



Air Quality Analysis for Sulfur Dioxide (SO₂)

The following information pertains to ambient air monitors operated by the state. Data from the monitors become part of the database for EPA's Air Quality System. Monitoring information in the charts, below, highlights air pollutant levels that violate the national ambient air quality standards (NAAQS).

In June 2010, EPA established a 1-hour primary sulfur dioxide (SO₂) standard of 75 parts per billion. The revised SO₂ standard includes a "form" to determine if an area is in compliance. The form is the 3-year average of the 99th percentile of the annual distribution of daily maximum 1-hour average concentrations.

EPA is promulgating designations under this standard in multiple phases. In the initial round, EPA designated portions of Jackson and Jefferson counties as nonattainment, effective Oct. 4, 2013. EPA based the designations on 2010-2012 monitoring data showing violations of the NAAQS. The air program is working through the process to redesignate both of these areas to attainment based on improved air quality as shown in more recent monitoring data.

Subsequent rounds of designations resulted from a 2015 consent decree involving EPA, the Sierra Club and the Natural Resources Defense Council. The consent decree specifies a schedule for EPA to complete SO₂ designations in three additional rounds:

- Second round by July 2, 2016;
- Third round by Dec. 31, 2017; and
- Final round by Dec. 31, 2020.

To fulfill the requirements of these additional rounds, EPA developed a strategy for identifying and addressing unhealthy levels of SO₂ in areas outside the initial nonattainment areas. This strategy recognizes that existing SO₂ monitors may not adequately characterize air quality around many of the country's largest SO₂ sources. Accordingly, the strategy presents a process and timetable by which states can characterize air quality either through expanded monitoring or through modeling.

For more information about implementation of the 1-hour SO₂ standard, visit epa.gov/so2-pollution.



One-hour Sulfur Dioxide (SO₂) Design Values^a

Annual summary through March 18, 2018

| Sites | County | 99th Percentile SO ₂ Values | | | | | Critical Values | Exceedances >75 ppb (2010 Standard) | Design Values | | | | |
|--------------------------------------------|----------------|----------------------------------------|------|------|-------------------|--------------------|-----------------|----------------------------------------|---------------|-------------------|--------------|--------------------|--------------------|
| | | Parts per billion (ppb) | | | | | | | CV - 75 | 2018 ^c | Year-to-date | | |
| | | 2014 | 2015 | 2016 | 2017 ^b | 2018 ^{cd} | | | | | 14-16 | 15-17 ^b | 16-18 ^e |
| St. Louis | | | | | | | | | | | | | |
| <i>State Sites</i> | | | | | | | | | | | | | |
| Herculaneum, Mott | Jefferson | 18 | 38 | 13 | 18 | 10 | 197 | 0 | 23 | 23 | 14 | | |
| Blair Street | St. Louis City | 41 | 24 | 9 | 11 | 6 | 208 | 0 | 25 | 15 | 9 | | |
| Margaretta | St. Louis City | 22 | 17 | 9 | 11 | 7 | 208 | 0 | 16 | 12 | 9 | | |
| Rider Trail, I-70 ^{^^^} | St. Louis Co. | - | - | 14 | 16 | 9 | 198 | 0 | *** | *** | 13 | | |
| <i>Ameren Missouri, Labadie Sites</i> | | | | | | | | | | | | | |
| Northwest [^] | St. Charles | - | 28 | 27 | 21 | 6 | 180 | 0 | *** | 25 | 18 | | |
| Southwest [*] | Franklin | - | - | - | 22 | 6 | N/A | 0 | - | - | *** | | |
| North [*] | St. Charles | - | - | - | 30 | 20 | N/A | 0 | - | - | *** | | |
| Valley [^] | Franklin | - | 34 | 22 | 25 | 23 | 181 | 0 | *** | 27 | 23 | | |
| <i>Ameren Missouri, Rush Island Sites</i> | | | | | | | | | | | | | |
| Natchez ^{^^} | Jefferson | - | 24 | 23 | 26 | 10 | 179 | 0 | - | 24 | 20 | | |
| Weaver ^{^^} | Jefferson | - | 13 | 27 | 30 | 12 | 171 | 0 | - | 23 | 23 | | |
| Fults, Illinois ^{^^^} | Monroe, IL | - | - | 19 | 20 | 10 | 189 | 0 | - | - | 16 | | |
| Kansas City | | | | | | | | | | | | | |
| <i>State Sites</i> | | | | | | | | | | | | | |
| Troost | Jackson | 125 | 142 | 9 | 18 | 4 | 201 | 0 | 92 | 56 | 10 | | |
| Springfield | | | | | | | | | | | | | |
| <i>State Sites</i> | | | | | | | | | | | | | |
| South Charleston† | Greene | 33 | 14 | 4 | † | † | N/A | N/A | 17 | † | † | | |
| <i>City Utilities of Springfield Sites</i> | | | | | | | | | | | | | |
| James River South† | Greene | 33 | 16 | 3 | † | † | N/A | N/A | 17 | † | † | | |
| Outstate | | | | | | | | | | | | | |
| <i>State Sites</i> | | | | | | | | | | | | | |
| Buick Northeast | Iron | 52 | 42 | 43 | 48 | 20 | 137 | 0 | 46 | 44 | 37 | | |
| Mark Twain State Park | Monroe | 9 | 6 | 6 | 5 | 3 | 217 | 0 | 7 | 6 | 5 | | |
| <i>Doe Run Buick Sites</i> | | | | | | | | | | | | | |
| County Road 75* | Iron | - | - | - | 47 | 31 | N/A | 0 | - | - | *** | | |
| Hwy. 32 Northeast* | Iron | - | - | - | 54 | 36 | N/A | 0 | - | - | *** | | |
| West Entrance* | Iron | - | - | - | 48 | 21 | N/A | 0 | - | - | *** | | |
| <i>Magnitude 7 Metals Sites (M7M)</i> | | | | | | | | | | | | | |
| Site #1 AECI Water Tower Location* | New Madrid | - | - | - | 13 | 5 | N/A | 0 | - | - | *** | | |
| Site #2 East Graveyard* | New Madrid | - | - | - | 5 | 2 | N/A | 0 | - | - | *** | | |
| Site #3 West Entrance* | New Madrid | - | - | - | 7 | 6 | N/A | 0 | - | - | *** | | |

