#### **BEFORE THE ILLINOIS POLLUTION CONTROL BOARD**

MIDWEST GENERATION, LLC,	2	
Petitioner,	)	
<b>v</b> .	)	PCB 13-24
	)	(Variance – Air)
ILLINOIS ENVIRONMENTAL	)	
PROTECTION AGENCY,	)	
	-)	
Respondent	3	

NOTICE OF FILING

To:

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Bradley P. Halloran, Hearing Officer Illinois Pollution Control Board James R. Thompson Center Suite 11-500 100 West Randolph Chicago, Illinois 60601

PLEASE TAKE NOTICE that we have today filed with the Office of the Clerk of the Pollution Control Board MIDWEST GENERATION'S RESPONSES TO THE BOARD'S QUESTIONS FOR PETITIONER, copies of which are herewith served upon you.

Andrew N. Sawula

Dated: January 18, 2013

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Respondent	

#### MIDWEST GENERATION'S RESPONSES TO THE BOARD'S QUESTIONS FOR PETITIONER

NOW COMES Petitioner, MIDWEST GENERATION, LLC ("Midwest Generation" or "Petitioner"), by and through its attorneys, SCHIFF HARDIN LLP and CHRISTOPHER M. FOLEY, Petitioner's Senior Counsel, and responds to the Board's Questions for Petitioner as ordered by the Hearing Officer on December 24, 2012.

By way of background, Midwest Generation filed its Petition for Variance on November 30, 2012. The Board accepted the Petition for hearing without ruling upon its sufficiency on December 20, 2012. Midwest Generation seeks a variance from the system-wide emission rate for sulfur dioxide ("SO<sub>2</sub>") in 2015 and 2016 as set forth in 35 Ill. Adm. Code § 225.295(b)<sup>1</sup> and from the requirement to install and have operational flue gas desulfurization ("FGD") equipment on Unit 8 at the Waukegan Generating Station ("Waukegan") by December 31, 2014, as required at Section 225.296(a)(2). In its Petition, Midwest Generation stated that it would comply with a system-wide SO<sub>2</sub> emission rate of 0.38 lb/mmBtu in 2015 and 2016. Additionally, Midwest Generation committed to mass emission levels of SO<sub>2</sub> of 57,000

<sup>&</sup>lt;sup>1</sup> Hereinafter, citations to the Board's rules will be just to the section numbers.

tons in 2013, 54,000 tons in 2014, 39,000 tons in 2015, and 37,000 tons in 2016. With respect to Waukegan Unit 8, Midwest Generation sought a delay until May 31, 2015, to install and have operational the required FGD equipment for that unit and committed to not operate the unit after December 31, 2014, until the FGD equipment was installed and operational.

In short, Midwest Generation seeks no change to the CPS in years 2013-14 or 2017-19, commits to a net environmental benefit of at least 3,181 tons of reduced  $SO_2$  emissions, and would end the CPS program at emission levels required in the original rule by December 31, 2019.

Midwest Generation notes that, on December 17, 2012, Edison Mission Energy and certain of its subsidiaries and affiliates, including Petitioner, filed voluntary petitions for relief under Chapter 11 of the Bankruptcy Code in the U.S. Bankruptcy Court for the Northern District of Illinois. *See In re Edison Mission Energy*, Case No. 12-49212 (PJC).

Following are Midwest Generation's Responses to the Board's Questions for Petitioner:

#### 35 Ill. Adm. Code 104.204(f) Compliance Plan

 (a) Please include more specific information in the compliance plan on the activities involved in implementing the SO<sub>2</sub> emission controls and related PM controls, including types of equipment to be installed/upgraded or other methods of control to be undertaken. Please specify which activities would occur at which units.

MWG has provided information in the Petition and Fred's McCluskey's Affidavit about its control plans, and believes this information is responsive to the Board's question. See, e.g., Pet. ¶¶ 1, 22, 25, 27, 28, 46, 67, 69, 72, 73, and 84; McCluskey Aff. ¶¶ 11, 12, 14, and 17. As described in more detail in the Petition, Midwest Generation determined that dry sorbent injection systems that inject the sorbent Trona into the flue gas stream is an effective method for

reducing SO<sub>2</sub> emissions. Trona injection systems will allow Midwest Generation to comply with the system-wide SO<sub>2</sub> emission rates set forth in the Combined Pollutant Standard ("CPS"). Further, Trona injection systems are cost-effective. However, Trona injection systems increase the particulate loading, thus requiring that Midwest Generation upgrade the electrostatic precipitators ("ESPs") on the electric generating units ("EGUs").

As described in the Petition, Midwest Generation likely would need to install Trona injection systems at six of its coal-fired units to comply with the system-wide SO<sub>2</sub> emission rates specified in the current CPS for 2015 and 2016, including Joliet Units 7 and 8, Waukegan Units 7 and 8, and Powerton Units 5 and 6. Pet. ¶ 28, 29. Midwest Generation seeks relief from the 2015 and 2016 rates, and thus the timing of control decisions and installations required to achieve those rates will be impacted by the Board's decision on the requested variance. One of these installations, at Powerton Unit 6, however, is also required to comply with the 2013 and 2014 system-wide SO2 emission rates. Accordingly, the installation of the Trona injection system and related work on the ESP for Powerton Unit 6 is already underway. The company's current view is that operation of the Trona system on Powerton Unit 6 in conjunction with the use of ultra-low sulfur coal ("ULS") at other units will enable Midwest Generation to comply with the system-wide SO<sub>2</sub> emission rates in 2013 and 2014. By 2019, all units that Midwest Generation is operating will require Trona systems to meet CPS standards for SO<sub>2</sub> emissions; in fact, the CPS requires that FGD equipment be installed on all units except Joliet Unit 6 by December 31, 2018.

In addition to the installation of FGD equipment, the CPS requires Midwest Generation to convert the hot-side ESP on Waukegan Unit 7 to a cold-side ESP. Midwest Generation currently plans to proceed with that conversion of the ESP and the installation of a Trona

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injection system at Waukegan Unit 7. Midwest Generation plans for this work to be completed by December 31, 2014, as required by the variance the Board granted Midwest Generation in PCB 12-121. Further, Midwest Generation is currently planning to proceed with the installation of the Trona injection system and ESP upgrades on Waukegan Unit 8 but requires until May 31, 2015, to complete that work. The CPS requires that FGD equipment be installed and operational on Waukegan Unit 8 by December 31, 2014; therefore, Midwest Generation sought slight relief from that compliance date in this proceeding, PCB 13-24. As discussed in the Petition for Variance for Waukegan Unit 7, PCB 12-121, Midwest Generation is taking advantage of the economies associated with working on both Waukegan Units 7 and 8 at the same time; however, Midwest Generation must stagger the outages attendant upon this work, thus the need for the additional five months to complete the work on Waukegan Unit 8.

While Midwest Generation is currently planning to perform the work outlined above, in light of evolving energy markets, its ongoing financial restructuring efforts, and control technology installation developments, Midwest Generation needs to preserve flexibility in its control plans, including the ability to adjust when controls, if any, are installed at which units. In addition, the CPS preserves the ability to not operate units rather than to control them as a means of compliance with the system rates. For these reasons, while Midwest Generation can outline its current plans, those plans are subject to change, and flexibility is necessary. To the extent the Board's question was intended to suggest that specific unit-by-unit control plans should be placed in an enforceable compliance plan, Midwest Generation respectfully submits that doing so would be inconsistent with the CPS and would deprive Midwest Generation of necessary flexibility.

The CPS was designed to afford compliance flexibility for Midwest Generation with emphasis on protecting the public health by establishing system-wide emission rate limits and allowing the company to determine the type of technology and timing of installations to achieve compliance. The SO<sub>2</sub> emission requirements of the CPS, the suite of rules containing the specific requirements from which Midwest Generation seeks relief, as well as NOx limits, do not apply on a plant- or unit-specific basis. Other than a general requirement that Midwest Generation shut down or "install and have operational" FGD equipment at certain units, the CPS does not set forth unit-specific requirements for SO<sub>2</sub>. It does not specify the type of FGD equipment that must be installed. See Section 225.296. It does not specify how Midwest Generation must balance emissions or emission rates among the units; it specifies only that Midwest Generation must achieve certain SO<sub>2</sub> and NOx annual average emission rates on a system-wide basis. The only PM requirements in the CPS concern the shutdown or conversion of the hot-side ESPs at Waukegan Unit 7 and Will County Unit 3 to cold-side ESPs, with no related PM emission rates required. PM emissions have become a concern for Midwest Generation solely because of its choice of Trona injection systems to reduce SO<sub>2</sub> emissions to the required system-wide annual emission rates. In short, the CPS was intended to provide Midwest Generation with considerable flexibility in the manner in which it achieves the systemwide NOx and SO<sub>2</sub> emission rates set forth in the rule. The rule purposely does not specify the type of FGD equipment to be installed or that SO<sub>2</sub> controls must be installed to achieve the SO<sub>2</sub> system rates. It does not specify the use of any particular coal or when Midwest Generation must submit permit applications for the installation of equipment.<sup>2</sup> The CPS allows Midwest

<sup>&</sup>lt;sup>2</sup> It is important to note that Midwest Generation is not seeking relief from the FGD installation requirement dates set forth in the rule except for the date applicable to Waukegan Unit 8, a five-month delay to address outage schedules.

Generation to shut down units rather than to install FGD equipment. In other words, in a very broad sense, how Midwest Generation complies with the emission rates was left up to Midwest Generation, as long as emission rate limits designed to protect public health are achieved. That flexibility should be retained, particularly in the currently changing and dynamic power, labor, and equipment markets. Midwest Generation should also retain the ability to adopt alternate or emerging technologies in order to comply.

Flexibility in the rule was intended and can help the company address its ongoing restructuring efforts, the changing energy market, and the evolving market for the equipment and laborers required for the necessary control installations. For example, it only recently became evident that the conversion of the hot-side precipitator on Waukegan Unit 7 may be economically feasible, thus enabling the company to continue to operate that unit. Previously, cost estimates had made that conversion more likely to be uneconomical. Likewise, Midwest Generation anticipates many stressors and fluctuations in the construction market that may impact the decisions it makes.

