

**Marginal Area Plan for the Missouri Portion of the
St. Louis Nonattainment Area for the
2008 8-Hour Ground Level Ozone
National Ambient Air Quality Standard**

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Project: 2008-O3-3-STL Marginal

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1. Introduction

1.1 Purpose

The purpose of this document is to fulfill the requirements of Section 182(a) of the Clean Air Act (CAA) for the Missouri portion of the St. Louis Marginal Ozone Nonattainment Area under the 2008 8-hour ground level ozone National Ambient Air Quality Standard (NAAQS). Section 182(a) of the CAA specifically addresses the State Implementation Plan (SIP) submissions and requirements for ozone nonattainment areas classified as Marginal. One of the main elements of Marginal Plans is CAA Section 182(a)(1) requiring the State to submit a comprehensive, accurate, current inventory of actual emissions from all sources within two years after designation. This is the only Section 182(a) element that the State has not already addressed in other plan submissions. Nonetheless, this document will address how the State has satisfied all the Marginal area plan elements for the St. Louis ozone nonattainment area.

The CAA Section 182(a) elements for marginal ozone nonattainment areas are outlined briefly below:

1. Comprehensive Current Emissions Inventory
2. Corrections to the State Implementation Plan (SIP)
 - a. Pre- Clean Air Act Amendments of 1990 Reasonable Available Control Technology (RACT)
 - b. Savings Clause For Vehicle Inspection and Maintenance
 - c. New Source Review (NSR) Permit Program
3. Commitment to Periodic Inventory Updates
4. Requirement for NSR Offsets

1.2 Background

On March 27, 2008, the U.S. Environmental Protection Agency (EPA) released a revised 8-hour ozone standard [73 FR 16436]. This revision lowers the ozone standard to 0.075 ppm (or 75 ppb). With a revised NAAQS, the CAA requires states to review air quality monitoring data and submit ozone boundary designation recommendations. In March 2009, Missouri submitted its original boundary recommendation for the 2008 ozone NAAQS to EPA, based on the ozone air quality monitoring data for the three years of 2005–2007. Then in December 2011, Missouri updated the boundary recommendations based on air quality data for the three years of 2008–2010. More information on Missouri’s boundary designation recommendations may be found at: <http://dnr.mo.gov/env/apcp/naaqsboundarydesignations.htm>.

On May 21, 2012, EPA finalized the area designations. The St. Louis area was designated nonattainment area and classified as marginal for the 2008 ozone standard [77 FR 30088]. The boundaries of the Missouri portion of the nonattainment area remained the same as for the 1997 ozone standard but its classification changed from moderate. Marginal nonattainment areas have until December 31, 2015 to attain the 2008 Ozone NAAQS [40 CFR 51.1103].

Since the St. Louis Ozone Area is a bi-state nonattainment area, Illinois went through a similar designation process for its portion – the Metro-East side of the St. Louis area. For the Illinois portion under the 2008 ozone NAAQS, Jersey County is no longer designated as nonattainment as it was for the 1997 ozone standard. For more information on EPA’s final state designations, see - <http://www.epa.gov/glo/designations/2008standards/state.htm>.

The following is a list of the eight counties contained in the St. Louis **Missouri**-Illinois 2008 8-hour Ozone Marginal Nonattainment Area:

- **St. Louis County, MO**
- **St. Louis City, MO**
- **St Charles, MO**
- **Jefferson County, MO**
- **Franklin County, MO**
- Madison County, IL
- St. Clair County, IL
- Monroe County, IL

Although not a requirement for this Marginal Area plan submission under CAA Section 182(a), Transportation Conformity applies one year after the effective date of nonattainment designations for the 2008 ozone NAAQS, i.e., July 20, 2013. As a result, on January 30, 2013, East-West Gateway Council of Governments, the designated Metropolitan Planning Organization for the greater St. Louis area, approved a Transportation Conformity Determination addressing the 2008 NAAQS. In addition, an Early Progress Plan establishing Motor Vehicle Emission Budgets (MVEBs) for Transportation Conformity purposes under the 2008 ozone standard has been developed by the Air Program in a previous SIP submission. This Early Progress Plan was adopted by the Missouri Air Conservation Commission on March 28, 2013. The Air program submitted the plan to EPA on August 16, 2013 and EPA deemed the new budgets adequate on March 5, 2014 [79 FR 12504]. More information on the Early Progress Plan may be found at: <http://www.dnr.mo.gov/env/apcp/docs/complete-epp-submittal-8-16-13.pdf>.

More information on the history and background of the St. Louis ozone nonattainment area, as well as the effects of ozone, may be found in Missouri’s previous ozone plan submittals at <http://www.dnr.mo.gov/env/apcp/sips.htm#ozone>.

