



## **Air Quality Analysis for Sulfur Dioxide (SO<sub>2</sub>)**

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 (SO<sub>2</sub>) standard of 75 parts per billion. The revised SO<sub>2</sub> 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 SO<sub>2</sub> 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 SO<sub>2</sub> in areas outside the initial nonattainment areas. This strategy recognizes that existing SO<sub>2</sub> monitors may not adequately characterize air quality around many of the country's largest SO<sub>2</sub> 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 SO<sub>2</sub> standard, visit [epa.gov/so2-pollution](http://epa.gov/so2-pollution).



# One-hour Sulfur Dioxide (SO<sub>2</sub>) Design Values<sup>a</sup>

Annual summary through January 13, 2018

Sites	County	99th Percentile SO <sub>2</sub> Values					Critical Values	Exceedances	Design Values				
		Parts per billion (ppb)							CV - 75	2019 <sup>c</sup>	Year-to-date		
		2015	2016	2017	2018 <sup>b</sup>	2019 <sup>cd</sup>					>75 ppb (2010 Standard)	15-17	16-18 <sup>b</sup>
<b>Ameren Missouri, Labadie Sites</b>													
Northwest <sup>^</sup>	St. Charles	28	27	21	17	1	190	0	25	22	13		
Southwest <sup>*</sup>	Franklin	-	-	22	20	1	186	0	***	***	14		
North <sup>*</sup>	St. Charles	-	-	30	22	1	176	0	***	***	18		
Valley <sup>^</sup>	Franklin	34	22	25	38	2	165	0	27	28	22		
<b>Ameren Missouri, Rush Island Sites</b>													
Natchez <sup>^^</sup>	Jefferson	24	23	23	17	3	188	0	23	21	14		
Weaver <sup>^^</sup>	Jefferson	13	27	29	20	3	179	0	23	25	17		
Fults, Illinois <sup>^^^</sup>	Monroe, IL	-	19	20	2	3	206	0	***	14	8		
<b>Kansas City</b>													
<b>State Sites</b>													
Troost	Jackson	142	9	18	6	2	204	0	57	11	9		
<b>Springfield</b>													
<b>State Sites</b>													
South Charleston <sup>†</sup>	Greene	14	4	†	†	†	†	†	***	***	†		
<b>City Utilities of Springfield Sites</b>													
James River South <sup>†</sup>	Greene	16	3	†	†	†	†	†	***	***	†		
<b>Outstate</b>													
<b>State Sites</b>													
Buick Northeast	Iron	42	43	48	52	5	128	0	44	48	35		
Mark Twain State Park	Monroe	6	6	5	4	2	219	0	5	5	4		
<b>Doe Run Buick Sites</b>													
County Road 75 <sup>*</sup>	Iron	-	-	47	36	13	145	0	***	***	32		
Hwy. 32 Northeast <sup>*</sup>	Iron	-	-	51	48	1	129	0	***	***	33		
West Entrance <sup>*</sup>	Iron	-	-	44	35	4	149	0	***	***	28		
<b>Magnitude 7 Metals Sites (M7M)</b>													
Site #1 AECI Water Tower Location <sup>*</sup>	New Madrid	-	-	13	236	58	CV exceeded	3	***	***	102		
Site #2 East Graveyard <sup>*</sup>	New Madrid	-	-	5	370	270	CV exceeded	8	***	***	215		
Site #3 West Entrance <sup>*</sup>	New Madrid	-	-	7	43	44	178	0	***	***	31		

Ameren sites are updated through Jan 6, 2019 due to database issues.

<sup>a</sup>Quality assured data through Dec. 31, 2017.

<sup>b</sup>Preliminary data through Dec. 31, 2018. Do not quote, do not cite.

<sup>c</sup>Year-to-date preliminary data. Do not cite or quote.

<sup>d</sup>For 2019, the one-hour SO<sub>2</sub> concentrations are the fourth highest daily maximum one-hour SO<sub>2</sub> average concentration measured year-to-date.

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

<sup>^</sup>Monitoring began on April 22, 2015 (EPA's Data Requirements Rule).

<sup>^^</sup>Monitoring began on Dec. 12, 2015 (Weaver) and on Dec. 13, 2015 (Natchez).

<sup>^^^</sup>Monitoring began on April 24, 2016.

<sup>^^^^</sup>Monitoring began on May 20, 2016 (Special Purpose Monitor).

<sup>†</sup>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.