0

^aQuality assured data through Dec. 31, 2016.

^bPreliminary data through Dec. 31, 2017. Do not cite or quote.

^cYear-to-date preliminary data. Do not cite or quote.

^dFor 2018, the one-hour SO₂ concentrations are the fourth highest daily maximum one-hour SO₂ average concentration measured year-to-date.

*Monitoring began on Jan. 1, 2017 (EPA's Data Requirements Rule).

[^]Monitoring began on April 22, 2015 (EPA's Data Requirements Rule).

^{^^}Monitoring began on Dec. 12, 2015 (Weaver) and on Dec. 13, 2015 (Natchez).

^{^^^}Monitoring began on April 24, 2016.

^{^^^}Monitoring began on May 20, 2016 (Special Purpose Monitor).

†Monitoring discontinued on Dec. 31, 2016.

***Three-year design value can not be calculated. Design value in red and bold is a violation of the standard.

CV - 75: The critical value (CV) is the current year's 99th percentile, which, if monitored, could yield a violation of the SO₂ standard for the most current three year-period. (CV = 228 ppb – last year's 99th percentile – previous year's 99th percentile)

The highlighted field indicates that the data set does not meet the completeness criteria of 40 CFR Part 50 Appendix T, Section 3 for the given site. Use of incomplete data for designation purposes is subject to EPA approval consistent with 40 CFR Part 50 Appendix T, 3. (d).

Data Disclaimer:

Recent monitoring data is raw data. It has not been validated and may contain errors.

- The data is obtained from automated, continuous instruments; no human has reviewed or checked the accuracy of recent data.
- The recent data have been subject to only preliminary automated quality assurance procedures.
- Special conditions such as power outages and equipment malfunction can produce invalid data.
- The department posts this data for public awareness. Do not use the data in medical or scientific studies. Do not rely on the data for regulatory purposes.
- Differences because of data rounding may exist between this report and reports generated by EPA's Air Quality System (AQS). In most cases historical data should be close to values calculated in AQS but differences are possible.
- Contact the department's Air Pollution Control Program to obtain quality assured data. Typically, 90 days after the quarter of data measurement, quality assured data will appear in EPA's Air Quality Assurance System. However, ambient air monitoring data covering a whole year typically do not appear as certified data in EPA's system until the following May.



