Wet ESPs for Boiler MACT Compliance
Presented to
McIlvaine Hot Topics Hour
April 4, 2013
by
Steven A. Jaasund, PE
Manager, Geoenergy Products
Wet Electrostatic Precipitators

- Excellent particulate removal
- Proven on boilers
- Low pressure drop
- No impediment to gas flow
- Multi-fuel compatible; CISWI implications
Typical Applications

• Sulfuric acid mist collection in non-ferrous smelting
• Wood dryers in panelboard and pellet manufacturing
• Incinerators of hazardous waste and sewerage sludge
• Industrial boilers down stream of scrubbers
Inherent Advantages of Wet Precipitation

- Condensable are already formed
- Particulate resistivity is irrelevant
- No particulate re-entrainment
- Sneak-by can be eliminated
- Smaller gas volume
Why Wet Precipitation on P&P Boilers?

- Hard part already done
- Excellent particulate removal
- Proven on boilers
- Low pressure drop
- No impediment to gas flow
- Multi-fuel compatible
Existing Scrubber on Boiler
Wet ESP Added
Wet ESP Performance
Effect of Particle Size

Size has a strong influence on the performance of a wet precipitator in collecting fine particles.

Wet electrostatic precipitators capture fine particles more efficiently than the highest-energy wet scrubbers.
Wet ESP Performance Test Results
(Northwest P&P Mill)

- Biomass stoker boiler also burning mill sludge and OCC
- Tests conducted from 2009 through 2011
- 46 total tests; 23 on each wet ESP unit
- Average emission - 0.0032 lb/MM BTU
Performance Tests 2009 - 2011
(Biomass Boiler @ Northwest P&P Mill)

Boiler MACT Wet Stoker Limit
Seeing is Believing!

Power Off

Power On
Thank You!