Fourth highest one-hour averages in purple and bold are exceedances of the 2010 standard.

## CV - 75:

The critical value (CV) is the current year's 99<sup>th</sup> percentile, which, if monitored, could yield a violation of the SO<sub>2</sub> standard for the most current three year-period. (CV = 228 ppb – last year's 99<sup>th</sup> percentile – previous year's 99<sup>th</sup> 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 SO<sub>2</sub> Values

Through January 13, 2019

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

<u><b>St. Louis</b></u>	<b>1<sup>st</sup> High</b>	<b>2<sup>nd</sup> High</b>	<b>3<sup>rd</sup> High</b>	<b>4<sup>th</sup> High</b>
<i>State Sites</i>				
Herculaneum, Mott	33	12	8	6
Blair Street	9	7	5	4
Margaretta	11	10	7	6
Rider Trail, I-70 <sup>^^^</sup>	12	6	5	4
<i>Ameren Missouri, Labadie Sites</i>				
Northwest <sup>^</sup>	5	4	2	1
Southwest <sup>*</sup>	4	2	2	1
North <sup>*</sup>	18	5	2	1
Valley <sup>^</sup>	5	2	2	2
<i>Ameren Missouri, Rush Island Sites</i>				
Natchez <sup>^^</sup>	4	3	3	3
Weaver <sup>^^</sup>	5	5	4	3
Fults, Illinois <sup>^^^</sup>	10	3	3	3
<u><b>Kansas City</b></u>				
<i>State Sites</i>				
Troost	4	3	3	2
<u><b>Springfield</b></u>				
<i>State Sites</i>				
South Charleston <sup>†</sup>	-	-	-	-
<i>City Utilities of Springfield Sites</i>				
James River South <sup>†</sup>	-	-	-	-
<u><b>Outstate</b></u>				
<i>State Sites</i>				
Buick Northeast	19	10	9	5
Mark Twain State Park	5	3	3	2
<i>Doe Run Buick Sites</i>				
County Road 75 <sup>*</sup>	42	29	22	13
Hwy. 32 Northeast <sup>*</sup>	48	3	3	1
West Entrance <sup>*</sup>	43	7	5	4
<i>Magnitude 7 Metals Sites (M7M)</i>				
Site #1 AECI Water Tower Location <sup>*</sup>	<b>255</b>	<b>242</b>	<b>193</b>	58
Site #2 East Graveyard <sup>*</sup>	<b>414</b>	<b>371</b>	<b>341</b>	<b>270</b>
Site #3 West Entrance <sup>*</sup>	54	53	53	44

Ameren sites are updated through Jan 6, 2019 due to database issues.

<sup>c</sup>Year-to-date preliminary data. Do not cite or quote.

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

<sup>^</sup>Monitoring began on April 22, 2015 (EPA's Data Requirements Rule).

<sup>^^</sup>Monitoring began on Dec. 12, 2015 (Weaver) and on Dec. 13, 2015 (Natchez).

