MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Michael L. Parson
Governor

Dru Buntin
Director

November 1, 2022

Meg McCollister
Regional Administrator
U.S. EPA, Region VII
11201 Renner Boulevard
Lenexa, KS 66219

Dear Meg McCollister:

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) hereby submits the following State Implementation Plan (SIP) revision for your approval:

Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard

Through this submission, the Air Program is requesting that the U.S. Environmental Protection Agency (EPA) take the following actions:

> Approve Missouri's 2019 SIP submittal titled *Interstate Transport Provisions for the 2015 Ozone Standard*, along with this supplement as meeting Clean Air Act Section 110(a)(2)(D)(i)(I) for the 2015 ozone National Ambient Air Quality Standard (NAAQS).

The Missouri Air Conservation Commission adopted this supplement to the 2019 SIP revision at the October 27, 2022 commission meeting. The commission has full legal authority to develop SIP revisions pursuant to Section 643.050 of the Missouri Air Conservation Law. The Air Program held a public hearing for the plan on July 28, 2022. The Air Program accepted comments on the plan from June 27, 2022, through August 18, 2022. During the public comment period, the Air Program received written comment submissions or testimonies from 18 separate citizens, organizations, businesses, and agencies. A summary of the comments and the Air Program's responses are attached.

Enclosed are the required submittal elements for determination of plan completeness per 40 CFR Part 51, Appendix V. The Air Program is providing a searchable pdf version of this document through EPA's State Planning Electronic Collaboration System (SPECS) and the Air Program will post the complete submittal package on our website at: https://dnr.mo.gov/air/what-were-doing/state-planning/ozone

Thank you for your attention to this matter. If you have any questions regarding this submittal, please contact Mark Leath with the Missouri Department of Natural Resources' Air Pollution Control Program at P.O. Box 176, Jefferson City, MO 65102 or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Stephen M. Hall
Director

SMH: aac

Enclosures:

Copy of plan and appendices
Copy of commission signature page certifying MACC adoption
Copy of public hearing notices
Copy of public hearing transcript introductory statement
Copy of recommendation for adoption
Copy of the summary of comments and responses

c: Missouri Air Conservation Commission
File# 2015-O3-6 Transport

Missouri State Implementation Plan Revision

Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard

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Prepared for the
Missouri Air Conservation Commission

Adoption
October 27, 2022

Missouri Department of Natural Resources
Division of Environmental Quality
Air Pollution Control Program
Jefferson City, Missouri

Project number: 2015-O3-6 Transport

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Executive Summary

The purpose of this document is to supplement the State Implementation Plan (SIP) the Missouri Department of Natural Resources' Air Pollution Control Program (air program) submitted in June of 2019 (Missouri 2019 Good Neighbor SIP). The SIP submittal this supplement applies to is titled *Interstate Transport Provisions for the 2015 Ozone Standard*.

The purpose of the Missouri 2019 Good Neighbor SIP and this supplement is to provide the technical foundation for the U.S. Environmental Protection Agency (EPA) to approve Missouri's SIP as satisfying the interstate transport or "good neighbor" requirement of the Clean Air Act (CAA) with respect to the ozone national ambient air quality standard (NAAQS) that EPA promulgated in 2015 (2015 ozone standard).

In January of 2022, EPA released national modeling results that changed the analysis needed to demonstrate that Missouri is meeting its good neighbor obligations under the 2015 ozone standard. EPA's updated modeling eliminated all of the downwind nonattainment and maintenance receptors the air program analyzed in Missouri's 2019 Good Neighbor SIP. However, the updated modeling also resulted in the addition of four new nonattainment or maintenance receptors that were linked to emissions from Missouri.

This supplement to Missouri's 2019 Good Neighbor SIP provides additional analysis to all of the receptors included in the original SIP submission and also an analysis of the newly added receptors included in EPA's updated modeling results. In addition, this supplement goes through EPA's 4-step process for addressing Missouri's good neighbor obligations under the CAA for the 2015 ozone standard. As part of that process, and included with this supplement, are new emission control requirements that will result in thousands of tons of nitrogen oxide (NO_x) emissions reductions annually.

On February 22, 2022, EPA published a proposed disapproval of Missouri's 2019 Good Neighbor SIP.[1] Then on April 6, 2022, EPA published a proposed federal implementation plan (FIP) to address Missouri's good neighbor obligations for the 2015 ozone standard.[2] This supplement to Missouri's 2019 Good Neighbor SIP is intended to address all of Missouri's good neighbor obligations for the 2015 ozone standard, thus avoiding the imposition of this proposed FIP in Missouri.

This SIP supplement ensures Missouri has addressed all of its CAA good neighbor obligations under the 2015 ozone standard and formally requests EPA approval of Missouri's SIP as satisfying these requirements.

[1] 87 FR 9533, February 22, 2022
[2] 87 FR 20036, April 6, 2022

1. Background

On October 26, 2015, EPA finalized a revised NAAQS for ground-level ozone.[3] The revision strengthened the primary and secondary standards, decreasing them from 0.075 parts per million (ppm) to 0.070 ppm, based on the 3-year average of the annual fourth-highest 8-hour daily maximum concentrations.

Within three years of the promulgation of any new or revised NAAQS, CAA, section 110(a)(1) requires states to submit a SIP revision to provide for the implementation, maintenance, and enforcement of the NAAQS. Such revisions are commonly referred to as "Infrastructure SIPs". One component of an infrastructure SIP are the interstate transport, or good neighbor provisions. CAA section 110(a)(2)(D)(i)(I) requires that states include in their SIP adequate provisions to ensure that emissions in their state will not contribute significantly to nonattainment or interfere with maintenance of the NAAQS in any downwind state.

1.1. EPA's Good Neighbor Provision 4-Step Framework

Due to the complex nature of determining good neighbor SIP obligations for secondary pollutants like ozone, EPA has developed a 4-step process to determine upwind states that contribute to problems in downwind states and the requisite level of emission control necessary for upwind states to address their CAA good neighbor provisions for these pollutants. The air program followed this 4-step process in developing this SIP revision supplement –

1. Identify areas in the country that are projected to have trouble attaining and maintaining compliance with the relevant NAAQS;
2. Identify which upwind states are contributing to the air pollution problems in downwind states identified in Step 1;
3. Identify the requisite level of emission control necessary to address the upwind state's significant contribution to the air pollution problem or interference with maintenance in the downwind states; and
4. Develop enforceable control requirements to ensure the requisite level of emission control identified in Step 3.

Based on EPA's 4-step process, if there are no areas identified in Step 1, the exercise is complete, and a state's SIP is approvable without further control requirements. If there are areas identified in Step 1, but in Step 2, a particular state can demonstrate they are not significantly contributing to the problem in any downwind state, then that particular state's SIP is approvable without further control requirements. In these types of cases, states can skip Steps 3 and 4 because either there are no air quality problems for the applicable NAAQS in any downwind states or the state can demonstrate that its emissions are not significantly contributing to the air quality problems identified in any downwind state. Where linkages to downwind air quality problems exist for a state, the state must move onto Steps 3 and 4 to identify cost effective emission controls (Step 3) and then create enforceable mechanisms to require the cost effective controls the state identifies (Step 4).

[3] 80 FR 65291, October 26, 2015

1.2. EPA Guidance for Good Neighbor SIPS for the 2015 Ozone Standard

On August 31, 2018, EPA released a memorandum (the EPA August memo) titled *Analysis of Contribution Thresholds for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards*. EPA conducted a post-processing analysis of its ozone transport modeling results and compared several different contribution threshold levels to determine the amount of overall upwind state contributions that various contribution thresholds would capture. The analysis in the memo concluded the difference between a one part per billion (ppb) threshold and a one percent of the standard (0.7 ppb) threshold resulted in small differences in the overall contributions captured at Step 2 of the good neighbor SIP framework process. Specifically, EPA states in the memo the overall capture at a contribution threshold of 0.7 ppb is 77 percent of total upwind state contribution and 70 percent for a 1.0 ppb threshold at the national level.

Based on their analysis, EPA concluded the use of the 1.0 ppb contribution threshold may be appropriate for use by states in Step 2 of their good neighbor SIP analyses when determining linkages to downwind state nonattainment or maintenance receptors. The original basis for a one percent of the standard threshold in the EPA's Clean Air Interstate Rule (CAIR) and the Cross State Air Pollution Rule (CSAPR) was based on the fact that numerous states contributing at relatively small levels could collectively contribute significantly to a nonattainment problem. EPA's August memo showed that for the majority of the country, the use of a one percent threshold for establishing linkages would not capture substantially more of the upwind state contributions that would be captured at a higher threshold such as 1.0 ppb. The August memo concluded that as long as a strong majority of upwind state emissions would be captured for new control considerations at higher thresholds than one percent, then collectively, the good neighbor provision could still be satisfied using the higher threshold. The air program supports the analysis EPA performed for the EPA August memo, and notes the rationale EPA used in this memo also supports the use of contribution thresholds even higher than 1.0 ppb for particular monitors where the relative contribution from neighboring upwind states to a particular receptor are far more significant than the collective contribution from more distant upwind states.

On October 19, 2018, EPA released an additional memorandum (the EPA October memo) titled *Considerations for Identifying Maintenance Receptors for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards*. In this memo, EPA provides potential alternative methods of identifying maintenance monitors to be addressed in their good neighbor SIPs for the 2015 ozone standard even if the 2023 maximum modeled 8-hour ozone design value (DV) is larger than 70.9 ppb. Per the memo, with an appropriate technical demonstration, states may eliminate a site as a maintenance receptor based on currently measured clean data or use a DV from the base period that is not the maximum DV. If a state is using an alternative base period as allowed per the memo, the technical demonstration must show that the monitor in question meets certain criteria.

1.3. Missouri's Good Neighbor Plan for the 2015 Ozone Standard

On June 10, 2019, the air program submitted Missouri's 2019 Good Neighbor SIP to EPA. Missouri's SIP utilized the EPA guidance discussed in Section 1.2. along with national modeling results that EPA had conducted and released in March of 2018. Missouri's 2019 Good Neighbor SIP identified six total nonattainment and maintenance receptors that were linked to Missouri with contributions greater than one percent of the 2015 ozone standard. Then, using the rationale included in the EPA guidance memos, the SIP demonstrated that Missouri had addressed its good neighbor obligations at Step 2 of EPA's 4-step framework. Thus, Missouri's 2019 Good Neighbor SIP did not include a Step 3 or Step 4 analysis under EPA's 4-step framework.

1.4. Proposed Disapproval of Missouri Good Neighbor Plan and Proposed Federal Plan

On February 22, 2022, EPA proposed to disapprove Missouri's 2019 Good Neighbor SIP.[4] If this disapproval is finalized, it will establish a two year deadline for EPA to promulgate a FIP to address Missouri's good neighbor requirements for the 2015 ozone standard, unless EPA approves an updated SIP that addresses Missouri's good neighbor requirements before the FIP is promulgated.

On April 6, 2022, EPA proposed a federal plan for 26 states, including Missouri, to address good neighbor obligations under the 2015 ozone standard.[5] The proposal included new requirements for electric generating units (EGUs) in Missouri starting in 2023, and new requirements that apply to other industries in Missouri starting in 2026.

As supporting documentation for both the proposed disapproval of Missouri's 2019 Good Neighbor SIP and the proposed federal plan, EPA released updated national modeling results in January of 2022. In the updated modeling, EPA used the 2016 v2 air quality modeling platform to analyze ozone concentrations and upwind state contributions for the base year of 2016 and the future years of 2023 and 2026.

1.5. Current Action — Supplement to Missouri's 2019 Good Neighbor SIP

This document is a supplement to Missouri's 2019 Good Neighbor SIP. This supplement provides further analysis of the six receptors included in the original SIP in light of the updated modeling. This document also provides an evaluation of the four newly identified receptors that are linked to Missouri in the updated modeling.

This supplement to Missouri's 2019 Good Neighbor SIP provides a demonstration that Missouri has addressed its good neighbor obligations under the 2015 ozone standard at Step 2 of EPA's 4-step framework. However, the air program acknowledges there is a degree of uncertainty in the demonstration. Therefore, this supplement to the SIP also conservatively includes a Step 3 and Step 4 analysis to further ensure that Missouri has fully addressed its good neighbor obligations.

[4] 87 FR 9533
[5] 87 FR 20036

2. Analyses of Missouri's 2019 Good Neighbor SIP Based on Updated Modeling Results

In Missouri's 2019 Good Neighbor SIP, there were six total nonattainment and maintenance receptors included in the EPA's 2018 modeling where Missouri had a modeled contribution above one percent of the level of the 2015 ozone standard (0.7 ppb). However, upon review of the updated modeling released in January of 2022, Missouri is no longer linked to any of the receptors that were evaluated in Missouri's 2019 Good Neighbor SIP. The downwind receptors evaluated in Missouri's 2019 Good Neighbor SIP include –

- receptor ID 260050003, Allegan, MI;
- receptor ID 261630019, Wayne, MI;
- receptor ID 480391004, Brazoria, TX;
- receptor ID 482011039, Harris, TX;
- receptor ID 550790085 Milwaukee, WI; and
- receptor ID 551170006, Sheboygan, WI.

The following subsections provide a brief analysis of each of the receptors included in Missouri's 2019 Good Neighbor SIP based on the January 2022 updated modeling that EPA has released.

2.1. Updated Analysis for Allegan, MI Monitor

In Missouri's 2019 Good Neighbor SIP, the air program demonstrated that the Allegan, Michigan monitor met the conditions included in the EPA's October 2018 memorandum, and was not considered a maintenance receptor, because the site would not be a receptor in 2023. As demonstrated in EPA's updated modeling, the Allegan monitor has indeed dropped off as a maintenance receptor. The maximum 2023 projected DV for that monitor in the updated modeling is 68.4 ppb, well below the threshold of 70.9 needed to be deemed a maintenance receptor under EPA's 4-step framework. For this reason, the Allegan, Michigan monitor drops off at Step 1 and requires no further analysis with respect to Missouri's good neighbor obligations under the 2015 ozone standard.

2.2. Updated Analysis for Wayne, MI Monitor

In Missouri's 2019 Good Neighbor SIP, the Wayne, Michigan site was a maintenance receptor with a maximum 2023 DV of 71.0 ppb, which is the lowest possible maximum DV that would cause it to receive the label of a maintenance receptor. In Missouri's 2019 Good Neighbor SIP submission, the air program utilized the flexibility in EPA's August memo, to avoid linkage with this receptor because Missouri's projected contribution was below 1.0 ppb. The fact that the maximum DV in the 2018 modeling was the lowest possible value to be considered a maintenance receptor provides sufficient justification to use the flexibility included in the EPA August memo.

However, in evaluating the updated modeling, it shows this receptor as no longer even being a maintenance receptor. The maximum 2023 projected DV for this monitor in the updated modeling is 66.6 ppb. This is well below the threshold of 70.9 ppb needed to be deemed a maintenance receptor under EPA's 4-step framework. For this reason, the Wayne, Michigan monitor drops off at Step 1 and requires no further analysis with respect to Missouri's good neighbor obligations under the 2015 ozone standard.

2.3. Updated Analysis for Brazoria, TX Monitor

In Missouri's 2019 Good Neighbor SIP, this was a nonattainment receptor with a 2023 maximum DV of 74.9 ppb. Missouri's contribution to this receptor in the 2018 modeling was 0.88 ppb. In Missouri's 2019 Good Neighbor SIP, the air program applied the flexibility in EPA's August memo to avoid linkage with this receptor because Missouri's projected contribution was below 1.0 ppb. Missouri's 2019 Good Neighbor SIP also demonstrated that the use of the 1.0 ppb threshold flexibility in EPA's August memo was appropriate because this monitor was not significantly impacted by upwind state contributions, and instead the receptor status was largely the result of contribution from local sources and international (Mexico) emissions.

In evaluating EPA's updated modeling, it shows that Missouri is no longer linked to this monitor because Missouri's contribution is 0.55 ppb, which is below one percent of the 2015 ozone standard. For this reason, the Brazoria, Texas monitor drops off at Step 2 and requires no further analysis with respect to Missouri's good neighbor obligations under the 2015 ozone standard.

2.4. Updated Analysis for Harris, TX Monitor

In Missouri's 2019 Good Neighbor SIP, this was a maintenance receptor with a 2023 maximum DV of 73.5 ppb. Missouri's contribution to this receptor in the 2018 modeling was 0.88 ppb. In Missouri's 2019 Good Neighbor SIP, the air program used the flexibility in EPA's August memo to avoid linkage with this receptor because Missouri's projected contribution was below 1.0 ppb. The 2019 SIP also demonstrated that the use of the 1.0 ppb threshold flexibility in EPA's August memo was appropriate because this monitor was not significantly impacted by upwind state contributions, and instead the receptor status was largely the result of contribution from local sources and international (Mexico) emissions.

In evaluating EPA's updated modeling, it shows this receptor as no longer being a maintenance receptor. The maximum 2023 projected DV for this monitor in the updated modeling is 68.5 ppb. This is well below the threshold of 70.9 ppb needed to be considered a maintenance receptor under EPA's 4-step framework. For this reason, the Harris, Texas monitor drops off at Step 1 and requires no further analysis with respect to Missouri's good neighbor obligations under the 2015 ozone standard.

2.5. Updated Analysis for Milwaukee, WI Monitor

In Missouri's 2019 Good Neighbor SIP, Milwaukee, Wisconsin was a nonattainment receptor with a 2023 maximum design DV of 73.0 ppb. Missouri's contribution to this receptor in the

2018 modeling was 0.93 ppb. In Missouri's 2019 Good Neighbor SIP, the air program applied the flexibility in EPA's August memo to avoid linkage with this receptor because Missouri's projected contribution was below 1.0 ppb. The 2019 SIP also demonstrated that the use of the 1.0 ppb threshold flexibility in the EPA August memo was appropriate because the use of a 1.0 ppb threshold for this receptor would capture 79.4 percent of the total contribution from upwind states, and 83 percent of the upwind state contributions captured through the use of a 0.7 ppb threshold. These values are higher than the nationwide average values included in the EPA August memo that were the basis for EPA stating the use of a 1.0 ppb threshold may be appropriate.

In evaluating EPA's updated modeling, it shows this receptor as no longer being a nonattainment or maintenance receptor. The maximum 2023 projected DV for this monitor in the updated modeling is 67.7 ppb. This is well below the threshold of 70.9 ppb needed to be deemed a maintenance receptor under EPA's 4-step framework. For this reason, the Milwaukee, Wisconsin monitor drops off at Step 1 and requires no further analysis with respect to Missouri's good neighbor obligations under the 2015 ozone standard.

2.6. Updated Analysis for Sheboygan, WI Monitor

In Missouri's 2019 Good Neighbor SIP, this was a nonattainment receptor with a 2023 maximum DV of 75.1 ppb. Missouri's contribution to this receptor in the 2018 modeling was 1.37 ppb. In Missouri's 2019 Good Neighbor SIP, the air program demonstrated that, using the rationale of the August 2018 memo, because this monitor was impacted so heavily by in-state and neighboring state emissions that the use of a threshold even higher than 1.0 ppb was appropriate. In the 2018 modeling, the in-state and two neighboring state emissions contributed 31.9 ppb of the DV with 15.73 ppb from Illinois, 9.09 ppb from Wisconsin, and 7.11 ppb from Indiana. Therefore, the case is not sufficient for labeling more distant upwind states like Missouri as significant contributors where the contributions are far lower than these three nearby states. A significant amount of the total contribution come from in-state and directly nearby upwind states, and they contribute at a much higher threshold than one percent.

In evaluating EPA's updated modeling, it still projects this receptor to be a nonattainment receptor, but the modeling does not include any upwind state contributions because there were fewer than five days where the model-predicted maximum daily 8-hour average (MDA8) was above 60 ppb. Wisconsin submitted a comment on EPA's proposed disapproval of Missouri's 2019 Good Neighbor SIP stating that this receptor should be linked to Missouri because it is still a nonattainment receptor and, based on information that EPA provided Wisconsin, they identified a contribution of 2.0 ppb from Missouri to this receptor in 2023.

Missouri retrieved the daily contributions spreadsheet for the Sheboygan receptor in the updated modeling from EPA. Based on the data retrieved from EPA, the 2023 projected MDA8 for this site did not violate the 2015 ozone standard on any day. There were only two days in 2023 where the monitor reached an MDA8 value greater than 60 ppb. Missouri's contribution to this receptor on the days above 60 ppb were 0.29 and 0.15 respectively. These values are both well below the one percent contribution, or 0.70 ppb threshold. This means the updated modeling demonstrates conclusively that Missouri is not linked at Step 2 to this monitor.

One final issue with the Sheboygan receptor is that the updated model is clearly underperforming with respect to this receptor. With the low model performance at this receptor, and the substantially unique position of the level of contribution coming from the states bordering Lake Michigan, and the fact that Missouri's contributions in the updated model are below one percent of the standard on the only two days where the receptor has an MDA8 above 60 ppb, there is insufficient information to conclude that Missouri is contributing significantly to the nonattainment status of this receptor. Based on this weight of evidence analysis, Missouri's good neighbor obligations with respect to this receptor are addressed at Step 2 of EPA's 4-step framework.

3. EPA Step 1 – Nonattainment and Maintenance Receptors in Updated Modeling

Under EPA's framework, Step 1 is to identify all nonattainment and maintenance receptors with respect to the 2015 ozone standard. The EPA provided air quality modeling results in the 2016v2 emissions modeling platform for ozone in 2023, and 2026 including projected ozone concentrations at potential nonattainment and maintenance receptors for the 2015 ozone standard and projected upwind state contribution data. EPA selected 2023 as the first analytic year for evaluating the anticipated attainment year for Moderate ozone nonattainment areas. Missouri agrees with EPA's selection of 2023 as a reasonable analytic year for evaluating ozone transport problems with respect to the 2015 ozone standard. This year aligns with the last full ozone season before the attainment year for Moderate ozone nonattainment areas.

According to EPA's 4-step framework, a site is classified as a nonattainment receptor if the average modeled DV in 2023 or 2026 meets or exceeds 71.0 ppb. EPA classifies a site as a maintenance receptor if the maximum modeled DV is above 71.0 ppb, but the average DV is below 71.0 ppb. Table 1 provides a list of all nonattainment and maintenance receptors identified in the modeling to inform the April 6, 2022 proposed federal rule. The table also includes the 2023 and 2026 average and maximum DVs, the average and maximum actual DVs from 2014-2018, along with 2020 actual monitor DV readings for the convenience of comparison.

Table 1 - List of Nonattainment and Maintenance Receptors, and 8-Hour Ozone Design Values (DVs) Based on EPA's Latest Modeling Results

Monitor Site ID	State	County	2014-2018 Avg DV	2014-2018 Max DV	2023 Avg DV	2023 Max DV	2026 Avg DV	2026 Max DV	2020 Actual DV
40278011	AZ	Yuma	72.3	74.0	70.5	72.2	70.1	71.8	68
60070007	CA	Butte	76.7	79.0	68.9	71.0	68.1	70.1	73
60090001	CA	Calaveras	77.0	78.0	70.9	71.9	70.2	71.1	72
60170010	CA	El Dorado	85.3	88.0	76.3	78.7	75.0	77.4	84
60170020	CA	El Dorado	82.0	84.0	74.3	76.2	73.2	75.0	80
60190007	CA	Fresno	87.0	89.0	80.4	82.2	79.5	81.3	80
60190011	CA	Fresno	90.0	91.0	82.9	83.8	81.9	82.8	84
60190242	CA	Fresno	84.3	86.0	79.5	81.1	78.7	80.3	79
60194001	CA	Fresno	90.3	92.0	82.8	84.4	81.8	83.3	81
60195001	CA	Fresno	91.0	94.0	83.7	86.4	82.7	85.4	84
60250005	CA	Imperial	76.7	77.0	76.3	76.6	76.2	76.5	78
60251003	CA	Imperial	76.0	76.0	75.4	75.4	75.3	75.3	68
60290007	CA	Kern	87.7	89.0	82.8	84.0	82.2	83.4	93
60290008	CA	Kern	83.0	85.0	79.1	81.0	78.6	80.5	85
60290011	CA	Kern	83.3	85.0	78.8	80.4	78.3	79.9	86
60290014	CA	Kern	86.0	88.0	81.3	83.2	80.7	82.6	85

60290232	CA	Kern	79.3	82.0	74.9	77.5	74.4	76.9	83
60292012	CA	Kern	89.3	90.0	84.1	84.7	83.4	84.1	85
60295002	CA	Kern	87.3	89.0	82.4	84.0	81.7	83.3	89
60296001	CA	Kern	80.7	81.0	77.1	77.4	76.5	76.8	82
60311004	CA	Kings	83.3	84.0	76.9	77.6	76.0	76.6	80
60370002	CA	Los Angeles	94.3	99.0	88.0	92.4	87.1	91.5	97
60370016	CA	Los Angeles	100.0	103.0	93.4	96.2	92.4	95.2	107
60371103	CA	Los Angeles	73.0	74.0	70.5	71.5	69.9	70.9	76
60371201	CA	Los Angeles	88.3	91.0	82.7	85.3	81.8	84.3	92
60371602	CA	Los Angeles	75.7	76.0	73.6	73.9	73.0	73.3	78
60371701	CA	Los Angeles	92.0	95.0	85.6	88.4	84.6	87.4	88
60372005	CA	Los Angeles	84.7	86.0	80.7	81.9	79.9	81.1	93
60376012	CA	Los Angeles	98.0	100.0	91.6	93.4	90.6	92.4	101
60379033	CA	Los Angeles	87.3	89.0	80.7	82.2	79.8	81.4	80
60390004	CA	Madera	80.3	83.0	75.7	78.3	75.0	77.5	76
60392010	CA	Madera	82.7	84.0	77.0	78.2	76.1	77.3	78
60430003	CA	Mariposa	76.0	79.0	74.2	77.1	74.0	76.9	79
60430006	CA	Mariposa	75.0	76.0	70.1	71.0	69.5	70.4	79
60470003	CA	Merced	80.7	82.0	74.7	75.9	73.9	75.1	76
60570005	CA	Nevada	86.3	90.0	78.1	81.5	77.2	80.5	82
60592022	CA	Orange	77.7	78.0	72.5	72.8	71.8	72.1	82
60595001	CA	Orange	75.3	76.0	72.3	73.0	71.7	72.4	77
60610003	CA	Placer	85.0	88.0	77.1	79.8	75.9	78.6	N/A
60610004	CA	Placer	79.3	85.0	71.9	77.0	70.9	76.0	N/A
60610006	CA	Placer	80.0	81.0	72.8	73.7	71.7	72.6	72
60650008	CA	Riverside	76.5	79.0	71.0	73.3	70.4	72.7	N/A
60650012	CA	Riverside	95.3	98.0	85.9	88.3	84.9	87.3	99
60650016	CA	Riverside	79.0	80.0	72.0	72.9	71.1	72.0	78
60651016	CA	Riverside	99.7	101.0	89.8	90.9	88.8	89.9	99
60652002	CA	Riverside	82.7	85.0	76.4	78.5	75.7	77.8	84
60655001	CA	Riverside	88.7	91.0	80.5	82.6	79.6	81.7	88
60656001	CA	Riverside	92.3	93.0	83.5	84.1	82.5	83.1	94
60658001	CA	Riverside	96.7	98.0	89.5	90.7	88.6	89.7	96
60658005	CA	Riverside	95.0	98.0	87.9	90.7	87.0	89.7	98
60659001	CA	Riverside	88.7	91.0	80.8	82.9	79.9	82.0	87
60670002	CA	Sacramento	77.7	78.0	71.4	71.7	70.5	70.8	72
60670012	CA	Sacramento	82.3	83.0	74.8	75.4	73.6	74.3	N/A
60675003	CA	Sacramento	77.3	79.0	70.2	71.7	69.1	70.7	70
60710001	CA	San Bernardino	79.0	80.0	74.5	75.4	74.0	74.9	81

60710005	CA	San Bernardino	110.3	112.0	100.3	101.8	99.2	100.7	109
60710012	CA	San Bernardino	95.0	98.0	87.3	90.1	86.4	89.2	90
60710306	CA	San Bernardino	84.0	86.0	76.8	78.6	76.0	77.8	83
60711004	CA	San Bernardino	105.7	109.0	97.2	100.2	96.1	99.1	106
60711234	CA	San Bernardino	72.3	76.0	70.6	74.2	70.3	74.0	76
60712002	CA	San Bernardino	97.7	99.0	90.1	91.3	89.2	90.4	102
60714001	CA	San Bernardino	90.3	91.0	82.6	83.3	81.7	82.4	87
60714003	CA	San Bernardino	104.0	107.0	95.2	98.0	94.2	97.0	114
60719002	CA	San Bernardino	87.3	89.0	80.1	81.6	79.3	80.9	86
60719004	CA	San Bernardino	108.7	111.0	99.5	101.6	98.5	100.6	110
60731006	CA	San Diego	83.0	84.0	76.9	77.9	76.1	77.0	79
60773005	CA	San Joaquin	77.3	79.0	71.3	72.8	70.8	72.4	70
60990005	CA	Stanislaus	81.0	82.0	75.4	76.3	74.7	75.6	79
60990006	CA	Stanislaus	83.7	84.0	77.5	77.8	76.7	77.0	80
61030004	CA	Tehama	79.7	81.0	72.3	73.4	71.5	72.6	74
61070006	CA	Tulare	84.7	86.0	79.1	80.3	78.2	79.4	83
61070009	CA	Tulare	89.0	89.0	82.6	82.6	81.6	81.6	88
61072002	CA	Tulare	82.7	85.0	75.5	77.6	74.3	76.4	83
61072010	CA	Tulare	84.0	86.0	77.0	78.8	75.9	77.7	80
61090005	CA	Tuolumne	80.7	83.0	75.6	77.8	75.0	77.1	77
61112002	CA	Ventura	77.3	78.0	70.9	71.6	69.9	70.5	77
80350004	CO	Douglas	77.3	78.0	71.7	72.3	70.5	71.1	81
80590006	CO	Jefferson	77.3	78.0	72.6	73.3	71.7	72.3	79
80590011	CO	Jefferson	79.3	80.0	73.8	74.4	72.6	73.3	80
80690011	CO	Larimer	75.7	77.0	71.3	72.6	70.6	71.8	75
90010017	CT	Fairfield	79.3	80.0	73.0	73.7	71.5	72.2	82
90013007	CT	Fairfield	82.0	83.0	74.2	75.1	72.8	73.7	80
90019003	CT	Fairfield	82.7	83.0	76.1	76.4	74.6	74.8	79
90099002	CT	New Haven	79.7	82.0	71.8	73.9	70.4	72.4	80
170310001	IL	Cook	73.0	77.0	69.6	73.4	68.7	72.5	75
170310032	IL	Cook	72.3	75.0	69.8	72.4	69.1	71.7	74
170310076	IL	Cook	72.0	75.0	69.3	72.1	68.5	71.3	69
170314201	IL	Cook	73.3	77.0	69.9	73.4	68.9	72.4	77
170317002	IL	Cook	74.0	77.0	70.1	73.0	69.1	72.0	75
320030075	NV	Clark	75.0	76.0	70.0	71.0	69.0	69.9	74
350130021	NM	Dona Ana	72.7	74.0	70.9	72.2	70.4	71.7	78
350130022	NM	Dona Ana	71.3	74.0	69.5	72.1	69.0	71.6	74
420170012	PA	Bucks	79.3	81.0	70.7	72.2	69.2	70.7	74
480391004	TX	Brazoria	74.7	77.0	70.1	72.3	69.1	71.2	73

481210034	TX	Denton	78.0	80.0	70.4	72.2	69.0	70.8	72
481410037	TX	El Paso	71.3	73.0	69.6	71.3	69.2	70.9	76
481671034	TX	Galveston	75.7	77.0	71.1	72.3	70.2	71.4	74
482010024	TX	Harris	79.3	81.0	75.2	76.8	74.2	75.7	79
482010055	TX	Harris	76.0	77.0	71.0	72.0	69.8	70.8	76
482011034	TX	Harris	73.7	75.0	70.3	71.6	69.5	70.7	73
482011035	TX	Harris	71.3	75.0	68.0	71.6	67.2	70.7	70
490110004	UT	Davis	75.7	78.0	72.9	75.1	71.7	73.9	77
490353006	UT	Salt Lake	76.3	78.0	73.6	75.3	72.5	74.1	74
490353013	UT	Salt Lake	76.5	77.0	74.4	74.9	73.5	74.0	73
490450004	UT	Tooele	73.5	74.0	70.8	71.3	69.8	70.3	69
490570002	UT	Weber	73.0	75.0	70.6	72.5	69.8	71.7	N/A
490571003	UT	Weber	73.0	74.0	70.5	71.5	69.7	70.6	71
550590019	WI	Kenosha	78.0	79.0	72.8	73.7	71.7	72.6	74
550590025	WI	Kenosha	73.7	77.0	69.2	72.3	68.1	71.1	74
551010020	WI	Racine	76.0	78.0	71.3	73.2	70.2	72.1	73
551170006	WI	Sheboygan	80.0	81.0	73.6	74.5	72.3	73.2	75

Note: DV's are all in parts per billion (ppb)
Table from Air Quality Modeling Technical Support Document (EPA-HQ-OAR-2021-0668-0099)

4. EPA Step 2 – Missouri Linkage to Nonattainment and Maintenance Receptors in Updated Modeling

Under EPA's framework, Step 2 is to determine upwind states that are expected to contribute to downwind state nonattainment and maintenance receptors. EPA's updated modeling included source apportionment modeling results that provided the contribution from all anthropogenic emissions in each state to the receptors included in the analysis. In previous ozone transport analyses, EPA has used a contribution threshold of one percent of the level of the standard to establish linkages to upwind states. This correlates to EPA's determination that an upwind state is linked to a downwind state's air pollution problem if the modeling showed an upwind state's anthropogenic emissions in a set future year would contribute to ozone pollution at a downwind state nonattainment or maintenance receptor at or above one percent (0.7 ppb) of the level of the 2015 ozone standard.

In this supplement to Missouri's 2019 Good Neighbor SIP, the air program performed Step 2 of EPA's 4-step framework by first determining all of the nonattainment and maintenance receptors to which Missouri is projected to contribute more than one percent of the level of the 2015 ozone standard. There are four total nonattainment and maintenance receptors in the updated modeling where Missouri's projected contribution in 2023 is above this one percent threshold. Table 2 lists these four receptors along with their modeled future year average and maximum DVs, Missouri's modeled contribution in 2023, and the actual 2020 and 2021 DVs at the monitors.

Table 2 - Downwind Receptors with Missouri Contributions Larger than 0.7 ppb or One Percent (1%)

Site ID	Downwind States	Receptors	2023 Avg. Model DV	2023 Max Model DV	Receptor Status	2023 MO model Contr.	2018-2020 Actual DV	2019-2021 Actual DV
551010020	WI	Racine	71.3	73.2	Nonattainment	0.92	73	73
550590025	WI	Kenosha-Chiwaukee	69.2	72.3	Maintenance-Only	1.66	71	72
550590019	WI	Kenosha-Water Tower	72.8	73.7	Nonattainment	1.08	74	74
170317002	IL	Chicago-Evanston	70.1	73.0	Maintenance-Only	0.94	75	73

Note: DV's are all in parts per billion (ppb)

The air program has evaluated EPA's guidance and memos relating to good neighbor SIPs under the 2015 ozone standard. The air program believes the EPA August memo is a reasonable approach to aid states in evaluating their contribution thresholds to downwind states. In EPA's proposed disapproval of Missouri's 2019 Good Neighbor SIP, the agency discusses several difficulties that could arise upon implementation of the EPA August memo, but EPA does not completely rule out the use of it. As such, this supplement to Missouri's 2019 Good Neighbor SIP utilizes the flexibility and rationale of the EPA August memo. Missouri has developed weight of evidence analyses for each of the sites listed in Table 2 to determine the level of Missouri's contribution, and how it relates to contribution from other upwind states, along with other relevant factors.

4.1. Racine, Wisconsin Site

The Racine County (Racine, Site ID: 551010020) nonattainment receptor in Wisconsin specifies that Missouri's contribution to the projected 2023 ozone DVs are above 0.7 ppb. EPA's updated modeling shows that Missouri's projected contribution is 0.92 ppb to this receptor, which is over one percent of the 2015 ozone standard, but below 1.0 ppb as afforded in the EPA August memo. This site is located more than 250 miles away from Missouri's border. Further analysis of the updated modeling results provide information that the total upwind state contribution is 29.85 ppb to this Wisconsin receptor, and in-state contribution to this receptor is 11.13 ppb. EPA's contribution threshold analysis from the EPA August memo shows that a 0.7 ppb threshold would capture 67 percent of total upwind state contributions and the 1.0 ppb threshold would capture 61.8 of total upwind state contributions. In this case, the contribution captured by the 1.0 ppb threshold comprises 92.23 percent of the total contribution captured by the 0.7 ppb threshold. This provides support that the 1.0 ppb threshold will capture a substantial amount of upwind states' contribution to the ozone concentrations at this site, which will lead to meaningful emission reductions that will help ensure this site will attain the standard in 2023. Based on the rationale included in the EPA august memo and the circumstance regarding upwind state and in-state contributions at this receptor, Missouri's obligations have been addressed at Step 2 for this receptor.

4.2. Kenosha-Chiwaukee, Wisconsin Site

According to the updated modeling results, the site in Kenosha County, Wisconsin (Kenosha-Chiwaukee, Site ID: 550590025) is a maintenance receptor. This site is located approximately 271 miles away from Missouri's border. EPA's modeling indicates that Missouri's projected contribution to the 2023 ozone DV at this receptor is 1.08 ppb. This projected contribution is above one percent of the 2015 ozone standard and also above the alternative 1.0 ppb threshold identified in the EPA August memo. However, further analysis of this particular receptor reveals that the rationale behind EPA's threshold analysis in the EPA August memo may apply to a higher threshold for this particular monitor.

According to the EPA August memo, a 1.0 ppb threshold would capture approximately 70 percent of total upwind state contributions to nonattainment and maintenance receptors based on the national average, and a 2.0 ppb threshold would only capture 51 percent of the total upwind state contribution on average across the country.

However, for the Kenosha-Chiwaukee receptor a 0.70 ppb and a 1.0 ppb threshold would each capture 86.9 percent of the total upwind contributions and a 2.0 ppb threshold would capture 71.0 percent of the total upwind state contributions. Therefore, the 2.0 ppb threshold at this receptor would capture 81.7 percent of the upwind state contributions captured under a 1.0 ppb threshold. Based on the logic and rationale in the EPA August memo, this provides support that for this receptor, a 2.0 ppb threshold is appropriate at Step 2, as it will still capture at least 70 percent of the total upwind state contributions and result in meaningful emission reductions that will help the site attain the 2015 ozone standard by 2023.

For this particular site, which is located on the shoreline of Lake Michigan, the primary contributors to ozone concentration include the Chicago metropolitan area in Illinois and Northwest Indiana, and the Milwaukee, Wisconsin combined statistical areas. These three states' total contribution to the modeled 2023 ozone DV at the Kenosha-Chiwaukee receptor is 30.79 ppb with 18.13 ppb from Illinois, 6.60 ppb from Indiana, and 6.06 ppb from Wisconsin. The Lake Michigan Air Director's Consortium's (LADCO's) interstate transport modeling results for the 2015 ozone NAAQS also show that the ozone levels at the Wisconsin shoreline of Lake Michigan are heavily affected by the emissions from Illinois, Indiana, and Wisconsin.[6] The areas in closer proximity to the lake shoreline display the most frequent and most elevated ozone concentrations.[7] Two Wisconsin sites (551270006 and 551330027) further inland from Lake Michigan have been in compliance with the 2015 ozone NAAQS since 2015. This provides support that the Kenosha-Chiwaukee maintenance receptor is influenced by localized emissions and lake breeze effects over Lake Michigan.