Four Highest one-hour SO₂ Values

Through March 18, 2018

2018^c

Year-to-date in parts per billion (ppb)

| <u>St. Louis</u> | 1 st High | 2 nd High | 3 rd High | 4 th High |
|--------------------------------------------|----------------------|----------------------|----------------------|----------------------|
| <i>State Sites</i> | | | | |
| Herculaneum, Mott | 14 | 12 | 11 | 10 |
| Blair Street | 11 | 7 | 7 | 6 |
| Margaretta | 22 | 14 | 7 | 7 |
| Rider Trail, I-70 ^{^^^} | 29 | 11 | 9 | 9 |
| <i>Ameren Missouri, Labadie Sites</i> | | | | |
| Northwest [^] | 9 | 7 | 7 | 6 |
| Southwest* | 15 | 15 | 10 | 6 |
| North* | 50 | 22 | 20 | 20 |
| Valley [^] | 56 | 33 | 32 | 23 |
| <i>Ameren Missouri, Rush Island Sites</i> | | | | |
| Natchez ^{^^} | 16 | 15 | 10 | 10 |
| Weaver ^{^^} | 28 | 22 | 17 | 12 |
| Fults, Illinois ^{^^^} | 20 | 12 | 11 | 10 |
| <u>Kansas City</u> | | | | |
| <i>State Sites</i> | | | | |
| Troost | 7 | 6 | 5 | 4 |
| <u>Springfield</u> | | | | |
| <i>State Sites</i> | | | | |
| South Charlestown† | - | - | - | - |
| <i>City Utilities of Springfield Sites</i> | | | | |
| James River South† | - | - | - | - |
| <u>Outstate</u> | | | | |
| <i>State Sites</i> | | | | |
| Buick Northeast | 52 | 32 | 22 | 20 |
| Mark Twain State Park | 4 | 4 | 3 | 3 |
| <i>Doe Run Buick Sites</i> | | | | |
| County Road 75* | 64 | 36 | 31 | 31 |
| Hwy. 32 Northeast* | 65 | 64 | 48 | 36 |
| West Entrance* | 37 | 30 | 23 | 21 |
| <i>Magnitude 7 Metals Sites (M7M)</i> | | | | |
| Site #1 AECI Water Tower Location* | 13 | 6 | 5 | 5 |
| Site #2 East Graveyard* | 21 | 4 | 3 | 2 |
| Site #3 West Entrance* | 23 | 12 | 7 | 6 |

^cYear-to-date preliminary data. Do not cite or quote.

*Monitoring began on Jan. 1, 2017 (EPA's Data Requirements Rule).

[^]Monitoring began on April 22, 2015 (EPA's Data Requirements Rule).