Similarly, the decision as to which units will be controlled and when the ESPs are upgraded is under continuous evaluation to ensure the most cost-effective approach to compliance. There are many, many variables in play at any given time, and each affects the company's decisions regarding the overall plan for compliance.

Experience has shown that the labor and equipment markets are very dynamic. The energy markets are quickly evolving. These markets directly influence Midwest Generation's decision-making regarding specifically what equipment it will install on which unit at what time and even which unit or units it may choose to no longer operate. To include unit-by-unit control

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requirements in the compliance plan would interfere with Midwest Generation's ability to adjust its plans to address these changing markets.

The flexibility afforded by the CPS, as adopted, to achieve its requirements should remain intact. Requiring unit-specific control elements or emission rate limits in the compliance plan would eliminate this flexibility. In addition, including unit-specific control requirements beyond what is already in the CPS would be contrary to the underlying system-wide regulation from which Midwest Generation seeks relief. Midwest Generation does not believe that a variance proceeding should be or can be used to establish new regulatory requirements through a compliance plan. Rather, the compliance plan and conditions of the variance should contain requirements and milestones necessary to ensure that the company seeking the variance returns to compliance with the regulation in question at the end of the variance period.

Midwest Generation believes that its proposed compliance plan is adequate. Midwest Generation has proposed as conditions of the variances, as compliance plan elements, additional actions that will ensure in a net environmental benefit by the end of the term of the variance. It has committed to ensuring that its system-wide mass emission levels are less than what might be reasonably anticipated under the CPS under a business-as-usual scenario. In fact, Midwest Generation proposes in the Petition not to exceed certain mass levels of SO<sub>2</sub> emissions <u>before</u> the requested variance period begins to ensure there is no net environmental harm, and, in its Recommendation, IEPA states that it "does not believe that any injury to the public will result from granting the variance."

Considering the significant elements of the compliance plan that Midwest Generation has already proposed, the flexibilities inherent in the CPS, and the need to preserve flexibility in its compliance plans, Midwest Generation respectfully submits that the level of detail that this

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question seems to suggest should be included in the compliance plan is neither necessary nor appropriate. As set forth below, however, Midwest Generation does propose some additional reporting requirements so that its compliance plan implementation can be more easily tracked by the Illinois Environmental Protection Agency ("Agency").

(b) Please include in the compliance plan a time schedule for implementing all phases of the compliance plan, from initiation of design to program completion. Although the proposed compliance plan includes milestones for emission rates and mass emission targets, please also include a time schedule for the various phases of the Trona system installations and related PM controls by unit, such as engineering, construction activities, start-up, and any other significant phases.

Please *see* Midwest Generation's responses to questions 1(a) above and 7 below. As stated below in response to question 7, Midwest Generation can make annual progress reports to the Agency that identify what was completed in the year of the report (*e.g.*, in a December 31, 2013, report, Midwest Generation could report what it completed during calendar year 2013) and what it plans for the following year (*e.g.*, the December 31, 2013, report could identify what activities Midwest Generation plans for 2014 as steps toward compliance with the CPS). Included with the report could be an analysis of the progress toward compliance with the CPS that the planned activities for the upcoming year will provide.

(c) The petition states Midwest Generation will spend \$230 million in 2013 and 2014 and would defer \$210 million to 2015 or later under the proposed variance. Please indicate the estimated costs involved for each phase as it relates to the compliance plan. Also, please indicate how the current \$210 estimate might change (increase or decrease) if deferred.

As indicated in the Petition, these numbers are rounded estimates of the amounts of money required, respectively, for (1) anticipated control activities in 2013 and 2014 that are not the subject of this variance, including the installation of the Trona injection system at Powerton Unit 6 necessary to achieve the 2013 and 2014 system rates, and (2) additional control activities

that would be required in 2013 and 2014 to comply with the 2015 and 2016 system-wide  $SO_2$ emission rates absent the variance. In general, the further out in time the control activity, the greater the chance that a cost estimate may be impacted by intervening events. In this case, these estimates could be impacted by a number of factors, including changes in the cost of labor and materials. Further, Midwest Generation cannot predict at this point the impact of its ongoing financial restructuring on cash availability in future years. At this point, Midwest Generation has an estimate of the cost of the additional construction and upgrades necessary for the company to comply with the CPS  $SO_2$  rates, but those costs could change up or down and, potentially, shutdown of a unit or units could be part of the plan going forward, which decision could affect cost estimates for compliance of the rest of the system.

While Midwest Generation has provided information responsive to this request, Midwest Generation respectfully disagrees to the extent this question implies that cost or expenditure information should be included in the compliance plan. Specifying unit-by-unit expenditures in the compliance plan would be akin to listing in the plan the related controls that must be installed at each unit and when. As described above, Midwest Generation respectfully submits that it is neither necessary nor appropriate to include such information as requirements in the compliance plan, nor was such envisioned as necessary to achieve environmental goals when the CPS was adopted. Further, Midwest Generation questions whether the Board has the authority to require sources to spend some certain amount of money for projects necessary for compliance.

#### 35 Ill. Adm. Code 104.204(g)(1) Nature and Amount of Emissions

2. Table 5.1 of Exhibit 5 to the petition states that information is "[b]ased on average 2008-2011 heat input for the units legally permitted to operate in 2013-2016." Please identify those units.

The units permitted to operate in 2013-2016 by the CPS, including the effect of the

variance issued in PCB 12-121,<sup>3</sup> are Crawford Units 7 and 8 (only 2013 and 2014); Joliet Units

6, 7, and 8; Powerton Units 5 and 6; Waukegan Units 7 and 8; and Will County Units 3 and 4.

As described in more detail in response to question 3(a) below, each of these units was included

in the average heat input for at least certain of the years in the period 2013-2016 in Table 5.1.

- 3. Exhibit 9 and Table 4.7 on page 33 of Exhibit 6 show the base year beat input (mmBTU) and SO<sub>2</sub> emissions (lb/mmBTU and tons/year) by station and unit. For the period 2013-2016, Table 5.1 of Exhibit 5 compares SO<sub>2</sub> emissions under the CPS and the proposed variance, while page 45 of the petition lists emission reductions of other pollutants (NO<sub>x</sub>, PM, Mercury, and CO<sub>2</sub>).
  - (a) Please provide a comprehensive table broken down by station, unit, and year reflecting the base year heat input (1000 mmBTU/year) and SO<sub>2</sub> emissions (lb/mmBTU, tons/year); the emissions under the CPS for SO<sub>2</sub>, NO<sub>x</sub>, PM, Mercury, and CO<sub>2</sub> (tons/year); the emissions under the proposed variance for SO<sub>2</sub>, NO<sub>x</sub>, PM, Mercury, and CO<sub>2</sub> (tons/year); the proposed reduction (tons/year); and the proposed cumulative reduction (tons/year).

Please see Exhibit 10, attached hereto, for the information that the Board requests in

question 3(a).

Midwest Generation calculated the "emissions under the CPS" for each year from 2013-

2016 by multiplying the CPS rate for that year by the annual average heat input from 2008-2011

for each unit that Midwest Generation is not prohibited from operating during that year by the

<sup>&</sup>lt;sup>3</sup> In late 2012, Midwest Generation committed to shutdown of the Crawford station for reasons other than the CPS.

CPS or any variance to the CPS and then summing those calculated emissions for each of those units. For Crawford Units 7 and 8, Midwest Generation calculated CPS emissions for 2013 and 2014 but not for 2015 or 2016. Midwest Generation notes that it inadvertently did not calculate emissions for Crawford Units 7 or 8 for 2013 or 2014 for any pollutant other than SO<sub>2</sub>. As a result, Midwest Generation understated the benefits of the proposed variance for those pollutants. Exhibit 10 provides the updated calculations for those pollutants.

Midwest Generation notes that it included in the Petition the unit information in Exhibit 9 to demonstrate that the requested variance will not interfere with federal law, and that IEPA concurred with this in its Recommendation. The Board should not construe Exhibit 9 to suggest that Midwest Generation believes there are any unit-specific emission limits applicable to any unit under the CPS or that any given unit or plant will meet a specific emission rate or mass emission level. Table 4.7 in Exhibit 6 was included in the Petition to demonstrate the source of Midwest Generation's conclusion that it could deliver a net environmental benefit at the end of the term of the requested variance. As with Exhibit 9 and Table 4.7 in Exhibit 6, the Board should not construe the information provided in Exhibit 10 as an indication that unit- or plant-specific emission rates or mass levels apply to Midwest Generation under the CPS. Nor are such indications or commitments necessary to achieve the goals of the CPS, as evidenced by its original construct.

#### (b) Please provide supporting equations and calculations used to arrive at the SO<sub>2</sub> emissions (lbs/mmBTU, tons/year) under the base year, CPS, and proposed variance that are presented in the requested table.

Midwest Generation provides the requested information in Exhibit 11, attached hereto, and also references the Board to the discussion of these calculations in its response to question 3(a) above.

#### 35 Ill. Adm. Code 104.204(g)(2) Human Health and Environmental Impact

#### Please comment on the human health and environmental impact of SO<sub>2</sub> emission in general.

As discussed in the Petition, *see* ¶ 75, SO<sub>2</sub> emissions contribute to the formation of Acid Rain and fine particulate matter. Acid Rain can contribute to the eutrophication of water bodies located far downwind of a source of SO<sub>2</sub>. The U.S, Environmental Protection Agency ("USEPA") has asserted various possible health effects related to emissions of SO<sub>2</sub>, largely respiratory. According to USEPA, scientific evidence has linked short-term exposure to SO<sub>2</sub> to adverse respiratory effects, such as bronchoconstriction and increased asthma symptoms. USEPA, Air & Radiation, *Sulfur Dioxide, Health* < <u>http://www.epa.gov/air/sulfurdioxide/</u> <u>health.html</u> > Jan. 10, 2013 ("USEPA Website"). According to USEPA, populations at risk for respiratory illness linked to SO<sub>2</sub> include children, the elderly, and asthmatics. USEPA Website. *See also* 75 Fed.Reg. 35520, 35526, 35527 (June 22, 2010). However, in development of the 1hour SO<sub>2</sub> National Ambient Air Quality Standard, the Integrated Science Assessment for Oxides of Sulfur – Health Criteria ("ISA") concludes that there is insufficient evidence to infer the presence of a causal relationship between long-term exposure to SO<sub>2</sub> and adverse health effects. 75 Fed.Reg. at 35526.

