



HOT TOPICS: Complying with the NAAQS for Sulfur Dioxide



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The New NAAQS

- New Short-term NAAQS
 - Sulfur Dioxide (2010) 1 Hour Average (3,24 and Annual)
 - Nitrogen Dioxide (2010) 1 Hour Average (Annual only)
- Other New NAAQS
 - Ozone (2008) Reduced 8 Hour Average (2013)
 - Lead (2008) Reduced Quarterly Average (1/10)
 - PM2.5 (2006) Reduced 24 Hour Average (1/2)
 - Carbon Monoxide No change

These combined make existing and new sources subject to tremendous pressure on emissions.

SO₂ NAAQS

- Compliance with the old secondary NAAQS (1300 µg/m³ 3-Hour average [500 ppb], High Second High) was difficult enough. This NAAQS is retained as the secondary.
- New primary NAAQS of 196 µg/m³ (75 ppb) as a 1 Hour average results in a 7.7 times more restrictive standard. New standard is 99% over three years.
- EPA is interpreting that you use the 98% of the measured background concentration with the 99% of the modeled concentration.
- The old 24 Hour and Annual Average NAAQS have been proposed as secondary NAAQS.

SO2 NAAQS

- This NAAQS is the 99% of the days with at least 1 hour above the level of the NAAQS, i.e. 4th highest value averaged over three years.
- Focus of attainment demonstrations to be on **modeling**, which is said to be a continuation of past policy with enhanced use.
- Any new monitors by December 2012, with 3 years of data by 2015.
- State attainment decisions by June 2011, Revised attainment decisions by June 2012.
- Attainment by 2017.

SO₂ NAAQS

- Federal Reference Method for SO₂ being modified.
- When networks of monitors need to be designed, preamble suggest SCREEN3 or AERSCREEN (beta version only)
- Suggests AERMOD for modeling with strict Guidance.
- Monitoring will be required on a Population Weighted Emissions Index (PWEI) basis
- Monitored data to be supplied on a 5 minute average basis.

Draft SO₂ Attainment Demonstration Guidance

- Issued October 2011
- Comments by December 2, 2011
- Next Step?
- Focus of Comments:
 - Guidance Should be Rule
 - Changes to Guideline on Air Quality Modeling require Rulemaking
 - Only Monitoring Should be used to establish Non-Attainment
 - Use of Maximum Hour Emissions

Draft SO₂ Attainment Demonstration Guidance (cont)

- Revision from 30 day rolling average to max one hour average permit limits will be punitive.
- Sole use of AERMOD in will lead to gross over prediction of nonattainment.
- Use of 98% of measured data as background is highly conservative
- Use of airport data in many cases will not be representative
- Use of GEP rather than actual stack height does not reflect ambient air quality
- EPA's handling of calm winds is highly conservative

Paths to Compliance

- Do your own modeling
- Raise your stack height
- Buy more land around source
- Increase plume height with more heat
- Scrubbers to reduce SO₂ emissions may not help because the heat of the plume (and thus the plume rise) is reduced
- Fuel sulfur content
- Monitoring on your own to prove that your facility meets the NAAQS.

Secondary NAAQS

- Don't think that this is the end for SO₂ or NO₂.
- EPA has been evaluating and submitting to CASAC the bases for secondary NAAQS to protect water bodies and soils against deposition of acids. The old acid rain effect.
- The most recent Policy Assessment (February 2011) concludes that 20 to 75 µeq/L (micro equivalents per Liter measured in rainwater) of deposition is the appropriate range of the standard. The standard would be a three to five year average.
- Standard would apply to NO_y and SO_x.

Secondary NAAQS

- EPA proposed (Monday August 1 Federal Register) that the old standards for SO₂ and NO₂ be used as the secondary NAAQS:
 - SO₂: 99th percentile one hour average of 75 ppb (196 µg/m³)
 - NO₂: Annual average 53 ppb (100 µg/m³)
 - NO₂: 98th percentile one hour average of 100 ppb (188 µg/m³)

Regulatory Oversight

- States are responsible for meeting and maintaining the NAAQS.
- Federal agencies with “conformity” requirements can will be greatly affected by the new SO₂ NAAQS.