy to seek variance relief from the MPS in 2013. At that time, Dynegy's witness Daniel P. Thompson testified that complying with the MPS's 2015 SO_2 emission rate of 0.25 lb/mmBtu for the Old Ameren Group would "effectively require each of the Newton, E.D. Edwards and Joppa energy centers to limit its respective generation to approximately one-third of its capacity." Petition for Variance, Ex. 8, Affidavit of

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[9] As stated in footnote 2, above, the Board specifically asked Illinois EPA to "[p]rovide a table listing each facility and unit along with the current pollution control equipment." IEPA January 12, 2018 Responses to Pre-Filed Questions at 7, Ques.10.

Daniel P. Thompson at 6, *Illinois Power Holdings, LLC v. IEPA*, PCB 14-10 (July 22, 2013). Clearly, Dynegy's prediction did not come to pass, given that the Old Ameren Group—including units at Newton, E.D. Edwards, and Joppa—currently complies with the even more stringent 2017 SO_2 emission rate of 0.23 lb/mmBtu. Nevertheless: ignoring the MPS's averaging requirement and the MPS units' unit-level emission rates turns a blind eye as to why this proceeding is before the Board.

Given the centrality of the averaging requirement to the MPS, it is puzzling why Illinois EPA did not consider it in proposing its caps. Illinois EPA has asked that the Board consider its proposed caps using as a baseline the current MPS units' "allowable emissions" operating at maximum capacity, at the highest emission rates allowed by the MPS. *See* IEPA Technical Support Document at 8-11. When asked during the January 17, 2018 hearing if the MPS fleet as currently controlled could actually operate at maximum capacity in compliance with the MPS's fleet-wide emission rate limits, though, Illinois EPA's witness testified that he did not know. January 17, 2018 R18-20 Hearing Transcript at 48, lines 13-24. In other words, Illinois EPA completely disregarded one of the MPS's central features when it developed its current proposal.

The reality is that the Old Ameren Group, as currently controlled, cannot operate at maximum capacity and comply with the MPS SO_2 emission rate limit. This was true when Dynegy said it in 2013 and it is true today. We established this point in Table 10 to our December 11, 2017 Pre-filed Testimony, which showed that the Old Ameren Group could not operate at maximum capacity in compliance with the MPS at its unit-level emission rates from 2016—the most recent available emission rates at the time we prepared the testimony. Illinois EPA and Dynegy then, at various points during subsequent hearings, implied that use of only

2016 emission rates presents a myopic view of the MPS units' operations—though failed to present any evidence of their own on historical emission rates. *See, e.g.*, January 17, 2018 R18-20 Hearing Transcript at 49, lines 4-12 (Illinois EPA stating that it could not consider the MPS units' actual emission rates without making "assumptions about the emission rates of other units that they are not required to meet on a unit or source-specific basis").

To address these purported concerns, we calculated the actual annual unit-level emission rates for each of the current MPS units for 2013 through 2015 and 2017, in the same manner described on page 8 of our December 11, 2017 Pre-Filed Testimony. *See* Attachments 3-6. In short: annual unit-level SO_2 and NOx emission rates have been consistent over the past five years throughout both the Dynegy and Old Ameren Group. Expressed to two decimal points—as are the emission rates in the MPS—the units at each MPS plant has had the following range of annual SO_2 emission rates:[10]

Table 2:

Plant	**Range of Annual SO_2 Emission Rates, 2013-2017 (lb/mmBtu)**
Baldwin	0.07 – 0.08
Havana	0.07 – 0.08
Hennepin	0.42 – 0.50
Coffeen	0.00 – 0.01
Duck Creek	0.00 – 0.02
Edwards	0.41 – 0.45
Joppa	0.39 – 0.51
Newton	0.40 – 0.51 (2013-2016); 0.29 (2017)

As demonstrated by these historical rates, the four plants identified by Illinois EPA in its testimony to have controls for SO_2—Baldwin, Havana, Coffeen, and Duck Creek—have

[10] The NOx emission rates are more unit-specific, as opposed to plant-specific, relative to SO_2 emission rates, but nevertheless also are consistent from year to year. *See* IAGO Pre-Filed Testimony (Dec. 11, 2017), Ex. 1; Attachments 3-6.

remained nearly identical from year to year. *See* IEPA Responses to Pre-Filed Questions (Jan. 12, 2018) at 7 (table identifying SO_2 and NOx controls at MPS plants). Plants for which Illinois EPA has not identified controls—Hennepin, Edwards, Joppa, and Newton—have slightly more variation, based on the sulfur content of coal burned that year, but still remain bounded between 0.39 lb/mmBtu and 0.51 lb/mmBtu SO_2, at the most extreme ranges. Accordingly, there is no need for Illinois EPA to make any "assumptions" about emission rates, January 17, 2018 R18-20 Hearing Transcript at 49, lines 4-12; these are the plants' actual historical emission rates for five years, and they are steady.

The one notable exception to the above paragraph is Newton Unit 1 in 2017. We hypothesize that Newton's 2017 SO_2 emission rate was impacted by Dynegy's operation of pollution control equipment at the plant. Included as Attachments 8 and 9 are a May 24, 2016 construction permit and a June 9, 2017 revised construction permit issued by Illinois EPA to Dynegy, related to such equipment. The June 9, 2017 revised permit authorizes "ductwork sorbent injection . . . to be conducted on an on-going basis on [Newton] Boiler 1." Attachment 9 at 1.b.i. It is unclear to us why Illinois EPA did not identify this as pollution control equipment for SO_2 in its January 12, 2018 Responses to Pre-Filed Questions (question 10, p. 7), or why Dynegy has not corrected Illinois EPA's omission.

The previously unidentified Newton pollution control equipment provides one good example of why "layered" emission rates over the Illinois EPA's proposed emission caps would be beneficial, if the Board decides to proceed with this rulemaking. Under the current MPS, unit-level emission rates for both SO_2 and NOx have been steady. *See* IAGO Pre-Filed Testimony (Dec. 11, 2017), Ex. 1; Attachments 3-6. If the MPS is amended to repeal the existing fleet-wide emission rates, though, there are no guarantees they will remain so.

Deactivating pollution control equipment, like the ductwork sorbent injection system installed at Newton, would be a clear instance of a step backward, environmentally—but it would be permitted by Illinois EPA's proposed amendments. We therefore offer the MPS units' actual historical unit-level emission rates for the Board's consideration as a basis for setting "layered" emission rates, if the Board finds any merit in amending the MPS for the unsupported notion of providing Dynegy with "operational flexibility."

VI. CONSIDERING BOTH ACTUAL HISTORICAL HEAT INPUTS AND EMISSION RATES, PROJECTED ACTUAL EMISSIONS UNDER THE MPS ARE WELL BELOW ILLINOIS EPA'S PROPOSED CAPS.

Taking into account both actual historical heat inputs and emission rates, it is clear that Illinois EPA's proposed caps would permit significantly more pollution than the current MPS. As such, this proposal clearly conflicts with Title II of the Illinois Environmental Protection Act's stated purpose, which is to "restore, maintain, and enhance the purity of the air of this State." 415 ILCS 5/8 (2016). Illinois EPA has posited that, while its proposed amendments might permit an increase in actual emissions if MPS units have higher capacity factors in the future, the current MPS also would permit similar—or even greater—increases in that scenario. *See*, *e.g.*, March 6, 2018 R18-20 Hearing Transcript at 139, lines 3-24.

Illinois EPA is incorrect, as is demonstrated by Attachment 9. This spreadsheet takes as a basis the actual 2002 heat inputs for each of the current MPS units, and then applies actual 2017 unit-level emission rates to determine what levels of SO_2 and NOx emissions would be permitted under both the current MPS and Illinois EPA's proposed amendments. We selected 2002 heat inputs because: (1) that data previously has been relied upon by Illinois EPA to show compliance with the Regional Haze Rule; and (2) the overall 2002 heat input of 420,531,000 mmBtu is comparable to actual overall heat inputs during 2008 through 2014, years which Illinois EPA and Dynegy have asserted are more representative of the MPS fleet's operations

than 2015 through 2017.[11] We selected 2017 emission rates because: (1) they are the most current data; and (2) of the five years between 2013 and 2017, the Old Ameren Group's unit-level SO_2 emission rates allowed for the highest heat input without exceeding the current MPS's 0.23 lb/mmBtu emission rate limit. *Compare* "Table 10" on IAGO Pre-Filed Testimony (Dec. 11, 2017), Ex. 1, and Attachments 3-6. The results are as follows:

Table 4:

2002 Heat Inputs with 2017 Unit-Level Emission Rates	Annual SO_2 Emissions (Tons)	Annual NOx Emissions
Current MPS	34,094	18,920
Proposed Amendments	46,064	21,672

As Attachment 9 shows, were the MPS fleet even capable of again reaching 2002 historical actual heat inputs, the current MPS would not allow Dynegy to operate the Old Ameren Group at those levels, because the Old Ameren Group units lack adequate SO_2 controls. The Old Ameren Group's operations would be constrained by the MPS SO_2 emission rate, and its SO_2 and NOx emissions would be limited accordingly. Simply put: under the current MPS, Dynegy cannot operate its higher-polluting uncontrolled units as intensively as it did before, relative to controlled units, because Dynegy has intentionally chosen not to install the pollution controls that would allow it to comply with the current MPS. Illinois EPA's proposed amendments would remove that limitation and allow Dynegy or Vistra to increase SO_2 and NOx pollution, thereby rewarding the failure to invest in the plants, all to the detriment of the environment.

[11] As stated above, Illinois EPA and Dynegy's contentions in this regard are questionable, at best, given the drastic changes in energy markets in recent years, and while one year's data might constitute an outlier, three years of data represents a trend that appears to be the new "normal."

Accordingly, we maintain that the Board should reject Illinois EPA's proposal. If the Board does determine to proceed with this rulemaking, then we suggest that the Board reduce Illinois EPA's proposed caps at least to 34,094 tons for SO_2 and 18,920 tons for NOx. We further suggest that any caps the Board sets should decline when an MPS unit is mothballed or retired. Illinois EPA proposes that the operator's caps should decline when it sells a plant, but not when it retires or mothballs a plant. Letting the operator keep caps upon retirement or mothballing a plant, but not upon sale, would encourage greater pollution and, moreover, incentivize retirement over sale.