SO<sub>2</sub> is also a precursor to fine particulate matter ("PM2.5"). In promulgating the Cross State Air Pollution Rule (CSAPR), USEPA stated that PM2.5 is related to premature mortality. 76 Fed.Reg. 48208, 48309 (August 8, 2011). USEPA also concluded that other health effects of PM2.5 include chronic bronchitis, non-fatal heart attacks, acute bronchitis, lower respiratory symptoms, upper respiratory symptoms, and asthma exacerbation. 76 Fed.Reg. at 48310.

To further address for the Board, generally, any human health and environmental impact of SO<sub>2</sub> emissions, Midwest Generation is retaining a consultant to provide the Board with an analysis. That analysis cannot be completed by January 18, 2013, the date this Response is due to the Board; however, Midwest Generation will provide it as quickly as possible.

5. Please comment on the human health and environmental impact of the SO<sub>2</sub> emissions that would result from granting the proposed variance during the times when the SO<sub>2</sub> emission rate (lb/mmBTU) or mass (tons/year) would be higher than that provided for in 35 Ill. Adm. Code 225.295(b) as well as PCB 12-121 Conditions 1(a) and 3.

Overall, SO<sub>2</sub> emissions would decline during the term of the variance, as would emissions of other pollutants. In no year during the term of the variance would emissions increase over the previous year because of Midwest Generation's commitment to comply with mass emission levels of SO<sub>2</sub>. As described in the Petition, cumulative SO<sub>2</sub> emissions would decrease over the variance period, as would the emissions of other pollutants. *See* Petition at ¶¶. 68, 71; McCluskey Aff. ¶¶ 25-26. Thus, the variance would provide a net environmental benefit. *See* Agency Recommendation, ¶ 25.

Although the variance would provide a net environmental benefit, including a reduction in actual tons of SO<sub>2</sub> emissions in each of the variance years, there could be a slight increase in the level of SO<sub>2</sub> emissions in 2015 and 2016 compared to what might be reasonably anticipated under the CPS because of the difference in the system-wide SO<sub>2</sub> emission rate that Midwest Generation would comply with during those two years (0.38 lb/mmBtu) compared to the CPS rates of 0.28 and 0.195 lb/mmBtu, respectively. Any effect on human health and the environment of that difference would be minimal and would be more than offset by the overall

net emission decrease and resulting environmental benefit arising from early emission reductions due to the variance as proposed.

To further address any potential impact of the temporary difference in SO<sub>2</sub> emission

levels, Midwest Generation is retaining a consultant to provide the Board with an analysis. That

analysis cannot be completed by January 18, 2013, the date this Response is due to the Board;

however, Midwest Generation will provide the analysis as quickly as possible.

#### 35 Ill. Adm. Code 104.204(g)(3) Minimizing Impact during Variance

- 6. The petition states that Midwest Generation "anticipates that the use of the Trona system at Powerton Unit 6 together with ultra-low sulfur coal throughout its coal-fired units will be sufficient for it to meet the CPS SO<sub>2</sub> system-wide rates in 2013 and 2014." Pet. at 25. In addition to the shutdowns of Fisk and Crawford in 2012, Midwest Generation also proposes to not operate Waukegan Unit 8 after January 1, 2015, until the FGD is completed. Pet. at 51, 53.
  - (a) Please indicate whether Midwest Generation proposes to continue using ultra-low sulfur coal on all of its coal-fired units during the term of the variance.

Midwest Generation continuously evaluates the proper mix of coal to ensure compliance

with the CPS SO<sub>2</sub> emission rates and may reduce or increase the amount of ULS coal for which

it contracts to ensure compliance in the most cost-effective manner.

Midwest Generation plans to use ULS as part of its strategy to comply with the CPS

system-wide SO<sub>2</sub> emission rates, particularly in the early years before the Trona injection

systems are pervasive in the fleet. Midwest Generation has been combusting coal obtained from

multiple sources under different contracts. The contracts typically require that sulfur content fall

within a specified range, and the sulfur content of the coal now being delivered is quite

favorable.

Midwest Generation, however, contracts for a portfolio of fuel supplies on an on-going basis, with varying term commitments, though none of those are long-term commitments. The sources of coal and even the sulfur content of the coal from the same source vary over time.

In addition, the sulfur content required for compliance with the CPS turns, in part, on the installation of additional emission controls. Once a Trona injection system is installed on a unit, the use of Trona injection will enable that unit to contribute positively to compliance with the system-wide average emission rate. As a greater portion of the fleet receives controls, the demand for ULS decreases. Midwest Generation continuously evaluates the proper mix of coal to ensure compliance with the CPS SO<sub>2</sub> emission rates and may reduce or increase the amount of ULS coal for which it contracts.

For these reasons, while Midwest Generation plans to continue to use ULS as needed and as it can be economically obtained, the level of sulfur content that may be expected in the future and the relative amounts of very low and somewhat higher sulfur content coal that may be acquired are difficult to predict and will change. With that said, Midwest Generation currently plans to continue to use ULS at the units where Trona systems have not yet been installed, and potentially at units with Trona systems in the future, depending on what is necessary to ensure CPS compliance. Obtaining very low sulfur coal and other fuels is subject to many varying market conditions that do not lend themselves to precise predictions or inclusion of tight fuel requirements in a compliance plan.

### (b) Please indicate what percentage of the coal used would be ultra-low sulfur coal.

As noted above, Midwest Generation continuously evaluates the proper mix of coal to ensure compliance, in the most cost-effective manner, with the CPS SO<sub>2</sub> emission rates, and may reduce or increase the amount of ULS coal for which it contracts based on that evaluation.

Midwest Generation does not fully understand the Board's question here. Does the Board mean what will be the percentage of ULS burned system-wide? If so, that percentage will vary, depending upon the number of Trona injection systems installed and in use, the sulfur content of other coal that Midwest Generation obtains, and actual emissions. If the Board is asking what percentage of the coal burned at a particular unit will be ULS and what percentage will have higher sulfur content, then at those units where a Trona injection system has not been installed, the blend will vary depending upon the factors described above, *i.e.*, the amount of ULS necessary to ensure compliance with the system-wide SO<sub>2</sub> rate and the sulfur content of the other coal being burned. Regardless of which information the Board intended here with question 6(b), the amount of ULS that Midwest Generation may use is very market-sensitive information that can vary, and is not practical to project with precision or necessary to ensure CPS compliance.

Midwest Generation assures the Board that Midwest Generation will burn as much ULS as necessary, in conjunction with the roll-out of the Trona injection systems, to ensure compliance with the applicable system-wide SO<sub>2</sub> emission rates.

(c) Please comment on other operational management measures, such as temporarily optimizing existing control systems, that could be pursued to reduce emissions further than proposed in the petition during the time of the variance.

As discussed in the Petition, there are no other operational management measures that Midwest Generation can employ to reduce  $SO_2$  emissions during the period of the variance, and, in fact, as discussed in Mr. McCluskey's affidavit, the company always seeks to optimize existing controls and considers such to be a key component of compliance planning.<sup>4</sup> Other than

<sup>&</sup>lt;sup>4</sup> Midwest Generation assumes that the Board, here, is referring only to SO<sub>2</sub> emissions, as it is only SO<sub>2</sub> emissions that are regulated by the provisions of the CPS from which Midwest Generation seeks relief.

burning ULS, which Midwest Generation is already doing, there is no emission control that Midwest Generation can adjust to optimize reduction of SO<sub>2</sub> emissions. Once a Trona injection system is installed, Midwest Generation plans to operate that system in a manner that achieves compliance with the CPS cost-effectively. Potential additional methods for reducing SO<sub>2</sub> emissions involve the use of wet or dry FGD scrubbers or the conversion to natural gas. None of these options is feasible, however, for the reasons described in the Petition.

#### 35 Ill. Adm. Code 104.204(1) Suggested Conditions for Variance

7. Besides the compliance plan, the petition does not address any conditions of the requested variance. Please provide language for each potential condition below or explain why it is inappropriate. An alternative condition with corresponding language may be provided along with an explanation as to why it is more appropriate.

Paragraph 83 of the Petition contains proposed conditions, and Paragraph 84 of the

Petition contains the proposed compliance plan, which is also a suggested condition of the

variance. Accordingly, Midwest Generation has already proposed numerous conditions for the

variance. Please see below for proposed additional conditions addressing elements that the

Board has specifically requested.

(a) A condition requiring that Midwest Generation submit annual progress reports to IEPA by the end of each calendar year addressing the status of engineering, budgeting, and construction activities related to the Trona system installations and associated PM control work.

As discussed in response to question 1 above, Midwest Generation reminds the Board that a core tenet of the CPS when it was adopted was maximum flexibility to the company while establishing emission rate limits that the Agency found were protective of public health. The unit-specific control detail that the Board appears to suggest in question 1 as conditions of the variance would constrain that flexibility unnecessarily, particularly considering the mass

emission levels to which Midwest Generation proposes to commit in its Petition and which are included in the compliance plan/condition.

Nonetheless, Midwest Generation is willing to accept additional reporting requirements related to its control activities during the term of the variance. Specifically, Midwest Generation suggests the following condition regarding annual progress reports:

Midwest Generation shall submit annual progress reports to the Agency by the end of each calendar year generally describing the work completed that year (*i.e.*, the progress report due by December 31, 2013, shall describe work completed in 2013) and progress made to comply with the timelines specified in the compliance plan. The annual progress report shall also include a general description of the activities related to installation of the Trona systems and related PM control work Midwest Generation then anticipates will be conducted the following year, including the status of the engineering for the projects and whether such projects have been included in the year's budgeting.

Midwest Generation does not believe that the submission to the Agency of specific budgeting should be required, other than a general confirmation that activities planned for the

next calendar year are included in the budget. Nothing in the Board's rules requires sources to provide this sort of information other than in generalities when sources seek regulatory relief or in the development of regulations. However, recognizing that the basis of Midwest Generation's request for variance in this matter is Midwest Generation's current financial hardship, Midwest Generation appreciates why the Board would want it to report to the Agency that it has budgeted for construction necessary for compliance with the CPS in an upcoming construction season. To bridge this apparent gap in what is actually required by rule and the basis for Midwest Generation's request for variance, Midwest Generation offers to inform the Agency of the current status of projects in these annual reports.

