

Sorbent Injection Balance of Plant Issues

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TOXECON™ – 270 MW Demonstration

- **Presque Isle Power Plant, Marquette MI**
 - **Units 7-9**
 - **PRB Coal from Antelope and Spring Creek Mines**
 - **\$53.3M**
 - **\$24.9M DOE**
 - **\$28.5M We Energies**
 - **90% Hg Control**
 - **70% SO₂ Control***
 - **30% NO_x Control***
- * Potential

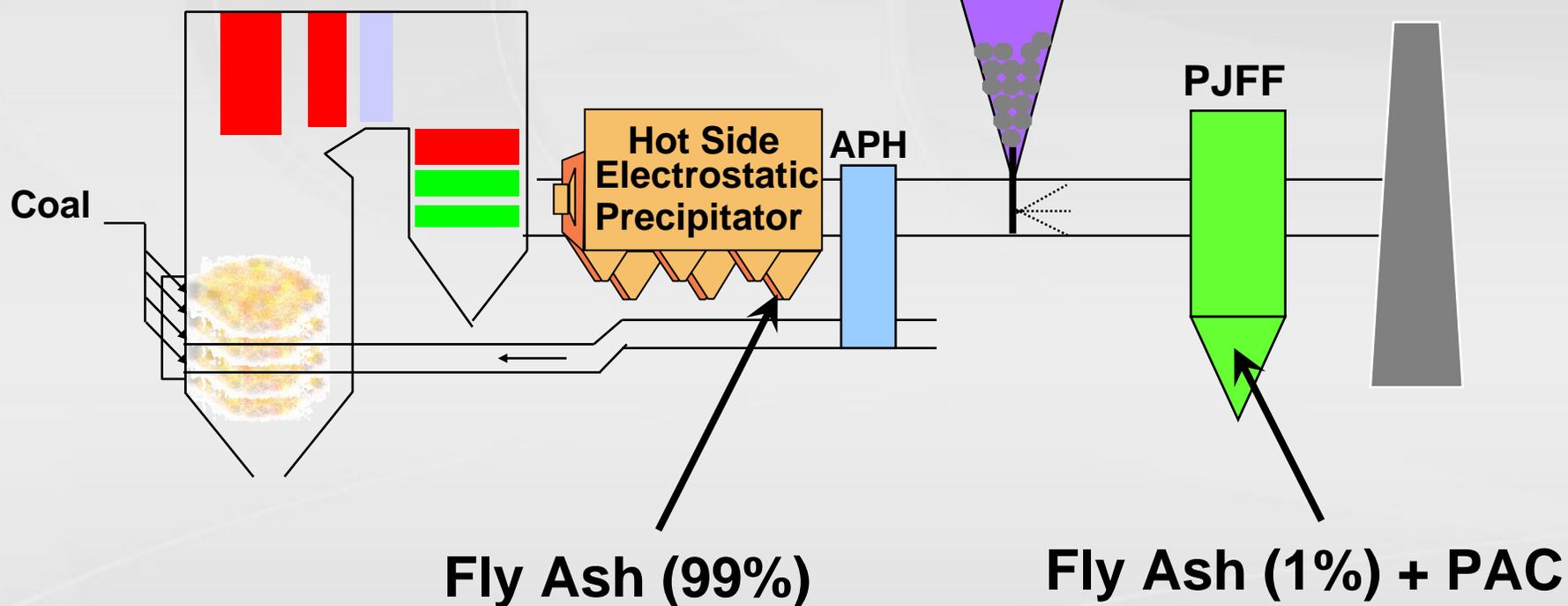


TOXECON™ – 270 MW Demonstration

Presque Isle Power Plant

TOXECON™

Sorbent Injection



ADA-ES ACI System at We Energies Presque Isle (270MW) TOXECON™



Balance of Plant Issues

- Smoldering PAC/ash in hoppers
- Material Handling
- Bag cage separation
- Condensation at startup

Problem with Overheating PAC

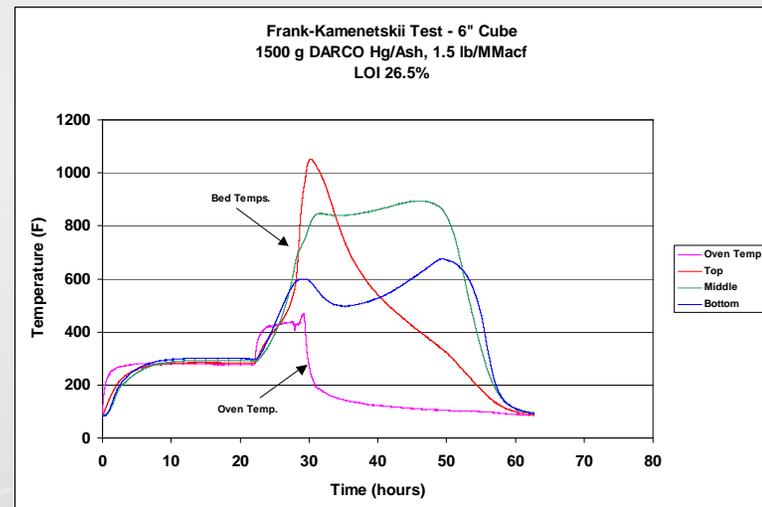
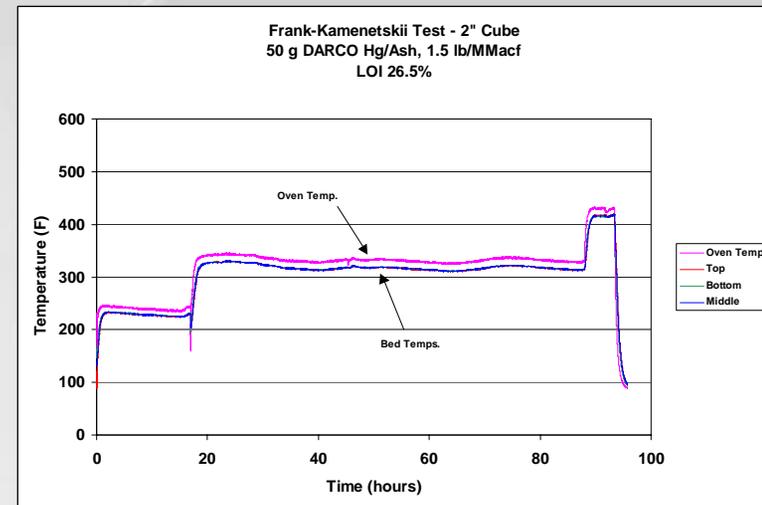
- Hot burning embers found in all compartments two weeks after the start of carbon injection
- Baghouse isolated to cool ash and clean out hoppers
- While extinguishing burning embers, unintentionally created additional flames in two compartments
 - 117 bags were failed in Compartment #4
 - 83 bags were failed in Compartment #3

Burned Bag



Mechanism for Spontaneous Combustion

- Laboratory tests confirm spontaneous combustion follows Frank-Kamenetskii Model
- Key Factors
 - Bed size
 - Temperature surrounding bed
 - LOI
 - Type of LOI (high vs. low surface area)
 - Gas oxygen concentration



Material Handling Issues



- Ash Silo Unloading
- Ash Hopper Unloading



Cage Separation

- Bottom half of cage was found to be laying in bottom of bag
- Large percentage of bags
- Two problems:
 - Faulty spot welds on lower retaining ring
 - Improper position of locking slider on upper cage
- Warranty issue covered by WAPC