VII. CONCLUSION

We do not support the Illinois EPA's proposed SO_2 annual emission cap of 49,000 tons nor the NOx annual emission cap of 25,000 tons. Rather, Dynegy should be required to comply with the emission standards that it and Ameren, its predecessor in ownership, agreed to when the MPS was created. The Board should therefore reject Illinois EPA's proposal. If the Board determines that the record supports the use of mass-based standards, the Board should reduce Illinois EPA's proposed caps at least to 34,094 tons for SO_2 and 18,920 tons for NOx and, in addition, require that any such caps be reduced if and when Dynegy retires or mothballs units.

Further, if the Board adopts mass-based standards, it also should consider "layering" one or more emission rate limits to ensure use of good pollution controls at the MPS units.

Dated: April 3, 2018

Respectfully submitted,

PEOPLE OF THE STATE OF ILLINOIS,
by LISA MADIGAN,

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BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 1

Facility Name	Unit ID	2017 Gross Load (MW-h)	2016 Gross Load (MW-h)	2015 Gross Load (MW-h)	2014 Gross Load (MW-h)	2013 Gross Load (MW-h)	2012 Gross Load (MW-h)	2011 Gross Load (MW-h)	2010 Gross Load (MW-h)	2009 Gross Load (MW-h)	2008 Gross Load (MW-h)	Nameplate Capacity (MW)	2017 Capacity Factor	2016 Capacity Factor	2015 Capacity Factor	2014 Capacity Factor	2013 Capacity Factor	2012 Capacity Factor	2011 Capacity Factor	2010 Capacity Factor	2009 Capacity Factor	2008 Capacity Factor
Baldwin	1	4256973	3579945	3929009	3612677	4353264	4382095	4256142	4922426	4719810	4365766	625	78%	65%	72%	66%	80%	80%	78%	90%	86%	80%
Baldwin	2	4248869	4142070	3016142	4529481	4977489	4063944	4872441	5076725	3740462	4874545	635	76%	74%	54%	81%	89%	73%	88%	91%	67%	88%
Baldwin	3	0	2907612	4220738	4531695	4211091	4794276	5232122	3547576	4500586	4634595	635	0%	52%	76%	81%	76%	86%	94%	64%	81%	83%
Coffeen	1	2149649	1645863	1663873	2151742	1821705	1945318	2286431	2300356	1586382	2415664	389	63%	48%	49%	63%	53%	57%	67%	68%	47%	71%
Coffeen	2	3960975	3436013	3324374	3635208	3333747	3620176	3213509	3073162	2948670	3515473	617	73%	64%	62%	67%	62%	67%	59%	57%	55%	65%
Duck Creek	1	2166840	2338467	2363610	2477495	2766167	3075539	2327215	2827797	2137973	2482081	441	56%	61%	61%	64%	72%	80%	60%	73%	55%	64%
E D Edwards	2	1262963	1089069	1698538	1854000	1838296	1879308	1916844	1818425	1878918	1565992	281	51%	44%	69%	75%	75%	76%	78%	74%	76%	64%
E D Edwards	3	2046863	1938365	1475139	2111602	2302982	1937026	2332239	2446622	2390773	2187691	364	64%	61%	46%	66%	72%	61%	73%	77%	75%	69%
Havana	9	2848787	2671713	2115992	2850484	3153270	3023729	3290873	3356096	2280409	3060557	488	67%	62%	49%	67%	74%	71%	77%	79%	53%	72%
Hennepin	1	438327	416864	439325	459685	359877	515218	577749	573819	533447	397677	75	67%	63%	67%	70%	55%	78%	88%	87%	81%	61%
Hennepin	2	1378893	1158049	1246904	1379725	1411586	1808108	1804087	1868434	1775299	1339958	231	68%	57%	62%	68%	70%	89%	89%	92%	88%	66%
Joppa	1	875026	752282	956900	1312296	1292822	1260495	1418830	1456298	1424827	1151113	183	55%	47%	60%	82%	81%	79%	89%	91%	89%	72%
Joppa	2	801348	736600	871481	1320187	1256764	1233258	1194562	1397275	1318607	1516512	183	50%	46%	54%	82%	78%	77%	75%	87%	82%	95%
Joppa	3	685802	428451	840144	1247131	1186607	1102056	1361558	1341577	1365346	1497672	183	43%	27%	52%	78%	74%	69%	85%	84%	85%	93%
Joppa	4	530810	682622	921854	1333425	1267827	1225340	1437495	1439559	847003	1478670	183	33%	43%	58%	83%	79%	76%	90%	90%	53%	92%
Joppa	5	627033	382421	930759	1191697	1231189	1027743	1416709	1373654	1324612	1485316	183	39%	24%	58%	74%	77%	64%	88%	86%	83%	93%
Joppa	6	729089	476243	810991	1317637	1215881	1151848	1444091	1407797	1346374	1504067	183	45%	30%	51%	82%	76%	72%	90%	88%	84%	94%
Newton	1	3546555	2348892	2842906	3490220	3336394	3637379	3964715	4200305	4374462	4386205	617	66%	43%	53%	65%	62%	67%	73%	78%	81%	81%
TOTAL		32554802	31131541	33668679	40806386	41316958	41682856	44347613	44427903	40493961	43859554	6496	57%	55%	59%	72%	73%	73%	78%	78%	71%	77%

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 2

Facility Name	Unit ID	2017 Gross Load (MW-h)	2016 Gross Load (MW-h)	2015 Gross Load (MW-h)	2014 Gross Load (MW-h)	2013 Gross Load (MW-h)	2012 Gross Load (MW-h)	2011 Gross Load (MW-h)	2010 Gross Load (MW-h)	2009 Gross Load (MW-h)	2008 Gross Load (MW-h)	Nameplate Capacity (MW)	2017 Capacity Factor	2016 Capacity Factor	2015 Capacity Factor	2014 Capacity Factor	2013 Capacity Factor	2012 Capacity Factor	2011 Capacity Factor	2010 Capacity Factor	2009 Capacity Factor	2008 Capacity Factor
Baldwin	1	4256973	3579945	3929009	3612677	4353264	4382095	4256142	4922426	4719810	4365766	625	78%	65%	72%	66%	80%	80%	78%	90%	86%	80%
Baldwin	2	4248869	4142070	3016142	4529481	4977489	4063944	4872441	5076725	3740462	4874545	635	76%	74%	54%	81%	89%	73%	88%	91%	67%	88%
Baldwin	3	0	2907612	4220738	4531695	4211091	4794276	5232122	3547576	4500586	4634595	635	0%	52%	76%	81%	76%	86%	94%	64%	81%	83%
Coffeen	1	2149649	1645863	1663873	2151742	1821705	1945318	2286431	2300356	1586382	2415664	389	63%	48%	49%	63%	53%	57%	67%	68%	47%	71%
Coffeen	2	3960975	3436013	3324374	3635208	3333747	3620176	3213509	3073162	2948670	3515473	617	73%	64%	62%	67%	62%	67%	59%	57%	55%	65%
Duck Creek	1	2166840	2338467	2363610	2477495	2766167	3075539	2327215	2827797	2137973	2482081	441	56%	61%	61%	64%	72%	80%	60%	73%	55%	64%
E D Edwards	2	1262963	1089069	1698538	1854000	1838296	1879308	1916844	1818425	1878918	1565992	281	51%	44%	69%	75%	75%	76%	78%	74%	76%	64%
E D Edwards	3	2046863	1938365	1475139	2111602	2302982	1937026	2332239	2446622	2390773	2187691	364	64%	61%	46%	66%	72%	61%	73%	77%	75%	69%
Havana	9	2848787	2671713	2115992	2850484	3153270	3023729	3290873	3356096	2280409	3060557	488	67%	62%	49%	67%	74%	71%	77%	79%	53%	72%
Hennepin	1	438327	416864	439325	459685	359877	515218	577749	573819	533447	397677	75	67%	63%	67%	70%	55%	78%	88%	87%	81%	61%
Hennepin	2	1378893	1158049	1246904	1379725	1411586	1808108	1804087	1868434	1775299	1339958	231	68%	57%	62%	68%	70%	89%	89%	92%	88%	66%
Joppa	1	875026	752282	956900	1312296	1292822	1260495	1418830	1456298	1424827	1151113	183	55%	47%	60%	82%	81%	79%	89%	91%	89%	72%
Joppa	2	801348	736600	871481	1320187	1256764	1233258	1194562	1397275	1318607	1516512	183	50%	46%	54%	82%	78%	77%	75%	87%	82%	95%
Joppa	3	685802	428451	840144	1247131	1186607	1102056	1361558	1341577	1365346	1497672	183	43%	27%	52%	78%	74%	69%	85%	84%	85%	93%
Joppa	4	530810	682622	921854	1333425	1267827	1225340	1437495	1439559	847003	1478670	183	33%	43%	58%	83%	79%	76%	90%	90%	53%	92%
Joppa	5	627033	382421	930759	1191697	1231189	1027743	1416709	1373654	1324612	1485316	183	39%	24%	58%	74%	77%	64%	88%	86%	83%	93%
Joppa	6	729089	476243	810991	1317637	1215881	1151848	1444091	1407797	1346374	1504067	183	45%	30%	51%	82%	76%	72%	90%	88%	84%	94%
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TOTAL		32554802	31131541	33668679	40806386	41316958	41682856	44347613	44427903	40493961	43859554	6496	57%	55%	59%	72%	73%	73%	78%	78%	71%	77%