(b) A condition requiring that the annual progress reports include an itemization of activities completed during the year and related expenses,

activities planned to be completed in the forthcoming year and projected expenses, progress made to comply with the timelines specified in the variance, and the estimated in-service dates.

See 7(a), above.

(c) A condition requiring that Midwest Generation notify IEPA if completion of the planned Trona system installations and associated PM controls becomes infeasible.

Midwest Generation suggests the following condition:

Midwest Generation shall notify the Agency if completion of the Trona system installations and associated PM controls necessary for compliance with the CPS becomes infeasible.

Respectfully submitted,

MIDWEST GENERATION, LLC

by:

One of Its Attorneys

Dated: January 18, 2013

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#### EXHIBIT LIST

Exhibit 10 - Comprehensive Emissions Analysis Table

Exhibit 11 - Table of Calculations and Equations

### EXHIBIT 10

### Comprehensive Emissions Analysis Table

	A	в	C	0	E	F	G	H	1 - 4	1	ĸ
1	SO2 CPS Baseline							1. Parim			
2	Station	2008 Actual HI (mmBtu)	2008 Actual SO2 Rate	2008 Actual SO2 Tons	2009 Actual HI (mmBtu)	2009 Actual SO2 Rate	2009 Actual SO2 Tons	2010 Actual HI (mmBtu)	2010 Actual SO2 Rate	2010 Actual SO2 Tons	2011 Actual Hi (mmBtu)
3	CRAWFORD 7	14,330,137	0.473	3,390	11,050,593	0.504	2,787	10,782,311	0.498	2,683	12,246,842
4	CRAWFORD 8	13,906,062	0.466	3,237	15,703,119	0.517	4,321	15,530,853	0.490	3,804	16,359,358
5	FISK 19	19,304,441	0.465	4,486	17,095,648	0.493	4,217	17,080,737	0.492	4,198	16,860,207
Б	JOLIET &	20,542,278	0.451	4,631	15,214,472	0,452	3,441	14,456,345	0.437	3,162	18,868,874
7	JOLIET 7	24,727,120	0.485	5,990	31,728,018	0.450	7,134	31,102,482	0.447	6,950	26,597,881
8	JOLIET 8	32,660,106	0,469	7,658	32,993,827	0,450	7,420	30,503,439	0.457	6,975	35,645,451
9	POWERTON 5	53,561,854	0.417	11,178	50,811,365	D.435	11,063	52,742,277	0.412	10,875	52,195,286
10	POWERTON 6	49,815,476	0.449	11,178	54,601,879	0.405	11,063	46,564,195	0.467	10,875	59,265,505
11	WAUKEGAN 6	0	0.000	٥	O	0.000	0	0	0.000	0	0
12	WAUKEGAN 7	18,455,746	0.464	4,281	19,294,004	0.496	4,782	19,721,407	0.517	5,097	16,454,701
13	WAUKEGAN 8	23,799,511	0,500	5,945	25,517,241	0.518	6,608	22,300,468	0.543	6,054	25,143,279
14	WILL COUNTY 1	10,514,364	0.459	2,414	6,826,179	0.444	1,514	9,703,897	0.462	2,241	0
15	WILL COUNTY 2	9,139,801	0.465	2,127	7,794,394	0.447	1,742	9,190,274	0.441	2,028	D
16	WILL COUNTY 3	18,013,865	0.496	3,974	13,770,415	0.447	3,077	14,160,707	0.468	3,315	15,363,769
17	WILL COUNTY 4	31,595,985	0.505	7,982	28,220,795	0.444	6,270	29,877,504	0,480	7,164	22,822,998
18	TOTAL (CPS Baseline)	338,366,746	1 m m	78,472	331,621,949		75,437	323,716,896		75,421	317,824,151
19	SO2 RATE	1.	0.464	1		0.455	1	1	0.466		
20	<b>CPS</b> Proposed Variance	e				C					
21	SO2 TONS TOTAL					-		-			-
22	SO2 RATE (Ibs/mmBtu)										
-	HEAT INPUT (Based On										
23	Proposed Tonnage Limit)										
24	Annual Benefit	- 0									
25	Cumulative Net Benefit	1									
26										-	
27											

	A	L	M	N	0	P	Q	R
1	SO2 CPS Baseline							
2	Station	2011 Actual SO2 Rate	2011 Actual SO2 Tons	2008-2011 Annual Avg Hi (mmBtu)	2013 (tons)	2014 (tons)	2015 (tons)	2016 (tons)
3	CRAWFORD 7	0.475	2,910	12,102,471	2,663	2,481	0	0
4	CRAWFORD 8	0.444	3,635	15,624,848	3,437	3,203	0	D
5	FISK 19	0,490	4,132	Not Applicable	0	0	0	Ð
6	JOLIET 6	0.431	4,070	17,270,492	3,800	3,540	2,418	1,684
7	JOLIET 7	0.408	5,420	28,538,875	6,279	5,850	3,995	2,783
8	JOLIET 8	0.423	7,543	32,950,708	7,249	6,755	4,613	3,213
9	POWERTON 5	0.418	10,917	52,327,696	11,512	10,727	7,326	5,102
10	POWERTON 6	0.368	10,917	52,561,764	11,564	10,775	7,359	5,125
11	WAUKEGAN 6	0.000	0	Not Applicable	D	0	0	0
12	WAUKEGAN 7	0.462	3,801	18,481,465	4,065	3,789	2,587	1,802
13	WAUKEGAN 8	0.487	6,128	24,190,125	5,322	4,959	3,387	2,359
14	WILL COUNTY 1	0.000	۵	Not Applicable	0	0	0	D
15	WILL COUNTY 2	0.000	0	Not Applicable	0	0	0	D
16	WILL COUNTY 3	0,435	3,344	14,827,189	3,262	3,040	2,076	1,446
17	WILL COUNTY 4	0.434	4,957	28,129,321	6,188	5,767	3,938	2,743
18	TOTAL (CPS Baseline)	X 11 12 12 14	67,773	297,004,950	65,341	60,886	37,699	26,255
19	SO2 RATE	0.426		1	0.44	0.41	0.28	0.195
20	<b>CPS Proposed Variand</b>	ce		Sec. 199	1	-		
21	SO2 TONS TOTAL	1			57,000	54,000	39,000	37,000
22	SO2 RATE (Ibs/mmBtu)				0.44	0.41	0.38	0.38
11	HEAT INPUT (Based On	-						
23	Proposed Tonnage Limit)				259,090,909	263,414,634	205,263,158	194,736,842
24	Annual Benefit	- 6			8,341	6,886	-1,301	-10,745
25	Cumulative Net Benefit				8,341	15,227	13,926	3,161
26					-			
27								

A	В	C .	D	E	F	G	н		1
28									
29 NOx CPS B	aseline								
30 Statio	2008 Actual HI (mmBtu)	2009 Actual HI (mmBtu)	2010 Actual HI (mmBtu)	2011 Actual Hi (mmBtu)	Annual Avg Hi (mmBtu)	2013 (tons)	2014 (tons)	2015 (tons)	2016 (tons)
1 CRAWFORD 7	14,330,137	11,050,593	10,782,311	12,246,842	12,102,471	668	666	0	0
2 CRAWFORD 8	13,906,062	16,703,119	15,530,853	16,359,358	15,624,848	859	859	0	0
33 FISK 19	19,304,441	17,095,648	17,080,737	16,860,207	Not Applicable	0	0	0	0
34 JOLIET 6	20,542,278	15,214,472	14,456,345	18,868,874	17,270,492	950	950	950	950
IS JOLIET 7	24,727,120	31,728,018	31,102,482	26,597,881	28,538,875	1,570	1,570	1,570	1,570
IG JOLIET 8	32,660,106	32,993,827	30,503,439	35,645,451	32,950,706	1,812	1,812	1,812	1,812
7 POWERTON 5	53,561,854	50,811,365	52,742,277	52,195,286	52,327,696	2,878	2,878	2,878	2,878
8 POWERTON 6	49,815,476	54,601,879	46,564,195	59,265,505	52,561,764	2,891	2,891	2,891	2,891
9 WAUKEGAN 6	0	0	0	0	Not Applicable	0	D	0	0
0 WAUKEGAN 7	18,455,746	19,294,004	19,721,407	16,454,701	18,481,465	1,016	1,016	1,016	1,016
1 WAUKEGAN 8	23,799,511	25,517,241	22,300,468	25,143,279	24,190,125	1,330	1,330	1,330	1,330
2 WILL COUNTY 1	10,514,354	6,826,179	9,703,897	Ð	Not Applicable	0	0	0	0
3 WILL COUNTY 2	9,139,801	7,794,394	9,190,274	0	Not Applicable	0	0	D	0
4 WILL COUNTY 3	16,013,865	13,770,415	14,160,707	15,363,769	14,827,189	815	815	615	815
5 WILL COUNTY 4	31,595,985	28,220,795	29,877,504	22,822,998	28,129,321	1.547	1,547	1,547	1.547
6 TOTAL (CPS Base	line) 338,366,746	331,621,949	323,716,896	317,824,151	297,004,950	16,335	16,335	14,810	14,810
7 NOX RATE		A REAL PROPERTY AND ADDRESS OF				0.11	0.11	0,11	0.11
48 CPS Propose	Variance								
49 NOX TONS TOTAL	2.4.4.4					14,250	14,488	11,289	10,711
50 NOx RATE (Ibs/mr	nBtu)					0.11	0.11	0.11	0.11
HEAT INPUT (Base 51 Proposed Tonnag	ed On e Limit)					259,090,909	263,414,634	205,263,158	194,736,842
52 Annual Benefit						2,085	1,847	3,521	4,100
53 Cumulative Net Be	nefit					2.085	3,933	7,454	11.553