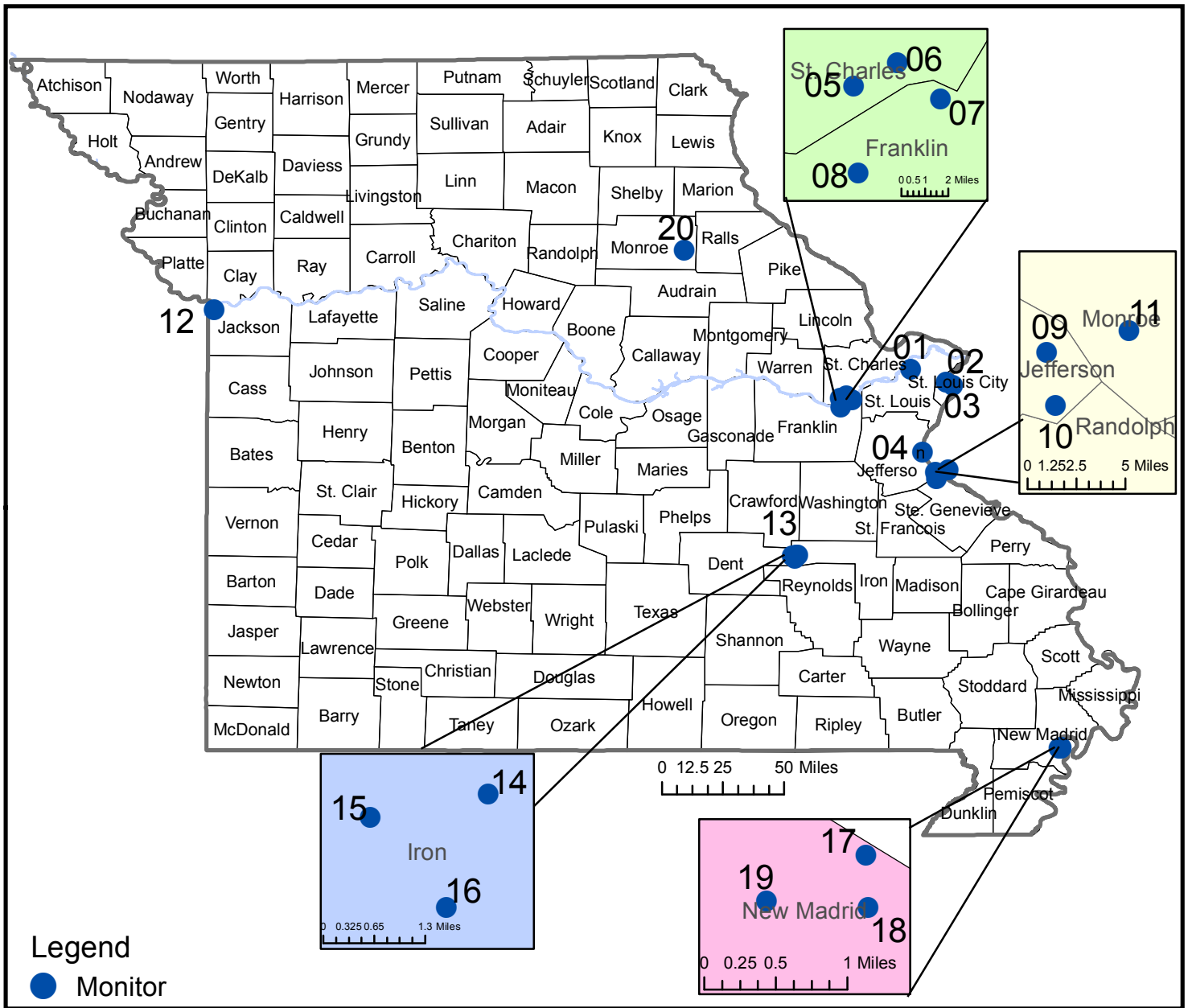
^{^^}Monitoring began on Dec. 12, 2015 (Weaver) and on Dec. 13, 2015 (Natchez).

^{^^^}Monitoring began on April 24, 2016.

^{^^^}Monitoring began on May 20, 2016 (Special Purpose Monitor).

†Monitoring discontinued on Dec. 31, 2016.

Statewide Sulfur Dioxide (SO₂) Monitoring Network, 2018



St. Louis Area MO & IL

- 01. Rider Trail, I-70"~
- 02. Margaretta
- 03. Blair Street
- 04. Herculaneum, Mott Street
- 05. Ameren-Northwest*~ ^^
- 06. Ameren-North*+^^
- 07. Ameren-Valley*~ ^^
- 08. Ameren-Southwest*+^^
- 09. Ameren-Weaver & Hwy AA*~
- 10. Ameren-Natchez*~
- 11. Ameren-Fults, IL*~

Kansas City Area, MO

- 12. Troost
- ## Outstate Area, MO
- 13. Buick NE
 - 14. Hwy 32 Northeast*+^^
 - 15. County Road 75 *+^^
 - 16. West Entrance*+^^

Outstate Area, MO

- 17. M7M Site #1-AECI Water Tower*+^^
- 18. M7M Site #2- East Graveyard*+^^
- 19. M7M Site #3- West Entrance*+^^
- 20. Mark Twain State Park

"Special Purpose Monitor

**Industry Monitor*

~Less than 3 years in operation

+Began Monitoring in 2017

^^Data Requirement Rule Sites

M7M: Magnitude 7 Metals