2. Marginal Area Plan Requirements

As stated above, this plan submittal satisfies Missouri's obligations for the St. Louis Marginal nonattainment area under the 2008 ozone NAAQS. CAA Section 182(a) lists the required elements for ozone marginal area plan submissions. Within this chapter of the plan, each section below corresponds to a CAA Section 182(a) element and provides an explanation of how the State of Missouri fulfills each element.

2.1 Emissions Inventory: Section 182(a)(1)

Section 182(a)(1) of the CAA states that —

Within 2 years....the State shall submit a comprehensive, accurate, current inventory of the actual emissions from all sources, as described in Section 172(c)(3), in accordance with guidance provided by the Administrator.

In coordination with EPA staff, the Air Program has developed a complete ozone season day emission inventory for the year 2011 of the actual emissions of the pollutants that contribute to ozone formation in the St. Louis nonattainment area: volatile organic compounds (VOC), oxides of nitrogen (NO_x), and carbon monoxide (CO). The year 2011 corresponds to the most recent triennial statewide emissions inventory conducted for the National Emissions Inventory (NEI) pursuant to the federal Air Emissions Reporting Requirements (AERR) rule [73 FR 76539; December 17, 2008]. This inventory conforms to EPA's latest guidance: *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations* [November 2005].

The 2011 ozone season day emissions inventory for the St. Louis nonattainment area is presented in Appendix A, which includes emissions from stationary point and area sources, onroad mobile, nonroad, event (i.e. wildfire), and biogenic sources within the five Missouri counties of the bi-state area. Appendix A also outlines the methodology and calculations used to convert the annual emission rates from the 2011 NEI into ozone season daily emission rates. The ozone season daily emissions in Appendix A apply to emissions occurring during a typical weekday of the high ozone season, which is June through August.

Appendix B provides the documentation for Missouri's most recent NEI submittal which accounts for all Criteria and Hazardous Air Pollutants in the entire state during 2011.

Table 1 displays the 2011 anthropogenic emissions inventory summary for the Missouri portion of the 2008 St. Louis ozone nonattainment area in tons per ozone season day. The anthropogenic source categories include point, area, on-road mobile, and non-road sources. Additional details regarding the development the 2011 ozone season day anthropogenic emissions inventory for the Missouri portion of the nonattainment area can be found in Appendices A-2 through A-7.

Table 2 displays the 2011 emissions inventory summary for the biogenic and wildfire (event) source categories in the Missouri portion of the 2008 St. Louis ozone nonattainment area in tons per ozone season day. Event emissions include wild fire emissions, prescribed burning and

agricultural burning; however, when annual emissions from these three event source categories are temporally allocated to ozone season day emissions, only wild fire emissions are projected to occur during the high ozone season. Additional details regarding the development the 2011 ozone season day biogenic and wildfire emissions inventory for the Missouri portion of the nonattainment area can be found in Appendix A-6.

Table 1 2011 Anthropogenic Emissions Inventory Summary for the Missouri Portion of the Nonattainment Area (tons/ozone season day)

County Name	Source Category	VOC	NO _x	CO
Franklin County	Point Sources	2.52	27.75	7.55
Jefferson County		1.63	16.66	7.23
St. Charles County		3.34	25.04	2.82
St. Louis County		3.5	16.74	17.68
St. Louis City		3.59	4.49	7.36
Totals *		14.58	90.69	42.65
Franklin County	Area Sources	3.36	0.49	3.03
Jefferson County		7.48	0.62	8.14
St. Charles County		11.21	0.68	1.35
St. Louis County		38.68	2.65	4.72
St. Louis City		12.04	1.16	1.76
Totals *		72.77	5.6	19.01
Franklin County	Onroad Mobile Sources	2.40	7.83	21.18
Jefferson County		4.24	12.45	34.91
St. Charles County		6.73	21.04	56.63
St. Louis County		20.17	66.34	176.34
St. Louis City		4.46	16.55	42.14
Totals *		38.00	124.20	331.20
Franklin County	Nonroad Sources	3.31	5.72	18.55
Jefferson County		3.12	3.33	28.68
St. Charles County		6.23	8.34	62.81
St. Louis County		22.99	23.85	315.24
St. Louis City		3.38	6.31	48.14
Totals *		39.03	47.55	473.42
Grand Total *		164.38	268.04	866.28

* Note: Figures may not total exactly due to rounding.