A	В	c	D	E	F	G	н		1
54									
5 PM CPS Baseline									
56 Station	2008 Actual Hi (mmBtu)	2009 Actual HI (mmBtu)	2010 Actual Hi (mmBtu)	2011 Actual Hi (mmBtu)	2008-2011 Annual Avg Hi (mmBtu)	2013 (tons)	2014 (tons)	2015 (tons)	2016 (tons)
7 CRAWFORD 7	14,330,137	11,050,593	10,782,311	12,246,842	12,102,471	248	248	0	D
68 CRAWFORD 8	13,906,082	16,703,119	15,530,853	16,359,358	15,624,848	320	320	0	0
59 FISK 19	19,304,441	17,095,648	17,080,737	16,860,207	Not Applicable	Ð	0	Q	0
JOLIET 6	20,542,278	15,214,472	14,456,345	18,868,874	17,270,492	354	354	354	354
JOLIET 7	24,727,120	31,728,018	31,102,482	26,597,881	28,538,875	585	585	585	585
JOLIET 8	32,660,108	32,993,827	30,503,439	35,645,451	32,950,706	675	675	675	675
B POWERTON 5	53,561,854	50,811,365	52,742,277	52,195,286	52,327,696	1.073	1,073	1,073	1,073
4 POWERTON 6	49,815,476	54,601,879	46,564,195	59,265,505	52,561,764	1,078	1,078	1,078	1,078
5 WAUKEGAN 6	0	0	0	0	Not Applicable	0	D	0	0
6 WAUKEGAN 7	18,455,746	19,294,004	19,721,407	16,454,701	18,481,465	379	379	379	379
7 WAUKEGAN 8	23,799,511	25,517,241	22,300,468	25,143,279	24,190,125	496	496	496	496
8 WILL COUNTY 1	10,514,364	6,826,179	9,703,897	D	Not Applicable	0	0	0	0
9 WILL COUNTY 2	9,139,801	7,794,394	9,190,274	0	Not Applicable	0	0	D	0
0 WILL COUNTY 3	16,013,865	13,770,415	14,160,707	15,363,769	14,827,189	304	304	304	304
1 WILL COUNTY 4	31,595,985	28,220,795	29,877,504	22,822,998	28,129,321	577	577	577	577
2 TOTAL (CPS Baseline)	338,366,746	331,621,949	323,716,896	317,824,151	297,004,950	6,089	6,089	5,520	5,520
3 PM RATE						0.041	0.041	0.841	0.041
74 CPS Proposed Varian	ce								
75 PM TONS TOTAL	A Contraction					5,311	5,400	4,208	3,992
76 PM RATE (lbs/mmBtu)						0.041	0.041	0.041	0.041
HEAT INPUT (Based On Proposed Tonnage Limit)						259,090,909	263,414,634	205,263,158	194,736,842
78 Annual Benefit						777	689	1,312	1,528
79 Cumulative Net Benefit					-1	777	1,466	2,778	4,306

A	B	C .	D	E	F	G	H .		1
30									
at CO2 CPS Baseline									
32 Station	2008 Actual HI (mmBtu)	2009 Actual HI (mmBtu)	2010 Actual HI (mmBtu)	2011 Actual Hi (mmBtu)	Annual Avg HI (mmBtu)	2013 (tons)	2014 (tons)	2015 (tons)	2016 (tons)
33 CRAWFORD 7	14,330,137	11,050,593	10,782,311	12,246,842	12,102,471	1,282,862	1,282,862	D	D
4 CRAWFORD 8	13,906,062	16,703,119	15,530,853	16,359,358	15,624,848	1,656,234	1.656,234	0	0
5 FISK 19	19,304,441	17,095,648	17,080,737	16,860,207	Not Applicable	0	0	0	0
IG JOLIET 6	20,542,278	15,214,472	14,456,345	18,868,874	17,270,492	1,830,672	1,830,672	1.830.872	1,830,672
JOLIET 7	24,727,120	31,728,018	31,102,482	26,597,881	28,538,875	3,025,121	3,025,121	3,025,121	3,025,121
38 JOLIET 8	32,660,106	32,993,827	30,503,439	35,645,451	32,950,706	3,492,775	3,492,775	3,492,775	3,492,775
9 POWERTON 5	53,561,854	50,811,365	52,742,277	52,195,286	52,327,696	5,546,736	5,546,736	5,546,736	5,546,736
O POWERTON 6	49,815,476	54,601,879	46,564,195	59,265,505	52,561,764	5,571,547	5,571,547	5,571,547	5,571,547
1 WAUKEGAN 6	Ũ	Û	Q	0	Not Applicable	0	D	0	0
2 WAUKEGAN 7	18,455,746	19,294,004	19,721,407	18,454,701	18,481,465	1,959,035	1.959,035	1,959,035	1,959,035
3 WAUKEGAN 8	23,799,511	25,517,241	22,300,468	25,143,278	24,190,125	2,564,153	2,564,153	2,564,153	2,564,153
4 WILL COUNTY 1	10,514,364	6,826,179	9,703,897	0	Not Applicable	D	Ú	0	0
5 WILL COUNTY 2	9,139,801	7,794,394	9,190,274	0	Not Applicable	Q	٥	0	0
6 WILL COUNTY 3	16,013,885	13,770,415	14,160,707	15,363,769	14,827,189	1,571,682	1,571,682	1,571,682	1,571,682
7 WILL COUNTY 4	31,595,985	28,220,795	29,877,504	22,822,998	28,129,321	2,981,708	2,981,708	2,981,708	2,981,708
8 TOTAL (CPS Baseline)	338,366,745	331,621,949	323,716,896	317,824,151	297,004,950	31,482,525	31,482,525	28,543,429	28,543,429
9 PM RATE						212.00	212.00	212.00	212.00
00 CPS Proposed Varian	ce								
101 CO2 TONS TOTAL	- p					27,453,635	27,921,951	21,757,895	20,642,105
02 CO2 RATE (lbs/mmBtu)						212.000	212.000	212.000	212.000
HEAT INPUT (Based On 03 Proposed Tonnage Limit)						259,090,909	263,414,634	205,263,158	194,736,842
104 Annual Benefit						4,018,589	3,560,574	6,785,534	7,901,324
105 Cumulative Net Benefit						4,018,889	7,579,462	14,364,997	22.268,320

A	В	c	Ď	E C	F F	G	H	1	J
06									
or Mercury CPS Baseline									
08 Station	2008 Actual HI (mmBtu)	2009 Actual Hi (mmBtu)	2010 Actual HI (mmBtu)	2011 Actual Hi (mmBtu)	2008-2011 Annual Avg HI (mmBtu)	2013 (lbs)	2014 (lbs)	2015 (lbs)	2016 (Ibs)
09 CRAWFORD 7	14,330,137	11,050,593	10,782,311	12,246,842	12,102,471	10.5	10.5	0.0	0.0
10 CRAWFORD 8	13,906,062	16,703,119	15,530,853	16,359,358	15,624,848	13.6	13.6	0.0	0.0
11 FISK 19	19,304,441	17,095,648	17,080,737	16,860,207	Not Applicable	0.0	0.0	0.0	0.0
12 JOLIET 6	20,542,278	15,214,472	14,456,345	18,868,874	17,270,492	15.0	15.0	15.0	15.0
13 JOLIET 7	24,727,120	31,728,018	31,102,482	26,597,881	28,538,875	24.8	24.8	24.8	24.8
14 JOLIET 8	32,660,106	32,993,827	30,503,439	35,645,451	32,950,706	28.7	28.7	28 7	28.7
15 POWERTON 5	53,561,854	50,811,365	52,742,277	52,195,285	52,327,696	45.5	45.5	45.5	45.5
16 POWERTON 6	49,815,476	54,601,879	46,564,195	59,265,505	52,561,764	45.7	45.7	45.7	45.7
17 WAUKEGAN 6	0	0	0	Û	Not Applicable	0.0	0.0	0.0	0.0
18 WAUKEGAN 7	18,455,746	19,294,004	19,721,407	16,454,701	18,481,465	16.1	18.1	16.1	16 1
19 WAUKEGAN 8	23,799,511	25,517,241	22,300,468	25,143,279	24,190,125	21:0	21.0	21.0	21.0
20 WILL COUNTY 1	10,514,364	6,826,179	9,703,897	0	Not Applicable	0.0	0.0	0.0	0.0
21 WILL COUNTY 2	9,139,801	7,794,394	9,190,274	0	Not Applicable	0.0	0.0	0.0	0.0
22 WILL COUNTY 3	16,013,865	13,770,415	14,160,707	15,363,769	14,827,189	12.9	12.9	12.9	12.9
23 WILL COUNTY 4	31,595,985	28,220,795	29,877,504	22,822,998	28,129,321	24.5	24.5	24.5	24.5
24 TOTAL (CPS Baseline)	338,366,746	331,621,949	323,716,896	317,824,151	297,004,950	258.4	258.4	234.3	234.3
25 Hg RATE (lbs/Tbtu)						0.87	0.87	0.87	0.87
26 CPS Proposed Variance	e								
127 Hg Pounds TOTAL						225	229	179	169
28 Hg RATE (Ibs/Tbtu)					1	0.870	0.870	0.870	0.870
HEAT INPUT (Based On								and the second	Company and
129 Proposed Tonnage Limit)	- P					259,090,909	263,414,634	205,263,158	194,736,842
130 Annual Benefit						33	29	56	65
131 Cumulative Net Benefit	1					33	62	118	183

# EXHIBIT 11 Table of Calculations and Equations

A	в	C	0	E	F
SO2 CPS Baseline					
Station	2008 Actual HI (mmBtu)	2008 Actual SO2 Rate	2008 Actual SO2 Tons	2009 Actual HI (mmBtu)	2009 Actual SO2 Rate
CRAWFORD 7	14330137	0.473	3390	11050593	0.504
CRAWFORD 8	13906062	0.466	3237	16703119	0.517
FISK 19	19304441	0.465	4486	17095648	0.493
JOLIET S	20542278	0.451	4631	15214472	0.452
JOLIET 7	24727120	0.485	5990	31728018	0.45
JOLIET 8	32660106	0,459	7658	32993827	0.45
POWERTON 5	53561854	0,417	11178	50811365	0.435
POWERTON 6	49815476	0.449	11178	54601879	0.405
WAUKEGAN 6	0	0	0	0	0
WAUKEGAN 7	18455746	0.464	4281	19294004	0.496
WAUKEGAN 8	23799511	0.5	5945	25517241	0.518
WILL COUNTY 1	10514364	0.459	2414	6826179	0.444
WILL COUNTY 2	9139801	0.465	2127	7794394	0.447
WILL COUNTY 3	16013865	0.496	3974	13770415	0.447
WILL COUNTY 4	31595985	0,505	7982	28220795	0.444
TOTAL (CPS Baseline)	=SUM(B3:B17)		78472	=SUM(E3:E17)	
SO2 RATE		0.464			0.455
CPS Proposed Varian	ice				
SOZ TONS TOTAL					
SO2 RATE (Ibs/mmBtu)					
HEAT INPUT (Based On Proposed Tonnage Limit)					
Annual Benefit					
5 Cumulative Net Benefit					
5					
14					