		2017 Heat Input (mmBtu)	2016 Heat Input (mmBtu)	2015 Heat Input (mmBtu)	2014 Heat Input (mmBtu)	2013 Heat Input (mmBtu)	2012 Heat Input (mmBtu)	2011 Heat Input (mmBtu)	2010 Heat Input (mmBtu)	2009 Heat Input (mmBtu)	2008 Heat Input (mmBtu)
DYNEGY GROUP											
Baldwin	1	38824663	32659083	37866256	32456229	39629830	43725328	37783602	42860896	42376555	38900401
Baldwin	2	40385824	38830110	28230422	42613958	46281964	38467310	45092055	46480909	34951998	47395103
Baldwin	3	0	30643341	42135390	44089201	41921039	48467691	50791868	34012081	43656835	44255109
Havana	9	30567133	30279146	23344525	31583549	34312338	32957602	36833553	35225775	22274295	30758032
Hennepin	1	4508524	4417514	4601595	4720259	3662676	5255799	5907566	5916688	5566820	4277351
Hennepin	2	14201402	12095937	12788515	14008763	13966816	18303983	18309065	19085795	18278934	13264585
TOTAL		**128487546**	**148925131**	**148966703**	**169471959**	**179774663**	**187177713**	**194717709**	**183582144**	**167105437**	**178850581**
MPS SO2 (tons)		**12206**	**14148**	**14152**	**16100**	**17079**	**17782**	**18498**	**17440**	**15875**	**16991**
MPS NOx (tons)		**6424**	**7446**	**7448**	**8474**	**8989**	**9359**	**9736**	**9179**	**8355**	**8943**
OLD AMEREN GROUP											
Coffeen	1	19939412	15328145	15993139	20571870	18461732	19425263	23901997	24410806	17549206	26759121
Coffeen	2	39101271	33234005	33529517	35557130	32217458	34734221	33598366	32608370	30016843	38553048
Duck Creek	1	19985699	23470382	22722935	22385698	23561779	25219962	24159532	28849323	21407745	23856295
E D Edwards	2	13212705	10948007	16917465	18609882	18193244	17880205	20921358	17992114	19069150	16796596
E D Edwards	3	17698112	17244294	13527349	20704034	22552954	18872502	25293516	26068920	24994709	24449330
Joppa	1	8983253	7703571	9580656	12635915	12547946	12687192	14397390	14851874	14380768	11899023
Joppa	2	8140886	7518431	8655055	12687892	12120069	12343639	11839036	14204176	13239471	15860012
Joppa	3	7034467	4327176	8363510	12153206	11530620	11223231	13628892	13382030	13958821	14928537
Joppa	4	5244525	6811839	9138359	12939835	12272250	12426971	14356229	14331786	8451146	14682159
Joppa	5	6357587	4027068	9581988	11893458	12289122	10838724	14674513	14188501	13595175	15084592
Joppa	6	7292449	4937499	8445632	13094796	12069593	12063815	14927835	14506686	13689006	15179949
Newton	1	33298298	23918941	27378355	32214778	31216532	35688037	39488197	42601247	43565338	42347365
TOTAL		**186288664**	**159469358**	**183833960**	**225448494**	**219033299**	**223403762**	**251186861**	**257995833**	**233917378**	**260396027**
MPS SO2 (tons)		**21423**	**18339**	**21141**	**25927**	**25189**	**25691**	**28886**	**29670**	**26900**	**29946**
MPS NOx (tons)		**10246**	**8771**	**10111**	**12400**	**12047**	**12287**	**13815**	**14190**	**12865**	**14322**
COMBINED											
TOTAL		**314776210**	**308394489**	**332800663**	**394920453**	**398807962**	**410581475**	**445904570**	**441577977**	**401022815**	**439246608**
MPS SO2 (tons)		**33630**	**32487**	**35293**	**42026**	**42267**	**43473**	**47385**	**47110**	**42776**	**46936**
MPS NOx (tons)		**16670**	**16217**	**17559**	**20873**	**21036**	**21646**	**23551**	**23369**	**21221**	**23264**

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

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STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 3

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/ hour)	Max Heat Input	Max SO2 tons	Max Group SO2 Rate	Max NOx Tons	Max Group Nox Rate
IL	Baldwin	889	1	2013	4353264	1513	1388	39629830	0.0764	0.0701	625	80%	6439	56405640	2154	0.0764	1976	0.0701
IL	Baldwin	889	2	2013	4977489	1714	1670	46281964	0.0741	0.0722	635	89%	5985	52428600	1942	0.0753	1892	0.0711
IL	Baldwin	889	3	2013	4211091	1576	1902	41921039	0.0752	0.0907	635	76%	6400	56064000	2108	0.0752	2543	0.0778
IL	Havana	891	9	2013	3153270	1130	1336	34312338	0.0659	0.0779	488	74%	5518	48337680	1592	0.0731	1883	0.0778
IL	Hennepin	892	1	2013	359877	883	259	3662676	0.4821	0.1413	75	55%	802	7025520	1694	0.0862	496	0.0798
IL	Hennepin	892	2	2013	1411586	3396	989	13966816	0.4863	0.1417	231	70%	2518	22057680	5364	0.1226	1562	0.0854
IL	Coffeen	861	1	2013	1821705	61	635	18461732	0.0066	0.0688	389	53%	3282	28750320	95	0.0066	989	0.0688
IL	Coffeen	861	2	2013	3333747	47	1251	32217458	0.0029	0.0776	617	62%	5544	48565440	71	0.0043	1885	0.0744
IL	Duck Creek	6016	1	2013	2766167	231	1268	23561779	0.0196	0.1076	441	72%	5025	44019000	431	0.0099	2368	0.0864
IL	ED Edwards	856	2	2013	1838296	4107	1752	18193244	0.4515	0.1926	281	75%	3321	29091960	6568	0.0953	2801	0.1069
IL	ED Edwards	856	3	2013	2302982	4852	777	22552954	0.4303	0.0689	364	72%	4594	40243440	8658	0.1660	1387	0.0989
IL	Joppa	887	1	2013	1292822	2843	730	12547946	0.4532	0.1164	183	81%	2300	20148000	4565	0.1934	1172	0.1006
IL	Joppa	887	2	2013	1256764	2741	711	12120069	0.4523	0.1173	183	78%	2300	20148000	4557	0.2160	1181	0.1020
IL	Joppa	887	3	2013	1186607	2622	614	11530620	0.4549	0.1066	183	74%	2300	20148000	4582	0.2352	1073	0.1024
IL	Joppa	887	4	2013	1267827	2783	657	12272250	0.4535	0.1071	183	79%	2300	20148000	4569	0.2514	1079	0.1028
IL	Joppa	887	5	2013	1231189	2802	670	12289122	0.4560	0.1091	183	77%	2300	20148000	4594	0.2655	1099	0.1032
IL	Joppa	887	6	2013	1215881	2751	657	12069593	0.4559	0.1089	183	76%	2300	20148000	4593	0.2779	1097	0.1036
IL	Newton	6017	1	2013	3336394	7270	1583	31216532	0.4658	0.1014	617	62%	7449	65253240	15196	0.3104	3309	0.1032
					41316958	43324	18849	398807962	0.2173	0.0945	6496	73%						

	Tons	Tons	Heat Input	Rate	
Dynegy Group 2013 SO2 Emissions	10213		179774663	0.114	Table 3
Dynegy Group 2013 SO2 Emissions Minus Baldwin 1, 3	7123		98223794	0.145	Table 4
Dynegy Group 2013 NOx Emissions		7545	179774663	0.084	Table 5
Dynegy Group 2013 NOx Emissions Minus Baldwin 1, 3		4255	98223794	0.087	Table 6
Old Ameren Group 2013 SO2 Emissions	33111		219033299	0.302	Table 7
Old Ameren Group 2013 NOx Emissions		11305	219033299	0.103	Table 8
Dynegy Group SO2 Emissions at Max Heat Input		14853			Table 9
Dynegy Group NOx Emissions at Max Heat Input		10353			Table 11
Old Ameren NOx Emissions Max Heat Input		19441			Table 12
Combined MPS SO2 Minus Baldwin 1 and 3		40235	317257093	0.2536	Table 14
Combined MPS NOx Minus Baldwin 1 and 3		15559	317257093	0.0981	Table 16

Table 10:

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/ hour)	Max Heat Input	Max SO2 tons	Max Group SO2 Rate
IL	Coffeen	861	2	2013	3333747	47	1251	32217458	0.0029	0.0776	617	62%	5544	48565440	71	0.0029
IL	Coffeen	861	1	2013	1821705	61	635	18461732	0.0066	0.0688	389	53%	3282	28750320	95	0.0043
IL	Duck Creek	6016	1	2013	2766167	231	1268	23561779	0.0196	0.1076	441	72%	5025	44019000	431	0.0099
IL	ED Edwards	856	3	2013	2302982	4852	777	22552954	0.4303	0.0689	364	72%	4594	40243440	8658	0.1146
IL	ED Edwards	856	2	2013	1838296	4107	1752	18193244	0.4515	0.1926	281	75%	3321	29091960	6568	0.1660
IL	Joppa	887	2	2013	1256764	2741	711	12120069	0.4523	0.1173	183	78%	2300	20148000	4557	0.1933
IL	Joppa	887	1	2013	1292822	2843	730	12547946	0.4532	0.1164	183	81%	2300	20148000	4565	0.2160
IL	Joppa	887	4	2013	1267827	2783	657	12272250	0.4535	0.1071	183	79%	2300	20148000	4569	0.2351
															29515	