Table 2 2011 Wildfire and Biogenic Emissions Inventory Summary for the Missouri Portion of the Nonattainment Area (tons/ozone season day)

County Name	Source Category	VOC	NO _x	CO
Franklin County	Wild Fires (Event)	0.09	0.00	0.40
Jefferson County		0.07	0.00	0.28
St. Charles County		0.00	0.00	0.01
St. Louis County		0.00	0.00	0.01
St. Louis City		0.00	0.00	0.00
Totals *		0.16	0.01	0.69
Franklin County	Biogenic Sources	126.84	1.09	11.58
Jefferson County		104.17	0.51	9.29
St. Charles County		65.94	1.05	7.09
St. Louis County		60.84	0.68	5.55
St. Louis City		10.93	0.13	1.03
Totals *		368.71	3.47	34.55

* Note: Figures may not total exactly due to rounding.

2.2 Corrections to the State Implementation Plan: Section 182(a)(2)

The second element of a Marginal Area plan is found in CAA Section 182(a)(2) which requires the State to submit a revision to the SIP for certain “corrections” to Reasonably Available Control Technology (RACT), Vehicle Inspection and Maintenance (I/M), and New Source Review (NSR) Permit programs. These three provisions are addressed in the corresponding three subsections below.

2.2.A Reasonably Available Control Technology

Section 182(a)(2)(A) refers to the first round of ozone area designations/classifications after the promulgation of the amendments to the Clean Air Act in 1990 and gives the State six months after these initial classifications to revise SIPs with corrections to the pre-1990 CAA RACT levels pursuant to EPA-issued guidance. Since the 2008 ozone NAAQS is a revision to the standard that existed in 1990 and outside the timeframe mentioned, this requirement is no longer applicable to this Marginal Area plan. Nevertheless, RACT evaluations are continuous and ongoing for the St. Louis ozone nonattainment area. Missouri has previously addressed RACT requirements in the St. Louis nonattainment area in developing attainment plans for the 1-hour ozone standard. For the 1997 8-hour ozone standard, the Air Program developed a RACT demonstration as an element to the moderate ozone nonattainment area SIP revision. Per the federal implementation rule for the 1997 ozone standard, the RACT demonstration was to be submitted as a separate element prior to the submittal of the attainment demonstration and other elements of the SIP revision. The RACT plan was adopted on December 7, 2006 and submitted to the EPA on January 5, 2007.

Shortly thereafter, EPA issued some new Control Techniques Guidelines (CTGs) for VOC sources to be used as ‘presumptive’ RACT. Since these new CTGs were not considered in the 2006 RACT demonstration, and in an effort to ensure that RACT levels for the St. Louis nonattainment area are current, the Air Program developed an update to the 2006 RACT demonstration. This RACT plan also supports the attainment redesignation request for the

Missouri portion of the St. Louis area under the 1997 ozone standard. This updated RACT demonstration showed how RACT for VOCs has been appropriately upgraded since the last RACT submittal. This updated VOC RACT document was adopted by the MACC on April 28, 2011 and submitted to EPA on May 25, 2011. EPA approved this RACT plan into the SIP on January 6, 2014 [79 FR 580].

For a more detailed discussion of RACT issues, please refer to the updated RACT demonstration adopted April 28, 2011, which can be found at <http://dnr.mo.gov/env/apcp/sips.htm#ozone>

2.2.B Savings Clause for Vehicle Inspection and Maintenance

The savings or “anti-backsliding” clause of Section 182(a)(2)(B) requires states to maintain any ozone nonattainment area’s existing vehicle I/M program at an equivalent-or-better level after that area is classified as Marginal.

The State of Missouri has operated a vehicle emissions inspection and maintenance program in the St. Louis area for over 30 years. State rule, 10 CSR 10-5.381 *On-Board Diagnostics Motor Vehicle Emissions Inspection*, implements the current program called Gateway Vehicle Inspection Program (GVIP). This program has accounted for significant reductions of NO_x and VOC emissions from the mobile sector in the St. Louis nonattainment area. Missouri is committed to maintaining an equally stringent I/M program into the future. The Air Program intends to submit any changes to the current I/M program as revisions to the Missouri SIP. In satisfaction of the I/M savings clause, the Air Program asserts that if any changes to the I/M program could potentially alleviate mobile source emission controls in the St. Louis area, then the SIP revision shall contain an “anti-backsliding” demonstration under Section 110(l) of the Clean Air Act.

2.2.C New Source Review Permit Programs

Per CAA Section 182(a)(2)(C) a Marginal Area plan submission shall include —

provisions to require permits, in accordance with sections 172(c)(5) and 173, for the construction and operation of each new or modified major stationary source (with respect to ozone) to be located in the area.

In accordance with the Clean Air Act, Missouri has a long-standing and fully implemented New Source Review (NSR) permitting program for new major sources and significant modifications of existing sources enabled by State rule 10 CSR 10-6.060 *Construction Permits Required*.

