

REINHOLD ENVIRONMENTAL Ltd.



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PM Control and the Utility MACT

Jim Chaney- Ameren
Scott Williams- Duke Energy

PM Control and the Utility MACT

- “just one piece of the puzzle”
- "it depends"

PM Control and the Utility MACT

- Simplified MACT requirements
 - 1.2 lb/Tbtu Hg
 - 0.030 lb/mmbtu PM (total = filterable + condensible) or Total non-Hg HAP metals or individual metals
 - 0.0020 lb HCl (or SO₂ surrogate of 0.20 lbs/mmbtu)
 - NO exemption for startup/shut down, malfunction
 - 30 day rolling average
 - Work practice standard for combustion optimization

PM Control and the Utility MACT

- Design basis
 - Fuel mix
 - Public enemy #2 – "the Fuels Department"
 - Flue gas temperature
 - ID fan capacity
 - Footprint availability

PM Control and the Utility MACT

- Other pollution control equipment
 - SCR
 - NH_3 slip
 - SO_3
 - SNCR
 - NH_3 slip
 - FGD

PM Control and the Utility MACT

- Sorbent addition
 - ACI for Hg
 - Na or Ca based sorbents for SO₂/SO₃/HCl
 - Halogen addition for Hg oxidation
 - Bromine slip

PM Control and the Utility MACT

- Architectural analogy
 - "Is your primary PM control device the cornerstone or keystone of your compliance strategy?"

PM Control and the Utility MACT

- “One size does NOT fit all”
 - ESP types
 - Hot side- May have startup emission issues
 - Cold side
 - "Warm" side $> 350\text{F} < 390\text{F}$

PM Control and the Utility MACT

- ESP upgrades
 - Gas flow improvements
 - Full rebuild (hoppers up)
 - Wide plate spacing, sectionalization, RDE's, HF power supplies, hopper baffles, rapper upgrades, enlarge ESP
 - Outage duration
 - Partial rebuild
 - Pick/choose from above

PM Control and the Utility MACT

- New unit
 - New ESP's can achieve FF emission rate at lower dP for filterable PM. What about condensables?

PM Control and the Utility MACT

- FF types
 - Pulse jet (most likely)
 - Reverse gas
 - COHPAC
 - TOXECON
- Polishing or Full Size new Fabric Filter

PM Control and the Utility MACT

- ESP to FF conversion
 - Appropriate size to achieve acceptable A/C ratio
 - Casing integrity
 - dP, furnace implosion study, ID fan capability
 - Outage duration