Based on this weight of evidence analysis, a 2.0 ppb threshold is appropriate and follows the rationale included in the EPA August memo. This threshold will capture significant contribution to the ozone problem experienced at this site and lead to upwind state emission reductions that will provide meaningful improvement in the ozone concentrations recorded by the site. For all of these reasons, Missouri's SIP is sufficiently addressing good neighbor obligations for the 2015 ozone standard with respect to this receptor based on this Step 2 weight of evidence analysis.

4.3. Kenosha-Water Tower, Wisconsin Site

EPA's updated modeling results show Missouri has a projected contribution of 1.66 ppb to the 2023 ozone DV at the Kenosha County, Wisconsin receptor (Kenosha-Water Tower, Site ID: 550590019). This site is located approximately 271 miles away from Missouri's border. According to the updated modeling results, this site is a nonattainment receptor in 2023. The projected contribution from Missouri to this receptor is above one percent of the standard and also the alternative 1.0 ppb threshold identified in the EPA August memo.

However, similar to the analysis provided above in section 4.2, further analysis of this receptor reveals that the rationale behind EPA's threshold analysis in the EPA August memo may also apply to a higher threshold for this particular monitor. For the Kenosha-Water Tower receptor, a 0.70 ppb and a 1.0 ppb threshold would each capture 88.5 percent of the total upwind contributions and a 2.0 ppb threshold would capture 71.8 percent of the total upwind state contributions. Therefore, a 2.0 ppb threshold at this receptor would capture 81.1 percent of the upwind state contributions captured under a 1.0 ppb threshold. Based on the logic and rationale in the EPA August memo, this provides support that for this particular site, a 2.0 ppb threshold is appropriate at Step 2, as it will still capture at least 70 percent of the total upwind state contributions and result in meaningful emission reductions that will help the site attain the 2015 ozone standard by 2023.

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[6] See Interstate Transport Modeling for the 2015 Ozone National Ambient Air Quality Standard, the technical support document (TSD), https://www.ladco.org/wp-content/uploads/Documents/Reports/TSDs/O3/LADCO_2015O3iSIP_TSD_13Aug2018.pdf

[7] Attainment Plan for Sheboygan County, WI NAA for 2008 ozone NAAQS

Additionally, this site is located on the shoreline of Lake Michigan, and the primary contributors to the ozone concentrations include the Chicago metropolitan area in Illinois and Northwest Indiana, and the Milwaukee, Wisconsin combined statistical areas. These three states' total contribution to the 2023 ozone DV at the Kenosha-Water Tower receptor is 28.47 ppb with 18.55 ppb from Illinois, 7.10 ppb from Indiana, and 2.82 ppb from Wisconsin. LADCO's interstate transport modeling results for the 2015 ozone NAAQS also show that the ozone levels at the Wisconsin shoreline of Lake Michigan are heavily affected by the emissions from Illinois, Indiana, and Wisconsin. The areas in closer proximity to the lake shoreline display the most frequent and most elevated ozone concentrations. Two Wisconsin sites (551270006 and 551330027) further inland from Lake Michigan have been in compliance with the 2015 ozone NAAQS since 2015. This provides support that the Kenosha-Water Tower nonattainment receptor is influenced by local transport emissions and lake breeze effects over Lake Michigan.

Based on this weight of evidence analysis, a 2.0 ppb threshold is appropriate and follows the rationale included in the EPA August memo. This threshold will capture a significant contribution to the ozone problem experienced at this site and lead to upwind state emission reductions that will provide meaningful improvement in the ozone concentrations recorded by the monitor. For all of these reasons, Missouri's SIP is sufficiently addressing good neighbor obligations for the 2015 ozone standard with respect to this receptor based on this Step 2 weight of evidence analysis.

4.4. Chicago-Evanston, Illinois Site

From Table 2, Missouri has a projected contribution of 0.94 ppb to the 2023 ozone DV at the Cook County, Illinois receptors (Chicago-Evanston, Site ID: 170317002). This site is located approximately 227 miles away from Missouri's border. This site is a maintenance receptor in 2023 in the updated modeling. Missouri's projected contribution to this receptor's 2023 DV is above 0.7 ppb, but below the alternative threshold contribution level of 1.0 ppb from the EPA August memo. In the updated modeling, the 0.7 ppb threshold for this receptor captures 75.0 percent of the total contribution from all upwind states and the 1.0 ppb threshold captures 69.7 percent of the total contribution from all upwind states. Further, the contribution captured by the 1.0 ppb threshold is 92.9 percent of the amount captured by the 0.7 ppb threshold.

Review of EPA's updated modeling results provide information that the total upwind state contribution is only 17.94 ppb to this Illinois receptor. Illinois' in-state contribution to this receptor is 19.16 ppb. Additionally, the Chicago-Evanston receptor is the only receptor in Cook County, Illinois linked to Missouri at Step 2. In EPA's spreadsheet listing the DVs and downwind state contributions, there are ten receptors located in Cook County with available data all located in relative close proximity to the newly identified linked receptor for Missouri. While the listed contribution from Missouri for the one linked receptor in Cook County is 0.94 ppb, the receptor with the next highest Missouri contribution is 0.56 ppb, approximately 40 percent less. There are nine other monitors in the same county that show Missouri's contribution is less than the modeled contribution to that Chicago-Evanston receptor by 40 percent or more, which casts uncertainty on any conclusion that emissions from Missouri are contributing significantly to this single monitor in Cook County, while at the same time not contributing significantly to any other monitor in Cook County.

Regardless of the modeling results to this specific receptor in Cook County, in light of the amount of in-state and other Lake Michigan-bordering state contributions, a 1.0 ppb threshold is appropriate and will capture a substantial amount of total upwind states' contribution to ozone concentrations at this site. This follows the EPA August memo's rationale for treatment of a 1.0 ppb threshold, as appropriate for this monitor, which will lead to meaningful emission reductions that will help ensure the site will attain the 2015 ozone standard in 2023. As such, Missouri's SIP is sufficiently addressing the good neighbor obligations for the 2015 ozone standard with respect to this receptor based on this Step 2 weight of evidence analysis.

4.5. Analyses of Updated Modeling Performance in the Upper Midwest

In January of 2022, EPA released a document to accompany the updated modeling titled *Air Quality Modeling for the 2016v2 Emissions Platform Technical Support Document*.[8] Table A-1 of this document provides the normal mean bias (NMB) and the normal mean error (NME) associated with the updated modeling for all the climate regions of the country. In the Upper Midwest, the NMB for all days with MDA8 above 60 ppb is -19.1 percent and the NME for these days is 19.5 percent. This shows that for this region of the country the model is performing outside both the goal and acceptable criteria for NMB and outside the goal but within the acceptable criteria for NME. In addition, in EPA's document titled *CAMx 2016v2 MDA8 O3 Model Performance Stats by Site* it shows that the model is also severely underperforming for the four specific receptors linked to Missouri in the updated modeling. The NMB at the Cook County, Illinois receptor is -14.50 percent with an NME of 15.20 percent. The NMBs at the two Kenosha County, Wisconsin receptors are -24.36 percent and -18.60 percent with NMEs of 25.29 percent and 18.94 percent. The NMB for the Racine County, Wisconsin receptor is -23.49 percent with an NME of 24.16 percent. These values are all outside established model performance goals, and the model is performing outside the acceptable range at each receptor with respect to NMB (except for the Illinois receptor where the NMB is within 0.5 percent of the acceptable criteria limit). Because the modeling is not within acceptable bias and error ranges, it casts significant uncertainty on any conclusion regarding upwind state contributions for the four receptors that Missouri is linked to in the updated modeling.

The air program notes that a recent study aimed at understanding the cause of high ozone monitor concentrations near Lake Michigan was performed by LADCO in 2019. This study recommends a finer grid resolution to better characterize ozone concentrations near large bodies of water. Additionally, this study reveals that upwind states' NO_x emissions may have little to no impact on ground level ozone concentrations that are linked to downwind monitors because on high ozone level days the ozone concentrations in these areas are sensitive to emissions of volatile organic compounds (VOCs) and not NO_x.

[8] Air Quality Modeling for the 2016v2 Emissions Platform Technical Support Document, Office of Air Quality Planning and Standards, United States Environmental Protection Agency, January 2022. https://gaftp.epa.gov/Air/aqmg/2016v2_Platform_Modeling_Data/AQ%20Modeling%20TSD_2016v2%20Platform_rev_2022_0119a.pdf

4.6. Updated Modeling and Analyses — Conclusions for Missouri-Linked Receptors at Step 2

Missouri is below a 1.0 ppb contribution threshold for the Racine, Wisconsin and Chicago-Evanston, Illinois receptors. From EPA's August memo, a 1.0 ppb threshold or less will lead to substantial emission reductions that will help these sites attain the 2015 ozone standard by 2023. Missouri's modeled contribution to the Kenosha-Chiwaukee and Kenosha-Water Tower receptors in Wisconsin are each above 1.0 ppb but below 2.0 ppb. At each of these sites, a 0.70 ppb and 1.0 ppb threshold would capture the same amount of total upwind state contributions, respectively (86.9 and 88.5 percent). The EPA August memo provides a nationwide average that a 1.0 ppb threshold would capture approximately 70 percent of all upwind contribution, and based on that figure the memo concludes that the 1.0 ppb threshold may be appropriate vs. a one percent threshold. These two sites are above this average when considering a 2.0 ppb threshold, where a 2.0 ppb threshold would still capture 71.0 and 71.8 of the total upwind state contributions to the receptors.

Additionally, the model performance evaluation for the updated modeling that links all four of these newly identified receptors to Missouri shows that the model is severely underperforming with regard the region of the country where all of these newly linked receptors are located. The model is performing outside the acceptable criteria for three of these monitors, and outside the model performance goal for all four.

As a result, the weight of evidence analyses provided for these receptors in this supplement to Missouri's 2019 Good Neighbor SIP shows that Missouri current SIP is adequately addressing its good neighbor obligations with respect to each of these newly identified four receptors in the updated modeling.

The evaluations under Step 1 and Step 2 for the four new receptors provide support that Missouri's current SIP is adequately addressing all of its good neighbor obligations for the 2015 ozone standard. However, the air program acknowledges there is some degree of uncertainty in an assertion that the current SIP fully addresses all of Missouri's good neighbor obligations. The low model performance at all four of the linked receptors and the fact that the updated modeling still includes two receptors linked to Missouri contributions above one percent of the standard and another two receptors with contributions above 1.0 ppb sheds uncertainty on any conclusion about any remaining good neighbor obligations in Missouri. Further, the air program acknowledges that as a state included in the CSAPR NO_x Ozone Season Group 2 trading program, Missouri has exceeded its assurance level under that program in 2020 and 2021. Due to these factors, the air program is including a Step 3 analysis under EPA's 4-step framework to identify whether there are any timely and cost effective control requirements to add further certainty with respect to ensuring Missouri's good neighbor obligations are indeed satisfied.

5. EPA Step 3 – Identification of Cost-Effective Control Measures

Step 3 of EPA's 4-step framework is to identify cost effective emission controls in linked upwind states.

5.1. Coal-Fired Power Plants with Existing Selective Catalytic Reduction Controls

Since 2023 is the year of the attainment deadline for Moderate nonattainment areas under the 2015 ozone standard, the air program began its Step 3 analysis by focusing on control requirements that could be implemented in time to help any downwind nonattainment areas attain by their deadline. Due to the potential NO_x emissions from coal-fired power plants and the availability of continuous emission monitoring system and control equipment data, the air program focused its Step 3 analysis on this source category. Further, due to the expedient timing of the emission reductions needed to help Moderate nonattainment areas in downwind states meet their attainment deadlines, the air program began its Step 3 analysis by focusing on coal-fired units with existing selective catalytic reduction (SCR) emission controls that do not have existing control requirements that compel the unit to continuously run their control equipment during the high ozone season (May through September).

As shown in Table 3 below, Missouri has ten coal fired EGUs that are currently equipped with operational SCR control devices. Four of these units have prevention of significant deterioration (PSD) permits and must meet best available control technology NO_x standards, and the permits already require continuous operation of their NO_x control equipment. Therefore, the air program determined that no additional NO_x control requirements would be cost effective at these four units. These four units include Hawthorn unit 5A, Iatan units 1 and 2, and John Twitty Energy Center unit 1.

The remaining six units are all subject to the CSAPR NO_x Ozone Season Group 2 Trading Program, but do not currently have enforceable requirements to ensure the continuous operation of their control equipment during the high ozone season. Despite the lack of an enforceable requirement, the historical record has shown that unit 1 at the John Twitty Energy Center has always operated their SCR control equipment since the equipment was installed. However, the potential currently exists for this unit to operate legally without running this control equipment in the future. For the other five units, the historical record has shown a high degree of variability in the operation of the SCR control equipment, and the lack of operation of this control equipment in 2020 and 2021 has led to the exceedances of Missouri's NO_x ozone season assurance level these past two years. Based on this information, the air program is determining that substantial and timely emission reductions are both available and cost effective at these five units.

Table 3 - Missouri Coal-Fired Power Plant Units with SCR Control Equipment

Facility	Unit	NO_x Permit Rate*	Time Period	Permit Number	Acid Rain NO_x Emission Limit (Annual Average)	PSD Permit for SCR (Yes/No)
Hawthorn	5A	0.08 lbs/mmBtu	30-day rolling	888	0.50 lbs/mmBtu	Yes
Iatan	1	0.09 lbs/mmBtu	30-day rolling	CP 012006-019B	0.50 lbs/mmBtu	Yes
	2	0.07 lbs/mmBtu	30-day rolling	CP 012006-019	0.46 lbs/mmBtu	Yes
John Twitty Energy Center	1	0.70 lbs/mmBtu	3-hour rolling	OP2022-004	0.50 lbs/mmBtu	No
	2	0.08 lbs/mmBtu	30-day rolling	CP 122004-007	-	Yes
New Madrid Power Plant	1	CSAPR	Ozone season allowances	OP2020-012	0.86 lbs/mmBtu	No
	2	CSAPR	Ozone season allowances	OP2020-012	0.86 lbs/mmBtu	No
Thomas Hill Energy Center	MB1	CSAPR	Ozone season allowances	OP2017-061	0.86 lbs/mmBtu	No
	MB2	CSAPR	Ozone season allowances	OP2017-061	0.86 lbs/mmBtu	No
	MB3	0.70 lbs/mmBtu	3-hour rolling	OP2017-061	0.50 lbs/mmBtu	No

5.2. Coal-Fired Power Plants with Existing Selective Non-Catalytic Reduction Controls

In addition to the six EGUs with SCR control technology, there are two EGUs in Missouri with existing selective non-catalytic reduction (SNCR) control technology. These are located at the Sioux Energy Center. These two units are also subject to the Acid Rain and CSAPR NO_x Ozone Season Group 2 Trading Programs, but do not currently have enforceable requirements to ensure the continuous operation of the control equipment during the high ozone season. Further, these units have not consistently operated their SNCR control technology. Based on this information, the air program is determining that emission reductions that are both timely and cost effective are available for these two units. Table 4 provides the same information as Table 3 for these two units at the Sioux Energy Center.

Table 4 - Missouri Coal-Fired Power Plant Units with SNCR Control Equipment

Facility	Unit	NO_x Permit Rate	Time Period	Permit Number	Acid Rain NO_x Emission Limit (Annual Average)	PSD Permit for SNCR (Yes/No)
Sioux Energy Center	1	CSAPR	Ozone Season Allowances	OP2018-113	0.86 lbs/mmBtu	No
	2	CSAPR	Ozone Season Allowances	OP2018-113	0.86 lbs/mmBtu	No

5.3. Coal-Fired Power Plants without Existing SCR or SNCR Controls

In addition to the ten EGUs with SCR or SNCR control technology, there are nine remaining coal-fired EGUs at four facilities. These facilities are all equipped with low-NO_x burners (LNB) and over-fire air (OFA) systems. In addition, the six units at the Labadie and Rush Island facilities have neural networks that serve to optimize the control technologies at the facilities.

The LNB and OFA systems at these ten EGUs are part of the combustion process, which is unlike SCR and SNCR systems, which are post combustion controls. In addition, no reagent is required for their operation, making them far less expensive to operate. As such, all of these facilities have historically operated their existing controls to maximize NO_x emission reductions.

All of these units are currently subject to the Acid Rain and CSAPR NO_x Ozone Season Group 2 Trading Programs. However, all the units lack enforceable emission rates to guarantee the continued efficient operation of the existing NO_x controls. Two of these facilities (Rush Island and Meramec) are expected to retire over the next 3-4 years. The other two (Labadie and Sikeston) are expected to continue operating at least through 2026, which is the next applicable attainment deadline under the 2015 ozone standard following the 2023 deadline for Moderate areas. Based on the available information, no timely reductions (i.e. by 2023) are available for any of these ten units. However, similar to John Twitty unit 1, new enforceable requirements at the Labadie and Sikeston facilities to ensure the continued operation of the existing NO_x controls would help guard against potential backsliding and lock in the emission reductions these facilities have already achieved. Table 5 provides the same information as Tables 3 and 4 for these nine units.

Table 5 - Missouri Coal-Fired Power Plant Units without SCR or SNCR Control Equipment

Facility	Unit	NO_x Permit Rate	Time Period	Permit Number	Acid Rain NO_x Emission Limit (Annual Average)
Sikeston Power Station	1	CSAPR	Ozone season allowances	OP082022-004	0.46 lbs/mmBtu
Labadie Energy Center	1	CSAPR	Ozone season allowances	OP2017-048	0.45 lbs/mmBtu
	2	CSAPR	Ozone season allowances	OP2017-048	0.45 lbs/mmBtu
	3	CSAPR	Ozone season allowances	OP2017-048	0.45 lbs/mmBtu
	4	CSAPR	Ozone season allowances	OP2017-048	0.45 lbs/mmBtu
Meramec Energy Center	3	CSAPR	Ozone season allowances	OP2016-040	0.50 lbs/mmBtu
	4	CSAPR	Ozone season allowances	OP2016-040	0.50 lbs/mmBtu
Rush Island Energy Center	1	CSAPR	Ozone season allowances	OP2018-041	0.40 lbs/mmBtu
	2	CSAPR	Ozone season allowances	OP2018-041	0.40 lbs/mmBtu

5.4. Coal-Fired EGU NO_x Ozone Season Emission Rate Analysis

Table 6 provides the 2021 NO_x ozone season emission rates from Missouri's coal-fired EGUs, along with the existing NO_x controls on each unit. As seen in the table, the emission rates vary across all units within a range of 0.049 pounds per million British Thermal Units (lbs/mmBtu) to 0.616 lbs/mmBtu. The highlighted rows show all of the units with 2021 emission rates above 0.12 lbs/mmBtu. There are nine units with emission rates exceeding this value in 2021. Two of the units are located at the Meramec facility, which is expected to retire by December 31, 2022. The remaining seven units all have existing post-combustion (SCR or SNCR) NO_x control technology installed. As such, the air program has determined that timely and cost effective emission reductions are available that can be implemented in time to aide downwind states attain the 2015 ozone standard by 2023, which is the last year of monitoring data that EPA will use to determine if Moderate areas attain by their attainment deadline.

In addition, the last column on the table identifies whether existing permit conditions require each unit to continuously operate its existing NO_x control technology. For all but four of the units, no existing permit condition requires the continuous operation of the existing technology. Therefore, the air program evaluated the benefit of new requirements to do so at each of these units. Sections 5.5. through 5.9. of this document provide information on each coal-fired facility that does not contain permit conditions to operate existing NO_x controls during the ozone season. Section 5.13. of this document summarizes the anticipated ozone season NO_x emission reductions this plan will achieve at Missouri facilities.

Table 6 - Missouri Coal-Fired Power Plant Units and 2021 Ozone Season NO_x Emission Rates

Facility Name	Unit ID	Year	Ozone Season (May-Sept) NO_x Rate (lbs/mmBtu)	NO_x Controls	PSD Permit for Existing Controls
Iatan	2	2021	0.048	SCR, LNB, OFA	Yes
Iatan	1	2021	0.062	SCR, LNB, OFA	Yes
Hawthorn	5A	2021	0.07	SCR, LNB, OFA	Yes
John Twitty Energy Center	2	2021	0.073	SCR	Yes
Rush Island	2	2021	0.083	LNB, OFA	No
Rush Island	1	2021	0.086	Low LNB, OFA	No
Labadie	1	2021	0.09	LNB, OFA	No
Labadie	4	2021	0.092	LNB, OFA	No
Labadie	2	2021	0.093	LNB, OFA	No
Thomas Hill Energy Center	MB3	2021	0.097	SCR, LNB, OFA	No
Labadie	3	2021	0.098	LNB, OFA	No
Sikeston	1	2021	0.115	LNB, OFA	No
John Twitty Energy Center	1	2021	0.123	SCR	No
Meramec	4	2021	0.145	LNB, OFA	No
Thomas Hill Energy Center	MB1	2021	0.15	SCR, OFA	No
Meramec	3	2021	0.184	LNB, OFA	No

Facility Name	Unit ID	Year	Ozone Season (May-Sept) NO_x Rate (lbs/mmBtu)	NO_x Controls	PSD Permit for Existing Controls
Sioux	2	2021	0.231	SNCR, OFA	No
Sioux	1	2021	0.252	SNCR, OFA	No
Thomas Hill Energy Center	MB2	2021	0.395	SCR, OFA	No
New Madrid Power Plant	2	2021	0.604	SCR, OFA	No
New Madrid Power Plant	1	2021	0.616	SCR, OFA	No

5.5. John Twitty Energy Center, Unit 1

This unit previously had low NO_x burners installed, however they are not in operation, and is currently operating a SCR system. Historical NO_x emission rates from 1999-2008, before full implementation of the CAIR and CSAPR ozone programs, ranged from 0.30 to 0.37 lbs/mmBtu. In 2009, the unit installed an SCR system. From 2009 to present, the emission rates at this unit have ranged from 0.06 to 0.12 lbs/mmBtu with an average of 0.094 lbs/mmBtu. Under the CSAPR ozone season trading program, units are not required to meet a NO_x emission limit and may purchase allowances for compliance. Therefore, although history indicates this unit will likely continue running its SCR continuously, the potential exists for this unit to operate without running its SCR, which would increase emissions beyond the projected levels in the latest national modeling platform. As such, the air program is determining at Step 3 that a backstop limit for this unit to ensure continuous operation of the SCR in the future will continue as it has since the equipment was installed.

5.6. New Madrid Power Plant and Thomas Hill Energy Center, (Five Units)

Units 1 and 2 at New Madrid Power Plant and units MB1, MB2, and MB3 at Thomas Hill Energy Center are each currently equipped with SCR control equipment and they are subject to the CSAPR NO_x Ozone Season Group 2 trading program. The SCR systems at these facilities historically have varied in their operation, but in the years immediately after the CAIR and CSAPR ozone season programs went into effect, the units had achieved NO_x emission rate levels during the ozone season that were similar to the emission rates observed at John Twitty unit 1 after that unit installed its SCR. The monitoring system data for New Madrid Power Plant and the Thomas Hill Energy Center make it difficult to ascertain whether the SCR for particular units was run for the duration of the high ozone season in particular years at the units located at these two facilities. However, the third lowest average NO_x ozone season emission rates from May through September at all of these units range from approximately 0.1 lbs/mmBtu to 0.12 lbs/mmBtu. Whereas, in years when the SCR was not operated, average NO_x emission rate values have exceeded 0.40 lbs/mmBtu at most of these units.

Further, as discussed in Chapter 4 of this document, under the CSAPR NO_x Ozone Season Group 2 Program requirements, these two facilities were subject to assurance provision penalties in 2020 and 2021 as they were the main contributors to the state's exceedance of its assurance level during these two years under that program. However, based on the historical record, the

facility has demonstrated its ability to operate its control equipment for the duration of the high ozone season in past years, and the control equipment is still present and functional. As such, the air program is determining at Step 3 that new enforceable limits to compel continuous operation of the SCR control equipment at all five of the units at these two facilities will result in substantial actual emission reductions during the high ozone season compared to the last two years.

5.7. Sikeston Power Station, Unit 1

This unit controls NO_x emissions through use of LNB and OFA. The unit is currently subject to the CSAPR NO_x Ozone Season Group 2 Trading Program. The average NO_x ozone season emission rate from 2017-2021 for this unit was 0.11 lbs/mmBtu. The air program has determined that timely additional reductions at this facility would not be available without the installation of new control technology. However, the air program also notes that no permit requirements are currently in place to ensure the continued efficient operation of the existing LNB and OFA. As such, the addition of new requirements to do so would help guard against potential future backsliding at the facility.

5.8. Labadie Energy Center, (Four Units)

The Labadie Energy Center, units 1, 2, 3, and 4 control NO_x emissions through use of LNB, OFA, and a neural network. These units are subject to the CSAPR NO_x Ozone Season Group 2 trading program and over the last five years (2017-2021) during the ozone season each unit has had an average NO_x emission rate of 0.09 – 0.10 lbs/mmBtu. The air program has determined that timely additional reductions at this facility would not be available without the installation of new control technology. However, the air program also notes that no permit requirements are currently in place to ensure the continued efficient operation of the existing LNB, OFA, and neural network. As such, the addition of new requirements to do so would help guard against potential future backsliding at the facility.

5.9. Sioux Energy Center, Unit 1 and Unit 2

Units 1 and 2 are each currently equipped with OFA and a SNCR system to reduce NO_x emissions. The units are subject to the CSAPR NO_x Ozone Season Group 2 trading program. The SNCR system was added in May 2007 to coincide with the implementation of the CAIR ozone program. In the first ozone season with the SNCR, the facility achieved ozone season NO_x emission rates of 0.15 and 0.13 lbs/mmBtu for units 1 and 2, respectively. However, the average ozone season NO_x emission rates for these two units since 2007 have been 0.24 and 0.23 at units 1 and 2, respectively. This indicates that the units have not consistently operated the SNCR control systems since they were installed in 2007. As such the air program is determining at Step 3 that new enforceable limits to compel continuous operation of the SNCR control equipment for these two units will result in actual emission reductions during the high ozone season compared to all years since 2007.

5.10. New NO_x Emission Limits for Units with Existing SCR Control Technology

After evaluating the historical data at the John Twitty Energy Center, the Thomas Hill Energy Center, and the New Madrid Power Plant, the air program determined the achievable emission rates at all of those units with SCR's were substantially similar. For the John Twitty Energy Center, which has consistently operated its SCR controls since they were installed in 2009, the air program started with the average ozone season NO_x emission rate since 2009. For the New Madrid and Thomas Hill facilities, the air program started the evaluation with the third best ozone season emission rate for five of the units at these facilities, as the air program determined those years to be reflective of continuous SCR operation. Using these starting points for these six units, the values ranged from 0.094 lbs/mmBtu at John Twitty unit 1 to 0.114 at Thomas Hill unit 2. The average rate for these starting values among all six units was 0.102 lbs/mmBtu.

To ensure equitable requirements for these facilities, the air program determined that a universal limit that applies to all six of these units with SCR's and that can only be achieved with the operation of the control technology, but that also provides a small degree of compliance margin would be appropriate. In addition, a stipulation that the control technology must be ran continuously during the ozone season with a small allowance for unplanned, necessary control technology outages would ensure that none of these six units will have the option to turn off their control equipment for the purpose of avoiding operating costs at certain times during the ozone season and then make up for it with lower than required rates at other times.

The air program determined that with both a numeric ozone season average emission rate and a stipulation for continuous operation of the SCR equipment during the ozone season were appropriate. The two requirements would be sufficient to ensure a backstop emission rate that will compel continued operation of the SCR system at John Twitty unit 1, and meaningful emission reductions at all of the units located at the New Madrid and Thomas Hill facilities. The ozone season average emission rate limit the air program determined could achieve this outcome for all six units with SCR's was 0.12 lbs/mmBtu based on historical continuous emission monitoring system data. This equates to an approximate 20 percent compliance margin from the average 0.102 lbs/mmBtu starting value the air program determined reflective of continuous SCR operation at these six units.

5.11. New NO_x Emission Limits for Units with Existing SNCR Control Technology

Just like the determination the air program made with respect to units with SCRs, the air program made the same determination that both a numeric emission rate limit coupled with a requirement for continuous operation of the control equipment for the two units with SNCR. The main difference between agreements for the units with SCRs and the units with SNCR is the value of the numeric emission rate and the operating percentage requirement. For the Ameren Sioux facility, the OFA system requires weekly tuning during normal operations, and the tuning cannot be performed while the SNCR control is operating. The tuning process takes approximately eight hours to complete each week and is necessary to ensure the OFA is working efficiently to control the formation of NO_x during the combustion process. This equates to approximately five percent of total operating hours in a week, if the unit is running continuously. Due to this, the air program reduced the percent operating time requirement for the SNCR at the Sioux facility by

five percent when compared to the agreements for the units with SCRs. This resulted in percent operating time requirement for the SNCR at Sioux of 90 percent of hours when burning coal during the regulatory ozone season (May-September).

In addition, the SNCR technology is not as effective at controlling NO_x as the SCR control technology. In evaluating the emissions data at Sioux, the only ozone season when the controls appear to have operated continuously was the year the technology was installed. During this year (2007), both units had emission rates above the new limits the air program is establishing for the units with SCRs in this plan. To determine an appropriate emission rate for the units at Sioux, the air program started with the emission rates achieved in 2007, when the technology was first installed. These rates were 0.15 lbs/mmBtu and 0.13 lbs/mmBtu for units 1 and 2 respectively. The air program used the higher of these two values and added a 20 percent compliance margin to arrive at a numeric NO_x ozone season emission rate of 0.18 lbs/mmBtu.

5.12. New NO_x Emission Limits for Units without Existing SCR or SNCR Control Technology

The air program has determined that no timely emission reductions will be available by 2023 for the coal-fired EGUs that do not already have post-combustion NO_x controls installed. However, the air program is establishing new agreements to prevent against potential future backsliding at two such facilities, including the Labadie and Sikeston facilities.

The air program established the new ozone season NO_x emission limits for both facilities in the same manner as the method for establishing the emission rates for units with SCRs and SNCRs. First the air program evaluated recent emission rates achieved in practice by the facilities. The air program then added a 20 percent compliance margin to these emission rates. This resulted in an emission rate at the Labadie facility that is identical to the newly established emission rates for the units with SCRs, 0.12 lbs/mmBtu. For the Sikeston facility, this resulted in a new NO_x ozone season emission rate limit of 0.13 lbs/mmBtu. The air program did not design these emission rates to drive new emission reductions, but rather to secure already-achieved emission reductions and prevent against potential future backsliding at the facilities.

5.13. Projected NO_x Emission Reductions with New Limits

Table 7 below provides estimated NO_x emission reductions from units at the John Twitty Energy Center, the New Madrid Power Plant, the Thomas Hill Energy Center, and the Sioux Energy Center through implementation of an ozone season NO_x emission limit of 0.12 lbs/mmBtu for units with SCR's, and 0.18 lbs/mmBtu for those with SNCR's, as compared to the actual 2021 ozone season NO_x emissions from these units. Further, the air program anticipates even more emission reductions than the values in the table as the units will likely operate at least 10-20 percent below the new limits so as to ensure an adequate compliance margin. Nevertheless, even assuming that emissions from all six units just barely meet the new limit requirements, the ozone season NO_x emission reductions will total 6,713 tons per ozone season. The air program notes that this figure actually includes a projected increase at one of the six units (Thomas Hill MB3). This is because the 2021 emission rate for this unit was the lowest emission rate the unit had achieved in the last ten years. The air program also notes that if these units operate with a 20 percent compliance margin, which is reasonably expected, the ozone season NO_x emission

reductions from these units will total over 8,000 tons. This is a substantial emission reduction that will further ensure that Missouri has indeed addressed all of its good neighbor obligations under the 2015 ozone standard.

Table 7 - John Twitty Energy Center, New Madrid Power Plant, Thomas Hill Energy Center, and Sioux Energy Center NO_x Reductions with New Limits

Facility	Unit	2021 NO_x Ozone Season Emissions (tons)	NO_x Ozone Season Emissions w/ New Limit (tons)	Difference (tons) *
John Twitty Energy Center	1	307	296	-11
New Madrid Power Plant	1	1,466	270	-1,196
	2	4,700	923	-3,777
Thomas Hill Energy Center	MB1	440	362	-78
	MB2	1,801	540	-1,261
	MB3	1,078	1,325	+247
Sioux Energy Center	1	1,343	975	-358
	2	1,307	1,038	-269
Total		**12,442**	**5,729**	**-6,713**

* Note: A negative value reflects a projected reduction in emissions when compared to 2021 actual emission levels. A positive value reflects a projected increase in emissions when compared to 2021 actual emission levels.

5.14. Evaluation of Projected NO_x Reductions on Downwind Linked Receptors

The air program has evaluated the impact the anticipated emission reductions from the agreements in this plan will have on the four linked receptors in EPA's updated modeling. To evaluate this impact, the air program utilized EPA's Ozone Air Quality Analysis Tool (AQAT). EPA developed the AQAT to estimate changes in ozone contributions for the federal interstate air pollution transport rules without having to rerun the photochemical model for every control strategy scenario it analyzes. EPA created the tool using modeled contributions to downwind monitors obtained from two modeling events using CAMx (a base year modeling run, and a modeling run with EGU and non-EGU emissions reduced by 30 percent from the base year).

The AQAT tool is a group of excel spreadsheets that are linked together to obtain future contributions (in ozone ppb) from different States to a specific linked downwind monitor. The air program began by selecting scenario "0" in the "summary_DVs_2023" worksheet of the AQAT. This corresponds to EPA's 2023 Engineering Analytics (EA) base case emissions scenario. The air program then went into the worksheet titled "2023_OS_NO_x". In this worksheet, the air program reduced Missouri's EA 2023 base case EGU NO_x emissions by the anticipated NO_x emission reductions from this plan (6,713 tons). This was done under the column titled "EA 2023 Base". The air program subtracted 6,713 from 20,087.1, to calculate the new value of 13,374.1. The air program then went to the worksheet titled "2023_scenario". The air program then filtered the receptors to obtain the new Missouri contributions for the four linked receptors in EPA's updated modeling. Finally, the air program compared these values to the EA 2023 base case scenario without the reductions applied to obtain the estimated benefit to each of these downwind receptors as a result of the emission reductions this plan will achieve. Table 8

provides the Missouri contribution results for the four linked monitors under the 2023 EA base case scenario, the control scenario from this plan, and the difference (anticipated benefit) between the two scenarios.

Table 8 - 2023 AQAT Results

Monitor ID	State	County	Missouri EA 2023 Base Year Ozone Contribution (ppb)	Missouri 2023 Control Scenario Ozone Contribution (ppb)	2023 Difference (Improvement in Missouri Ozone Contribution) (ppb)
170317002	Illinois	Cook	1.0060	0.9553	0.0507
550590019	Wisconsin	Kenosha	1.1663	1.1063	0.0600
550590025	Wisconsin	Kenosha	1.8067	1.6982	0.1085
551010020	Wisconsin	Racine	1.0024	0.9459	0.0565

The air program also used AQAT to estimate the benefit of this plan on the linked receptors for the year 2026. The air program followed same approach described above for the year 2023, except that the air program used the 2026 worksheets in the AQAT when estimating the benefit. Table 9 provides the AQAT results comparing the 2026 EA base case to the 2026 control scenario from this plan. As seen in tables 8 and 9, the benefit to the downwind receptors from the emission reductions in Missouri resulting from this plan are the same for 2023 and 2026.

Table 9 - 2026 AQAT Results

Monitor ID	State	County	Missouri EA 2026 Base Year Ozone Contribution (ppb)	Missouri 2026 Control Scenario Ozone Contribution (ppb)	2026 Difference (Improvement in Missouri Ozone Contribution) (ppb)
170317002	Illinois	Cook	0.9385	0.8878	0.0507
550590019	Wisconsin	Kenosha	1.0833	1.0233	0.0600
550590025	Wisconsin	Kenosha	1.7027	1.5943	0.1084
551010020	Wisconsin	Racine	0.9367	0.8802	0.0565

5.15. Cost Analysis on Step 3 Control Strategies Available for 2023

On August 26, 2022, the air program submitted Missouri's Regional Haze Plan for the Second Planning Period to EPA.[9] In that plan, the air program performed an analysis on the cost effectiveness of operating the SCR systems at New Madrid and Thomas Hill. The cost per ton of NO_x removal assuming an 85 percent control efficiency at these two facilities ranged from $984 per ton to $1,991 (2021 dollars). The median value was $1,065 per ton of NO_x removed. These values assumed no capital costs as the control technology is already in place. Applying the median cost from the Regional Haze plan's cost analysis to the projected emission reductions

[9] See https://dnr.mo.gov/document-search/state-implementation-plan-revision-missouri-regional-haze-plan-second-planning-period

from this plan associated with the SCR operation at the John Twitty, New Madrid, and Thomas Hill facilities provides an annual cost of $6,481,590.

For the projected emission reductions at the Sioux facility, the air program utilized EPA's retrofit analyzer tool to estimate the annual operating and maintenance costs to run the SNCR at that facility. The tool estimated an average cost effectiveness of $3,648 per ton of NO_x removed at the Sioux facility through the use of the SNCR. This value does not include any capital costs associated with the system, since the controls already exist. Appendix G provides the inputs used to estimate these annual costs for the SNCR operation at the Sioux facility. Applying this cost-effectiveness value to the projected 627 tons of NO_x emission reductions for the Sioux facility results in an annual cost of $2,287,296.

The air program then added these two annual cost values together to arrive at the total annual cost resulting from the control requirements included as part of this plan. This total equaled $8,768,886. To determine the cost effectiveness of the plan requirements for the Step 3 analysis for 2023 with respect to the impact at the downwind linked monitors, the air program divided the total annual cost associated with this plan by the estimated reduction in Missouri's ozone contributions for these four monitors calculated with the AQAT. Table 10 provides the cost effectiveness results in units of annual dollars spent in Missouri per 1.0 ppb improvement ($/ppb) at each of the four monitors.

Table 10 - 2023 Cost Effectiveness Results for Improvement at Linked Monitors

Monitor ID	State	County	Improvement in Missouri Ozone Contribution Resulting from 2023 Controls (ppb)	Total Annual Cost to Missouri Resulting from 2023 Controls ($2021)	Cost Effectiveness ($/ppb improvement)
170317002	Illinois	Cook	0.0507	$8,768,886	$172,956,331
550590019	Wisconsin	Kenosha	0.0600		$146,148,100
550590025	Wisconsin	Kenosha	0.1085		$80,819,226
551010020	Wisconsin	Racine	0.0565		$155,201,522

As shown in Table 10, the cost effectiveness of the 2023 control requirements at Step 3 in this plan in units of annual dollars spent in Missouri per 1.0 ppb improvement at the downwind linked monitors ranges from approximately $81 million dollars per ppb at Monitor ID 550590025 in Kenosha County, Wisconsin to approximately $173 million dollars per ppb improvement at Monitor ID 170317002 in Cook County, Illinois. The air program considered Missouri's low-modeled contribution to each of these monitors compared to in-state and other upwind states, the conclusions drawn at Step 2 in this plan (with a degree of acknowledged uncertainty), and the application of these control costs through this plan and the corresponding cost effectiveness at reducing ozone concentrations at the receptors of concern. With consideration of those factors, the air program is concluding that the projected emission reductions in 2023 fully satisfy Missouri's good neighbor obligation for the 2015 ozone standard.