Such a permit program in any attainment area is referred to as a Prevention of Significant Deterioration (PSD) permitting program and is governed by Section (8) of 10 CSR 10-6.060. Missouri’s PSD program is addressed in Missouri’s CAA Section 110 Infrastructure Requirements Plan for the 2008 ozone NAAQS. For more information on that plan, see <http://www.dnr.mo.gov/env/apcp/docs/epa-submittal-2008-ozone-infra-sip.pdf>.

In compliance with Section 182(a)(2)(C), Missouri’s NSR permitting program also regulates the construction of new and modified major stationary sources in nonattainment areas, such as the

St. Louis ozone nonattainment area, via Section (7) of 10 CSR 10-6.060. Missouri has been delegated full authority to implement its NSR program by the EPA.

Three distinct features of the Nonattainment NSR program, on new major sources or significant modification of existing major sources, are —

1. the implementation of Lowest Achievable Emission Rate (LAER),
2. alternate site analysis, and
3. emission offset reductions (offsets).

2.3 *Periodic Inventory: Section 182(a)(3)*

The third element of a Marginal Area plan is found in CAA Section 182(a)(3). This section requires that the State submit a periodic emissions inventory similar to that required in 2.1 of this document at least as often as every three years until the area is redesignated to attainment [(182(a)(3)(A)]. Furthermore, the State shall require certain sources of NO_x and VOCs to report their actual emissions of these ozone precursors every year in an emissions statement for the purpose of developing current, comprehensive and accurate emission inventories [(182(a)(3)(B)].

The State of Missouri is committed to providing future emissions inventory updates at least every three years to enable tracking of ozone-precursor emissions levels in the St. Louis nonattainment area. State Regulation 10 CSR 10-6.110 *Reporting Emission Data, Emission Fees, and Process Information* requires permitted sources to file an annual report on air pollutant emissions to include emissions data, process information, and annual emissions fees. These sources report their emissions on a form called an Emissions Inventory Questionnaire (EIQ) developed by the Air Program pursuant to 10 CSR 10-6.110. EIQs may be filed electronically and emissions data are tracked through Missouri's Emissions Inventory System (MOEIS). For applicable NO_x and VOC sources in the St. Louis nonattainment area, the EIQs include an ozone-specific worksheet.

The methods for calculating and reporting their emissions are detailed in each installation's applicable permit. The data collected in MOEIS from the EIQs form the basis of the point source emissions inventory that is compiled on an annual basis. In addition, in compliance with the federal Air Emission Reporting Rule, the Air program develops a comprehensive emissions inventory of point, area, and mobile sources every three years, covering both annual and ozone season day emissions. The Air Program submits this emissions data to EPA for inclusion in the publicly-available NEI and uses the data for tracking progress towards attaining and maintaining the NAAQS, developing control and maintenance strategies, identifying sources and general emission levels, and determining compliance with emissions regulations as well as other EPA requirements. The Air Program also makes data, including NO_x and VOC emissions data, available to the public upon request.

2.4 *General Offset Requirement: Section 182(a)(4)*

The fourth and final Marginal Area plan provision of CAA Section 182(a) is the General Offset Requirement. For the purposes of the Nonattainment NSR permitting program for new and modified major stationary sources, the State must establish, in its Marginal Area plan

submission, the emission offset ratio of total VOC emission reductions to total increased VOC emissions to be at least 1.1 to 1.

As mentioned above in 2.2.C, Missouri has a well-established NSR or major source construction permit program. One of the unique features of NSR for nonattainment areas is the requirement for emission offset reductions. This is codified at 10 CSR 10-6.060(7)(B)1.:

By the time the source is to commence operation, sufficient emissions offsets shall be obtained as required to ensure reasonable further progress toward attainment of the applicable national ambient air quality standard and consistent with the requirements of Section 173(a)(1)(A) of the Clean Air Act and paragraphs 40 CFR 51.165(a)(3) and (9);

The corresponding offset ratio for each ozone area classification (i.e. 1.1:1 for Marginal) is found in federal code at 40 CFR 51.165(a)(3)(9) per the citation above. Thus Missouri has satisfied the CAA Section 182(a)(4) requirement for Marginal Area Plan submissions in establishing a Marginal Area emission offset reduction ratio of 1.1:1 in its NSR program by SIP-approved rule consistent with the corresponding federal code.

3. Conclusion

Through this plan submission, Missouri asserts that it has satisfied all of its Marginal Area Plan submission obligations for the Missouri-portion of the St. Louis bi-state nonattainment area pursuant to federal Clean Air Act Section 182(a) under the 2008 ozone 8-hour National Ambient Air Quality Standard. Attached with this document is a complete, comprehensive, accurate and current inventory of ozone-precursor emissions for the St. Louis nonattainment area. Moreover, this plan administratively addresses three other elements of a Marginal Area Plan submission under CAA Section 182(a). The Air Program requests that EPA approve this plan submission for inclusion into the Missouri State Implementation Plan.