

Reinhold Environmental Ltd.



2009 APC Round Table & Expo Presentation

July 12-14, 2009, in The Woodlands, TX

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Dry Scrubber Technology What is in the Future?

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Dry FGD Performance Expectations Going Forward

- ***Typical emission limits for new coal plants***
- ***SDA operation from initiation of coal fire***
- ***Demonstration of “efficient” SDA Operation***

Typical SDA/FF System Emission Requirements

Coal (emission limits in lb/Mbtu)

- **SO₂ - 0.05 to 0.08**
 - **Tiered limits based on coal sulfur**
- **H₂SO₄ – 0.001 to 0.004**
- **Filterable PM – 0.10 to 0.12**
- **Total PM – 0.018 to 0.025**
- **HCl – 0.0006 to 0.0029**
- **HF – 0.0002 to 0.0009**
- **Metals**
 - **TSM or individual metals such as Pb or Be**
 - **Mercury – 1.7 to 7.5x10⁻⁶ lb/Tbtu**
15 to 20x10⁻⁶ lb/MW hr

Typical SDA/FF System Emission Requirements

Biomass

- ***SO₂ at 0.01 – 0.02 lb/MBtu***
- ***Is this a realistic long term operating position?***
- ***BFB / CFB with sorbent injection, SDA/FF or CDS***

SDA Operation on First Coal Fire

- ***Permit requirement for SDA in service at first coal to mill – WPS Weston 4***
- ***Requires some modifications to boiler start-up and turbine soak procedures***
- ***SDA minimum inlet temperature to minimize corrosion concerns in downstream flues and FF***
- ***Weston successfully meeting this challenge***
- ***Wyoming DEQ requesting evaluation of similar provision at existing unit***

Demonstrate Efficient SDA Operation

- ***Meeting the permitted emissions limits no longer sufficient for compliance***
- ***WSEC #4 permit requirement for minimum lime addition rate as measure of “efficient” operation***
 - ***Additional reporting burden***
 - ***Constraint on operations – excess reagent not needed***
 - ***Lime use not the only parameter influencing emissions***

Emissions are the best measure of efficiency – not the combination of operating conditions to get there

What's In The Future for Dry FGD?

- ***Continuing pressure to reduce SO₂ and total PM emissions***
- ***Additional acid gas and trace element emission limits for existing installations***
- ***Constraints on DFGD system operations***