Combined MPS SO2 Emissions at Max Heat Input (tons) **44367**

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 4

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/ hour)	Max Heat Input	Max SO2 tons	Max Group SO2 Rate	Max NOx Tons	Max Group Nox Rate
IL	Baldwin	889	1	2014	3612677	1213	1188	32456229	0.0748	0.0732	625	66%	6439	56405640	2109	0.0748	2065	0.0732
IL	Baldwin	889	2	2014	4529481	1490	1475	42613958	0.0699	0.0692	635	81%	5985	52428600	1834	0.0724	1815	0.0713
IL	Baldwin	889	3	2014	4531695	1706	2040	44089201	0.0774	0.0926	635	81%	6400	56064000	2169	0.0741	2594	0.0785
IL	Havana	891	9	2014	2850484	1068	1181	31583549	0.0676	0.0748	488	67%	5518	48337680	1635	0.0727	1807	0.0777
IL	Hennepin	892	1	2014	459685	1002	347	4720259	0.4246	0.1470	75	70%	802	7025520	1492	0.0839	516	0.0799
IL	Hennepin	892	2	2014	1379725	2959	1019	14008763	0.4224	0.1455	231	68%	2518	22057680	4659	0.1147	1605	0.0859
IL	Coffeen	861	1	2014	2151742	22	656	20571870	0.0022	0.0638	389	63%	3282	28750320	31	0.0022	917	0.0638
IL	Coffeen	861	2	2014	3635208	10	1223	35557130	0.0006	0.0688	617	67%	5544	48565440	13	0.0012	1670	0.0669
IL	Duck Creek	6016	1	2014	2477495	240	1065	22385698	0.0214	0.0952	441	64%	5025	44019000	472	0.0085	2094	0.0772
IL	ED Edwards	856	2	2014	1854000	4021	1723	18609882	0.4321	0.1851	281	75%	3321	29091960	6286	0.0904	2693	0.0980
IL	ED Edwards	856	3	2014	2111602	4244	704	20704034	0.4100	0.0680	364	66%	4594	40243440	8249	0.1579	1367	0.0917
IL	Joppa	887	1	2014	1312296	3080	701	12635915	0.4875	0.1109	183	82%	2300	20148000	4911	0.1894	1117	0.0935
IL	Joppa	887	2	2014	1320187	3093	710	12687892	0.4876	0.1119	183	82%	2300	20148000	4912	0.2154	1127	0.0951
IL	Joppa	887	3	2014	1247131	2950	654	12153206	0.4855	0.1077	183	78%	2300	20148000	4891	0.2371	1085	0.0961
IL	Joppa	887	4	2014	1333425	3137	696	12939835	0.4849	0.1076	183	83%	2300	20148000	4885	0.2555	1084	0.0970
IL	Joppa	887	5	2014	1191697	2866	602	11893458	0.4819	0.1012	183	74%	2300	20148000	4854	0.2711	1020	0.0973
IL	Joppa	887	6	2014	1317637	3154	662	13094796	0.4818	0.1011	183	82%	2300	20148000	4853	0.2848	1018	0.0975
IL	Newton	6017	1	2014	3490220	8126	1440	32214778	0.5045	0.0894	617	65%	7449	65253240	16460	0.3228	2917	0.0961
					40806387	44382	18085	394920453	0.2248	0.0916	6496	72%						

	Tons	Tons	Heat Input	Rate	
Dynegy Group 2014 SO2 Emissions	9439		169471959	0.111	Table 3
Dynegy Group 2014 SO2 Emissions Minus Baldwin 1, 3	6519		92926529	0.140	Table 4
Dynegy Group 2014 NOx Emissions		7251	169471959	0.086	Table 5
Dynegy Group 2014 NOx Emissions Minus Baldwin 1, 3		4022	92926529	0.087	Table 6
Old Ameren Group 2014 SO2 Emissions	34944		225448494	0.310	Table 7
Old Ameren Group 2014 NOx Emissions		10834	225448494	0.096	Table 8
Dynegy Group SO2 Emissions at Max Heat Input		13896			Table 9
Dynegy Group NOx Emissions at Max Heat Input		10403			Table 11
Old Ameren NOx Emissions Max Heat Input		18109			Table 12
Combined MPS SO2 Minus Baldwin 1 and 3		41463	318375023	0.2605	Table 14
Combined MPS NOx Minus Baldwin 1 and 3		14857	318375023	0.0933	Table 16

Table 10:

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/ hour)	Max Heat Input	Max SO2 tons	Max Group SO2 Rate
IL	Coffeen	861	2	2014	3635208	10	1223	35557130	0.0006	0.0688	617	67%	5544	48565440	13	0.0006
IL	Coffeen	861	1	2014	2151742	22	656	20571870	0.0022	0.0638	389	63%	3282	28750320	31	0.0012
IL	Duck Creek	6016	1	2014	2477495	240	1065	22385698	0.0214	0.0952	441	64%	5025	44019000	472	0.0085
IL	ED Edwards	856	3	2014	2111602	4244	704	20704034	0.4100	0.0680	364	66%	4594	40243440	8249	0.1085
IL	ED Edwards	856	2	2014	1854000	4021	1723	18609882	0.4321	0.1851	281	75%	3321	29091960	6286	0.1579
IL	Joppa	887	5	2014	1191697	2866	602	11893458	0.4819	0.1012	183	74%	2300	20148000	4854	0.1888
IL	Joppa	887	4	2014	1333425	3137	696	12939835	0.4849	0.1076	183	83%	2300	20148000	4885	0.2147
IL	Joppa	887	3	2014	1247131	2950	654	12153206	0.4855	0.1077	183	78%	2300	20148000	4891	0.2364
															29682	

Combined MPS SO2 Emissions at Max Heat Input (tons) **43579**

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 5

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/ hour)	Max Heat Input	Max SO2 tons	Max Group SO2 Rate	Max NOx Tons	Max Group Nox Rate
IL	Baldwin	889	1	2015	3929009	1503	1384	37866256	0.0794	0.0731	625	72%	6439	56405640	2238	0.0794	2061	0.0731
IL	Baldwin	889	2	2015	3016142	1062	985	28230422	0.0753	0.0698	635	54%	5985	52428600	1973	0.0774	1829	0.0715
IL	Baldwin	889	3	2015	4220738	1595	1879	42135390	0.0757	0.0892	635	76%	6400	56064000	2122	0.0768	2500	0.0775
IL	Havana	891	9	2015	2115992	858	892	23344525	0.0735	0.0764	488	49%	5518	48337680	1777	0.0761	1847	0.0773
IL	Hennepin	892	1	2015	439325	1048	317	4601595	0.4554	0.1379	75	67%	802	7025520	1600	0.0882	484	0.0792
IL	Hennepin	892	2	2015	1246904	2922	893	12788515	0.4569	0.1396	231	62%	2518	22057680	5039	0.1217	1540	0.0847
IL	Coffeen	861	1	2015	1663873	21	567	15993139	0.0027	0.0709	389	49%	3282	28750320	38	0.0027	1019	0.0709
IL	Coffeen	861	2	2015	3324374	16	1048	33529517	0.0010	0.0625	617	62%	5544	48565440	23	0.0016	1518	0.0656
IL	Duck Creek	6016	1	2015	2363610	78	1012	22722935	0.0069	0.0891	441	61%	5025	44019000	152	0.0035	1961	0.0741
IL	ED Edwards	856	2	2015	1698538	3609	1683	16917465	0.4266	0.1989	281	69%	3321	29091960	6205	0.0853	2893	0.0983
IL	ED Edwards	856	3	2015	1475139	2826	458	13527349	0.4179	0.0677	364	46%	4594	40243440	8408	0.1555	1363	0.0918
IL	Joppa	887	1	2015	956900	2360	548	9580656	0.4927	0.1144	183	60%	2300	20148000	4963	0.1877	1153	0.0940
IL	Joppa	887	2	2015	871481	2131	502	8655055	0.4924	0.1161	183	54%	2300	20148000	4960	0.2143	1170	0.0959
IL	Joppa	887	3	2015	840144	2070	458	8363510	0.4949	0.1095	183	52%	2300	20148000	4986	0.2368	1103	0.0970
IL	Joppa	887	4	2015	921854	2268	501	9138359	0.4964	0.1096	183	58%	2300	20148000	5000	0.2561	1104	0.0979
IL	Joppa	887	5	2015	930759	2332	515	9581988	0.4866	0.1076	183	58%	2300	20148000	4902	0.2721	1084	0.0986
IL	Joppa	887	6	2015	810991	2070	441	8445632	0.4901	0.1044	183	51%	2300	20148000	4938	0.2862	1052	0.0990
IL	Newton	6017	1	2015	2842906	6938	1226	27378355	0.5068	0.0895	617	53%	7449	65253240	16537	0.3244	2922	0.0973
					33668679	35707	15309	332800663	0.2146	0.0920	6496	59%						

	Tons	Tons	Heat Input	Rate	
Dynegy Group 2015 SO2 Emissions	8988		148966703	0.121	Table 3
Dynegy Group 2015 SO2 Emissions Minus Baldwin 1, 3	5890		68965057	0.171	Table 4
Dynegy Group 2015 NOx Emissions		6350	148966703	0.085	Table 5
Dynegy Group 2015 NOx Emissions Minus Baldwin 1, 3		3087	68965057	0.090	Table 6
Old Ameren Group 2015 SO2 Emissions	26719		183833960	0.291	Table 7
Old Ameren Group 2015 NOx Emissions		8959	183833960	0.097	Table 8
Dynegy Group SO2 Emissions at Max Heat Input		14750			Table 9
Dynegy Group NOx Emissions at Max Heat Input		10262			Table 11
Old Ameren NOx Emissions Max Heat Input		18340			Table 12
Combined MPS SO2 Minus Baldwin 1 and 3		32609	252799017	0.2580	Table 14
Combined MPS NOx Minus Baldwin 1 and 3		12046	252799017	0.0953	Table 16

Table 10:

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/ hour)	Max Heat Input	Max SO2 tons	Max Group SO2 Rate
IL	Coffeen	861	2	2015	3324374	16	1048	33529517	0.0010	0.0625	617	62%	5544	48565440	23	0.0010
IL	Coffeen	861	1	2015	1663873	21	567	15993139	0.0027	0.0709	389	49%	3282	28750320	38	0.0016
IL	Duck Creek	6016	1	2015	2363610	78	1012	22722935	0.0069	0.0891	441	61%	5025	44019000	152	0.0035
IL	ED Edwards	856	3	2015	1475139	2826	458	13527349	0.4179	0.0677	364	46%	4594	40243440	8408	0.1067
IL	ED Edwards	856	2	2015	1698538	3609	1683	16917465	0.4266	0.1989	281	69%	3321	29091960	6205	0.1555
IL	Joppa	887	5	2015	930759	2332	515	9581988	0.4866	0.1076	183	58%	2300	20148000	4902	0.1872
IL	Joppa	887	6	2015	810991	2070	441	8445632	0.4901	0.1044	183	51%	2300	20148000	4938	0.2136
IL	Joppa	887	2	2015	871481	2131	502	8655055	0.4924	0.1161	183	54%	2300	20148000	4960	0.2360
															29628	

