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REGFORM Air Seminar

1-hr SO₂
Permitting/Modeling
Challenges

March 30, 2011



1-hr SO₂ NAAQS Permitting (1/2)

- Effective dates

- SO₂ – August 23, 2010
- All states – see EPA’s April 1, 2010 memo...

EPA generally interprets the CAA and EPA’s PSD permitting program regulations to require that each final PSD permit decision reflect consideration of any NAAQS that is in effect at the time the permitting authority issues a final permit...

- No change to PSD major source SERs (40 tpy)




1-hr SO₂ NAAQS Permitting (2/2)

- Interim SIL
 - SO₂ – 3 ppb [$\sim 7.8 \text{ ug/m}^3$] (4% of 75 ppb NAAQS [$\sim 196 \text{ ug/m}^3$])
 - Average of the highest 1-hr per year for up to 5 years
- Increment
 - SO₂ annual, 24-hr, and 3-hr increments will remain, 1-hr?
- Modeling should address worst case operating scenario
 - Units such as emergency generators can not be excluded (unless not worst case)
 - Start-up emissions not exempt



1-hr SO₂ NAAQS Modeling


- Minimal concern to newer plants in flat terrain
 - Typically tall stacks
 - But already have examples of issues here
- Some concern at older plants or plants near hilly/mountainous terrain
 - Relatively short stacks
 - High short-term emission rates
- Depending on state's modeling guidelines, request permit limits for uncontrolled, ignored (or grandfathered) emission sources



1-hr SO₂ NAAQS Modeling

Making It Work (1/3)


- Consider operational and scheduling limitations
- Evaluate costs of modeling improvements
 - New stack/height change
 - Necking stack
 - Emissions controls
 - Multiple scenario modeling
 - Fenceline
 - Property purchase



1-hr SO₂ NAAQS Modeling

Making It Work *(2/3)*

- Note about stack changes:
 - Can raise stacks to GEP, other “dispersion techniques” may be prohibited
 - Dispersion Techniques [51.100(hh)] – Increasing final exhaust gas plume rise by manipulating source process parameters, exhaust gas parameters, stack parameters, or combining exhaust gases from several existing stacks into one stack
 - The definition of dispersion technique does not address relocating an existing stack



1-hr SO₂ NAAQS Modeling

Making It Work (3/3)

- Three options for NAAQS compliance
 - 1) Model project (facility for greenfield) impacts < SIL, (4% of NAAQS is interim SIL, 3 ppb for SO₂)
 - 2) Model impacts from total facility plus neighbors plus background < NAAQS, or
 - 3) Demonstrate that your project's (facility's) impacts insignificant at any NAAQS exceedances
- In an industrialized area, Options 1 or 3 may be the only options



1-hr SO₂ NAAQS Permitting/Modeling Strategy

- Option 3 for NAAQS compliance (previous slide) effective – demonstrate insignificant impacts around receptors exceeding NAAQS
- Focus on impacts on handful of NAAQS-exceeding receptors
- Use of interim SILs, post-processing tools available in dispersion modeling software
- Build relationship with agency modeler(s) – helpful in getting help regarding the many gray areas in modeling