A	G	н	1	1	ĸ
SO2 CPS Baselin	8				
Station	2009 Actual SO2 Tons	2010 Actual HI (mmBtu)	2010 Actual SO2 Rate	2010 Actual SO2 Tons	2011 Actual HI (mmBtu)
CRAWFORD 7	2787	10782311	0.498	2683	12246842
CRAWFORD 8	4321	15530853	0.49	3804	16359358
FISK 19	4217	17080737	0.492	4198	16860207
JOLIET 6	3441	14456345	0.437	3162	18868874
JOLIET 7	7134	31102482	0.447	6950	26597881
JOLIET 8	7420	30503439	0.457	6975	35645451
POWERTON 5	11063	52742277	0.412	10875	52195286
POWERTON S	11063	46564195	0.467	10875	59265505
WAUKEGAN 6	0	0	0	0	0
WAUKEGAN 7	4782	19721407	0.517	5097	16454701
WAUKEGAN 8	6608	22300468	0.543	6054	25143279
WILL COUNTY 1	1514	9703897	0.452	2241	0
WILL COUNTY 2	1742	9190274	0.441	2028	0
WILL COUNTY 3	3077	14160707	0.468	3315	15363769
7 WILL COUNTY 4	6270	29877504	0.48	7164	22822998
B TOTAL (CPS Baseline)	75437	=SUM(H3:H17)	E	75421	=SUM(K3:K17)
SO2 RATE		1	0.466		
CPS Proposed Varian	nce				
1 SO2 TONS TOTAL					
SO2 RATE (Ibs/mmBtu)	-				
HEAT INPUT (Based On					
Proposed Tonnage Limit)					
Annual Benefit	0				
Cumulative Net Benefit					
5					
7					

A	- L	M	N	0	p
SO2 CPS Baseline					
2 Station	2011 Actual SO2 Rate	2011 Actual SO2 Tons	2008-2011 Annual Avg Hi (mmBtu)	2013 (tons)	2014 (tons)
CRAWFORD 7	0.475	2910	12102471	=0.44*N3/2000	=N3*0.41/2000
CRAWFORD 8	0.444	3635	15624848	=0.44*N4/2000	=N4*0.41/2000
FISK 19	0.49	4132	Not Applicable	0	0
JOLIET 6	0.431	4070	17270492	=0.44*N6/2000	=N6*0.41/2000
JOLIET 7	0.408	5420	28538875	=0.44*N7/2000	=N7*0.41/2000
JOLIET 8	0.423	7543	32950706	=0.44"N8/2000	=N8*0.41/2000
POWERTON 5	0.418	10917	52327695	=0.44*N9/2000	=N9*0.41/2000
0 POWERTON 6	0.368	10917	52561764	=0.44"N10/2000	=N10*0.41/2000
1 WAUKEGAN 6	C	D	Not Applicable	0	0
2 WAUKEGAN 7	0.462	3801	18481465	=0.44"N12/2000	=N12*0.41/2000
3 WAUKEGAN 8	0.487	6128	24190125	=0.44*N13/2000	=N13*0.41/2000
4 WILL COUNTY 1	0	0	Not Applicable	0	0
5 WILL COUNTY 2	0	0	Not Applicable	0	0
6 WILL COUNTY 3	0.435	3344	14827189	=0.44*N16/2000	=N16*0.41/2000
7 WILL COUNTY 4	0.434	4957	28129321	=0.44*N17/2000	=N17*0.41/2000
8 TOTAL (CPS Baseline)	1.1.2	67773	297004950	=SUM(03:017)	=SUM(P3:P17)
9 SO2 RATE	0.426			=018*2000/N18	=P18*2000/N18
CPS Proposed Varian	ce				
1 SO2 TONS TOTAL				57000	54000
2 SO2 RATE (lbs/mmBtu)				0.44	0.41
HEAT INPUT (Based On Proposed Tonnage Limit)				=021*2000/022	=P21*2000/P22
4 Annual Benefit	0.0			=018-021	=P18-P21
25 Cumulative Net Benefit	0.0			=024	=P24+025
26					
27					

	A	Q	R
1	SO2 CPS Baseline		
2	Station	2015 (tons)	2016 (tons)
3	CRAWFORD 7	0	0
4	CRAWFORD 8	0	0
5	FISK 19	0	0
6	JOLIET 6	=N6*0 28/2000	=N6*0 195/2000
7	JOLIET 7	=N7*0.28/2000	=N7*0.195/2000
8	JOLIET B	=N8*0.28/2000	=N8*0 195/2000
9	POWERTON 5	=N9"0.28/2000	=N9*0 195/2000
10	POWERTON 6	≈N10*0.26/2000	=N10*0 195/2000
11	WAUKEGAN 6	0	0
12	WAUKEGAN 7	=N12*0.28/2000	=N12*0.195/2000
13	WAUKEGAN 8	=N13*0.28/2000	=N13*0.195/2000
14	WILL COUNTY 1	D	0
15	WILL COUNTY 2	D	0
16	WILL COUNTY 3	=N16*0.28/2000	=N16"0.195/2000
17	WILL COUNTY 4	=N17*0.28/2000	=N17*0 195/2000
18	TOTAL (CPS Baseline)	=SUM(Q3:Q17)	=SUM(R3:R17)
19	SO2 RATE	=Q18*2000/(N18-N3-N4)	=R18*2000/(N18-N3-N4)
20	<b>CPS</b> Proposed Varian	ce	
21	SO2 TONS TOTAL	39000	37000
22	SO2 RATE (lbs/mmBtu)	0.38	0.38
23	HEAT INPUT (Based On Proposed Tonnage Limit)	=Q21*2000/Q22	=R21*2000/R22
24	Annual Benefit	=Q18-Q21	=R18-R21
25	Cumulative Net Benefit	=P25+Q24	=Q25+R24
26 27			

	A	8	c	D	E	F
28		1				
29 N	Ox CPS Baseline					
30	Station	2008 Actual HI (mmBtu)	2009 Actual HI (mmBtu)	2010 Actual HI (mmBtu)	2011 Actual HI (mmBtu)	2008-2011 Annual Avg Hi (mmBtu)
31 CF	RAWFORD 7	14330137	11050593	10782311	12246842	12102471
32 CF	AWFORD 8	13906052	16703119	15530853	16359358	15624848
33 FI	SK 19	19304441	17095648	17080737	16860207	Not Applicable
34 JO	LIET 6	20542278	15214472	14456345	18868874	17270492
35 JC	DLIET 7	24727120	31728018	31102482	26597881	28538875
36 JC	DLIET B	32660106	32993827	30503439	35645451	32950706
37 PC	WERTON 5	53561854	50811365	52742277	52195286	52327696
38 PC	WERTON 6	49815476	54601879	46564195	59265505	52561764
39 W	AUKEGAN 6	0	0	0	Q	Not Applicable
40 W	AUKEGAN 7	18455746	19294004	19721407	16454701	18481465
41 W	AUKEGAN 8	23799511	25517241	22300468	25143279	24190125
42 W	ILL COUNTY 1	10514364	6826179	9703897	0	Not Applicable
43 W	ILL COUNTY 2	9139801	7794394	9190274	0	Not Applicable
44 W	ILL COUNTY 3	16013865	13770415	14160707	15363769	14827189
45 W	ILL COUNTY 4	31595985	28220795	29877504	22822998	28129321
46 TC	DTAL (CPS Baseline)	=SUM(B31:B45)	■SUM(C31:C45)	=\$UM(D31:D45)	=SUM(E31:E45)	297004950
47 NO	Dx RATE					
48 C	PS Proposed Variance	e				
49 NG	DX TONS TOTAL	1				
50 N	Dx RATE (lbs/mmBtu)	1				
51 Pr	EAT INPUT (Based On oposed Tonnage Limit)					
52 Ar	nual Benefit	E.				
53 Cu	umulative Net Benefit	0				

A	G	Н		1	ĸ
8	011 04 0 <sup>1</sup>				
9 NOx CPS Ba	seline				
0 Station	2013 (tons)	2014 (tons)	2015 (tons)	2016 (tons)	
1 CRAWFORD 7	=0.11*F31/2000	=F31*0.11/2000	0	0	
CRAWFORD 8	=0.11*F32/2000	=F32*0 11/2000	0	0	
3 FISK 19	0	0	0	0	
4 JOLIET 6	=0.11*F34/2000	=F34*0.11/2000	=F34*0 11/2000	=F34*0.11/2000	
5 JOLIET 7	=0.11*F35/2000	=F35*0.11/2000	=F35*0.11/2000	=F35°0.11/2000	
6 JOLIET 8	=0.11*F36/2000	=F36*0.11/2000	=F36*0.11/2000	=F36*0.11/2000	
7 POWERTON 5	=0.11*F37/2000	=F37*0 11/2000	=F37*0.11/2000	=F37*0.11/2000	
8 POWERTON 6	=0.11*F38/2000	=F38*0.11/2000	=F38*0.11/2000	=F38*0.11/2000	
WAUKEGAN 6	0	0	0	0	
WAUKEGAN 7	=0.11*F40/2000	=F40*0.11/2000	=F40*0_11/2000	=F40*0.11/2000	
1 WAUKEGAN 8	=0 11*F41/2000	=F41*0.11/2000	=F41*0.11/2000	=F41*0.11/2000	
2 WILL COUNTY 1	0	0	0	0	
3 WILL COUNTY 2	0	0	0	0	
4 WILL COUNTY 3	=0.11*F44/2000	=F44*0.11/2000	=F44*0.11/2000	=F44*0.11/2000	
5 WILL COUNTY 4	=0.11*F45/2000	=F45*0,11/2000	=F45*0.11/2000	=F45*0.11/2000	
6 TOTAL (CPS Basellr	e) =SUM(G31:G45)	=SUM(H31:H45)	=SUM(131:145)	=SUM(J31:J45)	
7 NOX RATE	=G45*2000/F46	=H46*2000/F46	=146*2000/(F45-F31-F32)	=J46*2000/(F46-F31-F32)	
8 CPS Proposed	Variance				
9 NOX TONS TOTAL	=G50*G51/2000	=H50*H51/2000	al50*151/2000	=J50*J51/2000	
0 NOx RATE (Ibs/mmE	Btu) 0.11	0.11	0.11	0.11	
HEAT INPUT (Based 1 Proposed Tonnage	On	263414634.146341	205263157.894737	194736842.105263	
52 Annual Benefit	=G46-G49	=H46-H49	=146-149	=J46-J49	
53 Cumulative Net Ben	efit =G52	=H52+G53	=H53+152	=153+J52	