5.16. Analysis and Conclusions Regarding Potential Additional Controls in 2026

In the proposed FIP published in the Federal Register in April of 2022, EPA proposed SCR retrofits for any existing coal-fired power plants that currently lack post-combustion NO_x control technology. EPA's proposed changes to the NO_x Ozone Season Group 3 Trading Program assumed these retrofits would be complete and operational by the 2026 ozone season. In addition, by 2026, EPA proposed new control requirements for several non-EGU point sources including pipeline natural gas transportation, cement and concrete manufacturing, glass and glass product manufacturing, basic chemical manufacturing, petroleum and coal products manufacturing, and pulp, paper, and paperboard manufacturing. This section of this document analyzes the reasonableness of these types of control requirements in 2026 for Missouri sources with respect to Missouri's good neighbor obligations under the 2015 ozone standard.

Table 11 provides the 2026 average and maximum ozone design values for the four monitors linked to Missouri in EPA's updated modeling. Monitor ID 550590025 in Kenosha County, Wisconsin) is a maintenance receptor in 2026 in EPA's updated modeling. Of the four monitors linked to Missouri, this monitor has the highest contribution from Missouri. As such, it also results in the most cost effective monitor for improvement based on emission reductions in Missouri. However, the maximum 2026 projected design value at this monitor in EPA's updated modeling is 71.1 ppb. Therefore, only a 0.11 ppb improvement is needed in 2026 for this monitor to avoid the label of a maintenance receptor at Step 1 of EPA's 4-step good neighbor provision framework. EPA's updated modeling is based on conditions absent its proposed FIP in 2026, the controls implemented by the FIP in 2023, and the controls implemented by Missouri through this plan. In EPA's proposed, the agency's use of the AQAT projected this receptor will be removed as a maintenance receptor by 2026 in light of the new controls. If this monitor is removed as a maintenance receptor in 2026, then any control requirements in upwind states for the purpose of improving downwind ozone concentrations at this receptor would constitute over-control with respect to the CAA good neighbor provisions.

Table 11 - 2026 Modeled Design Values and Missouri Contributions to Linked Monitors

Site ID	Monitor Location	2026 Avg. Model DV (ppb)	2026 Max Model DV (ppb)	Receptor Status	2026 MO Model Contribution (ppb)
170317002	Cook County, IL	69.1	72.0	Maintenance-Only	0.85
550590019	Kenosha County, WI	71.7	72.6	Nonattainment	0.98
550590025	Kenosha County, WI	68.1	71.1	Maintenance-Only	1.53
551010020	Racine County, WI	70.2	72.1	Maintenance-Only	0.84

As seen in Table 11, the 2026 modeled contributions from Missouri at the remaining three receptors are all less than 1.0 ppb. Thus, they are all below the 1.0 ppb alternative threshold identified in EPA's August memo. This is again without consideration of the 2023 or 2026 controls EPA has proposed in the FIP for 26 states. Taking this information into consideration, the air program is concluding that for the 2026 control year, Missouri has no remaining good neighbor obligations based on EPA's updated modeling.

5.16.1. Analysis of SCR Retrofits at Existing Coal-Fired Power Plants

The air progrom has concluded that Missouri has no remaining good neighbor obligations under the 2015 ozone standard for the 2026 control year following the implementation of the requirements included in this plan. This is based on the assumption the Kenosha, WI monitor will drop off as a maintenance receptor in 2026. EPA projects this monitor to move from maintenance status to attainment status after implementation of the requirements in the proposed FIP. If that receptor changes to attainment and the air program uses the alternative 1.0 ppb threshold in EPA's August memo for the remaining three linked receptors, then it satisfies all of Missouri's good neighbor obligations by 2026. As such, any new control requirements in 2026 would need to be highly cost effective for the air program to determine them reasonable and necessary as part of this plan.

In Missouri's Regional Haze Plan for the Second Planning Period, the air program included an analysis on the cost effectiveness of installing and operating new SCR systems at both of Missouri's existing coal-fired power plants that currently lack post combustion NO_x controls. These include the Labadie and Sikeston facilities.

For the Labadie facility, the annualized cost effectiveness using actual expected remaining life of the units at the facility ranged from $17,773 per ton NO_x removed to $28,056 per ton NO_x removed. At the Sikeston facility, the cost effectiveness included in that plan using actual expected remaining life for the unit at the facility was $14,369 per ton NO_x removed. The average cost effectiveness values included in this current interstate transport plan supplement for controls effective in 2023 is $1,306 per ton of NO_x removed. Therefore, even using the value for the most cost effective SCR retrofit (the cost effectiveness at the Sikeston facility), the value is more than ten times the average cost effectiveness of the controls included in this current plan for 2023. As such, the cost effectiveness in terms of improvement in ozone concentrations would also be more than ten times the cost effectiveness values provided in Table 10 of this document.

The monitor located in Kenosha, WI is likely to drop off as a maintenance receptor by 2026 after consideration of controls included in this plan and in EPA's proposed FIP for over 20 states. This is also the monitor where improvements in ozone concentration are most cost effective when considering emission reductions in Missouri. Using the improvement in concentrations provided in Table 9 and the total 2023 and 2026 emission reductions projected to result from this plan, the air program calculated the amount of ozone season NO_x reductions needed in Missouri to achieve 1.0 ppb improvement at the remaining three receptors. Table 12 provides these values and also includes the cost effectiveness for each receptor in units of annual dollars spent in Missouri for 1.0 ppb improvement based on the cost per ton figure for SCR retrofits at Sikeston assuming estimated actual remaining life as included in Missouri's Second Round Regional Haze Plan for the Second Planning Period, or $14,369 per ton NO_x removed.

Table 12 - 2026 Cost Effectiveness Results for Improvement at Linked Monitors for SCR Retrofits at Existing Coal-Fired Power Plants

Monitor ID	State	County	MO NO_x Reductions Needed per 1.0 ppb Improvement (tons/ozone season)	Cost per Ton NO_x Reduced ($/ton)	Cost Effectiveness ($/ppb improvement)
170317002	Illinois	Cook	124,596	$14,369	$1,790,319,924
550590019	Wisconsin	Kenosha	105,283		$1,512,811,427
551010020	Wisconsin	Racine	118,814		$1,707,238,366

As seen in Table 12, the cost effectiveness with respect to SCR retrofits at existing coal-fired EGUs in Missouri range from annual costs in Missouri of $1.51 billion per 1.0 ppb improvement at the Kenosha County monitor in Wisconsin to $1.79 billion per 1.0 ppb improvement at the Cook County monitor in Illinois. The air program also considered the low contributions (all below 1.0 ppb) to the remaining linked receptors assuming that Monitor ID 550590025 in Kenosha County drops off as a maintenance receptor, as projected in EPA's proposed FIP. Taking all of this into consideration, the air program is concluding that SCR retrofits at existing coal-fired EGUs are not cost-effective, nor required for the purpose of satisfying Missouri's good neighbor obligations under the 2015 ozone standard.

5.16.2. Analysis of Potential NO_x Controls at Existing Non-EGUs

This subsection provides the air program's analysis and conclusions with respect to potential new controls for non-EGUs in Missouri. In EPA's proposed FIP, the agency identified three non-EGU source categories in Missouri where EPA proposed new emission control requirements.[10] These include the cement and concrete manufacturing industry, the glass and glass product manufacturing industry, and pipeline transportation of natural gas.

In EPA's proposed FIP, the agency identified three facilities in Missouri for new control requirements in the cement and concrete manufacturing industry. These facilities include River Cement Company, d/b/a Buzzi Unicem USA Selma Plant, Continental Cement Company LLC Ilasco Plant, and the Holcim US Inc. Ste. Genevieve Plant. All three of these plants contain preheater/precalciner kilns that EPA identified for reductions in the proposed FIP. However, all three of these facilities are subject to Missouri's federally approved cement kiln rule that the air program developed in response to the EPA NO_x SIP call. EPA's proposed FIP included proposed requirements for these types of kilns a limit of 2.8 lbs. NO_x/ton of clinker produced. Missouri's rule, *10 CSR 10-6.380 Control of NO_x Emissions from Portland Cement Kilns*, includes a more stringent requirement of 2.7 lbs NO_x/ton of clinker produced during the regulatory ozone season (May – September). Due to the stringency of the state rule when compared to the proposed FIP for the identified Missouri facilities in this industry category, the air program is concluding that no cost effective emission reductions in this source category are available.

[10] Attachment 1 to EPA Memorandum, *Screening Assessment of Potential Emissions Reductions, Air Quality Impacts, and Costs from Non-EGU Emissions Units for 2026*, February 28, 2022. EPA-HQ-OAR-2021-0668-0191_attachment_1

In EPA's proposed FIP, the agency identified two facilities in Missouri for new control requirements in the glass and glass product manufacturing industry. These facilities include Pittsburg Corning Corporation in Sedalia, MO, and Piramal Glass USA Inc. in Park Hills MO. On February 2, 2022, Piramal Glass officials announced that in March of 2022 they would be closing their glass manufacturing facility in Parks Hills, MO.[11] As such no emission reductions from this facility are available to further address Missouri's good neighbor obligations. With respect to Pittsburg Corning Corporation in Sedalia, MO, EPA used its Control Strategy Tool (CoST) to project costs for the non-EGU categories. The agency included a total cost estimate of $5.8 million for the controls at this facility as a result of the proposed FIP requirements. The air program notes that the 2020 and 2021 emissions at this facility were 17 and 44 tons, respectively. Due to the lack of any cost effective emission reductions in the glass manufacturing category in Missouri, the air program is concluding that no further requirements are needed under this source category to address Missouri's good neighbor obligations under the 2015 ozone standard.

In EPA's proposed FIP, the agency identified four facilities in Missouri for new control requirements in the pipeline natural gas transportation industry. In EPA's technical memorandum from its proposed FIP on the non-EGU Screening Assessment,[12] Table 4 provided cost per ton figures for each of the non-EGU control categories by state. For Missouri, EPA provided the cost per ton of NO_x reduced for the pipeline transportation of natural gas industry as proposed in the FIP. EPA projected the average annual cost per ton reduced for Missouri as $5,452 for this industry category. In Table 13, the air program calculated cost effectiveness values in terms of annual dollars spent in Missouri per 1.0 ppb improvement at the remaining three downwind linked monitors using EPA's estimated cost per ton reduced figure from the proposed FIP.

Table 13 - 2026 Cost Effectiveness Results for Improvement at Linked Monitors for Proposed FIP Controls on the Pipeline Natural Gas Transportation Industry in Missouri

Monitor ID	State	County	MO NO_x Reductions Needed per 1.0 ppb Improvement (tons)	Cost per Ton NO_x Reduced ($/ton)	Cost Effectiveness ($/ppb improvement)
170317002	Illinois	Cook	124,596	$5,452	$679,297,392
550590019	Wisconsin	Kenosha	105,283		$574,002,916
551010020	Wisconsin	Racine	118,814		$647,773,928

As seen in the table, the cost effectiveness values all exceed annual costs of $570 million per 1.0 ppb improvement. In light of this and with Missouri contributions to all three remaining linked receptors below 1.0 ppb, the air program is concluding that EPA's proposed FIP controls for this industry are not cost effective and not required to address Missouri's good neighbor requirement.

[11] ABC 17 News Article, *More than 200 Jobs Lost as Park Hills Glass Factory Closes,* February 2, 2022, https://abc17news.com/news/ap-missouri/2022/02/02/more-than-200-jobs-lost-as-parks-hills-glass-factory-closes/

[12] EPA Memorandum, *Screening Assessment of Potential Emissions Reductions, Air Quality Impacts, and Costs from Non-EGU Emissions Units for 2026*, February 28, 2022. https://www.epa.gov/system/files/documents/2022-03/nonegu-reductions-ppb-impacts-2015-o3-transport-fip-final-memo.pdf

6. EPA Step 4 – Establishment of Enforceable Control Requirements

The air program has entered into enforceable Consent Agreements with six facilities as part of this supplement to Missouri's 2019 Good Neighbor SIP. These facilities include the John Twitty Energy Center, the New Madrid Power Plant, the Thomas Hill Energy Center, the Sioux Energy Center, the Labadie Energy Center, and the Sikeston Power Station. These Consent Agreements help ensure that Missouri's SIP is adequately addressing all of state's good neighbor obligations with respect to the 2015 ozone standard.

6.1. Consent Agreements for SCR-Controlled Units at Existing Power Plants

The Consent Agreements found in Appendices A, B, and C require that each facility operate their existing SCR system control devices at least 95 percent at all times during the ozone season from May 1 through September 30 when burning coal. The five percent allotment for not continuously operating the control devices provide the facility an appropriate degree of operational flexibility to account for normal operational issues for SCRs including catalyst maintenance, plugging issues, and any unknown future supply availability of the SCR reagent (urea or anhydrous ammonia).

The agreements also include enforceable average ozone season NO_x emission rates of 0.12 lbs/mmBtu. These numeric limits apply facility-wide for the New Madrid and Thomas Hill facilities, and apply to unit 1 for the John Twitty facility. As discussed in Chapter 5 of this document, the air program evaluated historical emission rates these three facilities. The air program determined that the third best NO_x ozone season emission rate at all of the individual units that would be subject to the new limits were within 0.095 – 0.105 lbs/mmBtu, and that these values were reflective of rates achieved with continuous and efficient SCR operation during the ozone season. The air program concluded that these emission rates had been demonstrated as generally achievable based on the available control technology at the units. However, catalysts degrade over time, and they sometimes plug or require other type of maintenance to achieve this control efficiency. In addition, as more and more intermittent renewables such as solar and wind get connected to the grid, more and more cycling and load following from traditional baseload units will be inevitable, which has a direct impact on the efficiency of SCR NO_x controls. In light of these considerations, the air program added a compliance margin of approximately 20 percent to the demonstrated achievable emission rates to account for this potential future variability. This is a reasoned approach that will achieve the intended outcome.

In addition, the agreements include the necessary monitoring, recordkeeping, and reporting requirements to ensure the air program can and will verify and enforce compliance with the limits and stipulations in the agreements.

6.1.1. Startup, Shutdown, and Malfunction (SSM) Provisions for SCR Controlled Units

The agreements for the SCR units contain exemptions for the 95 percent operating time requirements during periods of SSM. This is in keeping with technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air

pollution control practices for minimizing emissions. The agreement for John Twitty defines startup as ending when the unit reaches minimum gross load offered to the Southwest Power Pool (the Regional Transmission Operator), and exempts those hours on the front end. For New Madrid and Thomas Hill, they may exclude startup hours following the process in the state SSM rule, 10 CSR 10-6.050. For all three facilities, they must following the process in the state SSM rule to exempt hours for shutdown and malfunction when determining compliance with the percent operating time requirement.

An important note is that the SSM exemption only applies to the percent operating time requirement (the technology-based requirement). No hours may be exempted for SSM when determining compliance with the numeric emission rate limit of 0.12 lbs/mmBtu. Since all hours are counted when determining compliance with the emission rate, the agreements follow applicable SIP requirements for SSM events.

6.1.2. Regulatory Safety Valve

The agreements for the SCR units all contain a regulatory safety valve that applies to the newly established numeric emission rate limits. The purpose is to provide regulatory relief if an unexpected event caused a prolonged period (exceeding ten percent of operating hours for the ozone season) where the SCR system could not be operated, but the unit needed to run to ensure electric grid reliability/stability. There are numerous requirements the facility must show and demonstrate for any time period that counts towards this ten percent requirement. This includes a notification within seven calendar days of the upset condition. The notification must explain the upset condition, how long the upset condition is expected to last, and the steps the facility is taking to bring the control equipment back online. The facility must also demonstrate the upset condition was not the result of a failure of the facility to perform routine maintenance and could not have been avoided with reasonably diligent planning by the facility. The facility must also demonstrate that every hour when the unit continued operating during the upset condition was necessary to maintain electric grid stability or reliability.

The reason for the ten percent requirement (and not a lower number or all events that meet this criteria) is because the expectation is that in most cases the facility will just need to make up for any occurrences like this by operating at lower than required NO_x emission rates during periods outside the upset event. However, if it were an extended unusual circumstance that would prevent the unit from making up the difference (ten percent of operating hours or more), then the unit could still operate and keep the grid stable. The air program does not anticipate this safety valve clause to be used with any type of regularity. The air program designed the regulatory safety valve for the facilities to use only during rare unexpected grid emergency situations.

6.2. Consent Agreement for SNCR-Controlled Units at Sioux Energy Center

The agreement for the Sioux Energy Center is designed very similar to the agreements for the SCR controlled units at the John Twitty, New Madrid, and Thomas Hill facilities. The agreement is provided in Appendix D of this plan. The agreement includes a percent-operating time requirement and a numeric rate requirement designed to complement each other and ensure the

continued use of the SNCR control system throughout the ozone season (May-September) in keeping with technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions.

The percent operating time requirement for the Sioux facility differs from the requirement for the SCR controlled units. The agreement stipulates a 90 percent operating time requirement for the SNCR systems as opposed to a 95 percent operating time requirement for the SCR control units. As stated in Chapter 5, this is necessary to allow for the weekly tuning procedures for the complimentary OFA NO_x control system at the Sioux facility.

Also, as discussed in Chapter 5, the numeric limit is less stringent than the limit included for the SCR controlled units due to the lower control efficiency of the SNCR control system when compared to SCR control systems. The numeric emission rate limit for the SNCR controlled units at the Sioux facility as stipulated in the agreement is 0.18 lbs/mmBtu.

With respect to the SSM provisions, and the regulatory safety valve, the Sioux agreement is the same as the agreement with the John Twitty facility. Startup hours are pre-defined and exempted on the front end when determining compliance with the percent operating time requirement. Shutdown and malfunction hours may be exempted for purposes of the percent operating time requirement following the process laid out in the state SSM rule. All hours, including SSM hours must be counted when determining compliance with the numeric emission rate limit. The agreement also includes identical language as the three agreements for the SCR controlled units with respect to the regulatory safety valve.

6.3. Consent Agreement for Labadie Energy Center

The air program entered into a Consent Agreement with the Labadie Energy Center as part of this plan, which is provided in Appendix E of this plan. As stated in Chapter 5, the Labadie Energy Center achieves emission rates comparable to the rates achieved by the SCR controlled units that have entered into new agreements as part of this plan. The Labadie facility controls NO_x emissions through the use of LNB, OFA, and a neural network that works to optimize this NO_x combustion control technology. The new agreement requires the Labadie facility to continuously operate the control technology in keeping with technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions. The agreement also establishes a numeric emission rate limit identical to the limits in the agreements for the SCR controlled units (0.12 lbs/mmBtu). The agreement exempts the continuous control technology requirement for SSM events, but just like the other agreements, this exclusion is not allowed when determining compliance with the numeric emission rate limit. This agreement does not include a regulatory safety valve like the agreements for the SCR and SNCR controlled units. The air program

determined this to be unnecessary at this facility since it utilizes combustion controls as opposed to post-combustion controls.

6.4. Consent Agreement for Sikeston Power Station

The air program also entered into a Consent Agreement with the Sikeston Power Station, which is provided in Appendix F of this plan. As stated in Chapter 5, the Sikeston Power Station achieves emission rates that are similar or generally below the new limits established for Labadie and the SCR controlled units. The Sikeston facility controls NO_x emissions through the use of LNB and OFA. The air program utilized the same approach for establishing the numeric emission rate limit at Sikeston as done for the other units with new agreements in this plan. The air program evaluated historical emission rate data when the controls were operating and added a 20 percent compliance margin. This resulted in a numeric emission rate limit of 0.13 lbs/mmBtu. This is only slightly higher than the rates established for Labadie and the SCR controlled units. The agreement also includes a requirement for the facility to continuously operate its NO_x combustion controls, in keeping with technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions. Just like the Labadie agreement, the Sikeston agreement provides an SSM exemption to the technology requirement for continuous operation, but the exemption does not apply to the numeric emission rate requirement. Also, like the Labadie agreement, the Sikeston agreement does not include the regulatory safety valve clause.

7. Public Participation

In accordance with Section 110(a)(2) of the CAA, the Missouri Air Conservation Commission (MACC) will hold a public hearing prior to adoption of this SIP revision and the subsequent submittal to EPA. The air program notified the public and other interested parties of the public hearing and comment period at least thirty days prior to the public hearing for this SIP revision. Specifically –

- Notice of availability of the proposed SIP revision and announcement of the public hearing was posted on the air program website by June 27, 2022.

- The MACC held a public hearing to receive comments for the proposed SIP revision on July 28, 2022.

- The air program opened a public comment period after posting the SIP revision on the air program's website on June 28, 2022. The public comment period was originally scheduled to close on August 4, 2022. However, the air program granted a 14-day extension to the public comment period in response to an extension request. The extended comment period closed on August 18, 2022.

Conclusion

Based on the analyses included in this document, Missouri's SIP is adequately addressing the state's obligation under CAA section 110(a)(2)(D)(i)(I) with respect to the 2015 ozone standard. The analyses in this SIP, which re-evaluated the affected downwind receptors based on prior EPA modeling, provides analyses on the four newly linked downwind receptors from Missouri. The analyses all conclude that Missouri's current SIP is already addressing all of Missouri's good neighbor obligations under the 2015 ozone standard.

Despite these analyses showing that Missouri's SIP is adequately fulfilling all of Missouri's good neighbor obligations, this supplement includes a Step 3 analysis with a Step 4 execution to secure new and substantial NO_x ozone season emission reductions, which provides a layer of conservativeness and further certainty to the conclusion that Missouri's SIP will adequately address all CAA good neighbor obligations with respect to the 2015 ozone standard.

This SIP revision is a supplement to Missouri's 2019 Good Neighbor SIP. The intent of this supplement is to provide new and updated analyses based on the latest national modeling data that EPA has released, and to strengthen Missouri's SIP. The updated analyses provide EPA additional information to support the approval of Missouri's SIP as meeting the good neighbor obligations under the 2015 ozone standard. Further, the new Consent Agreements will include substantial enforceable emission reductions, and even further assurance that Missouri has addressed its good neighbor obligations. The air program prepared this supplement to Missouri's 2019 Good Neighbor SIP in accordance with the requirements of the CAA, corresponding federal regulations, EPA guidance, and Missouri statutes.

Appendix A
John Twitty Energy Center Consent Agreement

BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

In the Matter of:	)	
	)	
CITY UTILITIES OF SPRINGFIELD	)	No. APCP-2022-027A
as the owner/operator of the	)	
	)	
JOHN TWITTY ENERGY CENTER	)	
	)	

CONSENT AGREEMENT
AMENDMENT #1 to APCP-2022-027

The issuance of this Consent Agreement No. APCP-2022-027A (Consent Agreement) by the Missouri Department of Natural Resources (Department) is a formal administrative action taken by the State of Missouri after conference with City Utilities of Springfield, as the owner/operator of the John Twitty Energy Center (together, hereinafter referred to as "John Twitty Energy Center"). This Consent Agreement amends and fully replaces Consent Agreement No. APCP-2022-027. The parties agree this voluntary Consent Agreement is being issued to administer, implement, and enforce the purposes of the Missouri Air Conservation Law, Chapter 643, RSMo, and its implementing regulations and is not the result of any past or current violations. The parties agree that this Consent Agreement is being issued as an administrative order under 643.060(4), RSMo. The parties have agreed to these provisions voluntarily in order to strengthen Missouri's Good Neighbor State Implementation Plan (SIP) for the 2015 Ozone standard. John Twitty Energy Center further agrees that a failure to comply with this Consent Agreement is a violation of the Missouri Air Conservation Law under Section 643.151, RSMo.

BACKGROUND

Section 110(a)(2)(D)(i)(I) of the Clean Air Act (CAA) requires states to submit adequate provisions in their SIPs to prohibit emissions that will contribute significantly to nonattainment, or interfere with maintenance, in any downwind state with respect to any national ambient air quality standard.

Consistent with U.S. Environmental Protection Agency (EPA) guidance, the Department followed EPA's four-step approach, modeling, and corresponding memorandums in determining obligations for upwind states to limit transported air pollution to downwind states. The four-step approach used in Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard is as follows: 1) identify areas in the country that are projected to have trouble attaining and maintaining compliance with the 2015 Ozone Standard; 2) identify whether anthropogenic emissions in Missouri are contributing to the air pollution problems in downwind states identified in step 1; 3) identify the requisite level of emission control necessary to address the upwind state's significant contribution to the air pollution problem or interference with maintenance in the downwind states; and 4) develop enforceable control requirements to ensure the requisite level of emission control identified in step 3. The analysis and conclusions stem largely from modeling performed by EPA to determine ozone concentrations across the country and the corresponding contributions from upwind states in the projected year 2023.

John Twitty Energy Center has two coal-fired electric generating units (E09 and E100), which emit the majority of the facility's total nitrogen oxide (NO_x) emissions. Boiler E100 is subject to a 2004 construction permit which adequately limits NO_x emissions from the Boiler. Therefore, this Consent Agreement applies only to Boiler E09. In addition, John Twitty Energy Center is operating a selective catalytic reduction (SCR) control device at Boiler E09 to control NO_x emissions from the Boiler, and has been year-round, since its installation in 2008.

The purpose of this Consent Agreement is to formalize the parties' agreement to ensure the continuous use of the SCR in Boiler E09 at John Twitty Energy Center during the regulatory ozone season, which runs from May 1 through September 30 each year. This agreement is part of a supplement to Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard. These conditions help to ensure that emissions from Missouri will not contribute significantly to nonattainment or interfere with maintenance of the 2015 Ozone Standard in any downwind state.

In consideration of the mutual promises contained herein, the Department and John Twitty Energy Center agree as follows:

AGREEMENT

1. Starting with the effective date of the approval of this Consent Agreement by EPA as a revision to the Missouri SIP, subject to the termination provisions in paragraph 13 of this Consent Agreement, and consistent with the exemption, data exclusion, and termination provisions set forth in the Consent Agreement, John Twitty Energy Center agrees to the operational requirements for Boiler E09 as set forth below. If the effective date of such EPA approval falls between May 1 and September 30 of a given calendar year, then any calculations for percent operating time, or emission rates when determining compliance with the requirements of this Consent Agreement will exclude the emissions and operating data that occurs between May 1 of such calendar year and the effective date of the EPA approval.

    A. Boiler E09

        i. Unless exempted by paragraph 1.C.i. of this Consent Agreement, John Twitty Energy Center agrees to operate the SCR NO_x control system for a minimum of 95 percent of all times when burning coal in the Boiler after

startup from May 1 through September 30 each calendar year, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit.

ii. John Twitty Energy Center shall limit its NO_x ozone season (May 1 through September 30) emission rate to 0.120 pounds per million British Thermal Units (lbs/mmBtu) for Boiler E09. Compliance with this requirement shall be determined pursuant to paragraph 1.B.v. of this Consent Agreement.

B. Reporting and Recordkeeping Requirements

i. John Twitty Energy Center shall track and record all of the hours after startup when it burns coal in Boiler E09 from May 1 through September 30 each calendar year. For purposes of this Consent Agreement, startup for the unit ends when the unit reaches minimum gross load offered to the Southwest Power Pool market. John Twitty Energy Center shall also track and record all of the hours when the SCR is operating to control NO_x emissions from Boiler E09 from May 1 through September 30 each calendar year. For each ozone season control period (May 1 through September 30), John Twitty Energy Center shall calculate the percent of operating time after startup the SCR system for Boiler E09 was operated.

ii. John Twitty Energy Center shall certify compliance and report any deviations with the requirement in paragraph 1.A.i. of this Consent

Agreement annually as part of its Part 70 Operating Permit Compliance and Monitoring Report – Annual Compliance Certification (ACC).

iii. John Twitty Energy Center shall operate and maintain a NO_x Continuous Emission Monitoring System (CEMS) for Boiler E09 to demonstrate compliance with the requirement in paragraph 1.A.ii. of this Consent Agreement. John Twitty Energy Center has installed and certified a NO_x CEMS for Boiler E09 according to the applicable requirements of 40 CFR 75.20(c)(1). If John Twitty Energy Center continues to meet the applicable ongoing quality assurance requirements of 40 CFR 75.21 and 40 CFR 75 Appendix B, this CEMS is allowed to be used to meet the monitoring requirements of this Agreement.

iv. Per the applicable requirements of 40 CFR 75.10(d), the CEMS will be in operation at all times that the affected unit combusts fuel, except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and 40 CFR 75 Appendix B, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20.

v. Quality assured hourly NO_x CEMS data will be used to determine compliance with the emission rate limit in paragraph 1.A.ii. of this Consent Agreement. John Twitty Energy Center shall use the following procedures to calculate the ozone season NO_x emission rate for Boiler E09:

a. Each calendar year, John Twitty Energy Center, will divide the total NO_x emissions reported to EPA's Clean Air Markets Division (CAMD) in tons (converted to pounds) that were emitted from Boiler E09 from May 1 through September 30 by the total heat input for the Boiler in mmBtu during this time period. John Twitty Energy Center shall then round these values to three figures past the decimal point. NO_x emissions and heat input reported to EPA's CAMD may be excluded from this calculation for hours that meet the requirements of paragraph 1.C.ii. of this Consent Agreement.

b. The values calculated in paragraph 1.B.v.a. of this Consent Agreement for Boiler E09 must not exceed 0.120 lbs./mmBtu to meet the NO_x emission rate limit listed in paragraph 1.A.ii. of this Consent Agreement.

vi. John Twitty Energy Center shall maintain all records required by paragraph 1.B. of this Consent Agreement for not less than five years and shall make them available immediately to any Department personnel upon request.

C. Exemptions and Data Exclusions

i. John Twitty Energy Center may be exempted from the requirements in paragraph 1.A.i. of this Consent Agreement during periods of shutdown or malfunction, following Department review pursuant to 10 CSR 10-6.050.

ii. John Twitty Energy Center will be allowed to exclude certain hours from the calculation in paragraph 1.B.v. of this Consent Agreement when

determining compliance with the ozone season NO_x emission rate requirement in paragraph 1.A.ii. of this Consent Agreement if the following conditions are met:

a. Upset conditions occur that necessitate a shutdown or lower efficiency operating status for the SCR for more than ten (10) percent of the operating hours during the regulatory ozone season (May 1 through September 30) in a calendar year for Boiler E09. Multiple upset conditions at the Boiler during a regulatory ozone season in a single calendar year may be added together to meet this ten (10) percent requirement.

b. The upset condition(s) necessitating the shutdown or lower efficiency operation of the SCR are not the result of a failure of John Twitty Energy Center to perform routine maintenance on the SCR or other equipment that caused the upset condition, and the upset condition could not have been avoided with reasonably diligent planning from John Twitty Energy Center.

c. The Boiler is required to continue generating during the upset condition due to electric grid stability or reliability issues.

d. John Twitty Energy Center notifies the Department within seven (7) calendar days of each upset condition that necessitates the shutdown or lower efficiency operating status for the SCR. The notification must identify the upset condition, the steps John Twitty Energy Center is taking and will take to rectify the upset

condition, and a schedule for how long the upset condition is expected to last. The notification must also include documentation demonstrating that the criteria in paragraphs 1.C.ii.b. and 1.C.ii.c. of this Consent Agreement are met for the duration of the hours to be excluded pursuant to paragraph 1.C.ii. of this Consent Agreement.

e. For any notification under paragraph 1.C.ii.d. of this Consent Agreement where the Department determines that John Twitty Energy Center has satisfied the four criteria listed in paragraphs 1.C.ii.a. through 1.C.ii.d. of this Consent Agreement, then hours of operation during that upset condition will count towards the ten (10) percent criterion in paragraph 1.C.ii.a. of this Consent Agreement. Then, if the ten (10) percent criterion is met, the NO_x emissions and heat input occurring during all hours of operation that satisfy the criteria of 1.C.ii. of this Consent Agreement may be excluded from the calculation in paragraph 1.B.v. of this Consent Agreement when determining compliance with the emission rate limit in paragraph 1.A.ii. for the Boiler during the applicable regulatory ozone season.

D. Stipulated Penalties

i. If John Twitty Energy Center fails to substantially comply with any material requirement in paragraphs 1.A. or 1.B. of this Consent Agreement and does not receive an exemption under paragraph 1.C. of this Consent

Agreement, John Twitty Energy Center will be in violation of this Consent Agreement and shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties, which are to be assessed beginning with the first day of the violation. The calculation of a "penalty day" for violations of sections 1.A.i and 1.A.ii of this Consent Agreement are determined in accordance with paragraphs 1.D.ii, 1.D.iii., and 1.D.iv. of this Consent Agreement. The Department has the discretion to waive or defer any stipulated penalties.

Period of Noncompliance	**Penalty**
1st through 30th day	$1,000.00 a day
31st through 60th day	$3,000.00 a day
Beyond 61 days	$5,000.00 a day

ii. If John Twitty Energy Center is in violation of paragraph 1.A.i. of this Consent Agreement, the number of penalty days will be each day that includes at least one hour, not including startup hours, when the SCR NO_x control system was not in operation while burning coal in the Boiler during the time period from May 1 through September 30, and where such hour did not come within an exclusion under paragraph 1.C.i. of this Agreement.

iii. If John Twitty Energy Center is in violation of the NO_x emission limit in paragraph 1.A.ii. of this Consent Agreement, then the number of penalty

days will be each day when the 24-hour average NO_x emission rate from Boiler E09 exceeds 0.120 lbs./mmBtu during the time period from May 1 through September 30. However, when calculating the 24-hour average NO_x emission rate to determine the penalty days, startup hours, and any hours exempted under paragraph 1.C.ii. of this Consent Agreement shall not be included in the 24-hour average NO_x emission rate calculation for such day.

iv. If John Twitty Energy Center is in violation of paragraph 1.A.i. and paragraph 1.A.ii. of this Consent Agreement, then any single day within the time period from May 1 through September 30 may only be counted as one penalty day for purposes of calculating a total stipulated penalty, even if the date qualifies as a penalty day under both paragraphs.

v. All penalties shall be paid within 45 calendar days of the date of notice of noncompliance. All penalties shall be paid by a check made payable to "Greene County Treasurer, as custodian for the Greene County School Fund", and delivered to

Accounting Program
Department of Natural Resources
P.O. Box 477
Jefferson City, Missouri 65201-0477

vi. If any violation of this Consent Agreement is also enforceable by another agreement or regulatory requirement, the Department agrees that it may only seek to enforce either the stipulated penalties discussed in this

paragraph, or the penalty for the violation of the other specified regulatory requirement, not both, against John Twitty Energy Center.

vii. Penalty payments under this Order, including any stipulated penalties, are penalties within the meaning of Section 162(f)(1) of the Internal Revenue Code, 26 U.S.C. § 162(f)(1), and 26 C.F.R. § 1.162-21(a)(3)(i). For purposes of the identification requirement in Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. § 1.162-21(b)(2)(iii)(A), certain costs incurred by performance of this Order may qualify as restitution, remediation, or costs required to come into compliance with the law. John Twitty Energy Center is solely responsible for providing to the Department complete, accurate, and necessary information by the close of any applicable tax year to complete a Form 1098-F. Further, the Department shall not be responsible for any incomplete or inaccurate information nor the results of any tax audit. No portion of any penalties paid pursuant to this Order may be used to reduce any federal or state tax obligations, except as authorized by the Internal Revenue Service.

viii. Upon request of John Twitty Energy Center, the Department may in its unreviewable discretion impose a lesser penalty or no penalty at all for violations subject to stipulated penalties.

OTHER PROVISIONS

2. By signing this Consent Agreement, all signatories assert that they have read and understand the terms of this Consent Agreement, that they had the opportunity to consult with legal

counsel, and that they have the authority to sign this Consent Agreement on behalf of their respective parties.

3. The provisions of this Consent Agreement shall apply and be binding upon the parties of this Consent Agreement, their heirs, assignees, successors, agents, subsidiaries, affiliates, and lessees, including the officers, agents, servants, corporations, and any persons acting under, through, or for the parties agreeing hereto. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect the responsibilities of John Twitty Energy Center under this Consent Agreement. If John Twitty Energy Center sells its business, then John Twitty Energy Center shall cause as a condition of such sale, that the buyer will assume the obligations of John Twitty Energy Center under this Consent Agreement in writing. In such event, John Twitty Energy Center shall provide 30 days prior written notice of such assumption to the Department.
4. This Consent Agreement may only be modified upon the mutual written agreement of John Twitty Energy Center and the Department.
5. The parties agree the Department will propose this Consent Agreement to the Missouri Air Conservation Commission (MACC) for adoption as a revision to Missouri's SIP. Following MACC adoption, the parties agree the Department will submit this Consent Agreement to EPA as a SIP revision, and as such, is subject to EPA approval. The parties further agree that after EPA has approved the SIP revision that contains this Consent Agreement, subject to the termination provisions in paragraph 13 of this Consent Agreement, any subsequent modifications to this Consent Agreement will require approval from EPA before such modifications would take effect.

6. The parties agree that this Consent Agreement shall not be construed as a waiver or a modification of any requirements of the Missouri Air Conservation Law and regulations or any other source of law, and that this Consent Agreement does not resolve any claims based on any failure by John Twitty Energy Center to meet the requirements of this Consent Agreement, or claims for past, present, or future violations of any statutes or regulations.
7. Nothing in this Consent Agreement is intended to constitute an admission or statement by John Twitty Energy Center that John Twitty Energy Center has adversely impacted or has the potential to adversely impact any downwind nonattainment or maintenance receptors outside Missouri. Rather, this Consent Agreement is intended to update the federally enforceable requirements for John Twitty Energy Center as part of Missouri's SIP to address interstate transport obligations for the 2015 Ozone Standard.
8. This Consent Agreement shall be construed and enforced according to the laws of the State of Missouri, and the terms stated herein shall constitute the entire and exclusive agreement of the parties hereto with respect to the matters addressed herein. This Consent Agreement may not be modified orally.
9. If any provision of this Consent Agreement is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way by affected or impaired.
10. Consistent with and subject to Paragraph 1, this Consent Agreement will become final, effective, and fully enforceable by the Department once it is executed by both parties. The Department shall send a fully executed copy of this Consent Agreement to John Twitty Energy Center.

FORCE MAJEURE

11. Neither party will be liable for failure or delay to perform obligations under this Consent Agreement, which have become practicably impossible because of circumstances beyond the reasonable control of the applicable party. Such circumstances include, but are not limited to, natural disasters, acts of terrorism, labor disputes or stoppages, war, national/regional emergencies, supply chain issues relating to the procurement and delivery of sufficient supply of urea despite best efforts, pandemics, or local epidemics. Written notice of a party's failure or delay in performance due to force majeure must be given to the other party no later than five (5) business days following the force majeure event commencing, which notice shall describe the force majeure event and the actions taken to minimize the impact thereof. The parties hereby agree, when feasible, not to cancel but reschedule the pertinent obligations and deliverables for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist.

TERMINATION

12. This Consent Agreement shall be terminated upon mutual written agreement of John Twitty Energy Center and the Department.
13. Other termination conditions.

    A. In the event that EPA fully disapproves Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then this Consent Agreement will terminate upon the effective date of such full disapproval. An EPA disapproval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard in which EPA does

not take action on the Supplement to that SIP, which includes this Consent Agreement will not automatically terminate this Consent Agreement.

B. If EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement then John Twitty Energy Center shall have the option to terminate this Consent Agreement. If John Twitty Energy Center wishes to terminate this Consent Agreement after EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP revision that includes this Consent Agreement, they must notify the Department that they are terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's partial approval, partial disapproval, and/or limited approval. Termination shall be effective upon the Department's receipt of said notification by John Twitty Energy Center.

C. In the event EPA approves, partially approves, or grants limited approval of Missouri's SIP as meeting the requirements of CAA Section 110(a)(2)(D)(i)(I) for the 2015 Ozone standard (Good Neighbor Obligations for the 2015 Ozone Standard), and then EPA later withdraws its approval, partial approval, limited approval, or issues a SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, then John Twitty Energy Center shall have the option to terminate this Consent Agreement. If John Twitty Energy Center wishes to terminate this Consent Agreement after EPA withdraws its approval, partial approval, or limited approval of Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, or after a future EPA SIP Call to further

address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, John Twitty Energy Center must notify the Department that it is terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's withdrawal of its approval, partial approval, limited approval, or the EPA SIP Call. Termination shall be effective upon the Department's receipt of said notification by John Twitty Energy Center.