Combined MPS SO2 Emissions at Max Heat Input (tons) **44378**

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 6

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/hour)	Max Heat Input	Max SO2 Tons	Max Group SO2 Rate	Max NOx Tons	Max Group NOx Rate	
IL	Baldwin	889	1	2017	4256973	1505	1593	38824663	0.0775	0.0821	625	78%	6439	56405640	2186	0.0775	2314	0.0821	
IL	Baldwin	889	2	2017	4248869	1618	1638	40385824	0.0801	0.0811	635	76%	5985	52428600	2100	0.0788	2127	0.0816	
IL	Baldwin	889	3	2017	0	0	0	0	0.0000	0.0000	635	0%	6400	56064000	2137	0.0779	2556	0.0849	**NOTE: 2016 Max SO2 Tons and Max NOx Tons**
IL	Havana	891	9	2017	2848787	1090	1240	30567133	0.0713	0.0811	488	67%	5518	48337680	1723	0.0764	1961	0.0840	
IL	Hennepin	892	1	2017	438327	1124	328	4508524	0.4984	0.1453	75	67%	802	7025520	1751	0.0899	510	0.0860	
IL	Hennepin	892	2	2017	1378893	3495	1030	14201402	0.4922	0.1451	231	68%	2518	22057680	5428	0.1265	1600	0.0914	
IL	Coffeen	861	1	2017	2149649	19	699	19939412	0.0019	0.0701	389	63%	3282	28750320	27	0.0019	1008	0.0701	
IL	Coffeen	861	2	2017	3960975	29	1783	39101271	0.0015	0.0912	617	73%	5544	48565440	36	0.0016	2214	0.0833	
IL	Duck Creek	6016	1	2017	2166840	25	1478	19985699	0.0025	0.1479	441	56%	5025	44019000	55	0.0019	3256	0.1068	
IL	ED Edwards	856	2	2017	1262936	2726	1318	13212705	0.4126	0.1996	281	51%	3321	29091960	6002	0.0814	2903	0.1247	
IL	ED Edwards	856	3	2017	2046863	3666	787	17698112	0.4142	0.0890	364	64%	4594	40243440	8335	0.1516	1790	0.1172	
IL	Joppa	887	1	2017	875026	2158	522	8983253	0.4804	0.1161	183	55%	2300	20148000	4839	0.1830	1170	0.1171	
IL	Joppa	887	2	2017	801348	1956	487	8140886	0.4804	0.1197	183	50%	2300	20148000	4840	0.2090	1206	0.1173	
IL	Joppa	887	3	2017	685802	1702	400	7034467	0.4839	0.1137	183	43%	2300	20148000	4875	0.2310	1146	0.1170	
IL	Joppa	887	4	2017	530810	1266	304	5244525	0.4826	0.1160	183	33%	2300	20148000	4862	0.2497	1168	0.1169	
IL	Joppa	887	5	2017	627033	1547	353	6357587	0.4868	0.1110	183	39%	2300	20148000	4904	0.2661	1118	0.1165	
IL	Joppa	887	6	2017	729089	1782	402	7292449	0.4888	0.1101	183	45%	2300	20148000	4924	0.2805	1109	0.1161	
IL	Newton	6017	1	2017	3546555	4873	1538	33298298	0.2927	0.0924	617	66%	7449	65253240	9550	0.2826	3014	0.1120	
					32554775	30578	15900	314776210	0.1943	0.1010	6496	57%							

	Tons	Tons	Heat Input	Rate	
Dynegy Group 2017 SO2 Emissions	8830		128487546	0.137	Table 3
Dynegy Group 2017 SO2 Emissions Minus Baldwin 1, 3	7326		89662883	0.163	Table 4
Dynegy Group 2017 NOx Emissions		5829	128487546	0.091	Table 5
Dynegy Group 2017 NOx Emissions Minus Baldwin 1, 3		4236	89662883	0.094	Table 6
Old Ameren Group 2017 SO2 Emissions	21748		186288664	0.233	Table 7
Old Ameren Group 2017 NOx Emissions		10071	186288664	0.108	Table 8
Dynegy Group SO2 Emissions at Max Heat Input		15325			Table 9
Dynegy Group NOx Emissions at Max Heat Input		11069			Table 11
Old Ameren NOx Emissions Max Heat Input		21103			Table 12
Combined MPS SO2 Minus Baldwin 1 and 3		29074	275951547	0.2107	Table 14
Combined MPS NOx Minus Baldwin 1 and 3		14307	275951547	0.1037	Table 16

Table 10:

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Gross Load (MW-h)	SO2 (tons)	NOx (tons)	Heat Input (MMBtu)	SO2 Rate	NOx Rate	Nameplate Capacity (MW)	Capacity Factor	Nominal Capacity (mmBtu/hour)	Max Heat Input	Max SO2 tons	Max Group SO2 Rate
IL	Coffeen	861	2	2017	3960975	29	1783	39101271	0.0015	0.0912	617	73%	5544	48565440	36	0.0015
IL	Coffeen	861	1	2017	2149649	19	699	19939412	0.0019	0.0701	389	63%	3282	28750320	27	0.0016
IL	Duck Creek	6016	1	2017	2166840	25	1478	19985699	0.0025	0.1479	441	56%	5025	44019000	55	0.0019
IL	Newton	6017	1	2017	3546555	4873	1538	33298298	0.2927	0.0924	617	66%	7449	65253240	9550	0.1036
IL	ED Edwards	856	2	2017	1262936	2726	1318	13212705	0.4126	0.1996	281	51%	3321	29091960	6002	0.1453
IL	ED Edwards	856	3	2017	2046863	3666	787	17698112	0.4142	0.0890	364	64%	4594	40243440	8335	0.1876
IL	Joppa	887	1	2017	875026	2158	522	8983253	0.4804	0.1161	183	55%	2300	20148000	4839	0.2090
IL	Joppa	887	2	2017	801348	1956	487	8140886	0.4804	0.1197	183	50%	2300	20148000	4840	0.2272
IL	Joppa	887	4	2017	530810	1266	304	5244525	0.4826	0.1160	183	33%	2300	8592985	2073	0.2344
															35758	

Combined MPS SO2 Emissions at Max Heat Input **51083**

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 7

Question 14 - Updated Table 7 NOx

Plant	Unit	2002 Actual Heat Input (1000 mmBtu)	Base Year Emission Rate (Lbs/ mmBtu)	Base Year Emissions (Tons)	Current MPS Emission Rate (Lbs/ mmBtu)	Projected Emissions Under Current MPS Rate (Tons)	Tons/Year Reduction
Baldwin	1	43,884	0.55	12,119	0.1	2,194	9,925
Baldwin	2	37,135	0.4	7,405	0.1	1,857	5,548
Baldwin	3	46,403	0.12	2,850	0.1	2,386	464
Havana	9	28,514	0.27	3,901	0.1	1,477	2,424
Hennepin	1	4,684	0.32	760	0.1	245	515
Hennepin	2	17,575	0.33	2,862	0.1	841	2,021
Coffeen	1	18,570	0.53	4,918	0.11	1,018	3,900
Coffeen	2	37,545	0.5	9,422	0.11	2,101	7,321
Duck Creek	1	22,635	0.47	5,328	0.11	1,254	4,074
E D Edwards	2	17,222	0.45	3,901	0.11	973	2,928
E D Edwards	3	15,972	0.46	3,639	0.11	844	2,795
Joppa	1	13,548	0.13	876	0.11	741	135
Joppa	2	16,258	0.13	1,048	0.11	885	163
Joppa	3	15,396	0.13	1,030	0.11	876	154
Joppa	4	13,402	0.13	904	0.11	770	134
Joppa	5	15,094	0.12	939	0.11	864	75
Joppa	6	16,063	0.12	999	0.11	919	80
Newton	1	40,631	0.15	3,037	0.11	2,224	813
Total				**65,938**		**22,469**	**43,469**

Question 14 - Updated Table 8 SO2

Plant	Unit	2002 Actual Heat Input (1000 mmBtu)	Base Year Emission Rate (Lbs/ mmBtu)	Base Year Emissions (Tons)	Current MPS Emission Rate (Lbs/ mmBtu)	Projected Emissions Under Current MPS Rate (Tons)	Tons/Year Reduction
Baldwin	1	43,884	0.41	9,053	0.19	4,226	4,827
Baldwin	2	37,135	0.39	7,283	0.19	3,569	3,714
Baldwin	3	46,403	0.43	9,931	0.19	4,363	5,568
Havana	9	28,514	0.9	12,815	0.19	2,693	10,122
Hennepin	1	4,684	0.43	1,000	0.19	438	562
Hennepin	2	17,575	0.43	3,792	0.19	1,683	2,109
Coffeen	1	18,570	1.54	14,332	0.23	2,169	12,163
Coffeen	2	37,545	1.49	27,999	0.23	4,346	23,653
Duck Creek	1	22,635	0.97	11,026	0.23	2,651	8,375
E D Edwards	2	17,222	1.7	14,666	0.23	2,008	12,658
E D Edwards	3	15,972	1.21	9,683	0.23	1,857	7,826
Joppa	1	13,548	0.51	3,441	0.23	1,544	1,897
Joppa	2	16,258	0.51	4,139	0.23	1,863	2,276
Joppa	3	15,396	0.51	3,947	0.23	1,792	2,155
Joppa	4	13,402	0.52	3,488	0.23	1,545	1,943
Joppa	5	15,094	0.52	3,932	0.23	1,743	2,189
Joppa	6	16,063	0.52	4,182	0.23	1,853	2,329
Newton	1	40,631	0.45	9,046	0.23	4,577	4,469
Total				**153,755**		**44,920**	**108,835**

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 8

Bureau of Air Permit Section
File Organization Cover Sheet

Source Name:	Illinois Power Generating Co.
ID Number:	079 808 AAA
Application Number:	16 05 0017
Category:	03K
Item Date:	5-24-16

Submitted by C. Chambers

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR LISA BONNETT, DIRECTOR

217/785-1705

CONSTRUCTION PERMIT

PERMITTEE

Illinois Power Generating Company
Attn: Rick Diericx
1500 Eastport Plaza Drive
Collinsville, Illinois 62234

Application No.: 16050017 I.D. No.: 079808AAA
Applicant's Designation: Date Received: May 11, 2016
Subject: Pilot Evaluation of Sorbent Injection
Date Issued: MAY 24 2016
Location: Newton Power Station, 6725 North 500th Street, Newton, Jasper County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT equipment for pilot evaluation of sorbent injection, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. Description

a. This permit addresses construction of equipment to conduct pilot evaluations of sorbent injection on one or both of the boiler(s) at this power generating facility. In these evaluations, a sorbent material will be pneumatically conveyed and injected into the combustion chamber, or "furnace," of a boiler or in to the ductwork between the economizer(s) and the electrostatic precipitator(s). Sorbent will be received and stored using portable equipment including storage silos with vent filters. The purpose of the project is to study the effectiveness of various sorbents in controlling the boiler's sulfur dioxide (SO_2) emissions.

b. For the purposes of this permit:

i. The boiler(s) on which an evaluation is conducted are referred to as the "affected boiler(s)".

ii. The portable equipment for receiving, storage and injection of sorbent, not including the piping to pneumatically convey sorbent to the affected boiler(s), is referred to as the "affected sorbent equipment".