	A	B	c	D	E	P
54						
55	PM CPS Baseline					
56	Station	2008 Actual Hi (mmBtu)	2009 Actual HI (mmBtv)	2010 Actual HF (mmBtu)	2011 Actual Hi (mmBtu)	2008-2011 Annual Avg Hi (mmBtu)
57	CRAWFORD 7	14330137	11050593	10782311	12246842	12102471
58	CRAWFORD 8	13906062	16703119	15530853	16359358	15624848
59	FISK 19	19304441	17095648	17080737	16860207	Not Applicable
60	JOLIET 6	20542278	15214472	14456345	16868874	17270492
61	JOLIET 7	24727120	31728018	31102482	26597861	28538875
62	JOLIET 8	32660106	32993827	30503439	35645451	32950706
63	POWERTON 5	53561854	50811365	52742277	52195286	52327696
64	POWERTON 6	49815476	54601879	46564195	59265505	52561764
65	WAUKEGAN 6	0	0	0	0	Not Applicable
66	WAUKEGAN 7	18455746	19294004	19721407	16454701	18481465
67	WAUKEGAN 8	23799511	25517241	22300468	25143279	24190125
68	WILL COUNTY 1	10514364	6826179	9703897	0	Not Applicable
69	WILL COUNTY 2	9139801	7794394	9190274	0	Not Applicable
70	WILL COUNTY 3	16013865	13770415	14160707	15363769	14827189
71	WILL COUNTY 4	31595985	28220795	29877504	22822998	28129321
72	TOTAL (CPS Baseline)	=SUM(B57:B71)	=SUM(C57:C71)	=SUM(D57:D71)	=SUM(E57:E71)	297004950
73	PM RATE					
74	<b>CPS</b> Proposed Varian	ce				
75	PM TONS TOTAL	21				
76	PM RATE (lbs/mmBtu)					
77	HEAT INPUT (Based On Proposed Tonnage Limit)					
78	Annual Benefit	1				
79	Cumulative Net Benefit					

	А	G	н	1	J	ĸ
4						
5	PM CPS Baseline					
6	Station	2013 (tons)	2014 (tons)	2015 (tons)	2016 (tons)	
7	CRAWFORD 7	=0.041*F57/2000	=F57*0.041/2000	0	0	
B	CRAWFORD 8	=0.041*F58/2000	=F58*0.041/2000	0	0	
9	FISK 19	0	0	0	0	
0	JOLIET 6	=0.041*F60/2000	=F60*0.041/2000	=F60*0.041/2000	=F60*0.041/2000	
1	JOLIET 7	=0.041*F61/2000	=F61*0.041/2000	=F61*0.041/2000	=F61*0.041/2000	
2	JOLIET 8	=0.041*F62/2000	=F62*0.041/2000	=F62*0.041/2000	=F62*0.041/2000	
3	POWERTON 5	=0.041*F63/2000	=F63*0.041/2000	=F63*0.041/2000	=F63*0.041/2000	
4	POWERTON 6	=0.041*F64/2000	=F64*0.041/2000	=F64*0.041/2000	=F64*0.041/2000	
5	WAUKEGAN 6	0	0	0	0	
6	WAUKEGAN 7	=0.041*F66/2000	=F66*0.041/2000	=F66*0.041/2000	=F66*0.041/2000	
7	WAUKEGAN 8	=0.041*F67/2000	=F67*0.041/2000	=F67*0.041/2000	=F67*0.041/2000	
8	WILL COUNTY 1	0	D	0	0	
9	WILL COUNTY 2	0	0	0	0	
70	WILL COUNTY 3	=0.041*F70/2000	=F70*0.041/2000	=F70*0.041/2000	=F70*0.041/2000	
1	WILL COUNTY 4	=0.041*F71/2000	=F71*0.041/2000	=F71*0.041/2000	=F71*0.041/2000	
72	TOTAL (CPS Baseline)	=SUM(G57:G71)	=SUM(H57:H71)	=SUM(157:171)	=SUM(J57:J71)	
3	PM RATE	=G72*2000/F72	=H72*2000/F72	=172*2000/(F72-F57-F58)	=J72*2000/(F72-F57-F58)	
74	<b>CPS</b> Proposed Varian	ce				
75	PM TONS TOTAL	=G76*G77/2000	=H76*H77/2000	=176*177/2000	=J76*J77/2000	
76	PM RATE (Ibs/mmBtu)	0.041	0.041	0.041	0.041	
77	HEAT INPUT (Based On Proposed Tonnage Limit)	259090909.090909	263414634.146341	205263157.894737	194736842.105263	
78	Annual Benefit	=G72-G75	=H72-H75	=172-175	=J72-J75	
79	Cumulative Net Benefit	=G78	=H78+G79	=H79+178	=179+J78	

	А	B	ć	D	E	F
80	with the second					
81	CO2 CPS Baseline					
82	Station	2008 Actual Hi (mmBtu)	2009 Actual HI (mmBtu)	2010 Actual HI (mmBtu)	2011 Actual HI (mmBtu)	2008-2011 Annual Avg Hi (mmBtu)
83	CRAWFORD 7	14330137	11050593	10782311	12246842	12102471
84	CRAWFORD 8	13906062	16703119	15530853	16359358	15624848
85	FISK 19	19304441	17095648	17080737	16860207	Not Applicable
86	JOLIET 6	20542278	15214472	14456345	18868874	17270492
87	JOLIET 7	24727120	31728018	31102482	26597881	28538875
88	JOLIET 8	32560106	32993827	30503439	35645451	32950706
89	POWERTON 5	53561854	50811365	52742277	52195286	52327696
90	POWERTON 6	49815476	54601879	46564195	59265505	52561764
91	WAUKEGAN 6	a	0	0	0	Not Applicable
92	WAUKEGAN 7	18455746	19294004	19721407	16454701	18481455
93	WAUKEGAN 8	23799511	25517241	22300468	25143279	24190125
94	WILL COUNTY 1	10514384	6826179	9703897	0	Not Applicable
95	WILL COUNTY 2	9139801	7794394	9190274	0	Not Applicable
96	WILL COUNTY 3	16013665	13770415	14160707	15363769	14827189
97	WILL COUNTY 4	31595985	28220795	29877504	22822998	28129321
98	TOTAL (CPS Baseline)	=SUM(B83:B97)	=SUM(C83:C97)	=SUM(D83:D97)	=SUM(E83:E97)	297004950
99	PM RATE					
100	<b>CPS</b> Proposed Variand	ce	and the second second			
101	CO2 TONS TOTAL	A			and the second s	
102	CO2 RATE (ibs/mmBtu)	-10				
103	HEAT INPUT (Based On Proposed Tonnage Limit)	1				
104	Annual Benefit					
105	Cumulative Net Benefit	0				

A	G	Н		1	ĸ
80					
CO2 CPS Baseline					
Da Disting	2012 (tone)	2014 (tops)	2015 donat	2016 (tone)	
SZ Station	-212*582/2000	-583*212/2000	2015 (cons)	2010 (10/15)	
CDAWFORD ?	-2121584/2000	=F84*212/2000	0	0	
SE EIEK 10	-212 104/2000		0	0	
	=212*E86/2000	=F86*212/2000	=F86*212/2000	=F86*212/2000	
	=212*587/2000	=F87*212/2000	=F87*212/2000	=F87*212/2000	
29 INLIETS	=212*588/2000	=F88*212/2000	=F88*212/2000	=F88*212/2000	
POWERTON 5	=212*F68/2000	=F89*212/2000	=F89*212/2000	=F89*212/2000	
POWERTON 6	=212*F90/2000	=F90*212/2000	=F90*212/2000	=F90*212/2000	
1 WALKEGAN 6	0	0	0	0	
2 WALKEGAN 7	=212*F92/2000	=F92*212/2000	=F92*212/2000	=F92*212/2000	
WALKEGAN 8	=212*F93/2000	=F93*212/2000	=F93*212/2000	=F93*212/2000	
94 WILL COUNTY 1	0	0	0	0	
5 WILL COUNTY 2	Ő.	0	0	0	
5 WILL COUNTY 3	=212*F96/2000	=F96*212/2000	=F96*212/2000	=F96*212/2000	
97 WILL COUNTY 4	=212*F97/2000	=F97*212/2000	=F97*212/2000	=F97*212/2000	
98 TOTAL (CPS Baseline)	=SUM(G83:G97)	=SUM(H83:H97)	=SUM(183:197)	=SUM(J83:J97)	
99 PM RATE	=G98*2000/F98	=H98*2000/F98	=198*2000/(F98-F83-F84)	=J98*2000/(F98-F83-F84)	
00 CPS Proposed Varian	ce				
101 CO2 TONS TOTAL	=G102*G103/2000	=H102*H103/2000	=1102*1103/2000	=J102*J103/2000	
102 CO2 RATE (Ibs/mmBtu)	212	212	212	212	
HEAT INPUT (Based On 103 Proposed Tonnage Limit)	259090909.090909	263414634.146341	205263157.894737	194736842.105263	
104 Annual Benefit	=G98-G101	=H98-H101	=198-1101	=J98-J101	
105 Cumulative Net Benefit	=G104	=H104+G105	=H105+1104	=1105+J104	

