

Fact Sheet

FINAL DECISION: REVIEW OF THE SECONDARY NATIONAL AMBIENT AIR QUALITY STANDARDS FOR OXIDES OF SULFUR, OXIDES OF NITROGEN AND PARTICULATE MATTER

Action:

- On December 10, 2024, the U.S. Environmental Protection Agency (EPA) revised the secondary National Ambient Air Quality Standards (NAAQS) for oxides of sulfur (SO_x). Specifically, based on the latest scientific evidence, EPA revised the existing secondary SO₂ standard to an annual standard of 10 parts per billion (ppb), averaged over 3 years. In addition, EPA retained without revision the secondary standards for oxides of nitrogen (N oxides) and particulate matter (PM).
- EPA sets secondary standards to protect the public welfare against adverse effects – including ecological effects such as damage to fisheries and vegetation – caused by certain air pollutants. EPA last reviewed the secondary standards for ecological effects of SO_x and N oxides in 2012, and PM in 2013.
- Consistent with the scientific evidence indicating that SO_x, N oxides, and PM contribute to sulfur and nitrogen deposition, EPA conducted a concurrent review of the ecological effects of these pollutants.
- The ecological effects addressed in this review include direct effects on vegetation, as well as ecological effects related to atmospheric deposition of sulfur and nitrogen compounds in sensitive ecosystems. Deposition-related effects include acidification and nutrient enrichment, which can damage sensitive ecosystems. These deposition effects were not specifically considered when the existing secondary standards for SO_x, NO_x, and PM were put in place.
- This review included consideration of advice from EPA's independent science advisors – the Clean Air Scientific Advisory Committee, or CASAC – and public comments and additional analyses conducted in consideration of public comments.
- Emissions of sulfur dioxide (SO₂) and N oxides have trended downward for the past 20 years. SO₂ emissions decreased by 89% (2003 to 2023), and emissions of the two most highly emitted N oxides, nitrogen dioxide (NO₂) and nitrogen oxide, decreased by 72% (2003 to 2023). As a result, ambient air concentrations of SO₂ and NO₂ have also declined.
- To assess whether any additional emissions reductions might be needed to meet the revised secondary annual SO₂ NAAQS, EPA prepared an air quality analysis for all monitor sites with valid SO₂ data during the period 2017 to 2023.
 - For monitors that meet the current primary SO₂ NAAQS (1-hour standard of 75 ppb), no emissions reductions are expected to be needed to meet the revised secondary annual SO₂ standard.
 - For monitors that do not meet the current primary SO₂ NAAQS, after adjusting air quality to meet the current primary NAAQS, no additional emissions reductions are expected to be needed to meet the revised secondary annual SO₂ standard.

As a result, EPA does not anticipate additional emissions reductions would be needed to meet the revised secondary standard at monitors beyond those already needed to meet the current 1-hour primary SO₂ NAAQS.

- The revised standard will take effect 30 days after the final decision is published in the *Federal Register*.

Implementing the Revised Secondary SO₂ Standard:

- After EPA sets a new or revised primary or secondary NAAQS, the Clean Air Act (CAA) requires EPA and states to take steps to ensure that the new or revised NAAQS is met. The first step, known as the initial area designations, involves identifying whether areas of the country meet the new standard, contribute emissions to areas that do not meet the standard, or not enough information is available to make a determination. Along with the final decision, EPA is issuing a memorandum that outlines the initial area designations process for the revised secondary SO₂ NAAQS.
- The CAA also directs states to address basic state implementation plan (SIP) requirements to implement, maintain, and enforce the NAAQS. States are required to have SIPs that provide for necessary air quality management infrastructure, including, among other things, enforceable emissions limitations, an ambient air monitoring program, an enforcement program, air quality modeling capabilities, and adequate personnel, resources, and legal authority. EPA refers to this type of SIP submission as an “infrastructure SIP submission.”
- As shown in the memorandum titled “Air Quality Analysis Using Sulfur Dioxide (SO₂) Air Quality Data, Updated” (October 21, 2024), using all monitor sites with valid SO₂ data during the period 2017 to 2023, only two monitor sites have estimated 3-year annual average values above the revised secondary SO₂ NAAQS. As noted in the memorandum, after simulating emissions reductions needed to meet the current 1-hour primary SO₂ NAAQS set in 2010, EPA does not anticipate additional emissions reductions would be needed to meet the revised secondary annual SO₂ standard.
- While EPA is not making changes to the New Source Review permitting program, the Agency also is issuing a Prevention of Significant Deterioration (PSD) memorandum which describes utilizing an alternative compliance demonstration approach for the revised secondary SO₂ NAAQS.
 - Under the PSD permitting program, applicants must demonstrate that the proposed new or modified source emissions increase would not cause or contribute to a NAAQS violation.
 - EPA regulations specify air quality models and EPA has provided guidance for making the required PSD demonstration. Permit applicants and reviewing authorities can use these existing resources to demonstrate compliance with the revised secondary SO₂ NAAQS.
 - However, to help facilitate implementation of the revised secondary SO₂ NAAQS under the PSD program and avoid unnecessary burden on permit applicants and reviewing authorities, EPA is issuing a memorandum with an attached technical analysis that supports the use of an alternative, streamlined compliance demonstration approach.
 - The memorandum and technical analysis will provide a justification for relying on the demonstration of compliance with the 1-hour primary SO₂ standard to demonstrate compliance with the revised SO₂ secondary standard.

Data Handling and Monitoring:

- EPA revised appendix T to 40 CFR part 50 to add data handling procedures for the revised annual secondary SO₂ standard. Appendix T also includes data handling procedures which remain unchanged for the existing 1-hour primary SO₂ NAAQS. Appendix T describes the data handling conventions and computations for assessing whether the SO₂ NAAQS are met, including determining whether there would be sufficient data to make a comparison.
- Based on EPA's review of the SO₂ air monitoring network history, current design and objectives, and data, the current network is adequate to provide the data needed to implement the revised secondary SO₂ NAAQS.

For More Information:

- The preamble and other documents supporting this review are available at <https://www.epa.gov/naaqs/nitrogen-dioxide-no2-and-sulfur-dioxide-so2-secondary-air-quality-standards>.
- Additional information is available at <https://www.epa.gov/so2-pollution/secondary-national-ambient-air-quality-standards-naaqs-nitrogen-dioxide-no2-and>