2. Applicable Requirements

a. This permit does not relax or otherwise revise any requirements and conditions that apply to the operation, monitoring, recordkeeping and reporting for the affected boiler(s) as

4302 N. Main St., Rockford, IL 61103 (815) 987-7760
595 S. State, Elgin, IL 60123 (847) 608-3131
2125 S. First St., Champaign, IL 61820 (217) 278-5800
2009 Mall St., Collinsville, IL 62234 (618) 346-5120
9511 Harrison St., Des Plaines, IL 60016 (847) 294-4000
412 SW Washington St., Suite D, Peoria, IL 61602 (309) 671-3022
2309 W. Main St., Suite 116, Marion, IL 62959 (618) 993-7200
100 W. Randolph, Suite 10-300, Chicago, IL 60601

established in the Clean Air Act Permit Program (CAAPP) permit issued for the source, Permit No. 95090066, issued November 19, 2015.

b. The affected sorbent equipment is subject to and shall comply with applicable requirements of state emission standards for opacity and particulate matter (PM), including 35 IAC 212.123, 212.301 and 212.321.

c. This permit is issued based on minimal emissions of PM from the affected sorbent equipment, i.e., emissions of no more than 1.1 tons/year.

3. Non-Applicability Provisions

a. This permit is issued based on this project having a negligible effect on the emissions of affected boiler(s) for pollutants other than SO_2, given that it will only involve pilot evaluations of sorbent injection.

b. This permit is issued based on this project not constituting a modification of affected boiler(s) under the federal New Source Performance Standards, 40 CFR 60, as the project has the primary function of reducing emissions and therefore is not considered a modification pursuant to 40 CFR 60.14(e)(5).

c. This permit is issued based on the affected sorbent equipment not being subject to the NSPS for Nonmetallic Mineral Processing Plants, 40 CFR 60 Subpart OOO. This is because sorbents, such as powdered calcium carbonate, which are considered a "nonmetallic mineral" for purposes of this NSPS, handled by the affected sorbent equipment will not constitute a "nonmetallic mineral processing plant" as defined in 40 CFR 60.671 since sorbents will not be crushed or ground at this facility.

4. Operating Limitations

The duration of each evaluation of a different sorbent shall not exceed 1,000 hours, determined as the actual hours when sorbent is being injected into the affected boiler(s).

5. Recordkeeping Requirements

a. The Permittee shall maintain operating log(s) or records for the sorbent equipment that includes:

i. The identity of the process equipment, including name, model number, rated capacity, date first operated at the facility and the date last operated at the facility.

ii. The identity of the silo vent filter equipment, including name, model number, rated capacity (scfm) and design outlet dust loading.

iii. Inspection and maintenance logs for the sorbent equipment that list the activities performed, with date and description.

b. The Permittee shall keep records for each evaluation(s) conducted with affected sorbent equipment that, at a minimum, include:

i. The type of sorbent that is being used, the rate of injection of sorbent, the location(s) of sorbent injection and each period of time when an affected boiler was in operation with sorbent injection.

ii. Information collected addressing the effect of sorbent injection on the SO_2 emissions of the affected boiler(s).

iii. Information collected addressing the effect of sorbent injection on particulate emissions of the affected boiler(s).

iv. The duration of the evaluation (hours) and total amount of sorbent used in the evaluation (tons).

6. Reporting Requirements

a. The Permittee shall provide the Illinois EPA with the schedule for each evaluation conducted pursuant to this permit, including the identity of the affected boiler(s) on which the evaluation will be conducted and the dates when the boiler(s) may be operated with the sorbent. For this purpose, a copy of the schedule shall be submitted to the Illinois EPA's Regional Office in Collinsville.

b. If the Permittee prepares a formal report for an evaluation, which contains emissions data measured during the evaluations or describes the effect of the affected systems on emissions of SO_2, particulate or other pollutants from the boiler(s), the Permittee shall provide a copy of the report to the Illinois EPA.

c. The Permittee shall notify the Illinois EPA of deviations with the permit requirements within 30 days of an occurrence. Reports shall describe the deviation and the probable cause of such deviations, the corrective actions and preventive measures taken.

7. Mailing Addresses

Copies of required reports and notifications shall be sent to the Illinois EPA's Compliance Section at the following address unless otherwise indicated:

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

8. Authorization to Operate

a. Pursuant to this construction permit:

i. The Permittee may operate the affected sorbent equipment.

ii. The Permittee may operate the affected boiler(s) with sorbent injection as provided by this permit.

b. The authorization for operation provided above in Condition 8(a) will terminate when either pilot evaluations of sorbent injection is addressed in the CAAPP permit for the source or the Permittee notifies the Illinois EPA that no further pilot evaluations will be conducted pursuant to this permit.

c. These conditions supersede Standard Condition 6.

If you have any questions on this permit, please contact Daniel Rowell at 217/558-4368.

Raymond E. Pilapil
Acting Manager, Permit Section
Division of Air Pollution Control

REP:DBR:psj

DBR
5/24/16
JMS

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:

   a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,

   c. does not release the Permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or

b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 9

Bureau of Air Permit Section

File Organization Cover Sheet

Source Name:	Illinois Power Generating Co Newton Power Station	
ID No.:	079808AAA	
Application No.:	16050017	
Category:	03K	
Item Date:	6/9/2017	
Keyword:	Choose an item.	*
Comment:		*
Part:	Choose an item. of Choose an item.	*

* If applicable

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

1021 NORTH GRAND AVENUE EAST, P.O. BOX 19276, SPRINGFIELD, ILLINOIS 62794-9276 • (217) 782-3397
BRUCE RAUNER, GOVERNOR ALEC MESSINA, DIRECTOR

217/785-1705

CONSTRUCTION PERMIT - REVISED
NSPS SOURCE

PERMITTEE

Illinois Power Generating Company
Attn: Rick Diericx
1500 Eastport Plaza Drive
Collinsville, Illinois 62234

Application No.: 16050017 I.D. No.: 079808AAA
Applicant's Designation: Date Received: March 27, 2017
Subject: Dry Sorbent Injection
Date Issued: June 9, 2017
Location: Newton Power Station, 6725 North 500th Street, Newton, Jasper County

Permit is hereby granted to the above-designated Permittee to CONSTRUCT equipment for sorbent injection, as described in the above referenced application. This Permit is subject to standard conditions attached hereto and the following special condition(s):

1. Description

a. This permit addresses construction of equipment to conduct pilot evaluations of sorbent injection on one or both of the coal-fired boiler(s). In these evaluations, a sorbent material will be pneumatically conveyed and injected into the combustion chamber, or "furnace," of a boiler or into the ductwork between the economizer(s) and the electrostatic precipitator(s). Sorbent will be received and stored using portable equipment including a storage silo with bin vent filter. The purpose of these evaluations is to study sorbents injection as a means of controlling the boiler(s) sulfur dioxide (SO_2) emissions.

b. This revised permit:

i. Allows ductwork sorbent injection with sodium bicarbonate, Trona or other sorbent to be conducted on an on-going basis on Boiler 1, no longer limiting the use of this equipment to evaluation of sorbent injection.

ii. Addresses use of a grinding mill to prepare sorbent for injection. Because sorbent is milled, certain sorbent handling equipment as well as this mill are now subject to the New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing Plants, 40 CFR 60 Subpart OOO.

c. For the purposes of this revised permit:

i. Boiler 1 is referred to as the "affected boiler." This revised permit no longer addresses Boiler 2 because it has been permanently shut down.

ii. The equipment used to inject sorbent into the ductwork of the affected boiler is referred to as the "affected system."

iii. The equipment for receiving, storage and preparation, not including the affected system, is referred to as the "affected sorbent equipment".

2-1. Applicable Requirements for the Affected Boiler

Except as provided by Condition 2-2, this permit does not relax or revise applicability of requirements and conditions including operational, monitoring, recordkeeping and reporting requirements for the affected boiler as established in the Clean Air Act Permit Program (CAAPP) permit issued for the source, Permit No. 95090066, issued May 23, 2017.

2-2. Alternative Emission Standard for the Affected Boiler

Under the National Emission Standards for Hazardous Air Pollutants (NESHAP) for Coal- and Oil-Fired Electric Utility Steam Generating Units, 40 CFR 63 Subpart UUUUU, as provided by 40 CFR 63.9991(c), when the Permittee operates the affected boiler with the affected system, the Permittee may use the applicable alternate SO_2 limit for existing coal-fired units in Table 2 of 40 CFR 63 Subpart UUUUU as the applicable criteria in 40 CFR 63.9991(c), as follows, would be met:

a. The boiler has a system using dry gas desulfurization technology, e.g., a DSI system, and an SO_2 continuous emissions monitoring system (CEMS) is installed [40 CFR 63.9991(c)(1)]; and

b. At all times, the dry gas desulfurization technology and SO_2 CEMS are operated consistent with 40 CFR 63.10000(b). [40 CFR 63.9991(c)(2)]

Note: Dry sorbent injection is a type of "dry flue gas desulfurization technology," as defined by 40 CFR 63.10042.