D. In the event EPA promulgates a federal plan to address Missouri's interstate transport, or good neighbor obligations, under the 2015 Ozone Standard, and such federal plan includes new requirements for the John Twitty Energy Center, this Consent Agreement will terminate upon the effective date of such federal plan.

CORRESPONDENCE AND DOCUMENTATION

14. Correspondence or documentation with regard to this Consent Agreement shall be directed to the following persons, subject to change upon written notification from either party:

For the Department:

Compliance and Enforcement Section Chief
Air Pollution Control Program
P.O. Box 176
Jefferson, City, Missouri 65102-0176

Or by email to: AirComplianceReporting@dnr.mo.gov

For John Twitty Energy Center:

Environmental Affairs
City Utilities of Springfield, MO
301 E. Central, P.O. Box 551
Springfield, Missouri 65801-0551

Legal Department
City Utilities of Springfield, MO
301 E. Central, P.O. Box 551
Springfield, Missouri 65801-0551

RIGHT OF APPEAL

By signing this Consent Agreement, John Twitty Energy Center waives any right to appeal, seek judicial review, or otherwise challenge this Consent Agreement pursuant to Sections 643.130, 643.085, or 621.250, RSMo, Chapters 536, 643, RSMo, or any other source of law, subject to any change in law that might be interpreted to require changes to the terms of this Consent Agreement.

AGREED TO AND ORDERED

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Stephen M. Hall, Director
Air Pollution Control Program
Missouri Department of Natural Resources

Date: October 14, 2022

CITY UTILITIES OF SPRINGFIELD
Owner/Operator - John Twitty Energy Center

Daniel Hedrick
Director-Environmental Affairs/Designated Representative/Responsible Official
City Utilities of Springfield Missouri
for the John Twitty Energy Center

Date: 10.7.2022

Appendix B
New Madrid Power Plant Consent Agreement

BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

In the Matter of:	)	
	)	
ASSOCIATED ELECTRIC COOPERATIVE, INC.	)	No. APCP-2022-025A
as the owner/operator of the	)	
	)	
NEW MADRID POWER PLANT	)	
	)	

CONSENT AGREEMENT
AMENDMENT #1 to APCP-2022-025

The issuance of this Consent Agreement No. APCP-2022-025A (Consent Agreement) by the Missouri Department of Natural Resources (Department) is a formal administrative action taken by the State of Missouri after conference with Associated Electric Cooperative, Inc., as the owner/operator of the New Madrid Power Plant (hereinafter referred to as "New Madrid Power Plant"). This Consent Agreement amends and fully replaces Consent Agreement No. APCP-2022-025. The parties agree this voluntary Consent Agreement is being issued to administer, implement, and enforce the purposes of the Missouri Air Conservation Law, Chapter 643, RSMo, and its implementing regulations and is not the result of any past or current violations. The parties agree that this Consent Agreement is being issued as an administrative order under 643.060(4), RSMo. The parties have agreed to these provisions voluntarily in order to strengthen Missouri's Good Neighbor State Implementation Plan (SIP) for the 2015 Ozone standard. New Madrid Power Plant further agrees that a failure to comply with this Consent Agreement is a violation of the Missouri Air Conservation Law under Section 643.151, RSMo.

BACKGROUND

Section 110(a)(2)(D)(i)(I) of the Clean Air Act (CAA) requires states to submit adequate provisions in their SIPs to prohibit emissions that will contribute significantly to nonattainment, or interfere with maintenance, in any downwind state with respect to any national ambient air quality standard .

Consistent with U.S. Environmental Protection Agency (EPA) guidance, the Department followed EPA's four-step approach, modeling, and corresponding memorandums in determining obligations for upwind states to limit transported air pollution to downwind states. The four-step approach used in Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard is as follows: 1) identify areas in the country that are projected to have trouble attaining and maintaining compliance with the 2015 Ozone Standard; 2) identify whether anthropogenic emissions in Missouri are contributing to the air pollution problems in downwind states identified in step 1; 3) identify the requisite level of emission control necessary to address the upwind state's significant contribution to the air pollution problem or interference with maintenance in the downwind states; and 4) develop enforceable control requirements to ensure the requisite level of emission control identified in step 3. The analysis and conclusions stem largely from modeling performed by EPA to determine ozone concentrations across the country and the corresponding contributions from upwind states in the projected year 2023.

New Madrid Power Plant has two coal-fired electric generating units (EP-01 and EP-02), which emit the majority of the facility's total nitrogen oxide (NO_x) emissions. In addition, New Madrid Power Plant is currently operating over-fire air (OFA), and selective catalytic reduction (SCR) to control NO_x emissions at the two Boilers.

The purpose of this Consent Agreement is to formalize the parties' agreement to ensure the continuous use of the OFA and SCR in the two Boilers at New Madrid Power Plant during

the regulatory ozone season, which runs from May 1 through September30 each year. This agreement is part of a supplement to Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard. These conditions help to ensure that emissions from Missouri will not contribute significantly to nonattainment or interfere with maintenance of the 2015 Ozone Standard in any downwind state.

In consideration of the mutual promises contained herein, the Department and New Madrid Power Plant agree as follows:

AGREEMENT

1. Starting with the effective date of the approval of this Consent Agreement by EPA as a revision to the Missouri SIP, subject to the termination provisions in paragraph 13 of this Consent Agreement, and consistent with the exemption, data exclusion, and termination provisions set forth in the Consent Agreement, New Madrid Power Plant agrees to the operational requirements for the Boilers (EP-01 and EP-02) as set forth below. If the effective date of such EPA approval falls between May 1 and September 30 of a given calendar year, then any calculations for percent operating time, or emission rates when determining compliance with the requirements of this Consent Agreement will exclude the emissions and operating data that occurs between May 1 of such calendar year and the effective date of the EPA approval.

    A. Boilers (EP-01 and EP-02)

        i. Unless exempted by paragraph 1.C.i.of this Consent Agreement, New Madrid Power Plant agrees to operate the OFA to minimize NO_x emissions at all times when burning coal in the Boilers from May 1 through September 30 each calendar year, consistent with the technological limitations,

manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit.

ii. Unless exempted by paragraph 1.C.i.of this Consent Agreement, New Madrid Power Plant agrees to operate the SCR NO_x control systems for a minimum of 95 percent of all times when burning coal in the Boilers from May 1 through September 30 each calendar year, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit.

iii. New Madrid Power Plant agrees to meet a facility-wide average NO_x ozone season (May 1 through September 30) emission rate of 0.120 pounds per million British Thermal Units (lbs./mmBtu). This facility-wide emission rate shall be inclusive only of Boilers EP-01 and EP-02. Compliance with this requirement shall be determined pursuant to paragraph 1.B.vi. of this Consent Agreement.

B. Reporting and Recordkeeping Requirements

i. New Madrid Power Plant shall track and record all Boiler operating hours when it burns coal in the Boilers from May 1 through September 30 each calendar year. New Madrid Power Plant shall also track and record all of the hours when the SCR is operating to control NO_x emissions from the Boilers EP-01 and EP-02 from May 1 through September 30 each calendar

year. For each Boiler, for each ozone season control period (May 1 through September 30), New Madrid Power Plant shall calculate the percent of operating time the SCR system(s) were operated.

ii. New Madrid Power Plant shall certify compliance and report any deviations with the requirements in paragraphs 1.A.i. and 1.A.ii. of this Consent Agreement annually as part of its Part 70 Operating Permit Compliance and Monitoring Report – Annual Compliance Certification (ACC).

iii. New Madrid Power Plant shall operate and maintain NO_x Continuous Emission Monitoring Systems (CEMS) for Boilers EP-01 and EP-02 to demonstrate compliance with the requirement in paragraph 1.A.iii. of this Consent Agreement. New Madrid Power Plant has installed and certified NO_x CEMS for the Boilers according to the applicable requirements of 40 CFR 75.20(c)(1). If New Madrid Power Plant continues to meet the applicable ongoing quality assurance requirements of 40 CFR 75.21 and 40 CFR 75 Appendix B, these CEMS are allowed to be used to meet the monitoring requirements of this Agreement.

iv. Per the applicable requirements of 40 CFR 75.10 (d), the CEMS will be in operation at all times that the affected units combust fuel, except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and 40 CFR 75 Appendix B, periods of repair, periods of backups of

data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20.

v. The NO_x data used in the Compliance Determination in Paragraph 1.B.vi.. of this Agreement and used to meet the Reporting Requirements of this Agreement shall not include substitute data values derived from the missing data procedures in 40 CFR Part 75 subpart D, nor shall the NO_x data have been bias adjusted according to the procedures of 40 CFR Part 75.

vi. Quality assured hourly NO_x CEMS data will be used to determine compliance with the emission rate limit in paragraph 1.A.iii. of this Consent Agreement. New Madrid Power Plant shall use the following procedures to calculate the ozone season NO_x emission rates for Boilers EP-01 and EP-02:

   a. Each calendar year, New Madrid Power Plant, will divide the total NO_x emissions for both Boilers summed in tons (converted to pounds) that were emitted from the Boilers from May 1 through September 30 by the total heat input for both Boilers in mmBtu during that same time period. New Madrid Power Plant shall then round these values to three figures past the decimal point. NO_x emissions and heat input may be excluded from this calculation for applicable Boilers for hours that meet the requirements of paragraph 1.C.ii. of this Consent Agreement.

b. The value calculated in paragraph 1.B.vi.a.of this Consent Agreement must be equal to or below 0.120 lbs./mmBtu to meet the facility-wide NO_x emission rate limit in paragraph 1.A.iii. of this Consent Agreement.

vii. New Madrid Power Plant shall maintain all records required by paragraph 1.B. of this Consent Agreement for not less than five years and shall make them available immediately to any Department personnel upon request.

C. Exemptions and Data Exclusions

i. New Madrid Power Plant may be exempted from the requirements in paragraphs 1.A.i. and 1.A.ii. of this Consent Agreement during periods of start-up, shutdown, or malfunction (SSM), following Department review pursuant to 10 CSR 10-6.050.

ii. New Madrid Power Plant will be allowed to exclude certain hours from the calculation in paragraph 1.B.vi. of this Consent Agreement when determining compliance with the ozone season NO_x emission rate requirement in paragraph 1.A.iii. of this Consent Agreement if the following conditions are met:

a. Upset conditions occur that necessitate a shutdown or lower efficiency operating status for the SCR for more than ten (10) percent of the operating hours during the regulatory ozone season (May 1 through September 30) in a calendar year for one of the Boilers. Multiple upset conditions at a single Boiler during a

regulatory ozone season in a single calendar year may be added together to meet this ten (10) percent requirement.

b. The upset condition(s) necessitating the shutdown or lower efficiency operation of the SCR are not the result of a failure of New Madrid Power Plant to perform routine maintenance on the SCR or other equipment that caused the upset condition, and the upset condition could not have been avoided with reasonably diligent planning from New Madrid Power Plant.

c. The Unit with the upset condition needs to continue generating during the upset condition due to electric grid stability or reliability issues.

d. New Madrid Power Plant notifies the Department within seven (7) calendar days of each upset condition that necessitates the shutdown or lower efficiency operating status for the SCR. The notification must identify the upset condition, the steps New Madrid Power Plant is taking and will take to rectify the upset condition, and a schedule for how long the upset condition is expected to last. The notification must also include documentation demonstrating that the criteria in paragraphs 1.C.ii.b. and 1.C.ii.c. of this Consent Agreement are met for the duration of the hours to be excluded pursuant to paragraph 1.C.ii. of this Consent Agreement.

e. For any notification under paragraph 1.C.ii.d. of this Consent Agreement where the Department determines that New Madrid Power Plant has satisfied the four criteria listed in paragraphs 1.C.ii.a. through 1.C.ii.d. of this Consent Agreement, then hours of operation during that upset condition will count towards the ten (10) percent criterion in paragraph 1.C.ii.a. of this Consent Agreement. Then, if the ten (10) percent criterion is met, the NO_x emissions and heat input occurring during all hours of operation that satisfy the criteria of 1.C.ii. of this Consent Agreement may be excluded from the calculation in paragraph 1.B.vi. of this Consent Agreement for the applicable Boiler when determining compliance with the facility-wide emission rate limit in paragraph 1.A.iii. during the applicable regulatory ozone season.

D. Stipulated Penalties

i. If New Madrid Power Plant fails to comply with any requirement in paragraphs 1.A or 1.B and does not receive an exemption under paragraph 1.C. of this Consent Agreement, New Madrid Power Plant will be in violation of this Consent Agreement and shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties, which are to be assessed beginning with the first day of the violation. The calculation of a "penalty day" for violations of sections 1.A.i., 1.A.ii., and 1.A.iii. of this Consent Agreement are determined in accordance with paragraphs 1.D.ii., 1.D.iii., and 1.D.iv. of this Consent

Agreement. The Department has the discretion to waive or defer any stipulated penalties.

Period of Noncompliance	Penalty
1st through 30th day	$1,000.00 a day
31st through 60th day	$3,000.00 a day
Beyond 61 days	$5,000.00 a day

ii. If New Madrid Power Plant is in violation of paragraphs 1.A.i. or 1.A.ii. of this Consent Agreement, the number of penalty days will be each day that includes at least one hour when the OFA or SCR NO_x control system(s) were not in operation for the applicable Boiler while burning coal in the applicable Boiler during the time period from May 1 through September 30, and where such hour for the applicable Boiler did not come within an exclusion under paragraph 1.C.i. of this Agreement for the applicable Boiler. Two penalty days may be assessed for a single calendar day if both Boilers violate paragraphs 1.A.i or 1.A.ii. of this Consent Agreement and also meet this criteria on the same day.

iii. If New Madrid Power Plant is in violation of the facility-wide NO_x emission limit in paragraph 1.A.iii., then the number of penalty days will be each day when the facility-wide 24-hour average NO_x emission rate exceeds 0.120 lbs./mmBtu during the time period from May 1 through September 30. However, when calculating the facility-wide 24-hour average NO_x emission rate to determine the penalty days, startup hours

meeting the exemption in paragraph 1.C.i. of this Consent Agreement for an applicable Boiler and any hours exempted under paragraph 1.C.ii. of this Consent Agreement for an applicable Boiler shall not be included in the 24-hour average NO_x emission rate calculation for such applicable Boiler for such day.

iv. If New Madrid Power Plant is in violation of two or more of the following paragraphs: 1.A.i., 1.A.ii., and 1.A.iii. of this Consent Agreement, then for each Boiler, any single day within the time period from May 1 through September 30 may only be counted as one penalty day for the applicable Boiler for the purpose of calculating a total stipulated penalty for the applicable Boiler, even if the date qualifies as a penalty day under two or more paragraphs for the applicable Boiler.

v. All penalties shall be paid within 45 calendar days of the date of notice of noncompliance. All penalties shall be paid by a check made payable to "New Madrid County Treasurer, as custodian for the New Madrid County School Fund", and delivered to

Accounting Program
Department of Natural Resources
P.O. Box 477
Jefferson City, Missouri 65201-0477

vi. If any violation of this Consent Agreement is also enforceable by another agreement or regulatory requirement, the Department agrees that it may only seek to enforce either the stipulated penalties discussed in this

paragraph, or the penalty for the violation of the other specified regulatory requirement, not both, against New Madrid Power Plant.

vii. Penalty payments under this Order, including any stipulated penalties, are penalties within the meaning of Section 162(f)(1) of the Internal Revenue Code, 26 U.S.C. § 162(f)(1), and 26 C.F.R. § 1.162-21(a)(3)(i). For purposes of the identification requirement in Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. § 1.162-21(b)(2)(iii)(A), certain costs incurred by performance of this Order may qualify as restitution, remediation, or costs required to come into compliance with the law. New Madrid Power Plant is solely responsible for providing to the Department complete, accurate, and necessary information by the close of any applicable tax year to complete a Form 1098-F. Further, the Department shall not be responsible for any incomplete or inaccurate information nor the results of any tax audit. No portion of any penalties paid pursuant to this Order may be used to reduce any federal or state tax obligations, except as authorized by the Internal Revenue Service.

viii. Upon request of New Madrid Power Plant, the Department may in its unreviewable discretion impose a lesser penalty or no penalty at all for violations subject to stipulated penalties.

OTHER PROVISIONS

2. By signing this Consent Agreement, all signatories assert that they have read and understand the terms of this Consent Agreement, that they had the opportunity to consult with legal

counsel, and that they have the authority to sign this Consent Agreement on behalf of their respective parties.

3. The provisions of this Consent Agreement shall apply and be binding upon the parties of this Consent Agreement, their heirs, assignees, successors, agents, subsidiaries, affiliates, and lessees, including the officers, agents, servants, corporations, and any persons acting under, through, or for the parties agreeing hereto. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect the responsibilities of New Madrid Power Plant under this Consent Agreement. If New Madrid Power Plant sells its business, then New Madrid Power Plant shall cause as a condition of such sale, that the buyer will assume the obligations of New Madrid Power Plant under this Consent Agreement in writing. In such event, New Madrid Power Plant shall provide 30 days prior written notice of such assumption to the Department.
4. This Consent Agreement may only be modified upon the mutual written agreement of New Madrid Power Plant and the Department.
5. The parties agree the Department will propose this Consent Agreement to the Missouri Air Conservation Commission (MACC) for adoption as a revision to Missouri's SIP. Following MACC adoption, the parties agree the Department will submit this Consent Agreement to EPA as a SIP revision, and as such, is subject to EPA approval. The parties further agree that after EPA has approved the SIP revision that contains this Consent Agreement, any subsequent modifications to this Consent Agreement, subject to the termination provisions in paragraph 13 of this Consent Agreement, will require approval from EPA before such modifications would take effect.

6. The parties agree that this Consent Agreement shall not be construed as a waiver or a modification of any requirements of the Missouri Air Conservation Law and regulations or any other source of law, and that this Consent Agreement does not resolve any claims based on any failure by New Madrid Power Plant to meet the requirements of this Consent Agreement, or claims for past, present, or future violations of any statutes or regulations.
7. Nothing in this Consent Agreement is intended to constitute an admission or statement by New Madrid Power Plant that New Madrid Power Plant has adversely impacted or has the potential to adversely impact any downwind nonattainment or maintenance receptors outside Missouri. Rather, this Consent Agreement is intended to update the federally enforceable requirements for New Madrid Power Plant as part of Missouri's SIP to address interstate transport obligations for the 2015 Ozone Standard.
8. This Consent Agreement shall be construed and enforced according to the laws of the State of Missouri, and the terms stated herein shall constitute the entire and exclusive agreement of the parties hereto with respect to the matters addressed herein. This Consent Agreement may not be modified orally.
9. If any provision of this Consent Agreement is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way by affected or impaired.
10. Consistent with and subject to Paragraph 1, this Consent Agreement will become final, effective, and fully enforceable by the Department once it is executed by both parties. The Department shall send a fully executed copy of this Consent Agreement to New Madrid Power Plant.

FORCE MAJEURE

11. Neither party will be liable for failure or delay to perform obligations under this Consent Agreement, which have become practicably impossible because of circumstances beyond the reasonable control of the applicable party. Such circumstances include, but are not limited to, natural disasters, acts of terrorism, labor disputes or stoppages, war, national/regional emergencies, supply chain issues relating to the procurement and delivery of sufficient supply of anhydrous ammonia despite best efforts, pandemics, or local epidemics. Written notice of a party's failure or delay in performance due to force majeure must be given to the other party no later than five (5) business days following the force majeure event commencing, which notice shall describe the force majeure event and the actions taken to minimize the impact thereof. The parties hereby agree, when feasible, not to cancel but reschedule the pertinent obligations and deliverables for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist.

TERMINATION

12. This Consent Agreement shall be terminated upon mutual written agreement of New Madrid Power Plant and the Department.
13. Other Termination conditions.
    A. In the event that EPA fully disapproves Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then this Consent Agreement will terminate upon the effective date of such full disapproval. An EPA disapproval of Missouri's 2019 SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard in which EPA does

not take action on the Supplement to that SIP, which includes this Consent Agreement, will not automatically terminate this Consent Agreement.

B. If EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then New Madrid Power Plant shall have the option to terminate this Consent Agreement. If New Madrid Power Plant wishes to terminate this Consent Agreement after EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP revision that includes this Consent Agreement, they must notify the Department that they are terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's partial approval, partial disapproval, and/or limited approval. Termination shall be effective upon the Department's receipt of said notification by New Madrid Power Plant.

C. In the event EPA approves, partially approves, or grant limited approval of Missouri's SIP as meeting the requirements of CAA Section 110(a)(2)(D)(i)(I) for the 2015 Ozone standard (Good Neighbor Obligations for the 2015 Ozone Standard), and then EPA later withdraws its approval, partial approval, limited approval, or issues a SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, then New Madrid Power Plant shall have the option to terminate this Consent Agreement. If New Madrid Power Plant wishes to terminate this Consent Agreement after EPA withdraws its approval or partial approval of Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, or after a future EPA SIP Call to further address Missouri's Good

Neighbor Obligations for the 2015 Ozone Standard, New Madrid Power Plant must notify the Department that it is terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's withdrawal of its approval, partial approval, limited approval, or the EPA SIP Call. Termination shall be effective upon the Department's receipt of said notification by New Madrid Power Plant.

D. In the event EPA promulgates a federal plan to address Missouri's interstate transport, or good neighbor obligations, under the 2015 Ozone Standard, and such federal plan includes new requirements for the New Madrid Power Plant, this Consent Agreement will terminate upon the effective date of such federal plan.

CORRESPONDENCE AND DOCUMENTATION

14. Correspondence or documentation with regard to this Consent Agreement shall be directed to the following persons, subject to change upon written notification from either party:

For the Department:

Compliance and Enforcement Section Chief
Air Pollution Control Program
P.O. Box 176
Jefferson, City, Missouri 65102-0176

Or by email to: AirComplianceReporting@dnr.mo.gov

For New Madrid Power Plant:

Environmental, Health & Safety Department
New Madrid Power Plant
41 St. Jude Industrial Park
New Madrid, Missouri 63866

Legal Department
Associated Electric Cooperative, Inc.
2814 S. Golden Avenue
Springfield, Missouri 65807

RIGHT OF APPEAL

By signing this Consent Agreement, New Madrid Power Plant waives any right to appeal, seek judicial review, or otherwise challenge this Consent Agreement pursuant to Sections 643.130, 643.085, or 621.250, RSMo, Chapters 536, 643, RSMo, or any other source of law, subject to any change in law that might be interpreted to require changes to the terms of this Consent Agreement.

AGREED TO AND ORDERED

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Stephen M. Hall, Director
Air Pollution Control Program
Missouri Department of
Natural Resources

Date: October 14, 2022

ASSOCIATED ELECTRIC COOPERATIVE, INC.
owner/operator - New Madrid Power Plant

David Tudor, CEO/General Manager
Associated Electric Cooperative, Inc.

Date: 10/12/2022

Appendix C
Thomas Hill Energy Center Consent Agreement

BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

In the Matter of:	)	
	)	
ASSOCIATED ELECTRIC COOPERATIVE, INC.	)	No. APCP-2022-026A
as the owner/operator of the	)	
	)	
THOMAS HILL ENERGY CENTER	)	
	)	

CONSENT AGREEMENT
AMENDMENT #1 to APCP-2022-026

The issuance of this Consent Agreement No. APCP-2022-026A (Consent Agreement) by the Missouri Department of Natural Resources (Department) is a formal administrative action taken by the State of Missouri after conference with Associated Electric Cooperative, Inc., as the owner/operator of the Thomas Hill Energy Center (together, hereinafter referred to as "Thomas Hill Energy Center"). This Consent Agreement amends and fully replaces Consent Agreement No. APCP-2022-026. The parties agree this voluntary Consent Agreement is being issued to administer, implement, and enforce the purposes of the Missouri Air Conservation Law, Chapter 643, RSMo, and its implementing regulations and is not the result of any past or current violations. The parties agree that this Consent Agreement is being issued as an administrative order under 643.060(4), RSMo. The parties have agreed to these provisions voluntarily in order to strengthen Missouri's Good Neighbor State Implementation Plan (SIP) for the 2015 Ozone standard. Thomas Hill Energy Center further agrees that a failure to comply with this Consent Agreement is a violation of the Missouri Air Conservation Law under Section 643.151, RSMo.

BACKGROUND

Section 110(a)(2)(D)(i)(I) of the Clean Air Act (CAA) requires states to submit adequate provisions in their SIPs to prohibit emissions that will contribute significantly to nonattainment, or interfere with maintenance, in any downwind state with respect to any national ambient air quality standard.

Consistent with U.S. Environmental Protection Agency (EPA) guidance, the Department followed EPA's four-step approach, modeling, and corresponding memorandums in determining obligations for upwind states to limit transported air pollution to downwind states. The four-step approach used in Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard is as follows: 1) identify areas in the country that are projected to have trouble attaining and maintaining compliance with the relevant NAAQS; 2) identify whether anthropogenic emissions in Missouri are contributing to the air pollution problems in downwind states identified in step 1; 3) identify the requisite level of emission control necessary to address the upwind state's significant contribution to the air pollution problem or interference with maintenance in the downwind states; and 4) develop enforceable control requirements to ensure the requisite level of emission control identified in step 3. The analysis and conclusions stem largely from modeling performed by EPA to determine ozone concentrations across the country and the corresponding contributions from upwind states in the projected year 2023.

Thomas Hill Energy Center has three coal-fired electric generating units (EP01, EP02, and EP03), which emit the majority of the facility's total nitrogen oxide (NO_x) emissions. In addition, Thomas Hill Energy Center is currently operating over-fire air (OFA) and selective catalytic reduction (SCR) to control NO_x emissions at the three Boilers. Thomas Hill Energy Center is also operating a low NO_x burner (LNB) at Boiler EP03.

The purpose of this Consent Agreement is to formalize the parties' agreement to ensure the continued use of the OFA and SCR in the three Boilers and the LNB in Boiler EP03 at Thomas Hill Energy Center during the regulatory ozone season, which runs from May 1 through September 30 each year. This agreement is part of a supplement to Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard. These conditions help to ensure that emissions from Missouri will not contribute significantly to nonattainment or interfere with maintenance of the 2015 Ozone Standard in any downwind state.

In consideration of the mutual promises contained herein, the Department and Thomas Hill Energy Center agree as follows:

AGREEMENT

1. Starting with the effective date of the approval of this Consent Agreement by EPA as a revision to the Missouri SIP, subject to the termination provisions in paragraph 13 of this Consent Agreement, and consistent with the exemption, data exclusion, and termination provisions set forth in the Consent Agreement, Thomas Hill Energy Center agrees to the operational requirements for the Boilers (EP01, EP02, and EP03) as set forth below. If the effective date of such EPA approval falls between May 1 and September 30 of a given calendar year, then any calculations for percent operating time, or emission rates when determining compliance with the requirements of this Consent Agreement will exclude the emissions and operating data that occurs between May 1 of such calendar year and the effective date of the EPA approval.

    A. Boilers (EP01, EP02, and EP03)

        i. Unless exempted by paragraph 1.C.i. of this Consent Agreement, Thomas Hill Energy Center agrees to operate the OFA to minimize NO_x emissions at

all times when burning coal in the Boilers from May 1 through September 30 each calendar year, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit.

ii. Unless exempted by paragraph 1.C.i. of this Consent Agreement, Thomas Hill Energy Center agrees to operate the SCR NO_x control systems for a minimum of 95 percent of all times when burning coal in the Boilers from May 1 through September 30 each calendar year, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit.

iii. Unless exempted by paragraph 1.C.i. of this Consent Agreement, Thomas Hill Energy Center agrees to operate the LNB to minimize NO_x emissions at all times when burning coal in Boiler EP03 from May 1 through September 30 each calendar year, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit.

iv. Thomas Hill Energy Center agrees to meet a facility-wide average NO_x ozone season (May 1 through September 30) emission rate of 0.120 (pounds per million British Thermal Units (lbs/mmBtu). This facility-wide emission

rate shall be inclusive only of Boilers EP01, EP02, and EP03. Compliance with this requirement shall be determined pursuant to paragraph 1.B.vi. of this Consent Agreement.

B. Reporting and Recordkeeping Requirements

i. Thomas Hill Energy Center shall track and record all Boiler operating hours when it burns coal in the Boilers from May 1 through September 30 each calendar year. Thomas Hill Energy Center shall also track and record all of the hours when the SCR is operating to control NO_x emissions from the Boilers EP01, EP02, and EP03 from May 1 through September 30 each calendar year. For each Boiler, for each ozone season control period (May 1 through September 30), New Madrid Power Plant shall calculate the percent of operating time the SCR system(s) were operated.

ii. Thomas Hill Energy Center shall certify compliance and report any deviations with the requirements in paragraphs 1.A.i., 1.A.ii., and 1.A.iii. of this Consent Agreement annually as part of its Part 70 Operating Permit Compliance and Monitoring Report – Annual Compliance Certification (ACC)

iii. Thomas Hill Energy Center shall operate and maintain NO_x Continuous Emission Monitoring Systems (CEMS) for Boilers EP01, EP02, and EP03 to demonstrate compliance with the requirement in paragraph 1.A.iv. of this Consent Agreement. Thomas Hill Energy Center has installed and certified NO_x CEMS for the units in the Boilers according to the applicable requirements of 40 CFR 75.20(c)(1). If Thomas Hill Energy

Center continues to meet the applicable ongoing quality assurance requirements of 40 CFR 75.21 and 40 CFR 75 Appendix B, these CEMS are allowed to be used to meet the monitoring requirements of this Agreement.

iv. Per the applicable requirements of 40 CFR 75.10 (d), the CEMS will be in operation at all times that the affected units combust fuel, except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and 40 CFR 75 Appendix B, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20.

v. The NO_x data used in the Compliance Determination in Paragraph 1.B.vi. of this Agreement and used to meet the Reporting Requirements of this Agreement shall not include substitute data values derived from the missing data procedures in 40 CFR Part 75 subpart D, nor shall the NO_x data have been bias adjusted according to the procedures of 40 CFR Part 75.

vi. Quality assured hourly NO_x CEMS data will be used to determine compliance with the emission rate limit in paragraph 1.A.iv. of this Consent Agreement. Thomas Hill Energy Center shall use the following procedures to calculate the ozone season NO_x emission rate for Boilers EP01, EP02, and EP03:

a. Each calendar year, Thomas Hill Energy Center, will divide the total NO_x emissions for all three Boilers summed in tons (converted to pounds) that were emitted from the Boilers from May 1 through September 30 by the total heat input for all three Boilers in mmBtu, during that same time period. Thomas Hill Energy Center shall then round these values to three figures past the decimal point. NO_x emissions and heat input may be excluded from this calculation for applicable Boilers for hours that meet the requirements of paragraph 1.C.ii. of this Consent Agreement.

b. The value calculated in paragraph 1.B.vi.a. of this Consent Agreement must be equal to or below 0.120 lbs/mmBtu to meet the facility-wide NO_x emission rate limit in paragraph 1.A.iv. of this Consent Agreement.

vii. Thomas Hill Energy Center shall maintain all records required by paragraph 1.B. of this Consent Agreement for not less than five years and shall make them available immediately to any Department personnel upon request.

C. Exemptions and Data Exclusions

i. Thomas Hill Energy Center may be exempted from the requirements in paragraphs 1.A.i., 1.A.ii., and 1A.iii. of this Consent Agreement during periods of start-up, shutdown or malfunction (SSM), following Department review pursuant to 10 CSR 10-6.050.

ii. Thomas Hill Energy Center will be allowed to exclude certain hours from the calculation in paragraph 1.B.vi. of this Consent Agreement when determining compliance with the ozone season NO_x emission rate requirement in paragraph 1.A.iv. of this Consent Agreement if the following conditions are met:

a. Upset conditions occur that necessitate a shutdown or lower efficiency operating status for the SCR for more than ten (10) percent of the operating hours during the regulatory ozone season (May 1 through September 30) in a calendar year for one of the Boilers. Multiple upset conditions at a single Boiler during a regulatory ozone season in a single calendar year may be added together to meet this ten (10) percent requirement.

b. The upset condition(s) necessitating the shutdown or lower efficiency operation of the SCR are not the result of a failure of Thomas Hill Energy Center to perform routine maintenance on the SCR or other equipment that caused the upset condition, and the upset condition could not have been avoided with reasonably diligent planning from Thomas Hill Energy Center.

c. The Unit with the upset condition needs to continue generating during the upset condition due to electric grid stability or reliability issues.

d. Thomas Hill Energy Center notifies the Department within seven (7) calendar days of each upset condition that necessitates the

shutdown or lower efficiency operating status for the SCR. The notification must identify the upset condition, the steps Thomas Hill Energy Center is taking and will take to rectify the upset condition, and a schedule for how long the upset condition is expected to last. The notification must also include documentation demonstrating that the criteria in paragraphs 1.C.ii.b. and 1.C.ii.c. of this Consent Agreement are met for the duration of the hours to be excluded pursuant to paragraph 1.C.ii. of this Consent Agreement.

e. For any notification under paragraph 1.C.ii.d. of this Consent Agreement where the Department determines that Thomas Hill Energy Center has satisfied the four criteria listed in paragraphs 1.C.ii.a. through 1.C.ii.d. of this Consent Agreement, then hours of operation during that upset condition will count towards the ten (10) percent criterion in paragraph 1.C.ii.a of this Consent Agreement. Then, if the ten (10) percent criterion is met, the NO_x emissions and heat input occurring during all hours of operation that satisfy the criteria of 1.C.ii. of this Consent Agreement may be excluded from the calculation in paragraph 1.B.v. of this Consent Agreement for the applicable Boiler when determining compliance with the facility-wide emission rate limit in paragraph 1.A.iv. during the applicable regulatory ozone season.

D. Stipulated Penalties

i. If Thomas Hill Energy Center fails to comply with any requirement in paragraphs 1.A. or 1.B. and does not receive an exemption under paragraph 1.C. of this Consent Agreement, Thomas Hill Energy Center will be in violation of this Consent Agreement and shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties, which are to be assessed beginning with the first day of the violation. The calculation of a "penalty day" for violations of paragraphs 1.A.i., 1.A.ii., and 1.A.iii. of this Consent Agreement are determined in accordance with paragraphs 1.D.ii., 1.D.iii., and 1.D.iv. of this Consent Agreement. The Department has the discretion to waive or defer any stipulated penalties.

Period of Noncompliance	**Penalty**
1st through 30th day	$1,000.00 a day
31st through 60th day	$3,000.00 a day
Beyond 61 days	$5,000.00 a day

ii. If Thomas Hill Energy Center is in violation of paragraphs 1.A.i., 1.A.ii., or 1.A.iii., then the number of penalty days will be each day that includes at least one hour when the LNB, OFA, or SCR NO_x control system(s) were not in operation for the applicable Boiler while burning coal in the applicable Boiler during the time period from May 1 through September 30, and where such hour for the applicable Boiler did not come within an

exclusion under paragraph 1.C.i. of this Agreement. Up to three penalty days (one penalty day for each Boiler that meets this criteria) may be assessed for a single calendar day if multiple Boilers violate paragraphs 1.A.i., 1.A.ii., or 1.A.iii. and also meet this criteria on the same day.

iii. If Thomas Hill Energy Center is in violation of the facility-wide NO_x emission limit in paragraph 1.A.i.v. of this Consent Agreement, then the number of penalty days will be each day the facility-wide 24-hour average NO_x emission rate exceeds 0.120 lbs./mmBtu during the time period from May 1 through September 30. However, when calculating the facility-wide 24-hour average NO_x emission rate to determine the penalty days, startup hours meeting the exemption in paragraph 1.C.i. of this Consent Agreement for an applicable Boiler and any hours exempted under paragraph 1.C.ii. of this Consent Agreement for an applicable Boiler shall not be included in the 24-hour average NO_x emission rate calculation for such applicable Boiler for such day.

iv. If Thomas Hill Energy Center is in violation of two or more of the following paragraphs: 1.A.i., 1.A.ii., 1.A.iii., and 1.A.iv. of this Consent Agreement, then for each Boiler, any single day within the time period from May 1 through September 30 may only be counted as one penalty day for the applicable Boiler for the purpose of calculating a total stipulated penalty for the applicable Boiler, even if the date qualifies as a penalty day under two or more paragraphs for the applicable Boiler.

v. All penalties shall be paid within 45 calendar days of the date of notice of noncompliance. All penalties shall be paid by a check made payable to "Randolph County Treasurer, as custodian for the Randolph County School Fund", and delivered to

Accounting Program
Department of Natural Resources
P.O. Box 477
Jefferson City, Missouri 65201-0477

vi. If any violation of this Consent Agreement is also enforceable by another agreement or regulatory requirement, the Department agrees that it may only seek to enforce either the stipulated penalties discussed in this paragraph, or the penalty for the violation of the other specified regulatory requirement, not both, against Thomas Hill Energy Center.

vii. Penalty payments under this Order, including any stipulated penalties, are penalties within the meaning of Section 162(f)(1) of the Internal Revenue Code, 26 U.S.C. § 162(f)(1), and 26 C.F.R. § 1.162-21(a)(3)(i). For purposes of the identification requirement in Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. § 1.162-21(b)(2)(iii)(A), certain costs incurred by performance of this Order may qualify as restitution, remediation, or costs required to come into compliance with the law. Thomas Hill Energy Center is solely responsible for providing to the Department complete, accurate, and necessary information by the close of any applicable tax year to complete a Form 1098-F. Further, the Department shall not be responsible for any

incomplete or inaccurate information nor the results of any tax audit. No portion of any penalties paid pursuant to this Order may be used to reduce any federal or state tax obligations, except as authorized by the Internal Revenue Service.

viii. Upon request of Thomas Hill Energy Center, the Department may in its unreviewable discretion impose a lesser penalty or no penalty at all for violations subject to stipulated penalties.

OTHER PROVISIONS

2. By signing this Consent Agreement, all signatories assert that they have read and understand the terms of this Consent Agreement, that they had the opportunity to consult with legal counsel, and that they have the authority to sign this Consent Agreement on behalf of their respective parties.
3. The provisions of this Consent Agreement shall apply and be binding upon the parties of this Consent Agreement, their heirs, assignees, successors, agents, subsidiaries, affiliates, and lessees, including the officers, agents, servants, corporations, and any persons acting under, through, or for the parties agreeing hereto. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect the responsibilities of Thomas Hill Energy Center under this Consent Agreement. If Thomas Hill Energy Center sells its business, then Thomas Hill Energy Center shall cause as a condition of such sale, that the buyer will assume the obligations of Thomas Hill Energy Center under this Consent Agreement in writing. In such event, Thomas Hill Energy Center shall provide 30 days prior written notice of such assumption to the Department.

