



Connecticut Department of

ENERGY &
ENVIRONMENTAL
PROTECTION

SULFUR DIOXIDE (SO₂) NAAQS SIP MODELING EFFORT

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SIPRAC
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New SO₂ Standard & Public Health

The new 1-hr standard

- Provides substantial protection from high, 5–10 minute concentrations of concern
 - Clinical studies reported that 5 minute SO₂ exposures ≥ 200 ppb can result in adverse respiratory effects such as bronchoconstriction and asthma symptoms
- Decreases emergency room visits and hospital admissions for respiratory illnesses, notably in at-risk populations such as children, the elderly and asthmatics
- Reduces the formation of PM_{2.5}
 - PM_{2.5} can penetrate deeply into sensitive parts of the lungs, where it can worsen respiratory disease and aggravate existing heart disease, leading to increased hospitalization and premature death

1-hr SO₂ Standard

- 75 ppb, effective August 23, 2010
- CT requested unclassifiable designation, June 2011
- EPA final designation June 2012
- Utilize a hybrid air quality modeling and monitoring approach
 - SIP Revision due June 2013
 - Modeling must demonstrate compliance with the new standard
 - Non Attainment = monitored or modeled violations
 - Attainment = monitored and modeled evidence of no violations

Approach

- SO₂ Units
 - Any unit with allowable SO₂ emissions \geq 50 tpy
 - May need to go lower
- List of Units
 - Will post on-line (SIPRAC Page)
 - Contain modeling inputs
- Types on List
 - EGUs, Boilers, Combustion Turbines, Engines, and Asphalt Plants



Approach (cont.)

- **SO₂ Modeling**
 - AERMOD –allowable emissions ≥ 100 tpy
 - AERSCREEN – allowable emissions <100 tpy
 - Units that fail screening will be added to list for a final modeling run
 - Any unit that has a significant impact within an area of modeled non-attainment will be added to list for a final modeling run (SIL= 3 ppb)
 - Based on this final modeling run, a list of non-compliant units will be generated
 - NOTE: SIP modeling protocol subject to EPA approval



Compliance Options

- Permit Modifications
- Orders
- Regulation
- Combination of the Above



Work Plan

TASKS	Timeline
Notify facilities that have units with SO ₂ emissions >50 tpy	September 1, 2011
Large units (≥ 100 tpy SO ₂) run through AERMOD.	Sept. 15, 2011 thru December 31, 2011
Small units (<100 tpy SO ₂) run through AERSCREEN	Sept. 15, 2011 thru December 31, 2011
Small units that fail AERSCREEN go through AERMOD	Sept. 15, 2011 thru December 31, 2011
Final large scale AERMOD run made to determine units in violation of NAAQS	January 2012 thru March 2012
Identify control strategy for SO ₂ NAAQS compliance	March 2012
Identify and notify unit owners failing NAAQS	March 2012 thru April 2012
Identify compliance mechanism	June 2012
Enter into source negotiations on compliance mechanism	June 2012
Enforceable conditions in place and prepare SIP submittal	June 2012 thru June 2013
Submit SIP	June 2013

Next Steps

- Notify facilities that have units with allowable emissions ≥ 50 tpy
- Request
 - Verification of allowable emissions
 - Verification of modeling inputs
 - Updated plot plans
 - Response within 30 days
- Begin modeling efforts



Questions?

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