2-3. Required Work Practices for the Sorbent Injection System

If the Permittee operates the affected system as an "applicable control device" for purposes of 40 CFR 63 Subpart UUUUU (i.e., the affected system is operated during periodic performance testing for emissions of hydrogen chloride pursuant to 40 CFR 63 Subpart UUUUU or the Permittee is complying with the alternate limit for SO_2 emissions), the Permittee must, at all times, operate and maintain the affected system and associated monitoring equipment in a manner consistent with safety and good air pollution control practices for minimizing emissions pursuant to 40 CFR 63.10000(b).

2-4. Applicable Federal Emission Standards for the Affected Sorbent Equipment

The grinding mill and storage silo are subject to the New Source Performance Standards (NSPS) for Nonmetallic Mineral Processing, 40 CFR 60 Subpart OOO, and the applicable requirements of the General Provisions of the NSPS, 40 CFR 60 Subpart A.

a. Pursuant to 40 CFR 60.672(b) and Table 3 of 40 CFR 60 Subpart OOO, "fugitive emissions" of PM, as defined in 40 CFR 60.671, from the storage silo and grinding mill shall not exceed 7 percent opacity.

b. Pursuant to 40 CFR 60.672(f) and Table 2 of 40 CFR 60 Subpart OOO, the opacity of emissions from the storage silos shall not exceed 7 percent.

c. Pursuant to 40 CFR 60.11(d), at all times, the Permittee shall maintain and operate these units, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions.

2-5. Applicable State Emission Standards for the Affected Sorbent Equipment

The affected sorbent equipment is subject to the following rules for opacity, visible emissions and particulate:

a. 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 any emission unit.

b. 35 IAC 212.301 and 212.314, which provide 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, except when the wind speed is greater than 25 mph (40.2 km/h).

c. 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).

3. Nonapplicability Provisions

a. This permit is issued based on this project not being a major project for purposes of the federal rules for Prevention of Significant Deterioration, 40 CFR 52.21.

i. For SO_2, this is because this project is an emissions control project whose purpose is to reduce emissions of SO_2 from the affected boiler.

ii. For emissions of CO and NO_x, the Permittee has projected that this project will not increase emissions of these pollutants.

iii. For emissions particulate matter:

A. From the affected boiler, this is because the Permittee has projected decreases in emissions of the affected boiler with this project.

B. From the affected sorbent equipment, this is because the increases in emissions are not significant. (See Condition 4(b))

C. For plant roadways, this is because the increased vehicle traffic on plant roadways for transport of sorbents and disposal of additional fly ash generated by the affected boiler will not result in a significant increase in emissions.

b. This permit is issued based on the changes made to the affected boiler not constituting a modification of the boiler under the federal New Source Performance Standards (NSPS) for Electric Utility Steam Generating Units, 40 CFR 60 Subpart Da, or the NSPS for Greenhouse Gas Emissions for Electric Generating Units, 40 CFR 60 Subpart TTTT, as the changes have the primary function of reducing emissions and therefore is not considered a modification pursuant to 40 CFR 60.14(e)(5). Accordingly, this project does not trigger applicability of requirements of 40 CFR 60 Subpart Da for units modified after May 3, 2011. It also does not trigger applicable requirements of 40 CFR 60 Subpart TTTT for units modified after June 18, 2014.

c. This permit is issued based on the affected sorbent equipment not being subject to a PM emission limit under 40 CFR 60 Subpart OOO:

i. For the grinding mill, this is because this mill will not have any "stack emissions," as defined by 40 CFR 60.671, since this mill feeds ground material directly into the affected boiler and does not have a vent to the atmosphere.

ii. For the storage silo, this is because it will continue to be controlled by its own filter device and because 40 CFR 60.672(f) provides that any baghouse that controls emissions from only an individual, enclosed storage bin is exempt from the applicable PM limit and must instead meet an opacity limit of 7 percent.

4. Operational and Emission Limits

a. i. The amount of sorbent material injected into the affected boiler shall not exceed 4,400 tons/month and 43,800 tons/year.

ii. Compliance with the above annual 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 month total)

b. i. Emissions of PM from sorbent grinding mill shall not exceed 0.26 pounds/hour and 1.2 tons/year.

ii. This permit is issued based on negligible emissions of PM from the storage silo and pneumatic conveyors, i.e., emissions of no more than 0.1 pounds/hour and 0.44 tons/year.

c. At all times, the Permittee shall operate and maintain the affected sorbent equipment and associated air pollution control equipment in a manner consistent with good air pollution control practice for minimizing emissions.

5-1. NSPS Performance Testing

a. For the grinding mill and storage silo, the Permittee shall comply with the requirements of the NSPS for performance testing, including the following, unless USEPA waives such testing or approves an alternative method pursuant to 40 CFR 60.8(b).

b. The timing of performance testing for opacity of fugitive emissions shall be as follows. These performance tests shall be conducted in accordance with 40 CFR 60.11 and 60.675(b), (c) and (e).

i. Pursuant to 40 CFR 60.8 and 60.675(a), an initial performance test shall be conducted within 60 days after each of the unit achieves its maximum operating rate, but not later than 180 days after initial startup. Unless otherwise specified by the Illinois EPA, this test shall be conducted during conditions that are representative of the maximum operating rate of the unit.

ii. Pursuant to Table 3 of 40 CFR 60 Subpart OOO, performance tests must subsequently be conducted within 5 years from the previous test.

iii. Performance tests shall also be conducted upon written request from the Illinois EPA, for a unit as specified in such request. For this purpose, tests shall be conducted within 30 days of the request from the Illinois EPA or such later date agreed to by the Illinois EPA.

c. i. Pursuant to 40 CFR 60.8(d) and Table 1 of 40 CFR 60 Subpart OOO, the Illinois EPA shall be notified prior to these performance tests to enable the Illinois EPA to have an observer present. The Illinois EPA may, at its discretion, accept notification with shorter advance notice provided that the Illinois EPA will not accept such notifications if it interferes with the Illinois EPA's ability to be present during these tests.

ii. For opacity observations, notification of the expected date of the observations shall be submitted a minimum of 7 days

prior to the expected date. Notification of the actual date and expected time of the observations shall be submitted a minimum of five working days prior to the actual date of the observations.

d. Pursuant to 40 CFR 60.676(f), the Permittee shall submit reports for these tests to the Illinois EPA, which reports shall include both the results of the test and documentation for the test.

5-2. Opacity Observations

Within 60 days of a written request by the Illinois EPA, or such later date agreed to by the Illinois EPA, the Permittee shall conduct opacity observations for specific sorbent equipment in accordance with USEPA Method 9.

5-3. Emission Testing for the Affected Boiler

a. By September 30, 2018 (i.e., approximately 14 months after the initial startup of the affected boiler with the affected system), unless the Permittee has discontinued sorbent injection, the Permittee shall have the PM emissions of the boiler measured by a qualified testing service while the boiler is operating in the maximum load range and other representative operating conditions. USEPA Method 5 shall be used for this testing, unless another method is approved by the Illinois EPA.

b. 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.

c. The Final Report(s) for these tests shall be submitted to the Illinois EPA within 60 days after the date of testing. The following information shall be submitted with the results:

i. The firing rate of the affected boiler during each test run (million Btu/hr).

ii. The gross power generation rate for the electrical generator during the test.

iii. The type of sorbent and sorbent injection rate(s), as measured during the tests.

iv. The opacity monitored during each test run (6-minute averages and hourly averages).

d. Within 120 days after the date of testing, the Permittee shall submit a review of the implications of the results of the testing for the Compliance Assurance Monitoring (CAM) Plan for the affected boiler, as addressed by Condition 7.1.13-1 of the CAAPP permit for the source. For this purpose, the Permittee shall evaluate the effect of sorbent injection on PM emissions and opacity of the affected boiler and determine whether the indicator value for

opacity still adequately addresses compliance with the PM emission standards that apply to the boiler.

Note: If the Permittee seeks to revise the CAM Plan for the affected boiler, the Permittee must submit its proposed revised CAM Plan to the Illinois EPA as part of an application for a significant modification of the CAAPP permit for the source, Permit 95090066.

6. Instrumentation

The Permittee shall install, operate, and maintain instrumentation for the operation of the affected system. For this purpose, operation of the affected system may be monitored either directly (e.g., in terms of the sorbent injection rate by mass or volume) or indirectly (e.g., in terms of the amperage of the electric motor for the sorbent feed equipment, the setting for the sorbent injection rate or the setting for the rate of sorbent injection relative to boiler load).

7. Inspection Requirements

a. i. Inspections of the affected sorbent equipment, including emission control measures, shall be conducted at least once per month when material is being handled to confirm proper operation as related to control of emissions.

ii. The Permittee shall maintain records of the above activities. These records shall include the date that inspections were conducted, with description of the inspection.

b. For the grinding mill and silo, the Permittee shall conduct either periodic inspections for visible emissions in accordance with 40 CFR 60.674(d) or install, operate and maintain a bag leak detector system in accordance with 40 CFR 60.674(e) and 60.676(b).

8. Recordkeeping Requirements

a. For the grinding mill and silo, the Permittee shall comply with the applicable recordkeeping requirements of the NSPS, including 40 CFR 60.7 and 60.676.

b. The Permittee shall maintain records for the following items for the grinding mill:

i. A file containing a determination of the maximum PM emission rates of the grinding mill in pounds/hour and pounds/ton of sorbent handled, overall for the combination of all units, with supporting documentation and calculations.

ii. Records for the total amount of sorbent material handled, by type (tons/month and tons/year).

iii. Records of emissions of PM from the grinding mill (tons/month and tons/year).

c. The Permittee shall maintain records for maintenance/repair activities for the control equipment associated with the affected sorbent equipment that include the date and description of the maintenance/repair activities.

d. The Permittee shall maintain records of the following items related to the purchase of sorbents for the affected system:

i. Annual taxes paid on sorbents; and

ii. Invoices or receipts detailing each shipment of sorbent received.

e. Unless otherwise provided by the NSPS, all records required by this permit shall be retained at a readily accessible location for at least five years from the date of entry and shall be made available for inspection and copying by the Illinois EPA upon request.