4. This Consent Agreement may only be modified upon the mutual written agreement of Thomas Hill Energy Center and the Department.
5. The parties agree the Department will propose this Consent Agreement to the Missouri Air Conservation Commission (MACC) for adoption as a revision to Missouri's SIP. Following MACC adoption, the parties agree the Department will submit this Consent Agreement to EPA as a SIP revision, and as such, is subject to EPA approval. The parties further agree that after EPA has approved the SIP revision that contains this Consent Agreement, subject to the termination provisions in paragraph 13 of this Consent Agreement, any subsequent modifications to this Consent Agreement, will require approval from EPA before such modifications would take effect.
6. The parties agree that this Consent Agreement shall not be construed as a waiver or a modification of any requirements of the Missouri Air Conservation Law and regulations or any other source of law, and that this Consent Agreement does not resolve any claims based on any failure by Thomas Hill Energy Center to meet the requirements of this Consent Agreement, or claims for past, present, or future violations of any statutes or regulations.
7. Nothing in this Consent Agreement is intended to constitute an admission or statement by Thomas Hill Energy Center that Thomas Hill Energy Center has adversely impacted or has the potential to adversely impact any downwind nonattainment or maintenance receptors outside Missouri. Rather, this Consent Agreement is intended to update the federally enforceable requirements for Thomas Hill Energy Center as part of Missouri's SIP to address interstate transport obligations for the 2015 Ozone Standard.
8. This Consent Agreement shall be construed and enforced according to the laws of the State of Missouri, and the terms stated herein shall constitute the entire and exclusive agreement of

the parties hereto with respect to the matters addressed herein. This Consent Agreement may not be modified orally.

9. If any provision of this Consent Agreement is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way by affected or impaired.

10. Consistent with and subject to Paragraph 1, this Consent Agreement will become final, effective, and fully enforceable by the Department once it is executed by both parties. The Department shall send a fully executed copy of this Consent Agreement to Thomas Hill Energy Center.

FORCE MAJEURE

11. Neither party will be liable for failure or delay to perform obligations under this Consent Agreement, which have become practicably impossible because of circumstances beyond the reasonable control of the applicable party. Such circumstances include, but are not limited to, natural disasters, acts of terrorism, labor disputes or stoppages, war, national/regional emergencies, supply chain issues relating to the procurement and delivery of sufficient supply of anhydrous ammonia despite best efforts, pandemics, or local epidemics. Written notice of a party's failure or delay in performance due to force majeure must be given to the other party no later than five (5) business days following the force majeure event commencing, which notice shall describe the force majeure event and the actions taken to minimize the impact thereof. The parties hereby agree, when feasible, not to cancel but reschedule the pertinent obligations and deliverables for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist.

TERMINATION

12. This Consent Agreement shall be terminated upon mutual written agreement of Thomas Hill Energy Center and the Department.

13. Other Termination conditions.

    A. In the event that EPA fully disapproves Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then this Consent Agreement will terminate upon the effective date of such full disapproval. An EPA disapproval of Missouri's 2019 SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard in which EPA does not take action on the Supplement to that SIP, which includes this Consent Agreement, will not automatically terminate this Consent Agreement.

    B. If EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then Thomas Hill Energy Center shall have the option to terminate this Consent Agreement. If Thomas Hill Energy Center wishes to terminate this Consent Agreement after EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP revision that includes this Consent Agreement, they must notify the Department that they are terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's partial approval, partial disapproval, and/or limited approval. Termination shall be effective upon the Department's receipt of said notification by Thomas Hill Energy Center.

C. In the event EPA approves, partially approves, or grants limited approval of Missouri's SIP as meeting the requirements of CAA Section 110(a)(2)(D)(i)(I) for the 2015 Ozone standard (Good Neighbor Obligations for the 2015 Ozone Standard), and then EPA later withdraws its approval, partial approval, limited approval, or issues a SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, then Thomas Hill Energy Center shall have the option to terminate this Consent Agreement. If Thomas Hill Energy Center wishes to terminate this Consent Agreement after EPA withdraws its approval, partial approval, or limited approval of Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, or after a future EPA SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, Thomas Hill Energy Center must notify the Department that it is terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's withdrawal of its approval, partial approval, limited approval, or the EPA SIP Call. Termination shall be effective upon the Department's receipt of said notification by Thomas Hill Energy Center.

D. In the event EPA promulgates a federal plan to address Missouri's interstate transport, or good neighbor obligations, under the 2015 Ozone Standard, and such federal plan includes new requirements for the Thomas Hill Energy Center, this Consent Agreement will terminate upon the effective date of such federal plan.

CORRESPONDENCE AND DOCUMENTATION

14. Correspondence or documentation with regard to this Consent Agreement shall be directed to the following persons, subject to change upon written notification from either party:

For the Department:

Compliance and Enforcement Section Chief
Air Pollution Control Program
P.O. Box 176
Jefferson City, Missouri 65102-0176

Or by email to: AirComplianceReporting@dnr.mo.gov

For Thomas Hill Energy Center:

Environmental, Health & Safety Department
Thomas Hill Energy Center
4297 Highway F
Clifton Hill, MO 65244

Legal Department
Associated Electric Cooperative, Inc.
PO Box 754
Springfield, Missouri 65801

RIGHT OF APPEAL

By signing this Consent Agreement, Thomas Hill Energy Center waives any right to appeal, seek judicial review, or otherwise challenge this Consent Agreement pursuant to Sections 643.130, 643.085, or 621.250, RSMo, Chapters 536, 643, RSMo, or any other source of law, subject to any change in law that might be interpreted to require changes to the terms of this Consent Agreement.

AGREED TO AND ORDERED

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Stephen M. Hall, Director
Air Pollution Control Program
Missouri Department of Natural Resources

Date: October 14, 2022

ASSOCIATED ELECTRIC COOPERATIVE, INC.
owner/operator - Thomas Hill Energy Center

David Tudor, CEO/General Manager
Associated Electric Cooperative, Inc.

Date: 10/12/2022

Appendix D
Sioux Energy Center Consent Agreement

BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

In the Matter of:	)	
	)	
UNION ELECTRIC COMPANY	)	No. APCP-2022-051
d/b/a AMEREN MISSOURI	)	
as the owner/operator of the	)	
	)	
AMEREN MISSOURI - SIOUX ENERGY CENTER	)	
	)	
	)	

CONSENT AGREEMENT

The issuance of this Consent Agreement No. APCP-2022-051 (Consent Agreement) by the Missouri Department of Natural Resources (Department) is a formal administrative action taken by the State of Missouri after conference with Union Electric Company d/b/a Ameren Missouri, as the owner/operator of the Ameren Missouri - Sioux Energy Center (together, hereinafter referred to as "Sioux Energy Center"). The parties agree this voluntary Consent Agreement is being issued to administer, implement, and enforce the purposes of the Missouri Air Conservation Law, Chapter 643, RSMo, and its implementing regulations and is not the result of any past or current violations. The parties agree that this Consent Agreement is being issued as an administrative order under 643.060(4), RSMo. The parties have agreed to these provisions voluntarily in order to strengthen Missouri's Good Neighbor State Implementation Plan (SIP) for the 2015 Ozone standard. Sioux Energy Center further agrees that a failure to comply with this Consent Agreement is a violation of the Missouri Air Conservation Law under Section 643.151, RSMo.

BACKGROUND

Section 110(a)(2)(D)(i)(I) of the Clean Air Act (CAA) requires states to submit adequate provisions in their SIPs to prohibit emissions that will contribute significantly to nonattainment, or interfere with maintenance, in any downwind state with respect to any national ambient air quality standard.

Consistent with U.S. Environmental Protection Agency (EPA) guidance, the Department followed EPA's four-step approach, modeling, and corresponding memorandums in determining obligations for upwind states to limit transported air pollution to downwind states. The four-step approach used in Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard is as follows: 1) identify areas in the country that are projected to have trouble attaining and maintaining compliance with the 2015 Ozone Standard; 2) identify whether anthropogenic emissions in Missouri are contributing to the air pollution problems in downwind states identified in step 1; 3) identify the requisite level of emission control necessary to address the upwind state's significant contribution to the air pollution problem or interference with maintenance in the downwind states; and 4) develop enforceable control requirements to ensure the requisite level of emission control identified in step 3. The analysis and conclusions stem largely from modeling performed by EPA to determine ozone concentrations across the country and the corresponding contributions from upwind states in the projected year 2023.

Sioux Energy Center has two coal-fired electric generating units (B-01 and B-02), which emit the majority of the facility's total nitrogen oxide (NO_x) emissions. In addition, Sioux Energy Center is currently operating over-fire air (OFA), and selective non-catalytic reduction (SNCR) to control NO_x emissions at the two Boilers.

The purpose of this Consent Agreement is to formalize the parties' agreement to ensure the continuous use of the OFA and SNCR in the two Boilers at Sioux Energy Center during the regulatory ozone season, which runs from May 1 through September 30 each year. This agreement is part of a supplement to Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard. These conditions help to ensure that emissions from Missouri will not contribute significantly to nonattainment or interfere with maintenance of the 2015 Ozone Standard in any downwind state.

In consideration of the mutual promises contained herein, the Department and Sioux Energy Center agree as follows:

AGREEMENT

1. Starting with the effective date of the approval of this Consent Agreement by EPA as a revision to the Missouri SIP, subject to the termination provisions in paragraph 13 of this Consent Agreement, and consistent with the exemption, data exclusion, and termination provisions set forth in the Consent Agreement, Sioux Energy Center agrees to the operational requirements for the Boilers (B-01 and B-02) as set forth below. If the effective date of such EPA approval falls between May 1 and September 30 of a given calendar year, then any calculations for percent operating time, or emission rates when determining compliance with the requirements of this Consent Agreement will exclude the emissions and operating data that occurs between May 1 of such calendar year and the effective date of the EPA approval.

    A. Boilers (B-01 and B-02)

        i. Unless exempted by paragraph 1.C.i. of this Consent Agreement, Sioux Energy Center agrees to operate the OFA to minimize NO_x emissions at all

times when burning coal in the Boilers from May 1 through September 30 each calendar year, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit. Proper tuning of the OFA system on each boiler to minimize NO_x emissions requires operation of the boiler without the SNCR in service during the tuning process. Allowance for tuning of the OFA system to minimize NO_x has been included in the requirement of paragraph 1.A.ii.

ii. Unless exempted by paragraph 1.C.i. of this Consent Agreement, Sioux Energy Center agrees to operate the SNCR NO_x control systems for a minimum of 90 percent of all times when burning coal in the Boilers after startup from May 1 through September 30 each calendar year, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit.

iii. Sioux Energy Center agrees to meet a facility-wide average NO_x ozone season (May 1 through September 30) emission rate of 0.18 pounds per million British Thermal Units (lbs./mmBtu). This facility-wide emission rate shall be inclusive only of Boilers B-01 and B-02. Compliance with this requirement shall be determined pursuant to paragraph 1.B.vi. of this Consent Agreement.

B. Reporting and Recordkeeping Requirements

i. Sioux Energy Center shall track and record all Boiler operating hours after startup when it burns coal in the Boilers from May 1 through September 30 each calendar year. For purposes of this Consent Agreement, startup for a unit ends when it is released to the Midwest Independent System Operator. Sioux Energy Center shall also track and record all of the hours when the SNCR is operating to control NO_x emissions from the Boilers B-01 and B-02 from May 1 through September 30 each calendar year. For each Boiler, for each ozone season control period (May 1 through September 30), Sioux Energy Center shall calculate the percent of operating time after startup the SNCR system(s) were operated.

ii. Sioux Energy Center shall certify compliance and report any deviations with the requirements in paragraphs 1.A.i. and 1.A.ii. of this Consent Agreement annually as part of its Part 70 Operating Permit Compliance and Monitoring Report - Annual Compliance Certification (ACC).

iii. Sioux Energy Center shall operate and maintain NO_x Continuous Emission Monitoring Systems (CEMS) for Boilers B-01 and B-02 to demonstrate compliance with the requirement in paragraph 1.A.iii. of this Consent Agreement. Sioux Energy Center has installed and certified NO_x CEMS for the Boilers according to the applicable requirements of 40 CFR 75.20(c)(1). If Sioux Energy Center continues to meet the applicable ongoing quality assurance requirements of 40 CFR 75.21 and 40 CFR 75 Appendix B, these

CEMS are allowed to be used to meet the monitoring requirements of this Agreement.

iv. Per the applicable requirements of 40 CFR 75.10 (d), the CEMS will be in operation at all times that the affected units combust fuel, except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and 40 CFR 75 Appendix B, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20.

v. The NO_x data used in the Compliance Determination in Paragraph 1.B.vi. of this Agreement and used to meet the Reporting Requirements of this Agreement shall not include substitute data values derived from the missing data procedures in 40 CFR Part 75 subpart D, nor shall the NO_x data have been bias adjusted according to the procedures of 40 CFR Part 75.

vi. Quality assured hourly NO_x CEMS data will be used to determine compliance with the emission rate limit in paragraph 1.A.iii. of this Consent Agreement. Sioux Energy Center shall use the following procedures to calculate the ozone season NO_x emission rates for Boilers B-01 and B-02:

   a. Each calendar year, Sioux Energy Center, will divide the total NO_x emissions for both Boilers summed in tons (converted to pounds) that were emitted from the Boilers from May 1 through September 30 by the total heat input for both Boilers in mmBtu during that same time

period. Sioux Energy Center shall then round these values to two significant figures past the decimal point. NO_x emissions and heat input may be excluded from this calculation for applicable Boilers for hours that meet the requirements of paragraph 1.C.ii. of this Consent Agreement.

b. The value calculated in paragraph 1.B.vi.a. of this Consent Agreement must be equal to or below 0.18 lbs./mmBtu to meet the facility-wide NO_x emission rate limit in paragraph 1.A.iii. of this Consent Agreement.

vii. Sioux Energy Center shall maintain all records required by paragraph 1.B. of this Consent Agreement for not less than five years and shall make them available immediately to any Department personnel upon request.

C. Exemptions and Data Exclusions

i. Sioux Energy Center may be exempted from the requirements in paragraphs 1.A.i. and 1.A.ii. of this Consent Agreement during periods of shutdown or malfunction, following Department review pursuant to 10 CSR 10-6.050.

ii. Sioux Energy Center will be allowed to exclude certain hours from the calculation in paragraph 1.B.vi. of this Consent Agreement when determining compliance with the ozone season NO_x emission rate requirement in paragraph 1.A.iii. of this Consent Agreement if the following conditions are met:

a. Upset conditions occur that necessitate a shutdown or lower efficiency operating status for the SNCR for more than ten (10) percent of the operating hours during the regulatory ozone season (May 1 through September 30) in a calendar year for one of the Boilers. Multiple upset conditions at a single Boiler during a regulatory ozone season in a single calendar year may be added together to meet this ten (10) percent requirement.

b. The upset condition(s) necessitating the shutdown or lower efficiency operation of the SNCR are not the result of a failure of Sioux Energy Center to perform routine maintenance on the SNCR or other equipment that caused the upset condition, and the upset condition could not have been avoided with reasonably diligent planning from Sioux Energy Center.

c. The Unit with the upset condition needs to continue generating during the upset condition due to electric grid stability or reliability issues.

d. Sioux Energy Center notifies the Department within seven (7) calendar days of each upset condition that necessitates the shutdown or lower efficiency operating status for the SNCR. The notification must identify the upset condition, the steps Sioux Energy Center is taking and will take to rectify the upset condition, and a schedule for how long the upset condition is expected to last. The notification must also include documentation demonstrating that the criteria in paragraphs 1.C.ii.b. and 1.C.ii.c. of this Consent Agreement are met for the

duration of the hours to be excluded pursuant to paragraph 1.C.ii. of this Consent Agreement.

e. For any notification under paragraph 1.C.ii.d. of this Consent Agreement where the Department determines that Sioux Energy Center has satisfied the four criteria listed in paragraphs 1.C.ii.a. through 1.C.ii.d. of this Consent Agreement, then hours of operation during that upset condition will count towards the ten (10) percent criterion in paragraph 1.C.ii.a. of this Consent Agreement. Then, if the ten (10) percent criterion is met, the NO_x emissions and heat input occurring during all hours of operation that satisfy the criteria of 1.C.ii. of this Consent Agreement may be excluded from the calculation in paragraph 1.B.vi. of this Consent Agreement for the applicable Boiler when determining compliance with the facility-wide emission rate limit in paragraph 1.A.iii. during the applicable regulatory ozone season.

D. Stipulated Penalties

i. If Sioux Energy Center fails to comply with any requirement in paragraphs 1.A or 1.B and does not receive an exemption under paragraph 1.C. of this Consent Agreement, Sioux Energy Center will be in violation of this Consent Agreement and shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties, which are to be assessed beginning with the first day of the violation. The calculation of a "penalty day" for violations of sections 1.A.i., 1.A.ii., and 1.A.iii. of this Consent Agreement are determined in accordance with

paragraphs 1.D.ii., 1.D.iii., and 1.D.iv. of this Consent Agreement. The Department has the discretion to waive or defer any stipulated penalties.

Period of Noncompliance	Penalty
1st through 30th day	$1,000.00 a day
31st through 60th day	$3,000.00 a day
Beyond 61 days	$5,000.00 a day

ii. If Sioux Energy Center is in violation of paragraphs 1.A.i. or 1.A.ii. of this Consent Agreement, the number of penalty days will be each day that includes at least one hour, not including startup hours, when the OFA and the SNCR NO_x control system(s) were not in operation for the applicable Boiler while burning coal in the applicable Boiler during the time period from May 1 through September 30, and where such hour for the applicable Boiler did not come within an exclusion under paragraph 1.C.i. of this Agreement for the applicable Boiler. Two penalty days may be assessed for a single calendar day if both Boilers violate paragraphs 1.A.i or 1.A.ii. of this Consent Agreement and also meet this criteria on the same day.

iii. If Sioux Energy Center is in violation of the facility-wide NO_x emission limit in paragraph 1.A.iii., then the number of penalty days will be each day when the facility-wide 24-hour average NO_x emission rate exceeds 0.18 lbs./mmBtu during the time period from May 1 through September 30. However, when calculating the facility-wide 24-hour average NO_x emission rate to determine the penalty days, startup hours for an applicable Boiler and any hours exempted under paragraph 1.C.ii. of this Consent Agreement for

an applicable Boiler shall not be included in the 24-hour average NO_x emission rate calculation for such applicable Boiler for such day.

iv. If Sioux Energy Center is in violation of two or more of the following paragraphs: 1.A.i., 1.A.ii., and 1.A.iii. of this Consent Agreement, then for each Boiler, any single day within the time period from May 1 through September 30 may only be counted as one penalty day for the applicable Boiler for the purpose of calculating a total stipulated penalty for the applicable Boiler, even if the date qualifies as a penalty day under two or more paragraphs for the applicable Boiler.

v. All penalties shall be paid within 45 calendar days of the date of notice of noncompliance. All penalties shall be paid by a check made payable to "St. Charles County Treasurer, as custodian for the St. Charles County School Fund", and delivered to

Accounting Program
Department of Natural Resources
P.O. Box 477
Jefferson City, Missouri 65201-0477

vi. If any violation of this Consent Agreement is also enforceable by another agreement or regulatory requirement, the Department agrees that it may only seek to enforce either the stipulated penalties discussed in this paragraph, or the penalty for the violation of the other specified regulatory requirement, not both, against Sioux Energy Center.

vii. Penalty payments under this Order, including any stipulated penalties, are penalties within the meaning of Section 162(f)(1) of the Internal Revenue Code, 26 U.S.C. § 162(f)(1), and 26 C.F.R. § 1.162-21(a)(3)(i). For purposes of the identification requirement in Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. § 1.162-21(b)(2)(iii)(A), certain costs incurred by performance of this Order may qualify as restitution, remediation, or costs required to come into compliance with the law. Sioux Energy Center is solely responsible for providing to the Department complete, accurate, and necessary information by the close of any applicable tax year to complete a Form 1098-F. Further, the Department shall not be responsible for any incomplete or inaccurate information nor the results of any tax audit. No portion of any penalties paid pursuant to this Order may be used to reduce any federal or state tax obligations, except as authorized by the Internal Revenue Service.

viii. Upon request of Sioux Energy Center, the Department may in its unreviewable discretion impose a lesser penalty or no penalty at all for violations subject to stipulated penalties.

OTHER PROVISIONS

2. By signing this Consent Agreement, all signatories assert that they have read and understand the terms of this Consent Agreement, that they had the opportunity to consult with legal counsel, and that they have the authority to sign this Consent Agreement on behalf of their respective parties.

3. The provisions of this Consent Agreement shall apply and be binding upon the parties of this Consent Agreement, their heirs, assignees, successors, agents, subsidiaries, affiliates, and lessees, including the officers, agents, servants, corporations, and any persons acting under, through, or for the parties agreeing hereto. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect the responsibilities of Sioux Energy Center under this Consent Agreement. If Sioux Energy Center sells its business, ten Sioux Energy Center shall cause as a condition of such sale, that the buyer will assume the obligations of Sioux Energy Center under this Consent Agreement in writing. In such event, Sioux Energy Center shall provide 30 days prior written notice of such assumption to the Department.
4. This Consent Agreement may only be modified upon the mutual written agreement of Sioux Energy Center and the Department.
5. The parties agree the Department will propose this Consent Agreement to the Missouri Air Conservation Commission (MACC) for adoption as a revision to Missouri's SIP. Following MACC adoption, the parties agree the Department will submit this Consent Agreement to EPA as a SIP revision, and as such, is subject to EPA approval. The parties further agree that after EPA has approved the SIP revision that contains this Consent Agreement, any subsequent modifications to this Consent Agreement, subject to the termination provisions in paragraph 13 of this Consent Agreement, will require approval from EPA before such modifications would take effect.
6. The parties agree that this Consent Agreement shall not be construed as a waiver or a modification of any requirements of the Missouri Air Conservation Law and regulations or any other source of law, and that this Consent Agreement does not resolve any claims based

on any failure by Sioux Energy Center to meet the requirements of this Consent Agreement, or claims for past, present, or future violations of any statutes or regulations.

7. Nothing in this Consent Agreement is intended to constitute an admission or statement by Sioux Energy Center that Sioux Energy Center has adversely impacted or has the potential to adversely impact any downwind nonattainment or maintenance receptors outside Missouri. Rather, this Consent Agreement is intended to update the federally enforceable requirements for Sioux Energy Center as part of Missouri's SIP to address interstate transport obligations for the 2015 Ozone Standard.
8. This Consent Agreement shall be construed and enforced according to the laws of the State of Missouri, and the terms stated herein shall constitute the entire and exclusive agreement of the parties hereto with respect to the matters addressed herein. This Consent Agreement may not be modified orally.
9. If any provision of this Consent Agreement is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way by affected or impaired.
10. Consistent with and subject to Paragraph 1, this Consent Agreement will become final, effective, and fully enforceable by the Department once it is executed by both parties. The Department shall send a fully executed copy of this Consent Agreement to Sioux Energy Center.

FORCE MAJEURE

11. Neither party will be liable for failure or delay to perform obligations under this Consent Agreement, which have become practicably impossible because of circumstances beyond the reasonable control of the applicable party. Such circumstances include, but are not limited to,

natural disasters, acts of terrorism, labor disputes or stoppages, war, national/regional emergencies, supply chain issues relating to the procurement and delivery of sufficient supply of urea despite best efforts, pandemics, or local epidemics. Written notice of a party's failure or delay in performance due to force majeure must be given to the other party no later than five (5) business days following the force majeure event commencing, which notice shall describe the force majeure event and the actions taken to minimize the impact thereof. The parties hereby agree, when feasible, not to cancel but reschedule the pertinent obligations and deliverables for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist.

TERMINATION

12. This Consent Agreement shall be terminated upon mutual written agreement of Sioux Energy Center and the Department.

13. Other Termination conditions.

    A. In the event that EPA fully disapproves Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then this Consent Agreement will terminate upon the effective date of such full disapproval. An EPA disapproval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard in which EPA does not take action on the Supplement to that SIP, which includes this Consent Agreement will not automatically terminate this Consent Agreement.

    B. If EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP to address the Interstate Transport Provisions for the 2015

Ozone Standard that includes this Consent Agreement, then Sioux Energy Center shall have the option to terminate this Consent Agreement. If Sioux Energy Center wishes to terminate this Consent Agreement after EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP revision that includes this Consent Agreement, they must notify the Department that they are terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's partial approval, partial disapproval, and/or limited approval. Termination shall be effective upon the Department's receipt of said notification by Sioux Energy Center.

C. In the event EPA approves, partially approves, or grants limited approval of Missouri's SIP as meeting the requirements of CAA Section 110(a)(2)(D)(i)(I) for the 2015 Ozone standard (Good Neighbor Obligations for the 2015 Ozone Standard), and then EPA later withdraws its approval, partial approval, limited approval, or issues a SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, then Sioux Energy Center shall have the option to terminate this Consent Agreement. If Sioux Energy Center wishes to terminate this Consent Agreement after EPA withdraws its approval, partial approval, or limited approval of Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, or after a future EPA SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, Sioux Energy Center must notify the Department that it is terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's withdrawal of its approval, partial approval, limited approval, or the EPA SIP Call. Termination

shall be effective upon the Department's receipt of said notification by Sioux Energy Center.

D. In the event EPA promulgates a federal plan to address Missouri's interstate transport, or good neighbor obligations, under the 2015 Ozone Standard, and such federal plan includes new requirements for the Sioux Energy Center, this Consent Agreement will terminate upon the effective date of such federal plan.

CORRESPONDENCE AND DOCUMENTATION

14. Correspondence or documentation with regard to this Consent Agreement shall be directed to the following persons, subject to change upon written notification from either party:

For the Department:

Compliance and Enforcement Section Chief
Air Pollution Control Program
P.O. Box 176
Jefferson, City, Missouri 65102-0176

Or by email to: AirComplianceReporting@dnr.mo.gov

For Sioux Energy Center:

Manager of Environmental Services
Ameren Missouri
1901 Chouteau Ave.
St. Louis, Missouri 63166

RIGHT OF APPEAL

By signing this Consent Agreement, Sioux Energy Center waives any right to appeal, seek judicial review, or otherwise challenge this Consent Agreement pursuant to Sections 643.130, 643.085, or 621.250, RSMo, Chapters 536, 643, RSMo, or any other source of law, subject to any change in law that might be interpreted to require changes to the terms of this Consent Agreement.

AGREED TO AND ORDERED

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Stephen M. Hall, Director
Air Pollution Control Program
Missouri Department of
Natural Resources

Date: October 14, 2022

AMEREN MISSOURI
owner/operator – Sioux Energy Center

Timothy Lafser
Vice President –
Power Operations
Ameren Missouri

Date: 10/12/2022

Appendix E
Labadie Energy Center Consent Agreement

BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

In the Matter of:	)	
	)	
UNION ELECTRIC COMPANY	)	No. APCP-2022-050
d/b/a AMEREN MISSOURI	)	
as the owner/operator of the	)	
	)	
AMEREN MISSOURI -	)	
LABADIE ENERGY CENTER	)	

CONSENT AGREEMENT

The issuance of this Consent Agreement No. APCP-2022-050 (Consent Agreement) by the Missouri Department of Natural Resources (Department) is a formal administrative action taken by the State of Missouri after conference with Union Electric Company d/b/a Ameren Missouri, as the owner/operator of the Ameren Missouri - Labadie Energy Center (together, hereinafter referred to as "Labadie Energy Center"). The parties agree this voluntary Consent Agreement is being issued to administer, implement, and enforce the purposes of the Missouri Air Conservation Law, Chapter 643, RSMo, and its implementing regulations and is not the result of any past or current violations. The parties agree that this Consent Agreement is being issued as an administrative order under 643.060(4), RSMo. The parties have agreed to these provisions voluntarily in order to strengthen Missouri's Good Neighbor State Implementation Plan (SIP) for the 2015 Ozone Standard. Labadie Energy Center further agrees that a failure to comply with this Consent Agreement is a violation of the Missouri Air Conservation Law under Section 643.151, RSMo.

BACKGROUND

Section 110(a)(2)(D)(i)(I) of the Clean Air Act (CAA) requires states to submit adequate provisions in their SIPs to prohibit emissions that will contribute significantly to nonattainment, or interfere with maintenance, in any downwind state with respect to any national ambient air quality standard (NAAQS).

Consistent with U.S. Environmental Protection Agency (EPA) guidance, the Department followed EPA's four-step approach, modeling, and corresponding memorandums in determining obligations for upwind states to limit transported air pollution to downwind states. The four-step approach used in Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard is as follows: 1) identify areas in the country that are projected to have trouble attaining and maintaining compliance with the relevant NAAQS; 2) identify whether anthropogenic emissions in Missouri are contributing to the air pollution problems in downwind states identified in step 1; 3) identify the requisite level of emission control necessary to address the upwind state's significant contribution to the air pollution problem or interference with maintenance in the downwind states; and 4) develop enforceable control requirements to ensure the requisite level of emission control identified in step 3. The analysis and conclusions stem largely from modeling performed by EPA to determine ozone concentrations across the country and the corresponding contributions from upwind states in the projected year 2023.

Labadie Energy Center has four coal-fired electric generating units (EGUs), namely B-1, B-2, B-3, and B-4. These EGUs emit the majority of the facility's total nitrogen oxide (NO_x) emissions during each ozone season. Labadie Energy Center controls emissions of NO_x through operation of low NO_x burners (LNB), separated over-fire air (OFA), and neural network optimization systems installed on each of the four EGUs.

The purpose of this Consent Agreement is to formalize the parties' agreement to ensure the continued use of LNB, separated OFA, and neural network systems in the four boilers at Labadie Energy Center during the regulatory ozone season, which runs from May 1 through September 30 each year. This agreement is part of a supplement to Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard. These conditions help to ensure that emissions from Missouri will not contribute significantly to nonattainment or interfere with maintenance of the 2015 Ozone Standard in any downwind state.

In consideration of the mutual promises contained herein, the Department and Labadie Energy Center agree as follows:

AGREEMENT

1. Starting with the effective date of the approval of this Consent Agreement by EPA as a revision to the Missouri SIP, subject to the termination provisions in paragraph 13 of this Consent Agreement, and consistent with the exemption, data exclusion, and termination provisions set forth in the Consent Agreement, Labadie Energy Center agrees to the operational requirements for the Boilers (B-1, B-2, B-3, and B-4) as set forth below. If the effective date of such EPA approval falls between May 1 and September 30 of a given calendar year, then any calculations for emission rates when determining compliance with the requirements of this Consent Agreement will exclude the emissions and operating data that occurs between May 1 of such calendar year and the effective date of the EPA approval.

    A. Boilers (B-1, B-2, B-3, and B-4)

        i. Unless exempted by paragraph 1.C.i. of this Consent Agreement, Labadie Energy Center agrees to operate the existing LNB, separated OFA, and neural network optimization to control NO_x emissions at all times other than

startup and shutdown when burning coal in the boilers, consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 C.F.R. § 60.11(d)) for such equipment and the Unit. The LNB, separated OFA and neural network optimization systems operate to control NO_x emissions as individual systems but have a complementary relationship when operated together. Good air pollution control practices require that each of these systems be maintained and undergo tuning when the boilers are in operation at normal operating load(s). At times, that tuning requires one system to be turned off for maintenance while other system continue operating. In addition, the neural network optimization system is designed and configured to optimize combustion parameters during normal operating loads and such configuration can be counterproductive to minimizing emissions during startup and shutdown. As such, Labadie Energy Center does not operate the neural network optimization system during startup or shutdown. For purposes of this Consent Agreement, startup for a unit ends when it is released to the Midwest Independent System Operator.

ii. Labadie Energy Center agrees to meet a facility-wide average NO_x ozone season (May 1 through September 30) emission rate of 0.120 (pounds per million British Thermal Units (lbs/mmBtu). This facility-wide emission rate shall be inclusive only of Boilers B-1, B-2, B-3, and B-4. Compliance with

this requirement shall be determined pursuant to paragraph 1.B.v. of this Consent Agreement.

B. Reporting and Recordkeeping Requirements

i. Labadie Energy Center shall certify compliance and report any deviations with the requirements in paragraphs 1.A.i. of this Consent Agreement annually as part of its Part 70 Operating Permit Compliance and Monitoring Report – Annual Compliance Certification (ACC)

ii. Labadie Energy Center shall operate and maintain NO_x Continuous Emission Monitoring Systems (CEMS) for Boilers B-1, B-2, B-3, and B-4 to demonstrate compliance with the requirement in paragraph 1.A.ii. of this Consent Agreement. Labadie Energy Center has installed and certified NO_x CEMS for the units in the Boilers according to the applicable requirements of 40 CFR 75.20(c)(1). If Labadie Energy Center continues to meet the applicable ongoing quality assurance requirements of 40 CFR 75.21 and 40 CFR 75 Appendix B, these CEMS are allowed to be used to meet the monitoring requirements of this Agreement.

iii. Per the applicable requirements of 40 CFR 75.10 (d), the CEMS will be in operation at all times that the affected units combust fuel, except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and 40 CFR 75 Appendix B, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20.

iv. The NO_x data used in the Compliance Determination in Paragraph 1.B.v. of this Agreement and used to meet the Reporting Requirements of this Agreement shall not include substitute data values derived from the missing data procedures in 40 CFR Part 75 subpart D, nor shall the NO_x data have been bias adjusted according to the procedures of 40 CFR Part 75.

v. Quality assured hourly NO_x CEMS data will be used to determine compliance with the emission rate limit in paragraph 1.A.ii. of this Consent Agreement. Labadie Energy Center shall use the following procedures to calculate the ozone season NO_x emission rate for Boilers B-1, B-2, B-3, and B-4:

   a. Each calendar year, Labadie Energy Center, will divide the total NO_x emissions for all four Boilers summed in tons (converted to pounds) that were emitted from the Boilers from May 1 through September 30 by the total heat input for all four Boilers in mmBtu, during that same time period. Labadie Energy Center shall then round these values to three figures past the decimal point.

   b. The value calculated in paragraph 1.B.v.a. of this Consent Agreement must be equal to or below 0.120 lbs/mmBtu to meet the facility-wide NO_x emission rate limit in paragraph 1.A.ii. of this Consent Agreement.

vi. Labadie Energy Center shall maintain all records required by paragraph 1.B. of this Consent Agreement for not less than five years and shall make them available immediately to any Department personnel upon request.

C. Exemptions and Data Exclusions

i. Labadie Energy Center may be exempted from the requirements in paragraphs 1.A.i. of this Consent Agreement during periods of malfunction, following Department review pursuant to 10 CSR 10-6.050.

D. Stipulated Penalties

i. If Labadie Energy Center fails to comply with any requirement in paragraphs 1.A. or 1.B. and does not receive an exemption under paragraph 1.C. of this Consent Agreement, Labadie Energy Center will be in violation of this Consent Agreement and shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties, which are to be assessed beginning with the first day of the violation. The calculation of a "penalty day" for violations of paragraphs 1.A.i. and 1.A.ii. of this Consent Agreement are determined in accordance with paragraphs 1.D.ii., 1.D.iii., and 1.D.iv. of this Consent Agreement. The Department has the discretion to waive or defer any stipulated penalties.

Period of Noncompliance	**Penalty**

1st through 30th day	$1,000.00 a day
31st through 60th day	$3,000.00 a day
Beyond 61 days	$5,000.00 a day

ii. If Labadie Energy Center is in violation of paragraphs 1.A.i., then the number of penalty days will be each day that includes at least one hour, when the LNB, OFA, and neural network NO_x control system(s) were not in operation for the applicable Boiler while burning coal in the applicable Boiler during the time period from May 1 through September 30, and where such hour for the applicable Boiler did not come within an exclusion under paragraph 1.C.i. of this Agreement. Up to four penalty days (one penalty day for each Boiler that meets this criteria) may be assessed for a single calendar day if multiple Boilers violate paragraphs 1.A.i. and also meet this criteria on the same day.

iii. If Labadie Energy Center is in violation of the facility-wide NO_x emission limit in paragraph 1.A.ii. of this Consent Agreement, then the number of penalty days will be each day the facility-wide 24-hour average NO_x emission rate exceeds 0.12 lbs./mmBtu during the time period from May 1 through September 30.

iv. If Labadie Energy Center is in violation of paragraphs: 1.A.i. and 1.A.ii. of this Consent Agreement, then for each Boiler, any single day within the time period from May 1 through September 30 may only be counted as one penalty day for the applicable Boiler for the purpose of calculating a

total stipulated penalty for the applicable Boiler, even if the date qualifies as a penalty day under both paragraphs for the applicable Boiler.

v. All penalties shall be paid within 45 calendar days of the date of notice of noncompliance. All penalties shall be paid by a check made payable to "Franklin County Treasurer, as custodian for the Franklin County School Fund", and delivered to

Accounting Program
Department of Natural Resources
P.O. Box 477
Jefferson City, Missouri 65201-0477

vi. If any violation of this Consent Agreement is also enforceable by another agreement or regulatory requirement, the Department agrees that it may only seek to enforce either the stipulated penalties discussed in this paragraph, or the penalty for the violation of the other specified regulatory requirement, not both, against Labadie Energy Center.

vii. Penalty payments under this Order, including any stipulated penalties, are penalties within the meaning of Section 162(f)(1) of the Internal Revenue Code, 26 U.S.C. § 162(f)(1), and 26 C.F.R. § 1.162-21(a)(3)(i). For purposes of the identification requirement in Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. § 1.162-21(b)(2)(iii)(A), certain costs incurred by performance of this Order may qualify as restitution, remediation, or costs required to come into compliance with the law. Labadie Energy Center is solely responsible for providing to the Department complete, accurate, and necessary information by the close of any applicable tax year to complete a Form

1098-F. Further, the Department shall not be responsible for any incomplete or inaccurate information nor the results of any tax audit. No portion of any penalties paid pursuant to this Order may be used to reduce any federal or state tax obligations, except as authorized by the Internal Revenue Service.

viii. Upon request of Labadie Energy Center, the Department may in its unreviewable discretion impose a lesser penalty or no penalty at all for violations subject to stipulated penalties.

OTHER PROVISIONS

2. By signing this Consent Agreement, all signatories assert that they have read and understand the terms of this Consent Agreement, that they had the opportunity to consult with legal counsel, and that they have the authority to sign this Consent Agreement on behalf of their respective parties.
3. The provisions of this Consent Agreement shall apply and be binding upon the parties of this Consent Agreement, their heirs, assignees, successors, agents, subsidiaries, affiliates, and lessees, including the officers, agents, servants, corporations, and any persons acting under, through, or for the parties agreeing hereto. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect the responsibilities of Labadie Energy Center under this Consent Agreement. If Labadie Energy Center sells its business, then Labadie Energy Center shall cause as a condition of such sale, that the buyer will assume the obligations of Labadie Energy Center under this Consent Agreement in writing. In such event, Labadie Energy Center shall provide 30 days prior written notice of such assumption to the Department.

4. This Consent Agreement may only be modified upon the mutual written agreement of Labadie Energy Center and the Department.
5. The parties agree the Department will propose this Consent Agreement to the Missouri Air Conservation Commission (MACC) for adoption as a revision to Missouri's SIP. Following MACC adoption, the parties agree the Department will submit this Consent Agreement to EPA as a SIP revision, and as such, is subject to EPA approval. The parties further agree that after EPA has approved the SIP revision that contains this Consent Agreement, subject to the termination provisions in paragraph 13 of this Consent Agreement, any subsequent modifications to this Consent Agreement, will require approval from EPA before such modifications would take effect.
6. The parties agree that this Consent Agreement shall not be construed as a waiver or a modification of any requirements of the Missouri Air Conservation Law and regulations or any other source of law, and that this Consent Agreement does not resolve any claims based on any failure by Labadie Energy Center to meet the requirements of this Consent Agreement, or claims for past, present, or future violations of any statutes or regulations.
7. Nothing in this Consent Agreement is intended to constitute an admission or statement by Labadie Energy Center that Labadie Energy Center has adversely impacted or has the potential to adversely impact any downwind nonattainment or maintenance receptors outside Missouri. Rather, this Consent Agreement is intended to update the federally enforceable requirements for Labadie Energy Center as part of Missouri's SIP to address interstate transport obligations for the 2015 Ozone Standard.
8. This Consent Agreement shall be construed and enforced according to the laws of the State of Missouri, and the terms stated herein shall constitute the entire and exclusive agreement of

the parties hereto with respect to the matters addressed herein. This Consent Agreement may not be modified orally.