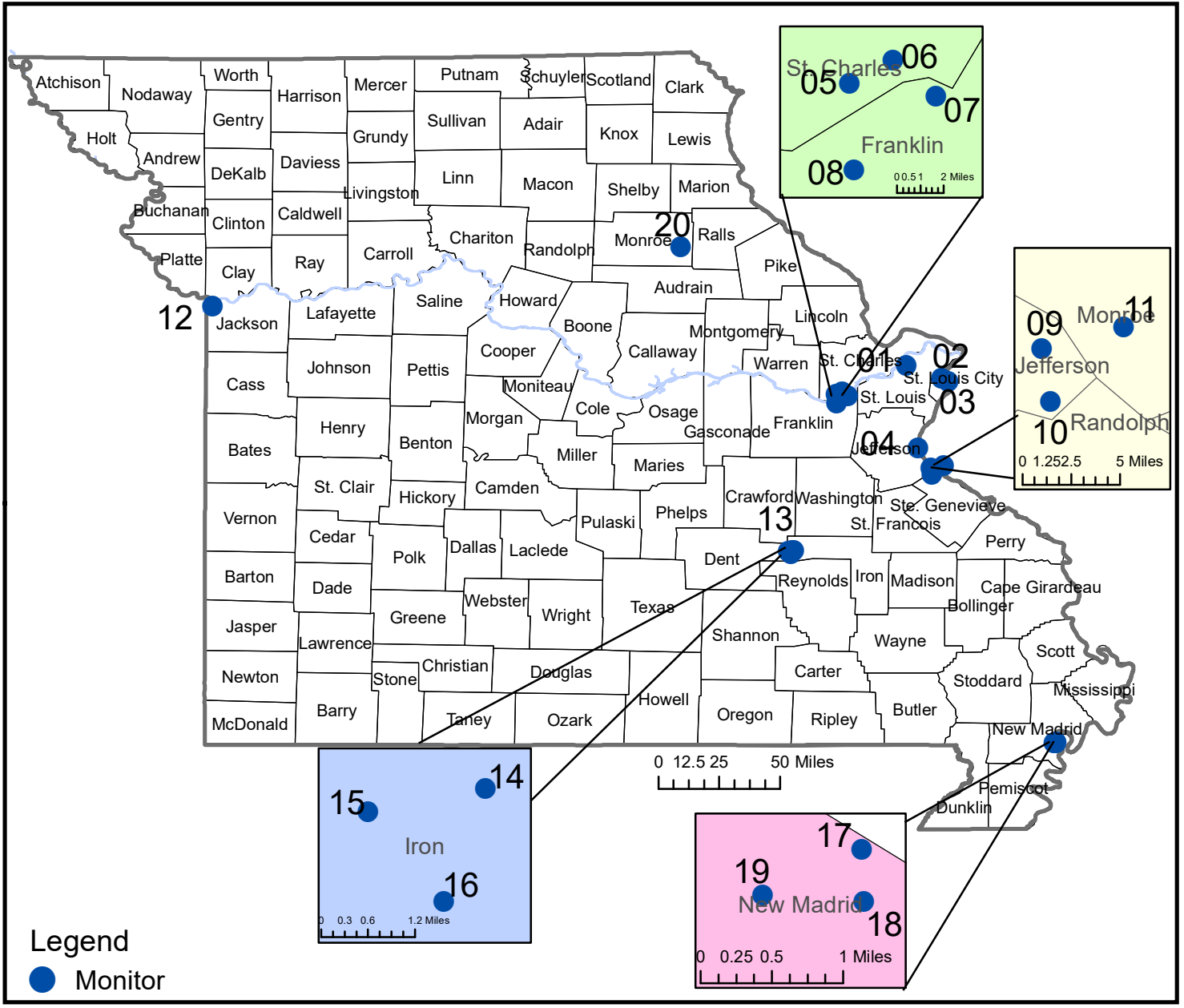
<sup>^^^</sup>Monitoring began on April 24, 2016.

<sup>^^^</sup>Monitoring began on May 20, 2016 (Special Purpose Monitor).

<sup>†</sup>Monitoring discontinued on Dec. 31, 2016.

One-hour SO<sub>2</sub> values in red and bold are exceedances of the 2010 standard.

# Statewide Sulfur Dioxide (SO<sub>2</sub>) Monitoring Network, 2019



- |  |  |   |
|--|--|---|
| <p>St. Louis Area MO &amp; IL</p> <ul style="list-style-type: none"> <li>01. Rider Trail, I-70"~</li> <li>02. Margaretta</li> <li>03. Blair Street</li> <li>04. Herculaneum, Mott Street</li> <li>05. Ameren-Northwest* ^^</li> <li>06. Ameren-North*~^^</li> <li>07. Ameren-Valley* ^^</li> <li>08. Ameren-Southwest*~^^</li> <li>09. Ameren-Weaver &amp; Hwy AA*</li> <li>10. Ameren-Natchez*</li> <li>11. Ameren-Fults, IL*~</li> </ul> | <p>Kansas City Area, MO</p> <ul style="list-style-type: none"> <li>12. Troost</li> </ul> <p>Outstate Area, MO</p> <ul style="list-style-type: none"> <li>13. Buick NE</li> <li>14. Hwy 32 Northeast*~^^</li> <li>15. County Road 75 *~^^</li> <li>16. West Entrance*~^^</li> </ul> | <p>Outstate Area, MO</p> <ul style="list-style-type: none"> <li>17. M7M Site #1-AECI Water Tower*~^^</li> <li>18. M7M Site #2- East Graveyard*~^^</li> <li>19. M7M Site #3- West Entrance*~^^</li> <li>20. Mark Twain State Park</li> </ul> |
|--|--|---|
- "Special Purpose Monitor*  
*\*Industry Monitor*  
*~Less than 3 years in operation*  
*^^Data Requirement Rule Sites*  
*M7M: Magnitude 7 Metals*