9. Notification Requirements

a. For the grinding mill and silo, the Permittee shall submit notifications in accordance with the NSPS, including 40 CFR 60.7.

b. The Permittee shall notify the Illinois EPA in advance of using sorbent(s) other than sodium bicarbonate or Trona in the affected system. This notification shall be submitted at least two 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.

10. Reporting Requirements

a. With the Annual Emission Report required by 35 IAC Part 254, the Permittee shall report:

i. The amount of sorbent injected into the affected boiler by the affected system (tons/year).

ii. The total annual sales taxes paid by the Permittee on sorbents, as addressed by the records required by Condition 8(e)(i).

b. The Permittee shall notify the Illinois EPA of deviations from the requirements of this permit within 30 days of such occurrence. Reports shall describe the deviation, the probable cause of such deviation, the corrective actions taken, and any preventive measures taken. If a deviation is addressed by reporting requirements under applicable rules, this requirement may be satisfied with the reporting required by such rules.

11. Mailing Addresses

a. Copies of required reports and notifications shall be sent to the Illinois EPA's Compliance Section at the following address unless otherwise indicated:

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

b. One copy of notifications and reports required by this permit that concern emission testing and monitoring shall also be sent electronically to the Illinois EPA, Bureau of Air, Compliance Section, Source Monitoring Unit, using the State of Illinois's File Transfer Website, unless otherwise instructed by the Illinois EPA:

http://filet.illinois.gov

Recipient Email Address: EPA.BOA.SMU@illinois.gov
File Transfer Email Subject: Newton Power Station, ID 079808AAA
Message to Recipient: "A description of the submittal, with date"

12. Authorization to Operate

Pursuant to this construction permit, the Permittee may operate the affected sorbent equipment and the affected boiler with the affected system provided that the Permittee submits a timely and complete application for modification to the CAAPP permit for the source to address this project. This condition supersedes Standard Condition 6.

Please note that this permit has been revised at the request of the Permittee to address use of the affected system with Boiler 1 on an ongoing basis and the addition of a sorbent grinding mill to prepare sorbent for the affected sorbent equipment. As a consequence, this revised permit addresses applicable emission standards and related requirements for the affected sorbent equipment under the NSPS, 40 CFR 60 Subpart OOO. It also addresses the use of sorbent injection for Boiler 1 under 40 CFR 63 Subpart UUUUU.

If you have any questions on this permit, please contact Daniel Rowell at 217/558-4368.

Raymond E Pilapil

Raymond E. Pilapil
Manager, Permit Section
Division of Air Pollution Control

REP:DBR:lsm
DBR ~ 6/9/17
6/9/17

STATE OF ILLINOIS
ENVIRONMENTAL PROTECTION AGENCY
DIVISION OF AIR POLLUTION CONTROL
P. O. BOX 19506
SPRINGFIELD, ILLINOIS 62794-9506

STANDARD CONDITIONS FOR CONSTRUCTION/DEVELOPMENT PERMITS ISSUED BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

July 1, 1985

The Illinois Environmental Protection Act (Illinois Revised Statutes, Chapter 111-1/2, Section 1039) authorizes the Environmental Protection Agency to impose conditions on permits which it issues.

The following conditions are applicable unless superseded by special condition(s).

1. Unless this permit has been extended or it has been voided by a newly issued permit, this permit will expire one year from the date of issuance, unless a continuous program of construction or development on this project has started by such time.

2. The construction or development covered by this permit shall be done in compliance with applicable provisions of the Illinois Environmental Protection Act, and Regulations adopted by the Illinois Pollution Control Board.

3. There shall be no deviations from the approved plans and specifications unless a written request for modification, along with plans and specifications as required, shall have been submitted to the Agency and a supplemental written permit issued.

4. The Permittee shall allow any duly authorized agent of the Agency upon the presentation of credentials, at reasonable times:

   a. to enter the Permittee's property where actual or potential effluent, emission or noise sources are located or where any activity is to be conducted pursuant to this permit,

   b. to have access to and copy any records required to be kept under the terms and conditions of this permit,

   c. to inspect, including during any hours of operation of equipment constructed or operated under this permit, such equipment and any equipment required to be kept, used, operated, calibrated and maintained under this permit,

   d. to obtain and remove samples of any discharge or emission of pollutants, and

   e. to enter and utilize any photographic, recording, testing, monitoring or other equipment for the purpose of preserving, testing, monitoring, or recording any activity, discharge, or emission authorized by this permit.

5. The issuance of this permit:

   a. shall not be considered as in any manner affecting the title of the premises upon which the permitted facilities are to be located,

   b. does not release the Permittee from any liability for damage to person or property caused by or resulting from the construction, maintenance, or operation of the proposed facilities,

   c. does not release the Permittee from compliance with the other applicable statues and regulations of the United States, of the State of Illinois, or with applicable local laws, ordinances and regulations,

   d. does not take into consideration or attest to the structural stability of any units or parts of the project, and

e. in no manner implies or suggests that the Agency (or its officers, agents or employees) assumes any liability, directly or indirectly, for any loss due to damage, installation, maintenance, or operation of the proposed equipment or facility.

6. a. Unless a joint construction/operation permit has been issued, a permit for operation shall be obtained from the Agency before the equipment covered by this permit is placed into operation.

b. For purposes of shakedown and testing, unless otherwise specified by a special permit condition, the equipment covered under this permit may be operated for a period not to exceed thirty (30) days.

7. The Agency may file a complaint with the Board for modification, suspension or revocation of a permit:

a. upon discovery that the permit application contained misrepresentations, misinformation or false statements or that all relevant facts were not disclosed, or

b. upon finding that any standard or special conditions have been violated, or

c. upon any violations of the Environmental Protection Act or any regulation effective thereunder as a result of the construction or development authorized by this permit.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R18-20
AMENDMENTS TO 35 ILL. ADM.	)	(Rulemaking-Air)
CODE 225.233, MULTI-POLLUTANT	)	
STANDARDS	)	

PRE-FILED TESTIMONY OF ANDREW ARMSTRONG
ON BEHALF OF THE ILLINOIS ATTORNEY GENERAL'S OFFICE

ATTACHMENT 10

State	Facility Name	Facility ID (ORISPL)	Unit ID	SO2 (tons)	NOx (tons)	2002 Heat Input (mmBtu)	2017 SO2 Rate (lb/mmBtu)	2017 NOx Rate (lb/mmBtu)	
IL	Baldwin	889	1	1701	1801	43884000	0.0775	0.0821	
IL	Baldwin	889	2	1487	1506	37135000	0.0801	0.0811	
IL	Baldwin	889	3	1768	2116	46403000	0.0762	0.0912	**NOTE: 2016 SO2 Rate and NOx Rate**
IL	Havana	891	9	1017	1156	28514000	0.0713	0.0811	
IL	Hennepin	892	1	1167	340	4684000	0.4984	0.1453	
IL	Hennepin	892	2	4325	1275	17575000	0.4922	0.1451	
IL	Coffeen	861	1	18	651	18570000	0.0019	0.0701	
IL	Coffeen	861	2	28	1712	37545000	0.0015	0.0912	
IL	Duck Creek	6016	1	28	1674	22635000	0.0025	0.1479	
IL	ED Edwards	856	2	3553	1719	17222000	0.4126	0.1996	
IL	ED Edwards	856	3	3308	711	15972000	0.4142	0.0890	
IL	Joppa	887	1	3254	786	13548000	0.4804	0.1161	
IL	Joppa	887	2	3905	973	16258000	0.4804	0.1197	
IL	Joppa	887	3	3725	875	15396000	0.4839	0.1137	
IL	Joppa	887	4	3234	777	13402000	0.4826	0.1160	
IL	Joppa	887	5	3674	838	15094000	0.4868	0.1110	
IL	Joppa	887	6	3926	884	16063000	0.4888	0.1101	
IL	Newton	6017	1	5946	1877	40631000	0.2927	0.0924	
				46064	21672	420531000	0.2191	0.1031	

	Tons	Tons	Heat Input	Rate	
Dynegy Group SO2 Emissions	11465		178195000	0.129	Table 3
Dynegy Group NOx Emissions		8195	178195000	0.092	Table 5
Old Ameren Group SO2 Emissions	34599		242336000	0.286	Table 7
Old Ameren Group NOx Emissions		13478	242336000	0.111	Table 8
COMBINED	**46064**	**21672**	**420531000**		

Table 10:

State	Facility Name	Facility ID (ORISPL)	Unit ID	SO2 (tons)	Heat Input (MMBtu)	Unit SO2 Rate	Group SO2 Rate	Unit NO2 Rate	NOx (tons)
IL	Coffeen	861	2	28	37545000	0.0015	0.0015	0.0912	1712
IL	Coffeen	861	1	18	18570000	0.0019	0.0016	0.0701	651
IL	Duck Creek	6016	1	28	22635000	0.0025	0.0019	0.1479	1674
IL	Newton	6017	1	5946	40631000	0.2927	0.1009	0.0924	1877

IL	ED Edwards	856	2	3553	17222000	0.4126	0.1402	0.1996	719
IL	ED Edwards	856	3	3308	15972000	0.4142	0.1688	0.0890	711
IL	Joppa	887	1	3254	13548000	0.4804	0.1943	0.1161	786
IL	Joppa	887	2	3905	16258000	0.4804	0.2198	0.1197	973
IL	Joppa	887	4	2589	10728292	0.4826	0.2344	0.1160	622
	OLD AMEREN			**22629**	**193109292**				**10725**
	DYNEGY			**11465**	**178195000**				**8195**
	COMBINED			**34094**	**371304292**				**18920**