9. If any provision of this Consent Agreement is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way by affected or impaired.

10. Consistent with and subject to Paragraph 1, this Consent Agreement will become final, effective, and fully enforceable by the Department once it is executed by both parties. The Department shall send a fully executed copy of this Consent Agreement to Labadie Energy Center.

FORCE MAJEURE

11. Neither party will be liable for failure or delay to perform obligations under this Consent Agreement, which have become practicably impossible because of circumstances beyond the reasonable control of the applicable party. Such circumstances include, but are not limited to, natural disasters, acts of terrorism, labor disputes or stoppages, war, national/regional emergencies, pandemics, or local epidemics. Written notice of a party's failure or delay in performance due to force majeure must be given to the other party no later than five (5) business days following the force majeure event commencing, which notice shall describe the force majeure event and the actions taken to minimize the impact thereof. The parties hereby agree, when feasible, not to cancel but reschedule the pertinent obligations and deliverables for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist.

TERMINATION

12. This Consent Agreement shall be terminated upon mutual written agreement of Labadie Energy Center and the Department.

13. Other Termination conditions.

    A. In the event that EPA fully disapproves Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then this Consent Agreement will terminate upon the effective date of such full disapproval. An EPA disapproval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard in which EPA does not take action on the Supplement to that SIP, which includes this Consent Agreement, will not automatically terminate this Consent Agreement.

    B. If EPA partially approves, partially disapproves, and/or grants a limited approval Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then Labadie Energy Center shall have the option to terminate this Consent Agreement. If Labadie Energy Center wishes to terminate this Consent Agreement after EPA partially approves, partially disapproves, and/or grants a limited approval Missouri's SIP revision that includes this Consent Agreement, they must notify the Department that they are terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's partial approval, partial disapproval, and/or limited approval. Termination shall be effective upon the Department's receipt of said notification by Labadie Energy Center.

C. In the event EPA approves, partially approves, or grants limited approval of Missouri's SIP as meeting the requirements of CAA Section 110(a)(2)(D)(i)(I) for the 2015 Ozone Standard (Good Neighbor Obligations for the 2015 Ozone Standard), and then EPA later withdraws its approval, partial approval, limited approval, or issues a SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, then Labadie Energy Center shall have the option to terminate this Consent Agreement. If Labadie Energy Center wishes to terminate this Consent Agreement after EPA withdraws its approval, partial approval, or limited approval of Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, or after a future EPA SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, Labadie Energy Center must notify the Department it is terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's withdrawal of its approval, partial approval, limited approval, or the EPA SIP Call. Termination shall be effective upon receipt of said notification by Labadie Energy Center.

D. In the event EPA promulgates a federal plan to address Missouri's interstate transport, or good neighbor obligations, under the 2015 Ozone Standard, and such federal plan includes new requirements for the Labadie Energy Center, this Consent Agreement will terminate upon the effective date of such federal plan.

CORRESPONDENCE AND DOCUMENTATION

14. Correspondence or documentation with regard to this Consent Agreement shall be directed to the following persons, subject to change upon written notification from either party:

For the Department:

Compliance and Enforcement Section Chief
Air Pollution Control Program
P.O. Box 176
Jefferson City, Missouri 65102-0176

Or by email to: AirComplianceReporting@dnr.mo.gov

For Labadie Energy Center:

Manager of Environmental Services
Ameren Missouri
1901 Chouteau Ave.
St. Louis, Missouri 63166

Legal Department
Ameren Missouri
1901 Chouteau Ave.
St. Louis, Missouri 63166

RIGHT OF APPEAL

By signing this Consent Agreement, Labadie Energy Center waives any right to appeal, seek judicial review, or otherwise challenge this Consent Agreement pursuant to Sections 643.130, 643.085, or 621.250, RSMo, Chapters 536, 643, RSMo, or any other source of law, subject to any change in law that might be interpreted to require changes to the terms of this Consent Agreement.

AGREED TO AND ORDERED

MISSOURI DEPARTMENT OF NATURAL RESOURCES

Stephen M. Hall, Director
Air Pollution Control Program
Missouri Department of Natural Resources

Date: October 14, 2022

AMEREN MISSOURI
owner/operator – Labadie Energy Center

Timothy Lafser,
Vice President – Power Operations
Ameren Missouri

Date: 10/12/2022

Appendix F
Sikeston Power Station Consent Agreement

BEFORE THE MISSOURI DEPARTMENT OF NATURAL RESOURCES

In the Matter of:	)	
	)	
SIKESTON BOARD OF MUNICIPAL UTILITIES	)	No. APCP-2022-052
as the owner/operator of the	)	
	)	
SIKESTON POWER STATION	)	

CONSENT AGREEMENT

The issuance of this Consent Agreement No. APCP-2022-052 (Consent Agreement) by the Missouri Department of Natural Resources (Department) is a formal administrative action taken by the State of Missouri after conference with the Sikeston Board of Municipal Utilities, as the owner/operator of the Sikeston Power Station (hereinafter referred to as "Sikeston Power Station"). The parties agree this voluntary Consent Agreement is being issued to administer, implement, and enforce the purposes of the Missouri Air Conservation Law, Chapter 643, RSMo, and its implementing regulations and is not the result of any past or current violations. The parties agree that this Consent Agreement is being issued as an administrative order under 643.060(4), RSMo. The parties have agreed to these provisions voluntarily in order to strengthen Missouri's Good Neighbor State Implementation Plan (SIP) for the 2015 Ozone Standard. Sikeston Power Station further agrees that a failure to comply with this Consent Agreement is a violation of the Missouri Air Conservation Law under Section 643.151, RSMo.

BACKGROUND

Section 110(a)(2)(D)(i)(I) of the Clean Air Act (CAA) requires states to submit adequate provisions in their SIPs to prohibit emissions that will contribute significantly to nonattainment,

or interfere with maintenance, in any downwind state with respect to any national ambient air quality standard (NAAQS).

Consistent with U.S. Environmental Protection Agency (EPA) guidance, the Department followed EPA's four-step approach, modeling, and corresponding memorandums in determining obligations for upwind states to limit transported air pollution to downwind states. The four-step approach used in Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard is as follows: 1) identify areas in the country that are projected to have trouble attaining and maintaining compliance with the relevant NAAQS; 2) identify whether anthropogenic emissions in Missouri are contributing to the air pollution problems in downwind states identified in step 1; 3) identify the requisite level of emission control necessary to address the upwind state's significant contribution to the air pollution problem or interference with maintenance in the downwind states; and 4) develop enforceable control requirements to ensure the requisite level of emission control identified in step 3. The analysis and conclusions stem largely from modeling performed by EPA to determine ozone concentrations across the country and the corresponding contributions from upwind states in the projected year 2023.

Sikeston Power Station has one (1) coal-fired electric generating unit (EP-01), which emits the majority of the facility's total nitrogen oxide (NO_x) emissions. In addition, Sikeston Power Station is operating low NO_x burners (LNB) and separated over-fire air (OFA) to control NO_x emissions at the Boiler.

The purpose of this Consent Agreement is to formalize the parties' agreement to ensure the continued use of LNB and separated OFA at the Boiler at Sikeston Power Station during the regulatory ozone season, which runs from May 1 through September 30 each year. This agreement is part of a supplement to Missouri's SIP to address the Interstate Transport

Provisions for the 2015 Ozone Standard. These conditions help to ensure that emissions from Missouri will not contribute significantly to nonattainment or interfere with maintenance of the 2015 Ozone Standard in any downwind state.

In consideration of the mutual promises contained herein, the Department and Sikeston Power Station agree as follows:

AGREEMENT

1. Starting with the effective date of the approval of this Consent Agreement by EPA as a revision to the Missouri SIP, subject to the termination provisions in paragraph 13 of this Consent Agreement, and consistent with the exemption, data exclusion, and termination provisions set forth in the Consent Agreement, Sikeston Power Station agrees to the operational requirements for the Boiler (EP-01) as set forth below. If the effective date of such EPA approval falls between May 1 and September 30 of a given calendar year, then any calculations for emission rates when determining compliance with the requirements of this Consent Agreement will still include all emissions and operating data that occurs between May 1 and September 30 of such calendar year.

    A. Boiler (EP-01)

        i. Unless exempted by paragraph 1.C.i. of this Consent Agreement, Sikeston Power Station agrees to operate the existing LNB and separated OFA to minimize NO_x emissions at all times when burning coal in the boilers. Sikeston shall operate the LNB and OFS control systems consistent with the technological limitations, manufacturers' specifications, good engineering and maintenance practices, and good air pollution control practices for minimizing emissions (as defined in 40 CFR. 60.11(d)) for such equipment

and the Unit. Sikeston may satisfy the requirements of 40 CFR 60.11(d) for the LNB and OFA by meeting the tune-up procedures in the Mercury and Air Toxics Standards (MATS) rule.

ii. Sikeston Power Station agrees to meet a NO_x ozone season (May 1 through September 30) emission rate of 0.13 (pounds per million British Thermal Units (lbs/mmBtu) for Boiler (EP-01). Compliance with this requirement shall be determined pursuant to paragraphs 1.B.iv. and 1.B.v. of this Consent Agreement.

B. Reporting and Recordkeeping Requirements

i. Sikeston Power Station shall certify compliance and report any deviations with the requirements in paragraphs 1.A.i. of this Consent Agreement annually as part of its Part 70 Operating Permit Compliance and Monitoring Report – Annual Compliance Certification (ACC)

ii. Sikeston Power Station shall operate and maintain a NO_x Continuous Emission Monitoring System (CEMS) for Boiler EP-01 to demonstrate compliance with the requirement in paragraph 1.A.ii. of this Consent Agreement. Sikeston Power Station has installed and certified a NO_x CEMS for the Boiler according to the applicable requirements of 40 CFR 75.20(c)(1). If Sikeston Power Station continues to meet the applicable ongoing quality assurance requirements of 40 CFR 75.21 and 40 CFR 75 Appendix B, the CEMS is allowed to be used to meet the monitoring requirements of this Agreement.

iii. Per the applicable requirements of 40 CFR 75.10 (d), the CEMS will be in operation at all times that the affected unit combusts fuel, except as provided in 40 CFR 75.11(e) and during periods of calibration, quality assurance, or preventive maintenance, performed pursuant to 40 CFR 75.21 and 40 CFR 75 Appendix B, periods of repair, periods of backups of data from the data acquisition and handling system, or recertification performed pursuant to 40 CFR 75.20.

iv. The NO_x data used in the Compliance Determination in Paragraph 1.B.v. of this Agreement and used to meet the Reporting Requirements of this Agreement shall not include substitute data values derived from the missing data procedures in 40 CFR Part 75 subpart D, nor shall the NO_x data have been bias adjusted according to the procedures of 40 CFR Part 75. Sikeston may utilize the diluent cap provisions in Section 3.3.4.1. of 40 CFR Part 75 Appendix F, as applicable.

v. Quality assured hourly NO_x CEMS data will be used to determine compliance with the emission rate limit in paragraph 1.A.ii. of this Consent Agreement. Sikeston Power Station shall use the following procedures to calculate the ozone season NO_x emission rate for Boiler EP-01:

   a. Each calendar year, Sikeston Power Station, will divide the total NO_x emissions from the Boiler in tons (converted to pounds) that were emitted from the Boiler from May 1 through September 30 by the total heat input for the Boiler in mmBtu, during that same

time period. Sikeston Power Station shall then round this value to two figures past the decimal point.

b. The value calculated in paragraph 1.B.v.a. of this Consent Agreement must be equal to or below 0.13 lbs/mmBtu to meet the NO_x emission rate limit in paragraph 1.A.ii. of this Consent Agreement.

vi. Sikeston Power Station shall maintain all records required by paragraph 1.B. of this Consent Agreement for not less than five years and shall make them available immediately to any Department personnel upon request.

C. Exemptions and Data Exclusions

i. Sikeston Power Station may be exempted from the requirements in paragraphs 1.A.i. of this Consent Agreement during periods of startup, shutdown, or malfunction, following Department review pursuant to 10 CSR 10-6.050.

D. Stipulated Penalties

i. If Sikeston Power Station fails to comply with any requirement in paragraphs 1.A. or 1.B. and does not receive an exemption under paragraph 1.C. of this Consent Agreement, Sikeston Power Station will be in violation of this Consent Agreement and shall pay stipulated penalties according to the following schedule. The penalties set forth below are per day penalties, which are to be assessed beginning with the first day of the violation. The calculation of a "penalty day" for violations of paragraphs 1.A.i. and 1.A.ii. of this Consent Agreement are determined in accordance

with paragraphs 1.D.ii., 1.D.iii., and 1.D.iv. of this Consent Agreement. The Department has the discretion to waive or defer any stipulated penalties.

Period of Noncompliance	**Penalty**
1st through 30th day	$1,000.00 a day
31st through 60th day	$3,000.00 a day
Beyond 61 days	$5,000.00 a day

ii. If Sikeston Power Station is in violation of paragraphs 1.A.i., then the number of penalty days will be each day that includes at least one hour when the LNB or OFA NO_x control system(s) were not in operation for the Boiler while burning coal in the Boiler during the time period from May 1 through September 30, and where such hour for the Boiler did not come within an exclusion under paragraph 1.C.i. of this Agreement.

iii. If Sikeston Power Station is in violation of the NO_x emission limit in paragraph 1.A.ii. of this Consent Agreement, then the number of penalty days will be each day the 24-hour average NO_x emission rate for the Boiler exceeds 0.13 lbs./mmBtu during the time period from May 1 through September 30. Startup or shutdown hours where gross generation is below minimum stable load shall not be included in the 24-hour average NO_x emission rate calculation for the Boiler for such day.

iv. If Sikeston Power Station is in violation of paragraphs: 1.A.i. and 1.A.ii. of this Consent Agreement, then any single day within the time period from May 1 through September 30 may only be counted as one penalty day for the Boiler for the purpose of calculating a total stipulated penalty for the Boiler, even if the date qualifies as a penalty day under both paragraphs for the Boiler.

v. All penalties shall be paid within 45 calendar days of the date of notice of noncompliance. All penalties shall be paid by a check made payable to "Scott County Treasurer, as custodian for the Scott County School Fund", and delivered to

Accounting Program
Department of Natural Resources
P.O. Box 477
Jefferson City, Missouri 65201-0477

vi. If any violation of this Consent Agreement is also enforceable by another agreement or regulatory requirement, the Department agrees that it may only seek to enforce either the stipulated penalties discussed in this paragraph, or the penalty for the violation of the other specified regulatory requirement, not both, against Sikeston Power Station.

vii. Penalty payments under this Order, including any stipulated penalties, are penalties within the meaning of Section 162(f)(1) of the Internal Revenue Code, 26 U.S.C. § 162(f)(1), and 26 C.F.R. § 1.162-21(a)(3)(i). For purposes of the identification requirement in Section 162(f)(2)(A)(ii) of the Internal Revenue Code, 26 U.S.C. § 162(f)(2)(A)(ii), and 26 C.F.R. §

1.162-21(b)(2)(iii)(A), certain costs incurred by performance of this Order may qualify as restitution, remediation, or costs required to come into compliance with the law. Sikeston Power Station is solely responsible for providing to the Department complete, accurate, and necessary information by the close of any applicable tax year to complete a Form 1098-F. Further, the Department shall not be responsible for any incomplete or inaccurate information nor the results of any tax audit. No portion of any penalties paid pursuant to this Order may be used to reduce any federal or state tax obligations, except as authorized by the Internal Revenue Service.

viii. Upon request of Sikeston Power Station, the Department may in its unreviewable discretion impose a lesser penalty or no penalty at all for violations subject to stipulated penalties.

OTHER PROVISIONS

2. By signing this Consent Agreement, all signatories assert that they have read and understand the terms of this Consent Agreement, that they had the opportunity to consult with legal counsel, and that they have the authority to sign this Consent Agreement on behalf of their respective parties.
3. The provisions of this Consent Agreement shall apply and be binding upon the parties of this Consent Agreement, their heirs, assignees, successors, agents, subsidiaries, affiliates, and lessees, including the officers, agents, servants, corporations, and any persons acting under, through, or for the parties agreeing hereto. Any changes in ownership or corporate status, including but not limited to any transfer of assets or real or personal property, shall not affect

the responsibilities of Sikeston Power Station under this Consent Agreement. If Sikeston Power Station sells its business, then Sikeston Power Station shall cause as a condition of such sale, that the buyer will assume the obligations of Sikeston Power Station under this Consent Agreement in writing. In such event, Sikeston Power Station shall provide 30 days prior written notice of such assumption to the Department.

4. This Consent Agreement may only be modified upon the mutual written agreement of Sikeston Power Station and the Department.
5. The parties agree the Department will propose this Consent Agreement to the Missouri Air Conservation Commission (MACC) for adoption as a revision to Missouri's SIP. Following MACC adoption, the parties agree the Department will submit this Consent Agreement to EPA as a SIP revision, and as such, is subject to EPA approval. The parties further agree that after EPA has approved the SIP revision that contains this Consent Agreement, subject to the termination provisions in paragraph 13 of this Consent Agreement, any subsequent modifications to this Consent Agreement, will require approval from EPA before such modifications would take effect.
6. The parties agree that this Consent Agreement shall not be construed as a waiver or a modification of any requirements of the Missouri Air Conservation Law and regulations or any other source of law, and that this Consent Agreement does not resolve any claims based on any failure by Sikeston Power Station to meet the requirements of this Consent Agreement, or claims for past, present, or future violations of any statutes or regulations.
7. Nothing in this Consent Agreement is intended to constitute an admission or statement by Sikeston Power Station that Sikeston Power Station has adversely impacted or has the potential to adversely impact any downwind nonattainment or maintenance receptors outside

Missouri. Rather, this Consent Agreement is intended to update the federally enforceable requirements for Sikeston Power Station as part of Missouri's SIP to address interstate transport obligations for the 2015 Ozone Standard.

8. This Consent Agreement shall be construed and enforced according to the laws of the State of Missouri, and the terms stated herein shall constitute the entire and exclusive agreement of the parties hereto with respect to the matters addressed herein. This Consent Agreement may not be modified orally.
9. If any provision of this Consent Agreement is found to be unenforceable in any respect, the validity, legality, and enforceability of the remaining provisions shall not in any way by affected or impaired.
10. Consistent with and subject to Paragraph 1, this Consent Agreement will become final, effective, and fully enforceable by the Department once it is executed by both parties. The Department shall send a fully executed copy of this Consent Agreement to Sikeston Power Station.

FORCE MAJEURE

11. Neither party will be liable for failure or delay to perform obligations under this Consent Agreement, which have become practicably impossible because of circumstances beyond the reasonable control of the applicable party. Such circumstances include, but are not limited to, natural disasters, acts of terrorism, labor disputes or stoppages, war, national/regional emergencies, pandemics, or local epidemics. Written notice of a party's failure or delay in performance due to force majeure must be given to the other party no later than five (5) business days following the force majeure event commencing, which notice shall describe the force majeure event and the actions taken to minimize the impact thereof. The parties

hereby agree, when feasible, not to cancel but reschedule the pertinent obligations and deliverables for mutually agreed dates as soon as practicable after the force majeure condition ceases to exist.

TERMINATION

12. This Consent Agreement shall be terminated upon mutual written agreement of Sikeston Power Station and the Department.
13. Other Termination conditions.

    A. In the event that EPA fully disapproves Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then this Consent Agreement will terminate upon the effective date of such full disapproval. An EPA disapproval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard in which EPA does not take action on the Supplement to that SIP, which includes this Consent Agreement will not automatically terminate this Consent Agreement.

    B. If EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP to address the Interstate Transport Provisions for the 2015 Ozone Standard that includes this Consent Agreement, then Sikeston Power Station shall have the option to terminate this Consent Agreement. If Sikeston Power Station wishes to terminate this Consent Agreement after EPA partially approves, partially disapproves, and/or grants a limited approval of Missouri's SIP revision that includes this Consent Agreement, they must notify the Department that they are terminating this Consent Agreement pursuant to this paragraph

within 90 days of the effective date of EPA's partial approval, partial disapproval, and/or limited approval. Termination shall be effective upon the Department's receipt of said notification by Sikeston Power Station.

C. In the event EPA approves, partially approves, or grants limited approval of Missouri's SIP as meeting the requirements of CAA Section 110(a)(2)(D)(i)(I) for the 2015 Ozone Standard (Good Neighbor Obligations for the 2015 Ozone Standard), and then EPA later withdraws their approval, partial approval, limited approval, or issues a SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, then Sikeston Power Station shall have the option to terminate this Consent Agreement. If Sikeston Power Station wishes to terminate this Consent Agreement after EPA withdraws their approval, partial approval, or limited approval of Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, or after a future EPA SIP Call to further address Missouri's Good Neighbor Obligations for the 2015 Ozone Standard, Sikeston Power Station must notify the Department that they are terminating this Consent Agreement pursuant to this paragraph within 90 days of the effective date of EPA's withdrawal of its approval, partial approval, limited approval, or the EPA SIP Call. Termination shall be effective upon the Department's receipt of said notification by Sikeston Power Station.

D. In the event EPA promulgates a federal plan to address Missouri's interstate transport, or good neighbor obligations, under the 2015 Ozone Standard, and such federal plan includes new requirements for the Sikeston Power Station, this Consent Agreement will terminate upon the effective date of such federal plan.

CORRESPONDENCE AND DOCUMENTATION

14. Correspondence or documentation with regard to this Consent Agreement shall be directed to the following persons, subject to change upon written notification from either party:

For the Department:

Compliance and Enforcement Section Chief
Air Pollution Control Program
P.O. Box 176
Jefferson City, Missouri 65102-0176

Or by email to: AirComplianceReporting@dnr.mo.gov

For Sikeston Power Station:

Results Engineer/Plant Chemist/ADR
Sikeston Power Station
PO Box 370
Sikeston, MO 63801

and

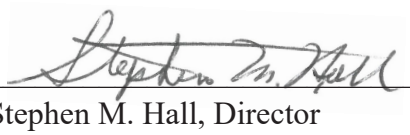
Results Engineer/Plant Chemist/ADR
Sikeston Power Station
1551 W. Wakefield Ave.
Sikeston, MO 63801

RIGHT OF APPEAL

By signing this Consent Agreement, Sikeston Power Station waives any right to appeal, seek judicial review, or otherwise challenge this Consent Agreement pursuant to Sections 643.130, 643.085, or 621.250, RSMo, Chapters 536, 643, RSMo, or any other source of law, subject to any change in law that might be interpreted to require changes to the terms of this Consent Agreement.

AGREED TO AND ORDERED

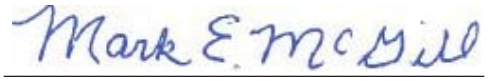
MISSOURI DEPARTMENT OF NATURAL RESOURCES



Stephen M. Hall, Director
Air Pollution Control Program
Missouri Department of Natural Resources

Date: October 14, 2022

SIKESTON POWER STATION



Mark McGill, Plant Manager/DR
Sikeston Power Station

Date: October 12, 2022

Appendix G
Sioux Energy Center
SNCR Control Cost Calculations

Fill in the yellow cells with the known data inputs. The resulting costs are tabulated below. Variable names are defined as outlined in the table.

Sioux - Unit 1
SNCR Fixed and Variable O&M costs

Variable	Designation	Units	Value	Calculation
Boiler Type	BT		Cyclone	<--- User Input
EPC Project?			☐ FALSE	
Unit Size	A	(MW)	550	<--- User Input
Retrofit Factor	B		1.00	<--- User Input (An "average" retrofit has a factor = 1.0)
Heat Rate	C	(Btu/kWh)	9947	<--- User Input
NOx Rate	D	(lb/MMBtu)	0.23	<--- User Input
SO2 Rate	E	(lb/MMBtu)	0.09	<--- User Input
Type of Coal	F		PRB	<--- User Input
Coal Factor	G		1.05	Bit = 1.0, PRB = 1.05, Lig = 1.07
Heat Rate Factor	H		0.9947	C/10000
Heat Input	I	(Btu/hr)	5.47E+09	A*C*1000
Capacity Factor	J	(%)	75.005	<--- User Input
NOx Removal Efficiency	K	(%)	30	<--- User Input
NOx Removed	L	(lb/hr)	377	D*I/10^6*K/100
Urea Rate (100%)	M	(lb/hr)	1641	L/UF/46*30; If Boiler Type = CFB or D>0.3 THEN UF = 0.25 ELSE UF = 0.15
Water Required	N	(lb/hr)	31184	M*19
Heat Rate Penalty Include in VOM? ☑	V	(%)	0.67	1175*N/I*100
Aux Power Include in VOM? ☑	O	(%)	0.05	0.05 default value
Dilution Water Rate	P	(1000 gph)	3.74	N*0.1199/1000
Urea Cost (50% wt solution)	Q	($/ton)	350	<--- User Input
Aux Power Cost	R	($/kWh)	0.06	<--- User Input
Dilution Water Cost	S	($/klb)	1	<--- User Input
Operating Labor Rate	T	($/hr)	60	<--- User Input (Labor cost including all benefits)
Replacement Coal Cost	U	($/hr)	2	<--- User Input

Costs are all based on 2021 dollars

Fixed O&M Cost

FOMO ($/kW yr) = (No operator time assumed)*2080*T/(A*1000)	$	-	Fixed O&M additional operating labor costs
FOMM ($/kW yr) =(0.012*BM)/(B*A*1000)	$	0.24	Fixed O&M additional maintenance material and labor costs
FOMA ($/kW yr) = 0.03*(FOMO + 0.4*FOMM)	$	0.00	Fixed O&M additional administrative labor costs
FOM ($/kW yr) = FOMO +FOMM+FOMA	**$**	**0.24**	Total Fixed O&M costs

Variable O&M Cost

VOMR ($/MWh) = M*Q/(A*1000)	$	1.04	Variable O&M costs for Urea
VOMM ($/MWh) = P*S/A	$	0.01	Variable O&M costs for dilution water
VOMP ($/MWh) = O*R*10	$	0.03	Variable O&M costs for additional auxiliary power required.
VOMB ($/MWh) = 0.001175*N*U/A	$	0.13	Variable O&M costs for heat rate increase due to water injected into the boiler
VOM ($/MWh) = VOMR + VOMW + VOMP + VOMM	**$**	**1.21**	Total Variable O&M costs

Annual Capacity Factor =	75%	
Annual MWhs =	3,613,741	
Annual Heat Input MMBtu =	35,945,881	
Annual Tons NOx Created =	4,134	current NOx Emission
Annual Tons NOx Removed =	1,240	at removal efficiency = 30%
Annual Tons NOx Emission =	2,894	
Annual Avg NOx Emission Rate, lb/MMBtu =	0.161	

Annual FOM Cost, $ =	134,000
Annual VOM Cost, $ =	4,373,000
FOM Cost, $/MWh =	0.04
VOM Cost, $/MWh =	1.21
FOM Cost, $/ton =	108
VOM Cost, $/ton =	3,526
Total OM Cost, $/ton	**3,634**

Fill in the yellow cells with the known data inputs. The resulting costs are tabulated below. Variable names are defined as outlined in the table.

Sioux - Unit 2
SNCR Fixed and Variable O&M costs

Variable	Designation	Units	Value	Calculation
Boiler Type	BT		Cyclone	<--- User Input
EPC Project?			☐ FALSE	
Unit Size	A	(MW)	**550**	<--- User Input
Retrofit Factor	B		**1.00**	<--- User Input (An "average" retrofit has a factor = 1.0)
Heat Rate	C	(Btu/kWh)	**9610**	<--- User Input
NOx Rate	D	(lb/MMBtu)	**0.23**	<--- User Input
SO2 Rate	E	(lb/MMBtu)	**0.12**	<--- User Input
Type of Coal	F		PRB	<--- User Input
Coal Factor	G		1.05	Bit = 1.0, PRB = 1.05, Lig = 1.07
Heat Rate Factor	H		0.961	C/10000
Heat Input	I	(Btu/hr)	5.29E+09	A*C*1000
Capacity Factor	J	(%)	**73.012**	<--- User Input
NOx Removal Efficiency	K	(%)	**30**	<--- User Input
NOx Removed	L	(lb/hr)	365	D*I/10^6*K/100
Urea Rate (100%)	M	(lb/hr)	1586	L/UF/46*30; If Boiler Type = CFB or D>0.3 THEN UF = 0.25 ELSE UF = 0.15
Water Required	N	(lb/hr)	30127	M*19
Heat Rate Penalty Include in VOM? ☑	V	(%)	0.67	1175*N/I*100
Aux Power Include in VOM? ☑	O	(%)	**0.05**	0.05 default value
Dilution Water Rate ☑	P	(1000 gph)	3.61	N*0.1199/1000
Urea Cost (50% wt solution)	Q	($/ton)	**350**	<--- User Input
Aux Power Cost	R	($/kWh)	**0.06**	<--- User Input
Dilution Water Cost	S	($/klb)	**1**	<--- User Input
Operating Labor Rate	T	($/hr)	**60**	<--- User Input (Labor cost including all benefits)
Replacement Coal Cost	U	($/hr)	**2**	<--- User Input

Costs are all based on 2021 dollars

Fixed O&M Cost

FOMO ($/kW yr) = (No operator time assumed)*2080*T/(A*1000)	$	-	Fixed O&M additional operating labor costs
FOMM ($/kW yr) =(0.012*BM)/(B*A*1000)	$	0.24	Fixed O&M additional maintenance material and labor costs
FOMA ($/kW yr) = 0.03*(FOMO + 0.4*FOMM)	$	0.00	Fixed O&M additional administrative labor costs
FOM ($/kW yr) = FOMO +FOMM+FOMA	**$**	**0.24**	Total Fixed O&M costs

Variable O&M Cost

VOMR ($/MWh) = M*Q/(A*1000)	$	1.01	Variable O&M costs for Urea
VOMM ($/MWh) = P*S/A	$	0.01	Variable O&M costs for dilution water
VOMP ($/MWh) = O*R*10	$	0.03	Variable O&M costs for additional auxiliary power required.
VOMB ($/MWh) = 0.001175*N*U/A	$	0.13	Variable O&M costs for heat rate increase due to water injected into the boiler
VOM ($/MWh) = VOMR + VOMW + VOMP + VOMM	**$**	**1.18**	Total Variable O&M costs

Annual Capacity Factor =	**73%**	
Annual MWhs =	3,517,718	
Annual Heat Input MMBtu =	33,805,272	
Annual Tons NOx Created =	3,888	current NOx Emission
Annual Tons NOx Removed =	1,166	at removal efficiency = 30%
Annual Tons NOx Emission =	2,721	
Annual Avg NOx Emission Rate, lb/MMBtu =	0.161	

Annual FOM Cost, $ =	134,000
Annual VOM Cost, $ =	4,136,000
FOM Cost, $/MWh =	0.04
VOM Cost, $/MWh =	1.18
FOM Cost, $/ton =	115
VOM Cost, $/ton =	3,546
Total OM Cost, $/ton	**3,661**

Order of Rulemaking

The Missouri Air Conservation Commission **ADOPTS** the following action on this 27th day of October, 2022:

Missouri State Implementation Plan Revision – Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard

_____, Chairman

_____, Vice Chairman

_____, Member

_____, Member

_____, Member

_____, Member

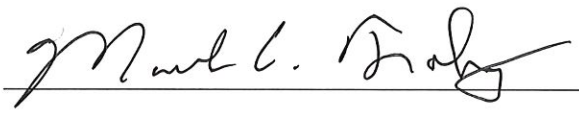
_____, Member

Order of Rulemaking

The Missouri Air Conservation Commission **ADOPTS** the following action on this 27th day of October, 2022:

Missouri State Implementation Plan Revision – Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard

_____, Chairman

 , Vice Chairman

_____, Member

_____, Member

_____, Member

_____, Member

_____, Member

Morgan, Cheri

From: Missouri DNR <modnr@modnr.dmarc.public.govdelivery.com>
Sent: Monday, June 27, 2022 10:58 AM
To: Rice, Heidi; Kremer, Karen; Stevens, Jeffrey; Wagner, Julie; Moore, Kyra; Bybee, Darcy; Holden, Tisha; Quinn, Brian; Morgan, Cheri; Arwe, Andrea; Bloomer, Susan; Maliro, Patricia; Fredrick, Miranda; stan.payne@dnr.mo.gov; Beydler, Van; Patterson, Connie; Downs, Jerry; Gilmore, David; Hall, Stephen
Subject: Courtesy Copy: Missouri Air Conservation Commission Public Hearing - July 28, 2022

This is a courtesy copy of an email bulletin sent by Cheri Morgan.

This bulletin was sent to the following groups of people:

Subscribers of Air Public Notices (1723 recipients)

MISSOURI DEPARTMENT OF NATURAL RESOURCES

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SHARE

Missouri Air Conservation Commission Will Hold Public Hearing

The Missouri Air Conservation Commission will hold a public hearing on Thursday, July 28, 2022 beginning at 9 a.m. Elm Street Conference Center, 1730 East Elm Street, Lower Level, Bennett Springs Conference Room, Jefferson City, Missouri, and online with live video conferencing during the Missouri Air Conservation Commission meeting. The commission will hear testimony related to the following proposed action(s):

- Missouri State Implementation Plan Revision – Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard

  This State Implementation Plan (SIP) revision is a supplement to the SIP revision titled Interstate Transport Provisions for the 2015 Ozone Standard. The department submitted that original SIP revision in June of 2019. This supplement includes updated analyses based on the latest national modeling results, and also includes new Consent Agreements to help control emissions at three facilities in Missouri. The original SIP submittal and this supplement demonstrate that Missouri's SIP contains sufficient provisions to ensure emissions in Missouri are not significantly contributing to nonattainment or maintenance problems in any downwind state with respect to the 2015 ozone standard.

If the commission adopts the action(s), it will be the department's intention to submit the action(s) to the U.S. Environmental Protection Agency to be included in Missouri's State Implementation Plan unless otherwise noted above.

Documents for the above item(s) will be available for review at the Missouri Department of Natural Resources, Air Pollution Control Program, 1659 Elm Street, Jefferson City, (573) 751-4817 and in the Public Notices section of the program web site www.dnr.mo.gov/env/apcp/public-notices.htm. This information will be available at least 30 days prior to the public hearing date.

The department will accept comments for the record until 5 p.m. on August 4, 2022. Please send written comments to Chief, Air Quality Planning Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176. Email comments may be submitted via the program web site noted above. All comments and public hearing testimony will be equally considered.

Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 751-7840. The department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing.

People with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the program directly at (573) 751-4817, the Division of Environmental Quality's toll free number at (800) 361-4827, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired people may contact the program through Relay Missouri, (800) 735-2966.\TTY.

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MISSOURI DEPARTMENT OF NATURAL RESOURCES (/)

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EPA and WaterISAC Cyber Security Warning to Water and Wastewater Systems (Updated) (/cyber-security-warning-water-wastewater-systems)

Air Public Notices

The following public notices have been issued for currently open public comment periods and scheduled public meetings, public hearings and other public events. This list may include draft or proposed permits, rulemaking, state actions, plans, bond issues, tax proposals, public improvement projects and more.

Regulatory Action Tracking System comment periods for rulemakings (https://apps5.mo.gov/proposed-rules/welcome.action)

Please feel free to participate in any opportunities below that interest you. If you have questions about a specific public comment period, facility or event, please email or call the contact listed in the public notice. Hearing and speech-impaired individuals may reach us through Relay Missouri at **800-735-2966 (tel:800-735-2966)**.

Please click on the specific public notice to access links to available electronic documents pertaining to that public notice and for information about how to submit comments, if applicable. Some documents may not be available due to their file size. Other available documents may be quite large, which may result in long download times for individuals with slow internet connections. If you would prefer to review or obtain printed copies of the documents, please submit an **Open Records/ Sunshine Law Request (/open-records-sunshine-law-requests)**.

Most public comment periods are 30 days, unless additional time is required. The department places drafts of operating air permits on public notice for 30 days, and drafts of construction air permits on public notice for 40 days. To view closed public comment periods that began **after Aug. 15, 2021**, use the date range fields.

Notice Title Topic

Date Range MM/DD/YYYY To MM/DD/YYYY

Search

Notice (?title=&field_pub_notice_topic_name_value=&start=&end=&order=title&sort=asc)	Areas of Focus	Topic (?title=&field_pub_notice_topic_name_value=
Capital Sand Proppants LLC-Jackson Draft Intermediate Operating Permit Public Comment Period, June 3, 2022 to July 3, 2022 (/calendar/event/170031) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**
Facility Operation Services LLC-Kansas City Airport Draft Intermediate Operating Permit Public Comment Period, June 3, 2022 to July 3, 2022 (/calendar/event/170036) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**
American Italian Pasta Co.-St. Louis Draft Intermediate Operating Permit Public Comment Period, June 3, 2022 to July 3, 2022 (/calendar/event/170026) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**
Bayer Research and Development Services LLC-Chesterfield Draft Intermediate Operating Permit Public Comment Period, June 6, 2022 to July 6, 2022 (/calendar/event/170236) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**

Notice (?title=&field_pub_notice_topic_name_value=&start=&end=&order=title&sort=asc)	Areas of Focus	Topic (?title=&field_pub_notice_topic_name_value=
WestRock Converting LLC-Joplin Draft Intermediate Operating Permit Public Comment Period, June 10, 2022 to July 10, 2022 (/calendar/event/170296) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**
Table Rock Asphalt Construction-Kimberling City Draft Intermediate Operating Permit Public Comment Period, June 17, 2022 to July 17, 2022 (/calendar/event/170931) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**
J.D. Streett & Co. Inc.-Lemay Draft Intermediate Operating Permit Public Comment Period, June 17, 2022 to July 17, 2022 (/calendar/event/170656) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**
Bartlett Grain Elevator-St. Joseph Draft Intermediate Operating Permit Public Comment Period, June 17, 2022 to July 17, 2022 (/calendar/event/170741) Air Pollution Control Program	Air » Pollutants and Sources	Draft Intermediate Operating Permit **Air Operating Permits (/air/business-industr**
Missouri State Implementation Plan Revision: Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard Public Comment Period, June 27, 2022 to Aug. 4, 2022 (/calendar/event/171306) Air Pollution Control Program	Air » Other	Proposed Missouri State Implementation Plan **Ozone State Planning (/air/what-were-doing**

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Air Financial Opportunities (/air/business-industry/financial-opportunities)

Air Conservation Commission (/commissions-boards-councils/air-conservation-commission)

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Contact Information

Calendar

JUNE

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Monday

Jun. 27 - Aug. 4 — Statewide

Missouri State Implementation Plan Revision: Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard Public Comment Period, June 27, 2022 to Aug. 4, 2022 (/calendar/event/171306)

The Missouri Department of Natural Resources is proposing revisions to the Missouri State Implementation Plan (SIP).

Area of Focus: Air Event Type: Public Notice/ Public Comment
Organization: Air Pollution Control Program

The Missouri Department of Natural Resources is proposing revisions to the Missouri State Implementation Plan (SIP). This revision is a supplement to the SIP-Interstate Transport Provisions for the 2015 Ozone Standard. The department invites the public to review and offer written comments on the proposed revisions until **Aug. 4, 2022**. **All comments must be received or postmarked by 5 p.m.** The public can review the proposed revisions below.

Written comments may be submitted by mail to the Missouri Department of Natural Resources, Air Pollution Control Program, Air Pollution Control Program, PO Box 176, Jefferson City, MO 65102-0176 or by email to **apcpsip@dnr.mo.gov (mailto:apcpsip@dnr.mo.gov)**. Comments submitted by email are limited to 20 MB in size. Comments larger than 20 MB need to be

submitted by mail to the address above. The department will hold a public hearing about the proposed revision during the **Missouri Air Conservation Commission meeting on July 28, 2022 (/content/2022-07-28-missouri-air-conservation-commission)**. Please follow the hearing link for more information.