	A	B	C	D	E	4
106						
107 N	<b>Mercury CPS Baseline</b>					
108	Station	2008 Actual Hi (mmBtu)	2009 Actual HI (mmBtu)	2010 Actual HI (mmBtu)	2011 Actual HI (mmBtu)	2008-2011 Annual Avg Hi (mmBtu)
109 C	RAWFORD 7	14330137	11050593	10782311	12246842	12102471
110 C	RAWFORD 8	13906062	16703119	15530853	16359358	15624848
111 F	ISK 19	19304441	17095648	17080737	16850207	Not Applicable
112 J	OLIET 6	20542278	15214472	14456345	18868874	17270492
113 J	OLIET 7	24727120	31728018	31102482	26597861	28538875
114 J	OLIET 8	32660106	32993827	30503439	35645451	32950706
115 P	OWERTON 5	53551854	50811365	52742277	52195286	52327696
116 P	OWERTON 6	49815476	54601879	46564195	59265505	52561764
117 W	AUKEGAN 6	0	Ø	0	0	Nut Applicable
118 W	AUKEGAN 7	18455746	19294004	19721407	16454701	18481465
119 W	VAUKEGAN 8	23799511	25517241	22300468	25143279	24190125
120 V	VILL COUNTY 1	10514364	6826179	9703897	0	Not Applicable
121 V	VILL COUNTY 2	9139801	7794394	9190274	0	Not Applicable
122 1	VILL COUNTY 3	16013865	13770415	14160707	15363769	14827189
123 🗸	VILL COUNTY 4	31595985	28220795	29877504	22822998	28129321
124 T	OTAL (CPS Baseline)	=SUM(B109:B123)	=SUM(C109:C123)	=SUM(D109:D123)	=SUM(E109:E123)	297004950
125 H	lg RATE (lbs/Tbtu)					
126 0	<b>CPS Proposed Variance</b>	0				
127 H	g Pounds TOTAL					
128 F	g RATE (Ibs/Tbtu)					
E	EAT INPUT (Based On	11				
129 P	roposed Tonnage Limit)					
130	Annual Benefit					
1310	umulative Net Senefit					

A	G	н	1	1	ĸ
ercury CPS Baseline					
Station	2013 (lbs)	2014 (lbs)	2015 (lbs)	2016 (lbs)	
AWFORD 7	=0.87°F109/1000000	=F109*0.87/1000000	0	0	
AWFORD 8	=0.87*F110/1000000	=F110*0.87/1000000	0	0	
K 19	0	0	0	0	
LIET 6	=0.87*F112/1000000	=F112*0.87/1000000	=F112*0.87/1000000	=F112*0.87/1000000	
LIET 7	=0.87*F113/1000000	=F113*0.87/1000000	=F113*0.87/1000000	=F113*0.87/1000000	
LIET 8	=0.87*F114/1000000	=F114*0.87/1000000	=F114°0.87/1000000	=F114*0.87/1000000	
WERTON 5	=0.87*F115/1000000	=F115*0.87/1000000	=F115°0.87/1000000	=F115*0.87/1000000	
WERTON 6	=0.87*F116/1000000	=F116*0.87/1000000	=F116*0.87/1000000	=F116*0.87/1000000	
UKEGAN 6	0	٥	0	0	
UKEGAN 7	=0.87*F118/1000000	=F118*0.87/1000000	=F118*D.87/1000000	=F118*0.87/1000000	
UKEGAN 8	=0.87*F119/1000000	=F119*0.87/1000000	=F119*0.87/1000000	=F119*0.87/1000000	
LL COUNTY 1	0	0	0	0	
LL COUNTY 2	0	0	0	0	
LL COUNTY 3	=0.87*F122/1000000	=F122*0.87/1000000	=F122*0.87/1000000	=F122*0.87/1000000	
LL COUNTY 4	=0.87*F123/1000000	=F123*0.87/1000000	=F123*0.87/1000000	=F123*0.87/1000000	
TAL (CPS Baseline)	=SUM(G109:G123)	=SUM(H109:H123)	=SUM(1109:1123)	=SUM(J109:J123)	
RATE (lbs/Tbtu)	=G124*1000000/F124	=H124*1000000/F124	=1124*1000000/(F124-F109	J-F11(=J124*1000000/(F124-F109-F11	
PS Proposed Varianc	0				
Pounds TOTAL	=G128*G129/1000000	=H128*H129/1000000	=1128*1129/1000000	=J128*J129/1000000	
RATE (Ibs/Tbtu)	0.87	0.87	0.67	0.87	
AT INPUT (Based On oposed Tonnage Limit)	259090909.090909	263414634.146341	205263157.894737	194736842.105263	
nual Benefit	=G124-G127	=H124-H127	=1124-1127	=J124-J127	
mulative Net Benefit	=G130	=H130+G131	=H131+1130	=1131+J130	
	A ercury CPS Baseline Station AWFORD 7 AWFORD 8 K 19 LIET 6 LIET 7 LIET 8 WERTON 5 WERTON 5 WERTON 5 WERTON 6 LIKEGAN 7 LIKEGAN 7 LIKEGAN 8 L COUNTY 1 L COUNTY 1 L COUNTY 2 L COUNTY 3 L COUNTY 3 L COUNTY 4 TAL (CPS Baseline) RATE (Ibs/Tbtu) PS Proposed Variance Pounds TOTAL RATE (Ibs/Tbtu) AT INPUT (Based On Doposed Tonnage Limit) nual Benefit mulative Net Benefit	A G   ercury CPS Baseline   Station 2013 (lbs)   AWFORD 7 =0.87*F109/1000000   AWFORD 8 =0.87*F110/1000000   AWFORD 8 =0.87*F110/1000000   AWFORD 8 =0.87*F112/1000000   LIET 6 =0.87*F113/1000000   LIET 7 =0.87*F113/1000000   LIET 8 =0.87*F114/1000000   WERTON 5 =0.87*F116/1000000   WERTON 6 =0.87*F116/1000000   WKEGAN 7 =0.87*F118/1000000   UKEGAN 8 =0.87*F118/1000000   L COUNTY 1 0   L COUNTY 2 0   L COUNTY 3 =0.87*F122/1000000   L COUNTY 4 =0.87*F123/1000000   ATE (Ibs/Tbtu) =G124*1000000/F124   PS Proposed Variance Pounds TOTAL   POUNDS TOTAL =G128*G129/1000000   RATE (Ibs/Tbtu) 0.87   ATTINPUT (Based On 25909090.90909   nual Benefit =G124-G127   mulative Net Benefit =G130	A G H   ercury CPS Baseline 2013 (lbs) 2014 (lbs)   AWFORD 7 =0.87*F109/1000000 =F109*D.87/1000000   AWFORD 8 =0.87*F119/1000000 =F110*D.87/1000000   AWFORD 8 =0.87*F112/1000000 =F110*D.87/1000000   LET 6 =0.87*F112/1000000 =F112*D.87/1000000   LET 7 =0.87*F113/1000000 =F113*D.87/1000000   LET 8 =0.87*F113/1000000 =F114*D.87/1000000   LET 8 =0.87*F114/1000000 =F114*D.87/1000000   JET 8 =0.87*F116/1000000 =F116*0.87/1000000   JET 8 =0.87*F116/1000000 =F116*0.87/1000000   JKEGAN 5 =0.87*F116/1000000 =F118*0.87/1000000   UKEGAN 5 =0.87*F118/1000000 =F118*0.87/1000000   UKEGAN 8 =0.87*F118/1000000 =F118*0.87/1000000   L COUNTY 1 0 0 0   L COUNTY 2 0 0 0   L COUNTY 4 =0.87*F122/1000000 =F122*0.87/1000000   L COUNTY 4 =0.87*F123/1000000 =F122*0.87/1000000   L C	A G H I   ercury CPS Baseline 2013 (lbs) 2014 (lbs) 2015 (lbs)   AWFORD 7 =0.87*F109/1000000 =F109*0.87/1000000 0   AWFORD 8 =0.87*F110/1000000 =F110*0.87/1000000 0   AWFORD 8 =0.87*F112/1000000 =F110*0.87/1000000 0   LET 6 =0.87*F112/1000000 =F112*0.87/1000000 =F113*0.87/1000000   LET 7 =0.87*F113/1000000 =F113*0.87/1000000 =F113*0.87/1000000   LET 8 =0.87*F114/1000000 =F115*0.87/1000000 =F113*0.87/1000000   WERTON 5 =0.87*F118/1000000 =F118*0.87/1000000 =F115*0.87/1000000   UKEGAN 6 0 0 0 0   L COUNTY 1 0 0 0 0   L COUNTY 2 0 0 0 0   L COUNTY 4 =0.87*F122/1000000 =F12*0.87/1000000 =F12*0.87/1000000   L COUNTY 3 =0.87*F122/1000000 =F119*0.87/1000000 =F12*0.87/1000000   L COUNTY 4 =0.87*F122/10000000 =F12*0.87/1000000 =F1	A G H I J   ercury CPS Baseline Station 2013 (bs) 2014 (bs) 2015 (bs) 2015 (bs)   Station 2013 (bs) 2014 (bs) 2015 (bs) 2015 (bs) 2016 (bs)   AMFORD 7 =0.87*F109/1000000 =F10970.87/1000000 0 0 0   AWFORD 8 =0.87*F112/1000000 =F11070.87/1000000 0 0 0   LET 7 =0.87*F112/1000000 =F11370.87/1000000 =F11370.87/10000000 =F11370.87/100000

#### CERTIFICATE OF SERVICE

I, the undersigned, certify that on this 18th day of January, 2013, I have served electronically the attached MIDWEST GENERATION'S RESPONSES TO THE BOARD'S QUESTIONS FOR PETITIONER, upon the following persons:

John T. Therriault, Assistant Clerk Illinois Pollution Control Board James R. Thompson Center Suite 11-500 100 West Randolph Chicago, Illinois 60601 Bradley P. Halloran, Hearing Officer Illinois Pollution Control Board James R. Thompson Center Suite 11-500 100 West Randolph Chicago, Illinois 60601 <u>brad.halloran@illinois.gov</u>

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