The department submitted that original SIP-Interstate Transport Provisions for the 2015 Ozone Standard revision in June 2019. This supplement includes updated analyses based on the latest national modeling results. The revision also includes new Consent Agreements to help control emissions at three facilities in Missouri. The original SIP submittal and this supplement demonstrate that Missouri's SIP contains sufficient provisions to ensure emissions in Missouri are not significantly contributing to nonattainment or maintenance problems in any downwind state with respect to the 2015 ozone standard.

Meeting or Hearing
Public Hearing - Missouri Air Conservation Commission Meeting, July 28, 2022 (/content/2022-07-28-missouri-air-conservation-commission)

Event Documents

- **Missouri State Implementation Plan Revision: Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard (/document/missouri-state-implementation-plan-revision-supplement-interstate-transport-provisions-2015-ozone-standard)**

Location Information

Statewide, MO
Statewide

Contact Information

Air Pollution Control Program

573-751-7840 (tel:5737517840)

apcpsip@dnr.mo.gov (mailto:apcpsip@dnr.mo.gov)

MoDNR

About Us(/about-us)
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Communications(/communications)
Commissions, Boards, Councils(/commissions-boards-councils)

Calendar

JULY

12

Tuesday

Jun. 27 - Aug. 18 — Statewide

Missouri State Implementation Plan Revision: Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard Public Comment Period, June 27, 2022 to Aug. 18, 2022 (/calendar/event/171306)

The Missouri Department of Natural Resources is proposing revisions to the Missouri State Implementation Plan (SIP).

Area of Focus: Air Event Type: Public Notice/ Public Comment
Organization: Air Pollution Control Program

The Missouri Department of Natural Resources is proposing revisions to the Missouri State Implementation Plan (SIP). This revision is a supplement to the SIP-Interstate Transport Provisions for the 2015 Ozone Standard. The department invites the public to review and offer written comments on the proposed revisions until **Aug. 18 2022**. **All comments must be received or postmarked by 5 p.m.** The public can review the proposed revisions below.

Written comments may be submitted by mail to the Missouri Department of Natural Resources, Air Pollution Control Program, Air Pollution Control Program, PO Box 176, Jefferson City, MO 65102-0176 or by email to **apcpsip@dnr.mo.gov (mailto:apcpsip@dnr.mo.gov)**. Comments submitted by email are limited to 20 MB in size. Comments larger than 20 MB need to be submitted by mail to the address above. The department will hold a public hearing about the proposed revision during the **Missouri Air Conservation Commission meeting on July 28, 2022 (/content/2022-07-28-missouri-air-conservation-commission)**. Please follow the hearing link for more information.

The department submitted that original SIP-Interstate Transport Provisions for the 2015 Ozone Standard revision in June 2019. This supplement includes updated analyses based on the latest national modeling results. The revision also includes new Consent Agreements to help control emissions at three facilities in Missouri. The original SIP submittal and this supplement demonstrate that Missouri's SIP contains sufficient provisions to ensure emissions in Missouri are not significantly contributing to nonattainment or maintenance problems in any downwind state with respect to the 2015 ozone standard.

Meeting or Hearing
Public Hearing - Missouri Air Conservation Commission Meeting, July 28, 2022 (/content/2022-07-28-missouri-air-conservation-commission)

Event Documents

- **Missouri State Implementation Plan Revision: Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard (/document/missouri-state-implementation-plan-revision-supplement-interstate-transport-provisions-2015-ozone-standard-0)**

Location Information

Statewide, MO
Statewide

Contact Information

Air Pollution Control Program

573-751-7840 (tel:5737517840)

apcpsip@dnr.mo.gov (mailto:apcpsip@dnr.mo.gov)

Compliance Assistance(/compliance-assistance-enforcement)

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Current Air Quality(/air/hows-air/current-air-quality)

Hazardous Sites and Regulated Facilities (/waste-recycling/long-term-stewardship-lts/environmental-site-tracking-research-tool-e-start)

Solid Waste Processing Facilities and Landfills (https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=f261c6069e324f48a8cbc6ce74343f41)

State Park and Historic Sites Status (https://modnr.maps.arcgis.com/apps/webappviewer/index.html?id=0cc1b6513d6e407694aede7b7bdbde93)

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Submit Public Comments(/public-notices-comments)

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Proposed Rules(https://apps5.mo.gov/proposed-rules/welcome.action#OPEN)

proposed State Implementation Plan Revision for public review and comment on the Department of Natural Resources website at least 30 days prior to this public hearing. This notice was also issued in accordance with Section 643.070 of the Missouri Statutes and EPA promulgated Rule 40 CFR 51.102.

In addition to making the proposed State Implementation Plan Revision available for viewing and comment, the Air Pollution Control Program distributed the public hearing notice to over 1,200 citizens, organizations, corporations, associations, and elected officials. Finally, we notified the Kansas City, St. Louis County, and Springfield local air pollution control agencies; Illinois, Kansas and other surrounding states; and the U.S. Environmental Protection Agency of this public hearing.

Chairman, this concludes my testimony.

MR. FOHEY: Thomas Gilchrist.

THE STENOGRAPHER: Would you raise your right hand.

Do you swear that the testimony you are about to give will be the truth, the whole truth, and nothing but the truth?

MR. GILCHRIST: I do.

THOMAS GILCHRIST,

having been duly sworn, gave his testimony as follows:

MR. GILCHRIST: Mr. Chairman, members of the Commission, my name is Thomas Gilchrist. I am employed with the Missouri Department of Natural Resources Air Pollution Control Program. I work at 1659 East Elm Street in Jefferson City, Missouri.

I am here today to present testimony on the proposed Missouri State Implementation Plan, or SIP Revision titled Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard. The executive summary for the plan starts on page 188 of the briefing document.

On October 26, 2015, the U.S. Environmental Protection Agency, or EPA, finalized a revision to the National Ambient Air Quality Standards, or NAAQS, for ground-level ozone. This change strengthened the ozone standard, lowering it from 75 parts per billion, or ppb, to 70 ppb. As a result, Missouri was required under the Clean Air Act Section 110(a)(2)(D)(i)(I) to address interstate transport requirements for this pollutant.

This section of the Clean Air Act obligates states to include adequate provisions in their SIPs to prohibit emissions that will contribute significantly to nonattainment or interfere with the maintenance in any downwind state with respect to any NAAQS. These SIPs

are often referred to as "good neighbor" plans. In June of 2019, Missouri submitted its 2019 Good Neighbor SIP to EPA to satisfy Missouri's interstate transport requirements for the 2015 ozone standard.

In January of 2022, EPA released updated national modeling results that warranted an update to the analysis the Air Program performed in the 2019 SIP to demonstrate Missouri is meeting its good neighbor obligations under the 2015 ozone standard. EPA's latest modeling eliminated all of the downwind nonattainment and maintenance receptors the Air Program analyzed in Missouri's 2019 Good Neighbor SIP and added four new nonattainment and maintenance receptors that were connected to emissions from Missouri.

On February 22, 2022, EPA published a proposed disapproval of Missouri's 2019 Good Neighbor SIP. Then, on April 6, 2022, EPA published a proposed federal implementation plan to address Missouri's and 25 other states' good neighbor obligations for the 2015 ozone standard.

This supplement to Missouri's 2019 Good Neighbor plan provides analyses from the updated EPA modeling of the four new nonattainment and maintenance receptors where Missouri's modeled contribution is more than 1 percent of the 2015 ozone standard. The

supplement also includes additional evaluations for the previous downwind receptors in the 2019 plan based on the updated modeling. In the analyses, the Air Program followed EPA's four-step framework to address good neighbor plan obligations.

In Step 1, the Air Program identified all receptors in the updated modeling with average and maximum design values above the level of the standard.

In Step 2, the Air Program identified any of these receptors where emissions from Missouri were projected to contribute more than 1 percent of the level of the 2015 ozone standard for the year 2023. In this step, Missouri identified four such receptors, three in Wisconsin, and one in Illinois. The Air Program then performed a weight of evidence analysis for these four receptors case by case following EPA memorandums and available facts. The Air Program's analyses concluded that Missouri's current SIP is adequately addressing all of its good neighbor obligations for the 2015 ozone standard. However, the plan acknowledges there is some uncertainty in this conclusion for these four receptors.

Since there is a degree of uncertainty in these conclusions, and to provide greater assurances that Missouri is addressing its good neighbor obligations, the Air Program also performed a Step 3

analysis. In this step, the Air Program performed an analysis to identify whether there are any timely and cost effective control requirements that could be implemented in time to potentially help these four downwind nonattainment receptors come into compliance with the standard by their attainment deadlines.

Under Step 3, the Air Program concluded that there are high-emitting units located in the state with currently installed state-of-the-art NOx control technology, but no enforceable requirement to ensure that the control technology is operated continuously. The plan concludes under Step 3, that a new requirement to compel continuous operation of this control technology at these units during the high ozone season could achieve both timely and cost effective reductions in NOx emissions.

As such, the Air Program then moved on to Step 4 and worked with these identified facilities to execute enforceable Consent Agreements that would compel the continuous operation of the control technology from May through September each year. The Air Program anticipates the new agreements will result in reductions of over 6,000 tons of NOx emissions per ozone season going forward.

In closing, there are numerous state and

federal control measures that help control the ozone precursor emissions in Missouri from contributing significantly to downwind nonattainment and maintenance areas. These measures have resulted in meaningful improvements in ground-level ozone concentrations across the country. Additionally, the analyses included in the proposed plan supplement support a conclusion that the existing measures may already be sufficient to address Missouri's good neighbor obligations under the 2015 ozone.

However, to add even greater assurance to this finding, the proposed plan includes a Step 3 and 4 analysis that resulted in the execution of new Consent Agreements that will drive even further NOx ozone season emission reductions. All combined, the 2019 SIP and this supplement, demonstrate that Missouri's SIP is adequately addressing the good neighbor obligations for the 2015 ozone standard in all downwind states.

Finally, I would like to note that in response to a request from the stakeholder to extend the public comment period on this proposed action, the Air Program extended the public comment period deadline by 14 days. The new public comment deadline for the proposed action will end on August 18, 2022.

If the Commission adopts this plan supplement,

the department intends to submit it to the U.S. Environmental Protection Agency for inclusion in the Missouri State Implementation Plan.

Mr. Chairman, Commissioners, that concludes my testimony.

MR. FOHEY: Thank you, Thomas. David, who else do you have scheduled?

MR. GILMORE: The first person that we have signed up to speak is Rajiv, and forgive me for mispronouncing your last name. Is it Ravulapati?

MR. RAVULAPATI: Thank you. Yes, that is correct. Can you guys hear me all right?

MR. FOHEY: Yes.

MR. GILMORE: I can hear you just fine.

MR. RAVULAPATI: Okay.

THE STENOGRAPHER: Will you raise your right hand.

Do you swear that the testimony you are about to give will be the truth, the whole truth, and nothing but the truth?

MR. RAVULAPATI: Yes.

THE STENOGRAPHER: And will you state and spell your full name.

MR. RAVULAPATI: My first name is Rajiv spelled R-a-j-i-v. My last name is Ravulapati. It's

RECOMMENDATION FOR ADOPTION

MISSOURI STATE IMPLEMENTATION PLAN REVISION –

SUPPLEMENT TO THE INTERSTATE TRANSPORT PROVISIONS FOR THE 2015 OZONE STANDARD

On July 28, 2022, the Missouri Air Conservation Commission held a public hearing for the Missouri State Implementation Plan (SIP) revision titled – *Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard*. A summary of comments received and the air program's corresponding responses is included on the following pages. Revisions were made to the proposed plan supplement as a result of comments received.

The revised plan has not been reprinted in the briefing document due to its volume. However, the Executive Summary is included below for reference. The entire revised plan is available for review at the Missouri Department of Natural Resources' Air Pollution Control Program, 1659 East Elm Street, Jefferson City, Missouri, 65101, (573)751-4817. It is also available online at https://dnr.mo.gov/document-search/missouri-state-implementation-plan-revision-supplement-interstate-transport-provisions-2015-ozone-standard.

The department recommends the commission adopt the plan supplement as revised. If the commission adopts this plan supplement, the department intends to submit it to the U.S. Environmental Protection Agency for inclusion in the Missouri State Implementation Plan.

EXECUTIVE SUMMARY

The purpose of this document is to supplement the State Implementation Plan (SIP) the Missouri Department of Natural Resources' Air Pollution Control Program (air program) submitted in June of 2019 (Missouri 2019 Good Neighbor SIP). The SIP submittal supplement is titled *Interstate Transport Provisions for the 2015 Ozone Standard*.

The purpose of the Missouri 2019 Good Neighbor SIP and this supplement is to provide the technical foundation for the U.S. Environmental Protection Agency (EPA) to approve Missouri's SIP as satisfying the interstate transport or "good neighbor" requirement of the Clean Air Act (CAA) with respect to the ozone national ambient air quality standard (NAAQS) that EPA promulgated in 2015 (2015 ozone standard).

In January of 2022, EPA released national modeling results that changed the analysis needed to demonstrate that Missouri is meeting its good neighbor obligations under the 2015 ozone standard. EPA's updated modeling eliminated all of the downwind nonattainment and maintenance receptors the air program analyzed in Missouri's 2019 Good Neighbor SIP. However, the updated modeling also resulted in the addition of four new nonattainment or maintenance receptors that were linked to emissions from Missouri.

This supplement to Missouri's 2019 Good Neighbor SIP provides additional analysis to all of the receptors included in the original SIP submission and also an analysis of the newly added receptors included in EPA's updated modeling results. In addition, this supplement goes through EPA's 4-step process for addressing Missouri's good neighbor obligations under the CAA for the 2015 ozone standard. As part of that process, and included with this supplement, are new emission control requirements that will result in thousands of tons of nitrogen oxide (NO_x) emissions reductions annually.

On February 22, 2022, EPA published a proposed disapproval of Missouri's 2019 Good Neighbor SIP.[1] Then on April 6, 2022, EPA published a proposed federal implementation plan (FIP) to address Missouri's good neighbor obligations for the 2015 ozone standard.[2] This supplement to Missouri's 2019 Good Neighbor SIP is intended to address all of Missouri's good neighbor obligations for the 2015 ozone standard, thus avoiding the imposition of this proposed FIP in Missouri.

This SIP supplement ensures Missouri has addressed all of its CAA good neighbor obligations under the 2015 ozone standard and formally requests EPA approval of Missouri's SIP as satisfying these requirements.

[1] 87 FR 9533, February 22, 2022
[2] 87 FR 20036, April 6, 2022

COMMENTS AND RESPONSES ON
MISSOURI STATE IMPLEMENTATION PLAN REVISION —
SUPPLEMENT TO THE INTERSTATE TRANSPORT PROVISIONS
FOR THE 2015 OZONE STANDARD

The public comment period for the proposed Missouri State Implementation Plan (SIP) revision titled - Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard (SIP supplement) opened on June 27, 2022 and closed on August 18, 2022. The air program made revisions to the proposed SIP supplement as a result of comments.

The following is a summary of comments received and the Missouri Department of Natural Resources' Air Pollution Control Program's (air program's) corresponding responses. Changes to the proposed plan are included in the response to comments.

SUMMARY OF COMMENTS: During the public comment period for the proposed plan, the air program received comments from eighteen (18) entities: Steve Whitworth, Ameren Missouri; Beth Gutzler, Metropolitan Congregations United; Brian Smith, Sierra Club; Carolyn Amparan; Carolyn Pufalt; Dan Hedrick, City Utilities of Springfield; the U.S. Environmental Protection Agency (EPA) Region 7; Sarah Rubenstein, Great Rivers Environmental Law Center (representing Missouri Coalition for the Environment, Sierra Club, Trailnet, and Friends of Poosey Conservation Area); Helen Host; Jack Meincenbach; Jeanette Mott Oxford; Jennifer DeRose, Sierra Club – Beyond Coal Campaign; Lloyd Klinedinst, Labadie Environmental Organization; Patricia Schuba; Rajiv Ravulapati, Sierra Club; Sophie Watterson, Missouri Coalition for the Environment; Elizabeth J. Hubertz, Washington University Interdisciplinary Environmental Clinic (representing Sierra Club); and an additional 299 letters collected by the Sierra Club from concerned citizens submitted by Rajiv Ravulapati.

The following nine (9) comments relate to the contribution thresholds used in the proposed SIP supplement, and the air program's use of the EPA's August 2018 memorandum relating to the use of alternative contribution thresholds. Due to their similarity, one response is provided for all nine (9) comments.

COMMENT #1: The Washington University Interdisciplinary Environmental Clinic commented that the Supplement to the Interstate Transport Provisions for the 2015 Ozone Standard incorrectly relies on unsuitable emissions data to remove the air program's responsibility for downwind exceedances. The SIP supplement used EPA's 2016v.1 modeling data and determined that Missouri contributed more than 1 percent or 0.70 parts per billion (ppb), to exceedances at the Kenosha-Chiwaukee and Kenosha-Water Tower Wisconsin receptors. The SIP supplement states that the exceedances are caused by "localized emissions and lake breeze effects over Lake Michigan" with the states of Illinois, Indiana, and Wisconsin also having a large effect due to their close proximity. Missouri asserts they do not significantly contribute to the Wisconsin receptors with design values greater than the 2015 ozone standard. Under EPA's 4-step analysis the air program's task is not to evaluate where the exceedances come from, but to determine whether Missouri emissions make a significant contribution to the exceedances at the Wisconsin receptors.

COMMENT #2: The Washington University Interdisciplinary Environmental Clinic commented that the SIP supplement incorrectly relies on alternative thresholds from an August 2018 EPA memorandum. In the Cross-State Air Pollution Rule (CSAPR) and the CSAPR Update, EPA consistently used a 1 percent contribution threshold to determine which upwind states affect downwind receptors. In the August 2018 memorandum, EPA clearly states that use of an alternative contribution threshold may not be appropriate in all circumstances, and in the air program's 2019 SIP addressing interstate ozone transport for the 2015 ozone National Ambient Air Quality Standards (NAAQS), one reason EPA didn't approve the SIP was because no further analyses were provided for support of an alternative threshold.

COMMENT #3: EPA commented that based on their previous comments in the disapproval of the air program's 2019 Good Neighbor SIP for the 2015 ozone NAAQS, and experience, the August 2018 memorandum where alternative contribution thresholds are evaluated, may not be appropriate or practical to use at Step 2 of the 4-step process in determining upwind states that contribute to downwind state problems.

COMMENT #4: The Great Rivers Environmental Law Center commented that the air program improperly has concluded in the SIP supplement that, "Missouri's current SIP is adequately addressing its good neighbor obligations for the 2015 ozone standard". The air program presents an analysis where a linked downwind receptor may be up to a 1.0 or 2.0 ppb threshold instead of utilizing a 1 percent or 0.7 ppb threshold as clearly required to ensure Missouri does not significantly contribute to nonattainment or interfere with maintenance for the 2015 ozone NAAQS in downwind states.

COMMENT #5: The Great Rivers Environmental Law Center commented that the air program relies on an EPA August 2018 memorandum which allows for a larger contribution threshold than 1 percent or 0.70 ppb and is contrary to EPA's historical use of a 1 percent contribution threshold. EPA has stated that the August 2018 memorandum may not be appropriate to use in supporting an alternative contribution threshold and the air program should not rely on this memorandum.

COMMENT #6: The Great Rivers Environmental Law Center commented that the air program relies on a 2.0 ppb contribution threshold for the two Kenosha, Wisconsin monitors and that EPA has previously stated that it has not suggested that this contribution threshold is appropriate under any circumstances.

COMMENT #7: The Great Rivers Environmental Law Center commented that the air program improperly has attempted to avoid Missouri's linkage to downwind receptors, and has indicated that other closer states are the primary contributors of ozone to those receptors. The D.C. Circuit Court of Appeals and EPA have clearly rejected this type of rationale due to the cumulative effects that upwind states have on downwind receptors and that the good neighbor obligations rely on consistent participation by all states that contribute at least 1 percent to downwind receptors for the 2015 ozone NAAQS.

COMMENT #8: Sophie Watterson commented that her organization supports EPA's proposed good neighbor Federal Implementation Plan (FIP) for the 2015 ozone NAAQS to control ozone interstate air pollution and that the air program's SIP supplement does not adequately evaluate or

address ozone emissions and their precursors that are generated in Missouri. The air program does not consistently use the recommended 1 percent contribution threshold in its SIP supplement and instead uses alternate thresholds that allow for more nitrogen oxide (NO_x) pollution.

COMMENT #9: Ameren Missouri commented that the proposed SIP supplement correctly demonstrates that the latest EPA modeling does not show significant contribution from Missouri to the four downwind receptors based on a weight of evidence approach and through application of the EPA guidance in the August 2018 memorandum.

RESPONSE: In the original CSAPR, promulgated in 2011, EPA utilized a contribution threshold of 1 percent of the 1997 ozone standard in determining whether upwind states were linked at Step 2 of EPA's 4-step framework for addressing the Clean Air Act's (CAA's) good neighbor obligations for that previous ozone standard. In the Federal Register (FR) notice for the original CSAPR, EPA explains why it selected a contribution threshold of 1 percent and not a higher or lower threshold for that previous standard. From the August 8, 2011 FR notice for EPA's original CSAPR [1] –

> *"... EPA has compiled the contribution modeling results to analyze the impact of different possible thresholds. This analysis demonstrates the reasonableness of using the 1 percent threshold to account for the combined impact of relatively small contributions from many upwind states .... In this analysis, EPA identifies ...: (1) Total upwind state contributions, and (2) the amount of the total upwind state contribution that is captured at thresholds of 1 percent, 5 percent and 0.5 percent of the NAAQS. EPA continues to find that the total ''collective contribution'' from upwind sources represents a large portion of ... ozone at downwind locations and that* ***the total amount of transport is composed of the individual contribution from numerous upwind states*** [emphasis added].
>
> *The analysis shows that* ***the 1 percent threshold captures a high percentage of the total pollution transport*** [emphasis added] *affecting downwind states for ... ozone. In response to commenters who advocated a higher threshold, EPA observes that* ***higher thresholds would exclude increasingly large percentages*** [emphasis added] *of total transport, which we do not believe would be appropriate...*
>
> *In response to commenters who advocated a lower threshold, EPA observes that the analysis shows that a lower threshold such as 0.5 percent would result in relatively modest increases in the overall percentages of ... ozone pollution transport captured relative to the amounts captured at the 1 percent level.* ***A 0.5 percent threshold could lead to emission reduction responsibilities in additional states that individually have a very small impact on those receptors— an indicator that emission controls in those states are likely to have a smaller air quality impact at the downwind receptor. We are not convinced that selecting a threshold below 1 percent is necessary or desirable."*** [emphasis added].

[1] See 76 FR 48237, published August 8, 2011

Therefore, when determining that a 1 percent threshold was appropriate in the original CSAPR, EPA evaluated the total amount of upwind state contribution that would be captured at three different thresholds (0.5 percent, 1 percent, and 5 percent). EPA decided based on its analyses in the original CSAPR that 1 percent was appropriate. Based on the Air Quality Modeling Final Rule Technical Support Document for the original CSAPR, the nation-wide average percentages of total upwind transport for ozone that would be captured at maintenance and nonattainment receptors for the original CSAPR at the 0.5 percent, 1 percent, and 5 percent thresholds were 91 percent, 84 percent, and 43 percent, respectively. Based on this, a seven percent reduction in the capture percentage of upwind state contributions when comparing the 0.5 percent threshold to the 1 percent threshold was not a compelling reason for EPA to lower the threshold down to 0.5 percent at that time. EPA's justification was that using the lower threshold would result in the inclusion of several additional states with relatively small impacts at the receptors of concern. The next higher threshold EPA evaluated was 5 percent in the original CSAPR, and the use of this threshold would have captured 41 percent less upwind state contribution than a 1 percent threshold and 48 percent less than a 0.5 percent threshold. EPA concluded this was unacceptable and rejected the 5 percent threshold in the original CSAPR.

In EPA's April 2022 proposed FIP to address good neighbor obligations for the 2015 ozone standard, EPA states the following with respect to their proposed decision to use a 1 percent threshold [2] –

> *"… in promulgating FIPs to directly implement good neighbor requirements, … the EPA notes that it is authorized to* ***exercise discretion in making policy determinations*** [emphasis added] *such as the appropriateness of a particular contribution threshold* ***that would otherwise have been exercised by states*** [emphasis added] …
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> *… The EPA recognized in the August 2018 memo that there was some similarity in the amount of total upwind contribution captured (on a nationwide basis) between 1 percent and 1 ppb. However, the EPA notes that while this may be true in some sense, that is hardly a compelling basis to move to a 1 ppb threshold. Indeed, the 1 ppb threshold has the disadvantage of losing a certain amount of total upwind contribution for further evaluation at Step 3 (… **in EPA's updated modeling, the amount lost is roughly 5 percent*** [emphasis added]*)*…
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> *… Consistency with past interstate transport actions such as CSAPR, and the CSAPR Update and Revised CSAPR Update … is also important …"*

As noted in the FR Notice, the determination of the appropriate threshold is a policy decision, and that EPA has this discretion when promulgating FIPs. However, EPA goes on to say that states generally have that authority when writing their SIPs. Further, EPA states that the use of a 1.0 ppb threshold in the updated modeling only results in the loss of a nationwide average of five percent of total upwind contribution. This is less than the amount EPA deemed acceptable when comparing the 0.5 percent threshold to the 1 percent threshold in the original CSAPR. However, EPA offers no reason in the proposed FIP for why it is no longer acceptable and contradicts EPA's justification in the original CSAPR for not lowering the threshold to 0.5 percent (i.e. that

[2] See 87 FR 20073-20074, published April 6, 2022

it would unnecessarily impose costly controls on additional states that have relatively small impacts to the receptors of concern and thus would not result in meaningful air quality improvements at these receptors). For these reasons, EPA's August 2018 memorandum that affords states the ability to justify the use of alternative thresholds at Step 2 continues to be a well-reasoned and defensible document.

The air program utilized EPA's August 2018 memorandum and showed that there is only a small difference in the percentage of total captured upwind contributions when using a 1 percent (0.70 ppb), a 1.0 ppb, or a 2.0 ppb threshold at particular monitors that are relevant to Missouri (specifically many of the receptors located along the coast of Lake Michigan). In EPA's August 2018 memorandum, the agency compared the percent of total upwind contributions captured at these various thresholds and determined based on that analysis that a threshold of 1.0 ppb may be appropriate for states to use to develop SIP revisions addressing the good neighbor provision for the 2015 ozone standard. While EPA's proposed disapproval of Missouri's 2019 good neighbor SIP and the agency's proposed FIP both walk back the conclusions in the August 2018 memorandum, neither of these EPA proposals definitively rule out the use of the memorandum when making determinations of linkages at Step 2. The air program also notes that the CAA does not provide a quantitative definition of the amount of emissions which will contribute significantly to nonattainment, or interfere with maintenance with respect to good neighbor obligations. For all of these reasons, the selection of a particular threshold at Step 2 remains a policy decision for states in writing their SIPs so long as the state has a reasoned basis for its selection. Therefore, the air program's use of alternative thresholds in this SIP supplement at Step 2 is both appropriate and allowable.

Nevertheless, despite the reasoned basis for concluding that Missouri has satisfied its obligation at Step 2 through the use of appropriate alternative thresholds, the proposed SIP supplement conservatively proceeds on to Steps 3 and 4. These latter two steps in the proposed SIP supplement result in enforceable agreements that will reduce thousands of tons of ozone season NO_x emissions from sources in the state each year. For this reason, all of the comments regarding the use of alternative thresholds at Step 2 are irrelevant to the final outcome of the SIP supplement. The air program made no changes to the proposed SIP supplement as a result of these comments.

The following twenty-eight (28) comments relate to the inclusion of additional sources for review of potential controls at Step 3, specifically, EGUs without SCRs such as Labadie and Sikeston, and non-EGUs, and the inclusion of modeling to assess the impact of the anticipated reductions on the linked downwind monitors. Due to their similarity, one response is provided for all twenty-eight (28) comments.

COMMENT #10: The Washington University Interdisciplinary Environmental Clinic commented that the SIP supplement does not provide sufficient reductions of EGU emissions to satisfy the CAA or show how the emissions reductions affect downwind monitors.

COMMENT #11: The Washington University Interdisciplinary Environmental Clinic commented that the SIP supplement should address EGUs that do not currently have SCR installed to satisfy the CAA.

COMMENT #12: The Washington University Interdisciplinary Environmental Clinic commented that the air program should evaluate and include in its SIP supplement NO_x emission limitations for non-EGUs that emit high amounts of NO_x.

COMMENT #13: EPA commented that for states linked at Step 1 and Step 2 of EPA's Good Neighbor Provision 4-step Framework, EPA's longstanding approach to eliminating significant contribution or interference with maintenance at downwind monitors is necessary in a Step 3 analysis, which would usually include a multifactor assessment of potential emission controls. The assessment would normally be comprised of information on emission sources, applicable control technologies, emissions reductions, costs, cost effectiveness, and downwind air quality impacts of the estimated in-state reductions to the downwind linked receptors. The air program's Step 3 analysis may be incomplete and was limited to reductions for the ozone season year 2023 and did not evaluate year 2026.

COMMENT #14: EPA commented that the air program's Step 3 analysis only included potential emission reductions for power plants that have SCR systems installed and did not review a wider range of facilities where NO_x reductions may be possible.

COMMENT #15: EPA commented that to satisfy a multifactor Step 3 analysis the air program should provide a technical demonstration that uses air modeling to evaluate the air program's current reductions in the SIP and how they affect downwind linked monitors, and in particular consider that the NO_x emission rates in the proposed SIP supplement appear higher than the rates included in the proposed FIP and only cover EGUs, whereas the proposed FIP includes new requirements for both EGUs and non-EGUs.

COMMENT #16: The Great Rivers Environmental Law Center commented that the air program's proposed SIP supplement fails to meet a good faith emission reduction strategy that satisfies good neighbor provisions for the 2015 ozone standard. As indicated in EPA modeling, the NO_x emission reductions proposed in the SIP supplement are insufficient compared to the 8,237 tons of reduction of NO_x per ozone season as included in the proposed FIP to address Missouri's significant contribution to downwind receptors.

COMMENT #17: The Great Rivers Environmental Law Center commented that the proposed SIP supplement has failed to include any technical support documents, analyses, or statistical backup for its conclusions. The air program should provide any type of additional supporting analyses to the general public for review and comment before issuing the SIP.

COMMENT #18: The Great Rivers Environmental Law Center commented that the proposed SIP supplement did not identify all appropriate cost-effective control measures and should have included similar emission control provisions as outlined in the proposed FIP. Such emission control provisions may include fully operating existing SCRs and selective non-catalytic reduction (SNCR) systems on applicable EGUs, mandate NO_x combustion control upgrades by 2024, mandate SCRs at 100 mega-watt (MW) or greater EGUs and oil/gas units, require additional controls on EGUs less than 25 MWs, municipal solid waste units, and cogeneration units, and impose new NO_x emission limits on non-EGUs.

COMMENT #19: Rajiv Ravulapati, Sierra Club commented that the proposed SIP supplement does not adequately evaluate or address ozone pollution generated in Missouri and must be significantly revised. The air program needs to revise its proposal to include stronger air pollution controls as recommended by EPA in the federal plan promulgated in April 2022 for coal plants, EGUs, and other non-EGUs that generate ozone pollution.

COMMENT #20: Rajiv Ravulapati, Sierra Club commented that the Labadie Energy Center and the Sikeston Power Station are two of the largest sources of ozone in the state and should be held accountable by requiring NO_x emission reductions or transitioning the facilities into retirement.

COMMENT #21: Jennifer DeRose, Sierra Club – Beyond Coal Campaign commented that the proposed SIP supplement is not strong enough and is insufficient to address ozone pollution from two of Missouri's largest NO_x emitters, the Labadie Energy Center and the Sikeston Power Station. The proposed SIP supplement should be revised to include NO_x reductions through use of SCR at the Labadie Energy Center and the Sikeston Power Station.

COMMENT #22: Brian Smith, Sierra Club commented that the SIP supplement is insufficient in addressing pollution from the Labadie Energy Center and the Sikeston Power Station. The SIP supplement is also deficient in reducing pollution at the New Madrid Power Plant and the Thomas Hill Energy Center, which are among the highest emitters of NO_x in the country. The SIP supplement should require these coal plants to make real reductions of NO_x or be transitioned into retirement.

COMMENT #23: Patricia Schuba commented requesting the air program to revise the proposed SIP supplement and require the Labadie Energy Center and Sikeston Power Station to add air pollution controls until they transition to clean energy.

COMMENT #24: Sophie Watterson, Missouri Coalition for the Environment commented that the proposed SIP supplement does not include adequate amounts of NO_x emission reductions and that the proposal does not clearly explain how the changes will result in a decrease of 6,000 tons of NO_x per ozone season.

COMMENT #25: Sophie Watterson, Missouri Coalition for the Environment commented that the SIP supplement disregards many cost-effective emission control measures to achieve a greater level of ozone reduction from coal-fired power plants, and various other industries.

COMMENT #26: Jeanette Mott Oxford commented that the Labadie Energy Center and Sikeston Power Station do not have air pollution controls that meet the health needs of the area, and that the air program’s cost benefit numbers are considerably lower than those of other states.

COMMENT #27: Jeanette Mott Oxford commented that the Labadie Energy Center and Sikeston Power Station lack modern air pollution controls, and that the air program should revise its SIP supplement and address NO_x pollution by adequately evaluating and regulating ozone pollution from coal plants throughout the state using EPA's recommended standards.

COMMENT #28: Carolyn Pufalt commented that some of the largest polluters in Missouri were not evaluated in the air program's SIP supplement and that more should be done to reduce air pollution.

COMMENT #29: Carolyn Amparan commented that the air program should require the Labadie Energy Center and the Sikeston Power Station to add modern air pollution controls.

COMMENT #30: Jack Meincenbach commented that there has been some progress made in reducing air pollution but not enough, and that the SIP supplement should address further emission reductions at coal-fired power plants in Missouri.

COMMENT #31: The Sierra club submitted 299 letters signed by concerned citizens, these letters commented that the SIP supplement should be revised to require additional air pollution controls for the Labadie Energy Center and Sikeston Power Station to protect people both in Missouri and in downwind states. Within these comments, several Sierra Club members stated their dissatisfaction with the proposed SIP supplement.

COMMENT #32: Ameren commented that to further strengthen the SIP supplement, they are willing to enter into an agreement with the air program to require the operation of their existing SNCR systems at the Sioux Energy Center during the ozone season to achieve a NO_x emission rate of 0.18 pounds per million British thermal units (lbs/mmBtu) of NO_x.

COMMENT #33: Ameren Missouri commented that the SIP supplement identifies EPA mischaracterized contributions to downwind receptors contained in the EPA modeling platform. The SIP supplement highlights the EPA modeling platform performance issues of the four linked modeled receptors in close proximity to Lake Michigan. EPA's own analysis of the Comprehensive Air-quality Model with extensions (CAMx) model performance, for the region surrounding the Lake Michigan receptors show the model bias and modeling error are outside established model performance goals for Missouri linked receptors. Poor model performance casts considerable doubt and uncertainty on modeled upwind contribution from Missouri.

COMMENT #34: Ameren Missouri commented that the ozone design values for each of the four monitors that Missouri contributes greater than 1 percent have not responded to actual NO_x emission decreases in the last ten years and have remained relatively stable, casting further doubt on modeling performance.

COMMENT #35: Ameren Missouri commented that the air program analyzed and selected cost-effective controls that could be implemented before the attainment deadlines for the 2015 ozone standard. Coal-fired generating units with a limit of 0.12 lbs/mmBtu were identified as a backstop for NO_x emissions and represents a reasonable emission rate that can be reached by units with SCR controls and their historical NO_x emission rates.

COMMENT #36: Ameren Missouri commented that during the public hearing at the July Missouri Air Conservation Commission (MACC) meeting several people commented incorrectly that EGUs at the Labadie Energy Center do not have NO_x controls. This is not the case as EGUs at both the Labadie and Rush Island Energy Centers are equipped with a number of NO_x

emission controls, namely low NO_x burners (LNB), separated over-fire air (OFA), and neural network combustion optimization. This combination of control at the Labadie Energy Center achieves 81 percent NO_x reduction at a rate of less than 0.10 lbs NO_x/mmBtu for 2017-2019, and an 83 percent NO_x reduction for the Rush Island Energy Center with a 0.08 lbs NO_x/mmBtu emission rate. The units at these energy centers are already realizing NO_x emission rates close to those of the best SCR controlled units that EPA identified as cost-effective in the Revised CSAPR Update.

COMMENT #37: Dan Hedrick, City Utilities of Springfield commented that Table 3 of the SIP supplement should be updated to reflect an annual emission rate of 0.50 lbs/mmBtu for Unit 1.

RESPONSE AND EXPLANATION OF CHANGES: The Step 3 analysis in the proposed SIP supplement focused on available already-installed controls that could be used to further reduce NO_x emissions as expeditiously as practicable given the attainment deadline for Moderate ozone nonattainment areas under the 2015 ozone standard. The air program appreciates the comment from Ameren regarding the availability of the SNCR controls already installed at the Ameren Sioux Energy Center facility, and the company's willingness to enter into an agreement to further strengthen the SIP supplement. Such an agreement fits squarely within the Step 3 approach the air program followed in the proposed SIP supplement.

With regard to the multiple comments requesting the SIP supplement to analyze additional controls at Step 3, specifically for the Labadie Energy Center, Sikeston Power Station, and the various non-EGU categories, the air program notes that any such new control requirements would be substantially less cost-effective and it would not be practicable for facilities to install such controls in time to achieve emission reductions by 2023. This is the last year of monitoring data that EPA will use to determine if Moderate ozone nonattainment areas attain by their attainment deadline.

EPA suggested the SIP supplement be revised to include a modeling analysis to estimate the corresponding impact on downwind ozone concentrations that will result from the new control requirements included in the SIP supplement. Regarding this issue, the air program notes that EPA did not include such an analysis in its proposed FIP. However, EPA did still estimate the impact that the various control strategies would have on design values and upwind state contributions using the agency's ozone air quality assessment tool (AQAT).

In response to these comments the air program has revised the proposed SIP supplement in numerous ways. The air program has strengthened the proposed SIP supplement by entering into an enforceable agreement with the Ameren Sioux Energy Center facility to compel continuous operation of their SNCR control equipment during the regulatory ozone season (May – September) each year. This agreement is anticipated to result in actual emission reductions at the facility of several hundred tons of NO_x per ozone season.

In addition, the air program analyzed the potential control costs at the Labadie Energy Center and Sikeston Power Station facilities, along with their current NO_x emission rate levels. While these two facilities do not possess post combustion NO_x control technology, they are both equipped with LNB and OFA systems. These systems have proven effective at controlling NO_x

emissions during the combustion process at these facilities, and both have demonstrated the ability to keep NO_x emission rates near or below the levels proposed as new emission rates in the agreements for the three facilities with SCR controls that the air program included in the proposed SIP supplement. As a result, the air program reached out to these two facilities to determine if they would be willing to enter into voluntary agreements to lock in the emission reductions these facilities have achieved through the use of their existing NO_x combustion control technology. Both of these facilities agreed and the SIP supplement now includes new enforceable agreements for the Labadie Energy Center and Sikeston Power Station facilities. While these two agreements are not anticipated to result in actual emission reductions at these facilities, they do provide enforceable backstops and new enforceable emission rates just like the facilities with SCR units that were included in the agreements in the proposed SIP supplement.

In addition to the three new agreements, the air program also made other updates to the technical demonstration at Step 3 of the proposed SIP supplement. The air program updated the tables in the SIP supplement to show the historical emission rates of all the coal-fired EGUs, the existing NO_x control technology, and whether enforceable requirements existed to ensure the facilities would operate their control technology. Through the additional analysis, the air program found no other EGUs that had existing NO_x control technology, but that lacked enforceable requirements to operate the technology. The air program analyzed three non-EGU industry source categories for which EPA identified and proposed new controls in the agency's proposed FIP.

Also, in response to the comment requesting the air program to evaluate the impact on the linked receptors that the new control requirements would achieve, the air program performed an additional analysis using EPA's ozone AQAT. The result is that despite the nearly 7,000 tons of ozone season NO_x emissions at a projected cost to Missouri electricity ratepayers of over approximately $8.8 million dollars per year, the largest projected decline at the four monitors linked to Missouri is only 0.1 ppb. Through the new analysis, the air program converted these figures to show that the new controls added through the SIP supplement have an annual cost effectiveness with respect to this linked monitor of approximately $81 million dollars per 1.0 ppb improvement. This demonstrates how stringent the new controls are when considering the purpose of the SIP supplement, which is to address Missouri's good neighbor obligations to downwind receptors.

With regard to the comments requesting analysis at Step 3 of the for installing SCR systems at the Labadie Energy Center and Sikeston Power Station, the air program updated the analysis at Step 3 to provide cost effectiveness figures for SCR retrofits at Labadie and Sikeston. The air program also provided analysis that the linked monitor impacted most by Missouri emissions in Kenosha County, WI is expected to drop off as a maintenance receptor by 2026. The applied the cost effectiveness values for SCR retrofits at Labadie and Sikeston and found that for the remaining three receptors, the cost effectiveness in terms of annual dollars spent in Missouri per 1.0 ppb improvement would be over $1.5 billion. The air program determined this was not a cost effective option for addressing Missouri's good neighbor obligations.

With regard to the comments requesting analysis at Step 3 of the for non-EGU emission source categories, the included additional updates to the analysis at Step 3. The air program used the

facilities identified by EPA in its proposed FIP for the non-EGU category. The air program found that the existing state control program was more stringent than the proposed FIP for cement and concrete manufacturing. The air program identified no cost effective and available emission reduction potential for glass and glass product manufacturing industry. Finally, the air program calculated and determined that using EPA's project cost per ton reduced in the proposed FIP for the pipeline transportation of natural gas was not cost effective at reducing ozone levels at the remaining downwind monitors linked to Missouri in 2026. The cost effectiveness for controlling this industry category in Missouri would exceed $570 million in annual costs to Missouri for 1.0 ppb improvement at the downwind receptor.

The revisions the air program made to the proposed SIP supplement in response to these comments have secured additional emission reductions of several hundred tons per ozone season. In addition, they resulted in a strengthened technical demonstration and new enforceable requirements that will lock in emission reductions that have already been achieved through the NO_x control systems at the Labadie Energy Center and Sikeston Power Station.

The following three (3) comments relate to comparisons of the proposed SIP supplement's emission rate for the SCR equipped units (0.12 lbs/mmBtu) and the assumed emission rates for such units in EPA's proposed Federal Implementation Plans (0.08 lbs/mmBtu). Due to their similarity, one response is provided for all three (3) comments.

COMMENT #38: The Washington University Interdisciplinary Environmental Clinic commented that the SIP supplement emissions rate will not sufficiently reduce NO_x emissions. EPA determined in the FIP that SCR optimization can achieve a 0.08 lbs/mmBtu emission rate and that more than 90 percent of active SCRs perform at this level or better. The consent agreements contain a 0.12 lbs/mmBtu emission rate for the six units that have SCRs and the NO_x emission reductions associated with this rate will be insufficient compared to the amount of reductions expected in the EPA FIP for 2023 or 2026.

COMMENT #39: EPA commented that the air program is proposing a 0.12 lbs/mmBtu NO_x emission limit for each of the six affected units in the consent agreements that is higher than the proposed FIP, and averaged over the course of the entire 153 day ozone season with minimal or no restrictions on operation. EPA requests the air program consider strengthening the emission limit and decreasing the averaging time especially with a proposed NO_x emission limit that is higher than the FIP.

COMMENT #40: The EPA requests supporting information on the reason a rate of 0.12 lbs/mmBtu was chosen even though it is less stringent than the rates in the CSAPR Update Rule where the 2008 ozone standard was addressed.

RESPONSE: The air program evaluated historical emission rates at all of the facilities where new agreements were included in the proposed SIP supplement. After evaluating all of the units with SCRs, the air program determined that the third best NO_x ozone season emission rate at all of the individual units was within 0.095 – 0.105 lbs/mmBtu, and that these values were reflective of rates achieved with SCR operation during the ozone season. The air program concluded that these emission rates had been demonstrated as generally achievable based on the available

control technology at the units. However, catalysts degrade over time, and they sometimes plug or require some other type of maintenance to achieve this control efficiency. In addition, as more and more intermittent renewables such as solar and wind get connected to the grid, more and more cycling and load following from traditional baseload units will be inevitable, which has a direct impact on the efficiency of SCR NO_x controls.

In light of these considerations, the air program added a compliance margin of approximately 20 percent to the demonstrated achievable emission rates to account for this potential future variability. This is a reasoned approach that will achieve the intended outcome. Further, most facilities make best efforts to operate within a 15-20 percent compliance margin; therefore, it likely that for most years, the facilities subject to these new agreements will be operating comfortably below these levels to ensure they do not violate the requirements should unexpected occurrences arise. The air program has concluded that the emission rates included in the proposed agreements for the SCR-controlled units are reasonably based and will achieve significant emission reductions to help fulfill Missouri's good neighbor SIP obligations.

With regard to the commenters' comparisons to the NO_x emission rates assumed in the Revised CSAPR Update and in the proposed FIP, the air program notes that these are not accurate comparisons. As EPA mentions, they assumed in the Revised CSAPR Update that SCR units would achieve a 0.08 lbs/mmBtu rate. However, actual emission data prove this to be an inaccurate assumption. This is due to the nature of the trading program. Trading programs like CSAPR establish budgets based on an amount of regional emission reductions. Historically, some units in trading programs over control, some units decide to retire, and this results in a surplus of allowances available for trading to other units. This means that some units may elect not to install new controls or operate controls with expensive operating costs, and instead comply through allowance trading. For this reason the proposed SIP supplement is more stringent than any existing trading program. The SIP supplement does not allow for the use of trading, and instead compels, through new enforceable requirements, continuous SCR operation and a NO_x ozone season emission limit for the sources subject to these new agreements in the SIP supplement. For this reason, the comparison of assumed rates as the result of a trading program vs. actual enforceable emission rates in these agreements is not an accurate comparison. The SIP supplement provides more assurance and consistent stringency than the CSAPR trading program currently in place. The air program made no changes to the proposed SIP supplement as a result of these comments.

The following six (6) comments relate to the treatment of startup, shutdown, and malfunction conditions with regard to the new requirements in the proposed SIP supplement. Due to their similarity, one response is provided for all six (6) comments.

COMMENT #41: The Washington University Interdisciplinary Environmental Clinic commented that the consent agreements in the SIP supplement allow for variation in running SCR control systems by allowing them to run less than 100 percent of the time, excluding startup, shutdown, and malfunction (SSM) provisions, and prescribing a seasonal NO_x emission rate compared to a 30-day or 3-hour rolling emission rate.

COMMENT #42: EPA commented that the consent agreements allow SCRs to be excluded

from running three percent of the time during the ozone season, potentially avoiding over 110 hours of SCR operation during this period. Each hour the SCRs are not run are significant in the formation of ozone and meeting the ozone standard in downwind states. EPA recommends the air program consider reasonable language in the consent agreements that increases the amount of time SCR must be running instead of exclusions for running control equipment based on cost avoidance.

COMMENT #43: EPA commented that the consent agreements are not clear whether the requirement to run the SCR for 97 percent of the time during the ozone season, would leave out or include the exempted and excluded time periods in item C. of the consent agreements. It is also unclear in the consent agreements and seems that the exempted and excluded time periods in item C. are in addition to the 97 percent requirement to run the SCR and may decrease this percentage if a large number of upsets are claimed. If the exempted and excluded time periods are separate from the 97 percent requirement, the air program should be clear on the reasoning for this. The air program should also be specific about the reasons for excluding the operation of SSM conditions.

COMMENT #44: EPA commented that when upset conditions occur and require a shutdown or lower the efficiency operating status for the SCR for ten percent or more of the ozone season, these total hours then can be excluded from the 0.12 lbs/mmBtu emission limit in the consent agreement. This could include a large number of ozone season hours for exclusion and the consent agreement is unclear how a facility would define an upset leading to lower efficiency, which makes the enforceability of this exclusion impracticable.

COMMENT #45: The Washington University Interdisciplinary Environmental Clinic commented that the consent agreements in the SIP supplement improperly allows exemptions for SSM events which result in increased facility emissions.

COMMENT #46: Great Rivers Environmental Law Center commented that the air program improperly relies on unenforceable emission limits to achieve cost-effective and appropriate emission control measures. The limits for each respective unit in the consent agreement may be exempted from the NO_x emission limit and requirements "during periods of start-up, shutdown, and malfunction pursuant to 10 CSR 10-6.050". 10 CSR 10-6.050 is a rule used by the air program to determine if enforcement action is necessary under Missouri law on a case-by-case basis taking instance specific information into account, and not a total exemption from the consent agreement NO_x emissions limits during SSM events. Any reference to this rule should not be included or relied upon in the consent agreements.

RESPONSE AND EXPLANATION OF CHANGE: The new agreements for the facilities in the proposed SIP supplement included two new requirements. The first is an enforceable numeric NO_x ozone season emission rate. The second is a technology-based requirement to compel the continuous operation of the NO_x post combustion control equipment for a minimum percentage of time during the regulatory ozone season. These two requirements are designed to complement each other and achieve both the objective of ensuring continuous NO_x control technology operation, but also to ensure the technology is operated at efficient control levels.

The purpose of the emission rate limit is to ensure the facility will operate its control technology during the ozone season to achieve levels the facility has achieved before when operating the control technology efficiently. The purpose of the percent operating time requirement is to ensure that a facility is not allowed to build up a cushion against the new emission rate and turn off the control technology in the last month or two of the ozone season, because they achieved better than required emission rates in the first months of the season.

Several of these comments requested clarity regarding the SSM provisions in the new agreements and how they impact both the technology percent operating time requirement and the new emission rate requirement. The agreement language is clear that the percent operating time requirement is exempt during periods of startup, shutdown, or malfunction, when the control equipment cannot (or should not, based on good engineering practice) be operated. Therefore, it is appropriate to exclude these times when considering the percent operating time requirement. However, it is important to note that all emissions (SSM events included) are counted when determining the compliance with the emission rate requirement.

The comments indicate that there appears to be some confusion with the exemption for the emission rate requirement should ten percent of the operating hours meet the exclusion criteria. This is intended to be a rarely, if ever, used regulatory safety valve. The purpose is to provide regulatory relief if an unexpected event caused a prolonged period where the SCR system could not be operated, but the unit needed to run to ensure electric grid reliability/stability. There are numerous requirements the facility must show and demonstrate for any time period that counts towards this ten percent requirement. The reason for the ten percent requirement (and not a lower number or all events that meet this criteria) is because the expectation is that in most cases the facility will just need to make up for any occurrences like this by operating at lower than normal NO_x emission rates. However, if it were an extended unusual circumstance that would prevent the unit from making up the difference (ten percent of operating hours or more), then the unit could still operate and keep the grid stable. The air program has discussed with all facilities with new agreements that include this provision that this ten percent exclusion is intended for rare unexpected grid emergency situations. It is not intended to be an exclusion that is used with any type of regularity, but rather solely as a regulatory safety valve only when needed.

In response to these comments, the air program opened deliberations with all of the facilities (both the Ameren Sioux facility and the facilities included in the proposed SIP supplement). As a result the air program and the facilities determined that the percent operating time for SCR systems would be better to track with startup hours excluded, especially considering future operating conditions where startup and load-following activities would be more and more common with the addition of more and more intermittent renewable sources getting connected to the grid. As a result, the agreements now define and exempt startup hours on the front end when determining compliance with the percent operating time requirement. This helps lower the reporting burden for that requirement, without sacrificing any emission control benefit.

Further, as a result of these deliberations, the facilities performed a more rigorous analysis of times when they needed to curtail their SCR operations in recent years. The facilities agreed that the 97 percent requirement, even with startup hours excluded, did not properly account for normal operating issues, such a catalyst maintenance, plugging issues, and the unknown future

supply availability of the SCR reagent (urea or anhydrous ammonia). As such, the air program lowered the percent operating time requirement for the SCR systems from 97 percent to 95 percent for the John Twitty Energy Center, New Madrid Power Plant, and Thomas Hill Energy Center facilities. After this further analysis, the air program agreed that there were reasons for lowering this value. These reasons include routine maintenance of the SCR control systems, potential plugging of the SCR systems, which may require the facility to bypass the system temporarily but continue supplying electricity, and short term supplier issues with the SCR reagent (urea or anhydrous ammonia). The air program agrees that lowering the percentage of the required SCR operating time is appropriate in light of these new analyses, and has amended the consent agreements to reflect this. The purpose of the new agreements is to ensure the continuous operation of the NO_x control equipment under normal operating conditions and not to unnecessarily penalize the facilities that have cooperatively entered into these enforceable agreements in support of the SIP supplement.

The air program recognizes that the commenters were questioning the exempted requirements for certain provisions, and how those exemptions appeared to lower the stringency of the requirements. While the air program has explained how all of the requirements work together, the air program did lower the percent operating time requirement for SCR control systems from 97 percent to 95 percent. However, because the facilities are not allowed to exclude any hours associated with SSM provisions when determining compliance with the emission rate limit (with the exception of the regulatory safety valve exclusions), the protections for the downwind linked monitors stay intact, and the agreements continue to fulfill Missouri's good neighbor obligations under the 2015 ozone standard.

COMMENT #47: Great Rivers Environmental Law Center commented that the air program previously failed to meet its good neighbor obligations under the preceding 2008 ozone standard. In a previous SIP submittal addressing the 2008 ozone standard good neighbor provisions, EPA determined that Missouri's ozone interstate transport plan failed to provide an effective emission reduction strategy and projected that Missouri's emissions would contribute significantly to at least seven downwind receptors. EPA's modeling for the 2015 ozone standard contribution thresholds show that for the year 2023, Missouri significantly contributes to at least four downwind receptors that exceed the 1 percent threshold from the previous 2008 ozone standard (0.75 ppb).

RESPONSE: In October of 2016, EPA promulgated the CSAPR Update Rule, and based on data at that time, determined there may continue to be outstanding obligations to fully address the requirements of good neighbor provisions of the CAA for Missouri and 21 other states subject to this rule. In April of 2021, EPA promulgated the Revised CSAPR Update Rule.[3] In that rule, EPA determined that the CSAPR Update Rule, promulgated in 2016, was a full remedy to address Missouri's and eight other states' good neighbor obligations under the 2008 ozone standard. Missouri has codified the CSAPR Update Rule requirements into 10 CSR 10-6.374 Cross-State Air Pollution Rule NO_x Ozone Season Group 2 Trading Program. EPA has approved that state rule into Missouri's SIP. Therefore, Missouri has no FIP in place for the good neighbor obligations under the 2008 ozone standard. Missouri's federally approved SIP fully addresses all of the requirements under the previous ozone standard.

[3] See 86 FR 23054, published April 30, 2021

The commenter's statement that the latest modeling shows that Missouri is contributing to downwind receptors in excess of the allowable amounts under the previous 2008 ozone standard is misguided. Step 1 of EPA's 4-Step framework for addressing good neighbor obligations is to identify nonattainment and maintenance receptors. None of the four receptors where Missouri is contributing above the 1 percent threshold in the updated modeling are projected to be nonattainment or maintenance receptors with respect to the 2008 ozone standard. As such, the modeling confirms that Missouri continues to meet its good neighbor obligations with respect to the previous ozone standard. The air program made no changes to the proposed SIP supplement as a result of this comment.

The following nine (9) comments relate to Environmental Justice, Title VI concerns, and concerns and health effects associated with localized emissions in Missouri. Due to their similarity, one response is provided for all nine (9) comments.

COMMENT #48: Jennifer DeRose, Sierra Club – Beyond Coal Campaign commented that EPA information indicates that installing affordable and available pollution controls can save thousands of lives annually, prevent numerous hospital visits, and avert over one million asthma attacks. Smog produced from ozone pollution puts at risk the elderly, pregnant women, and children. Additionally, many communities in Missouri are disproportionately impacted by pollution based on where they reside, which can also have the effect of a disproportionate benefit if ozone pollution is reduced. These disproportionate low income and vulnerable communities deserve to be protected.

COMMENT #49: Lloyd Klinedinst, Labadie Environmental Organization commented that his family lives within a ten mile radius of the Labadie Energy Center and that he is currently using a continuous positive air pressure (CPAP) device. His wife takes a daily combination of inhaler and medications. His great grandchildren have regular or periodic congestion problems, and they participate in a girl scout camp where they are outside all day long and exposed to air pollution. Significant monitors have not been installed nor has monitoring collected enough data around the Labadie Energy Center which creates a plume up to 12 miles away.

COMMENT #50: Patricia Schuba commented that she lives next to the Labadie Energy Center, one of the largest emitters of sulfur dioxide (SO_2), NO_x, and particulate matter that cause regional haze and ozone problems. Mrs. Schuba's mother uses oxygen and has chronic bronchitis, and air pollution is compromising her ability to have surgery. Mrs. Schuba's family farm spans several generations, which make it difficult to move. Many members of the Labadie Environmental Organization have been impacted by the nearby Labadie Energy Center that has no modern air pollution controls. Mrs. Schuba requests the air program to enforce the CAA where all would benefit, including the economy.

COMMENT #51: Carolyn Amparan commented that when residing in the St. Louis area she was affected by asthma due to ozone pollution, but after living in other areas of the state the asthma has disappeared, and that asthma affects a great deal more people than the statistics show. Mrs. Amparan requests the air program to require more air pollution controls in the SIP supplement to address ozone precursor emissions from power plants or other significant

industrial sources due to the substantial cost of health problems that can occur.

COMMENT #52: Rajiv Ravulapati commented that one in ten people in Missouri have asthma and this group of vulnerable citizens' health will be compromised if this SIP supplement moves forward.

COMMENT #53: Great Rivers Environmental Law Center commented that the air program appears to be in violation of Title VI of the Civil Rights Act of 1964 by releasing the SIP without complying with EPA regulatory procedural safeguards to prevent discrimination and by failing to analyze whether the SIP causes disproportionate and disparate environmental and human health effects on low income vulnerable communities in the state. Before the SIP is finalized, the air program must satisfy the EPA safeguarding requirements found in 40 CFR Part 7.

COMMENT #54: Helen Host commented that each individual's health and wellness is closely tied to their environment, and that the nation's reliance on fossil fuels adversely affect both people and the natural environment surrounding them. The country is losing habitat and species at an unprecedented rate in history as the earth is rapidly warming. Coal is the worst and dirtiest of all of the carbon based energy sources and Missouri is ranked third in the nation, after the states of Texas and Indiana concerning energy production from coal. There is social disparity in where people live and the effects of the pollution resulting from dependence on fossil fuels. Individuals of lower socioeconomic means are unable to simply move away from coal power plants, and the air surrounding them, which can lead to adverse health impacts. Missouri and the rest of the country's health and wellness depend on moving towards cleaner fuel where several health benefits can be realized. Cleaner fuel can also provide good economic sense for all.

COMMENT #55: Jeanette Mott Oxford commented that in the St. Louis region, one out of four children have asthma and that she suffers from asthma herself. Local demographics in the St. Louis region show that not all people are affected by air pollution equally, and that as a participant in the Dismantling Racism process sponsored by the National Conference for Community and Justice, racial disparities do exist as shown in a 2019 study by Washington University on environmental racism. In that study, disadvantaged and vulnerable children in the St. Louis area make almost ten times more emergency room visits for asthma, and make on average a substantially higher number of total emergency room visits. The overall impact is a shortened life expectancy for vulnerable residents in some St. Louis areas and significantly worse health outcomes for vulnerable residents in all age groups.

COMMENT #56: Carolyn Pufalt commented that it is very important to address communities that are disproportionately impacted by environmental air pollution, including senior citizens.

RESPONSE: EPA and the Department agree that there is a need for better and improved service to disadvantaged and overburdened communities. Until EPA adopts regulations that require environmental justice considerations in environmental regulating practices, the Department is restricted by state law from unilaterally imposing requirements that are not based in federal law.

The Department disagrees with the suggestion that it is not meeting its obligations under Title VI of the Civil Rights Act of 1964. The Department has the necessary procedural safeguards to

ensure Title VI compliance is in place. The Department's continuous effort, along with the current engagement with the EPA External Civil Rights Compliance Office, will further improve those procedural safeguards. The Department is committed to ensuring continuous compliance with all applicable Title VI requirements; however, the Department believes it is necessary to provide the distinction between these requirements and environmental justice.

There are fundamental differences between Title VI, which is applicable federal law, and environmental justice, which is federal policy guidance. The Department may only impose requirements upon regulated entities when those requirements are authorized by law. The Department cannot violate state law in order to meet the spirit of a federal policy.

The purpose of this SIP supplement is to address Missouri's good neighbor obligations under the 2015 ozone standard. Specifically, the plan is designed to identify and address Missouri's contribution to ozone levels at specific receptors in downwind states where Missouri's modeled contribution is above 1 percent of the 2015 ozone standard. The SIP supplement identifies four such receptors, all of which are located near the shoreline of Lake Michigan. The SIP supplement's purpose is not to address ozone concentration levels in St. Louis or any other region of Missouri.

States or local agencies must operate ozone monitor sites for various locations depending on the size of the area and areas where typical ozone peak concentrations occur. Monitor network design must also consider factors such as geographic size, population density, complexity of terrain and meteorology, adjacent ozone monitoring programs and air pollution transport from neighboring areas, per 40 CFR 58, Appendix E. There are seven ozone monitors in the St. Louis, Missouri Core Based Statistical Area (CBSA), and four in the St. Louis, Illinois CBSA.

It is important to recognize that every regulatory ozone monitor located in Missouri has a current design value in compliance with the 2015 ozone standard. However, there is one monitor located in Alton, IL that has a 2019-2021 design value in compliance with the 2015 ozone standard, but in July of 2022, it measured a preliminary exceedance. If the preliminary 2022 data at the Alton monitor is certified, it will result in a violation of the 2015 ozone standard at that monitor. Since this monitor is located in the bi-state St. Louis ozone nonattainment area and the area did not fully attain the 2015 ozone standard by the deadline, EPA has reclassified the bi-state St. Louis nonattainment area from marginal classification to Moderate. This reclassification triggers a requirement for the air program to develop several new nonattainment-related SIP revisions that are directly tied to improving air quality in St. Louis. The air program notes that the new requirements included in this good neighbor SIP supplement may help improve air quality in St. Louis; however, that is not the purpose of the SIP supplement. This SIP supplement does not suspend or otherwise relieve the air program from the newly triggered nonattainment SIP requirements in St. Louis.

With respect to the comments regarding air quality concerns for pollutants other than ozone, the air program notes that this is well outside the authority and purpose of the ozone good neighbor SIP supplement. However, the information below provides additional information with respect to air quality monitoring in the St. Louis region for several other non-ozone criteria pollutants.

Based on population information, regional fine particulate matter ($PM_{2.5}$) concentrations, regional transport, and near-roadway requirements, there are six $PM_{2.5}$ monitors in the St. Louis, Missouri CBSA, and five in the St. Louis, Illinois CBSA. Additionally, there are three coarse particulate matter (PM_{10}) monitors in the St. Louis, Missouri CBSA, and one in the St. Louis, Illinois CBSA. There are also three nitrogen dioxide (NO_2) monitors in the St. Louis, CBSA.

SO_2 monitoring to meet the Data Requirements Rule (DRR) was required to begin by January 1, 2017 near the Labadie Energy Center facility and is ongoing. The DRR required the monitors to be located in the areas of expected maximum concentration surrounding the Labadie Energy Center facility. The facility is conducting the monitoring and must adhere to state or local air monitoring stations (SLAMS) requirements as found in 40 CFR Part 58. The air program reviewed and approved the siting of the monitors based on federal regulations and oversees the operation of the monitors. The four SO_2 monitors installed around the Ameren Labadie Energy Center all monitor compliance with the 2010 SO_2 standard, with the highest of the four design values measuring less than half of the standard. In total, there are ten SO_2 monitors in the St. Louis, Missouri CBSA, and two in the St. Louis, Illinois CBSA, all of which have current design values in compliance with the 2010 SO_2 standard.

The air program made no changes to the proposed SIP supplement as a result of these comments.

COMMENT #57: EPA commented that the consent agreement prescribes penalty fees at the facility level instead of the unit level for multi-unit sources. Penalties should be determined at the unit level because compliance is determined at this level. The maximum penalty at a facility is currently set at $580,000 and is small compared to operating the controls or purchasing NO_x allowances and the air program should guarantee that a facility is deterred from just paying a penalty for not operating controls. The consent agreement penalty structure does not discourage units from meeting the emission limits the first 30 days of the ozone season and minimal deterrence for the remainder of the season. The air program should consider removing the clause "The Department has the discretion to waive or defer any stipulated penalties" because it is not clear what this means or the surrounding circumstances, and may cause legal issues about enforcement of the requirements.

RESPONSE AND EXPLANATION OF CHANGE: With respect to the comment regarding the stringency of the stipulated penalties, the purpose of the consent agreements is to establish the enforceable requirements for inclusion in Missouri's SIP. While the stipulated penalties are the starting point before which any negotiation takes place, the air program may also impose higher penalties for SIP violations and impose new corrective actions with higher and more punitive penalties as a result of any future violation that occurs. Violation of any of the requirements included in the consent agreements will be a violation of the Missouri Air Conservation Law and the SIP, should EPA approve the SIP supplement. Enforcement initiatives can be stepped up, if necessary, to ensure the facilities comply with the requirements in the agreements and the SIP. Neither EPA, nor the facilities, should view the stipulated penalties in the consent agreements as an option to pay a fine in lieu of compliance, as this is not the case.

In response to the comment regarding facility vs. unit level penalties, the air program made revisions to the Thomas Hill Energy Center and New Madrid Power Plant consent agreements in

the proposed SIP supplement. After deliberation with the facilities, the air program and facilities revised the agreements to stipulate that the numeric emission rate limit is based on a facility-wide average as opposed to a unit level emission rate requirement. The penalty for an emission rate violation is now based on the number of days the facility-wide 24-hour average NO_x rate exceeds 0.12 lbs/mmBtu (excluding startup hours). The percent operating time requirement for the SCR remains a unit level requirement and the penalty structure for violating this requirement is clear that it applies on a unit level basis. The agreements also state that if numerous units are in violation of this requirement on the same day that the Department may assess multiple penalty days on a single day.

For the John Twitty Energy Center consent agreement in the proposed SIP supplement, the penalties are all unit-specific for the one unit (Unit 1) in the plan. Therefore, the air program made no changes to this agreement with regard to the facility-wide vs. unit-specific penalty issue. However, since the agreement now defines and exempts startup hours on the front end, the air program did revise the penalty structure in the agreement to ensure startup hours are excluded when assessing penalty days for the facility. The John Twitty Energy Center consent agreement does not include any requirements for Unit 2 because that unit is already subject to enforceable permit requirements that compel the continuous operation of its NO_x control equipment.

COMMENT #58: EPA commented that the consent agreements express that they ..."shall be terminated upon mutual written agreement of " ...the facility at hand, “and the Department". It is not clear that the consent agreements will not be terminated following approval of the SIP, and that upon approval into the SIP the requirements would remain permanent, federally enforceable and applicable until a revision of the SIP is submitted and approved by EPA. Therefore EPA requests clarification of the terms in the consent agreement pertaining to termination of the SIP.

RESPONSE: Paragraph 5 of the consent agreements state clearly that after EPA approves the good neighbor SIP that includes the consent agreements, any future changes to the consent agreements will require EPA approval before going into effect. Should EPA approve the SIP revision that includes these consent agreements, and the agreements are not terminated pursuant to paragraph 13 of the agreements, then the requirements will become permanent, federally enforceable, and applicable until a revision to the SIP is submitted and approved by EPA. The termination provisions in paragraph 13 of the consent agreement can take effect without EPA approval. Paragraph 13 terminations are separated out from all other modifications of the SIP because the agreements are not intended to impose duplicative requirements in the event EPA promulgates a federal plan to address Missouri’s good neighbor requirements for the applicable facilities. The air program made no changes to the proposed SIP supplement as a result of this comment.

The following two (2) comments relate to the different scenarios of approval, disapproval, partial approval, or limited approval of the 2019 ozone transport SIP and the current SIP supplement. Due to their similarity, one response is provided for both comments.

COMMENT #59: EPA commented that it views the SIP supplement as a separate submission from the good neighbor SIP revision the air program submitted in 2019. EPA anticipates acting on this SIP supplement separately from the 2019 SIP if and when the state chooses to submit the

SIP supplement.

COMMENT #60: EPA commented that the consent agreements are not clear if the termination provisions in Paragraph 13 apply to EPA action on the 2019 SIP submittal, EPA action on this SIP supplement, or EPA action on both items. The agency requested clarification in the consent agreements on how enforceability will be affected by the following EPA actions; a) finalizing disapproval of the air program's previous SIP and acting separately on this SIP supplement; b) a partial action of approval/disapproval; c) a conditional approval action; d) a limited approval/limited disapproval action; or e) a combination of these actions.

RESPONSE AND EXPLANATION OF CHANGE: The air program intends for EPA to act on the 2019 good neighbor SIP submission and this supplement together. This SIP supplement, as the name implies, is intended to supplement, and not replace, the 2019 SIP submission. However, since EPA has stated this intention, the air program revised the termination provisions in paragraph 13 of the consent agreements to state that a disapproval of the 2019 submission alone would not by itself trigger the termination clause.

In addition, to provide greater clarity, the air program revised the termination provisions in the consent agreement to provide for the termination provisions to apply in the event EPA promulgates a limited approval. In addition, all of the agreements now stipulate that if EPA promulgates a federal plan to address Missouri's good neighbor obligations for the 2015 ozone standard, and the federal plan imposes new requirements on the facility named in the agreement, then the agreement will automatically terminate upon the effective date of such federal plan.

As requested by EPA, the points below provide clarification on how the termination clauses in the consent agreements will work under the hypothetical EPA actions the agency identified in its comment.

a) While the air program intends for EPA to act on both submissions through a single action, the revisions to the agreements now state that EPA disapproval of the 2019 SIP submission without acting on the SIP supplement that contains the new agreements will not, by itself, trigger the termination clauses of the agreements.
b) Under a partial approval/disapproval, the facilities will be granted an option to terminate the agreement within 90 days of the effective date of such partial approval/disapproval.
c) Under a conditional approval, it would depend on the condition that EPA stipulates in its conditional approval. In the event that the condition was satisfied and it resulted in a full approval, it would not trigger the termination clause. In the event the condition was satisfied and it resulted in a partial or limited approval/disapproval, the facility would have the option to terminate the agreement within 90 days of the effective date of the partial or limited approval/disapproval. In the event the condition was not satisfied and it resulted in a full disapproval, it would trigger the termination clause in the agreement upon the effective date of the disapproval.
d) Under a limited approval/disapproval, the facilities will be granted an option to terminate the agreement within 90 days of the effective date of such limited approval/disapproval.
e) The points made above in scenario "c" cover most, if not all, combinations of the hypothetical EPA actions for which EPA requested clarity.

f) With the new provision added, it is clear that even with full approval, or a limited or partial approval that does not trigger the termination clause, the termination clause will always be triggered if EPA promulgates a federal plan to address Missouri's good neighbor obligations under the 2015 ozone standard and such federal plan includes new requirements for the facility named in the agreement.

COMMENT #61: EPA commented that the SIP supplement states on page 19 that for the 2020 and 2021 control periods Missouri has exceeded its NO_x ozone season assurance provisions and that it would be helpful that, if this SIP were terminated, the air program provided some assurance that Missouri and its sources will meet future assurance levels under CSAPR.

RESPONSE: Missouri sources included in the SIP supplement are all currently subject to the CSAPR NO_x Ozone Season Group 2 Trading Program. As evidenced in 2020 and 2021, the federal trading program provisions alone have not prevented Missouri from exceeding its assurance level under that program. One goal of the SIP supplement is to help prevent Missouri from exceeding its assurance level in the future. It is unclear why EPA is requesting the air program to include requirements that would apply in the event the termination provisions are triggered, because that would mean EPA is taking an adverse action on Missouri's SIP submission and will be imposing a federal plan to address Missouri's good neighbor obligations with respect to the facilities in the agreements. Therefore, any such provisions would result in duplicative and burdensome requirements that would not be allowable under Missouri's "no stricter than" statute at RSMo Section 643.050. The air program made no changes to the proposed SIP supplement as a result of this comment.

COMMENT #62: EPA commented that the consent agreements specify that they become effective 180 days after EPA approves the SIP submission and agreements, and questions how this will accomplish the necessary reductions "as expeditiously as practicable but not later than" the attainment date as prescribed in CAA section 181(a). For Moderate nonattainment areas under the 2015 ozone NAAQS the last full season before the 2024 attainment date is 2023. It is unclear how the air program intends for the necessary emission control measures identified in Step 4 of the SIP to be implemented before the next applicable attainment date given the 180 waiting period between EPA approval and timing of the consent agreement effective date, as well as accounting for EPA's public participation process that goes through notice and comment procedures.

RESPONSE AND EXPLANATION OF CHANGE: As a result of this comment, the air program worked with the facilities to revise the consent agreements. The consent agreement requirements now will become effective upon the effective date of EPA's approval of Missouri's good neighbor SIP supplement that includes the agreements.

The following three (3) comments relate to the air program's process to engage the public. Due to their similarity, one response is provided for all three (3) comments.

COMMENT #63: Great Rivers Environmental Law Center commented that the air program has failed to adequately engage with the public on this SIP. The SIP is very technical and difficult to

understand without first-hand knowledge, and the air program should have prepared a plain-language summary of the SIP to better engage everyday citizens. The air program should host public information sessions to the general public at different locations throughout the state and at convenient times to explain the SIP and the SIP process before issuing this SIP supplement.

COMMENT #64: Sophie Watterson, Missouri Coalition for the Environment commented that her organization is requesting that the air program better engage with the residents of Missouri about decisions that affect air quality with easy to understand plan summaries of documents and host public information sessions explaining the air program's air quality work.

COMMENT #65: On July 6, 2022, the Washington University Interdisciplinary Environmental Clinic requested the air program to extend the public comment period for the proposed SIP supplement by 45 days to allow for a more thorough review of the proposed supplement and to allow them to develop more meaningful comments.

RESPONSE: In response to the comment period extension request, the air program extended the public comment period by an additional 14 days. With the extension the air program granted, the comment period was open for a total of 52 days.

With regard to public engagement on the proposed SIP supplement, the air program followed the normal procedure to engage the public and solicit public input, except for granting the comment period extension, which is not typically requested in the SIP process. The air program posted the proposed SIP supplement on the Air Public Notices webpage for public comment on June 27, 2022. With the granted extension, the comment period ran through August 18, 2022. In addition to posting the proposed SIP supplement on the webpage, the air program announced and scheduled a public hearing, which was held on July 28, 2022. Upon posting the proposed SIP supplement and scheduling the public hearing, the air program sent an email bulletin to 1,723 people subscribed to Air Public Notices announcing the availability of the proposed SIP supplement and the scheduled public hearing.

On July 12, 2022, the air program posted an update on the webpage to announce the comment period extension and sent another Air Public Notice email bulletin publicizing that the comment period would be extended by two weeks to August 18, 2022. The proposed SIP supplement includes an Executive Summary and a Background section both summarizing, and providing a basis for the SIP supplement. Interested parties may also stay informed on air issues by signing-up to receive news on the air program's main web page, or through the gov.delivery bulletin.

Further, on May 23, 2022, prior to posting the proposed SIP supplement for public notice, the air program held a public stakeholder meeting to discuss several actions related to Missouri's good neighbor SIP obligations under the 2015 ozone standard. The air program sent out an email announcing the meeting to over 1,500 recipients. During the meeting, the air program provided background on the CAA good neighbor requirements, the good neighbor plan the air program submitted in 2019, EPA's proposed disapproval of that plan, the requirements in EPA's proposed federal plan, and the air program's intention to develop the proposed SIP supplement. Following the presentation at the stakeholder meeting, the air program provided ample time to address all questions posed by stakeholders and to allow all stakeholders to provide any input they wanted

to provide. The meeting slides have been posted on the air program's website since late May and include air program contact information that any stakeholders can use to reach out with additional follow-up questions or to provide additional input for consideration.

The air program welcomes, encourages, and supports public participation in all SIP revisions and rulemakings the air program undertakes. The air program appreciates the comments recommending further public meeting opportunities and the recommendations regarding the development of plain-language fact sheets and summaries. The air program will consider developing and providing more public meeting opportunities and the recommended fact sheets and summaries on future SIP actions.

The public is encouraged to contact the Air Pollution Control Program to discuss any air quality concerns. The air program's contact information is:

Missouri Department of Natural Resources
Air Pollution Control Program
P.O. Box 176
Jefferson City, MO 65102
Phone: (573) 751-4817
Email: apcp.receptionist@dnr.mo.gov

The air program made no changes to the proposed SIP supplement as a result of these comments.

COMMENT #66: Beth Gutzler, Metropolitan Congregations United commented that staffing needs to be at 50 percent by the August 2022 MACC meeting and at 100 percent by the September MACC meeting. All seven MACC positions should be filled and all seven members should be in attendance or step down if more than two meetings per year are missed. Mrs. Gutzler is concerned that current standards cannot be enforced without a full commission, and that more air quality controls are needed. Mrs. Gutzler also requests that low income communities be given options to fill these positions as well as the opportunity to present testimony.

RESPONSE: Currently the Missouri Air Conservation Commission is comprised of five members and there are two vacancies. Missouri statute 643.040, RSMo provides that the Air Conservation Commission of the State of Missouri consist of seven members that are appointed by the governor, with four members representing a quorum. Each member's term is four years and there is no limit to the number of terms an appointed member can serve. The statute states that four absences by a commission member in a calendar year from regular commission meetings will be considered as having resigned that position. Attendance of meetings by phone or video is acceptable for members of the commission to conduct all business matters. Persons and groups wanting to be involved with Missouri air pollution issues are encouraged to attend Missouri Air Conservation Commission meetings whether that be in person, by phone, or video, to present testimony.

Missouri residents interested in applying to be considered for membership on the Missouri Air Conservation Commission may submit their application on the Missouri Boards and Commissions' website.[4]

The following two (2) comments relate to support for the SIP supplement. Due to their similarity, one response is provided for both comments.

COMMENT #67: Ameren Missouri commented that they are in support of the proposed SIP supplement. They stated that the air program's proposed SIP supplement utilizes the most recent modeling and guidance materials by EPA to demonstrate that Missouri emissions do not contribute significantly to downwind receptors.

COMMENT #68: Dan Hedrick, City Utilities of Springfield commented that they support the air program's SIP supplement. Mr. Hedrick also commented that since 2005 City Utilities of Springfield's ozone season emissions have been reduced by nearly 80 percent, 253 MWs of coal-fired generation have been retired since 2015 decreasing NO_x emission per year by 3,000 tons, and its energy portfolio now includes 350 MWs of renewable energy.

RESPONSE: The air program appreciates the comments in support of the proposed SIP supplement. The Air program made no changes to the proposed SIP supplement in as a result of these comments.

[4] https://boards.mo.gov/UserPages/Home.aspx