

# **Sorbent Injection Balance of Plant Issues**

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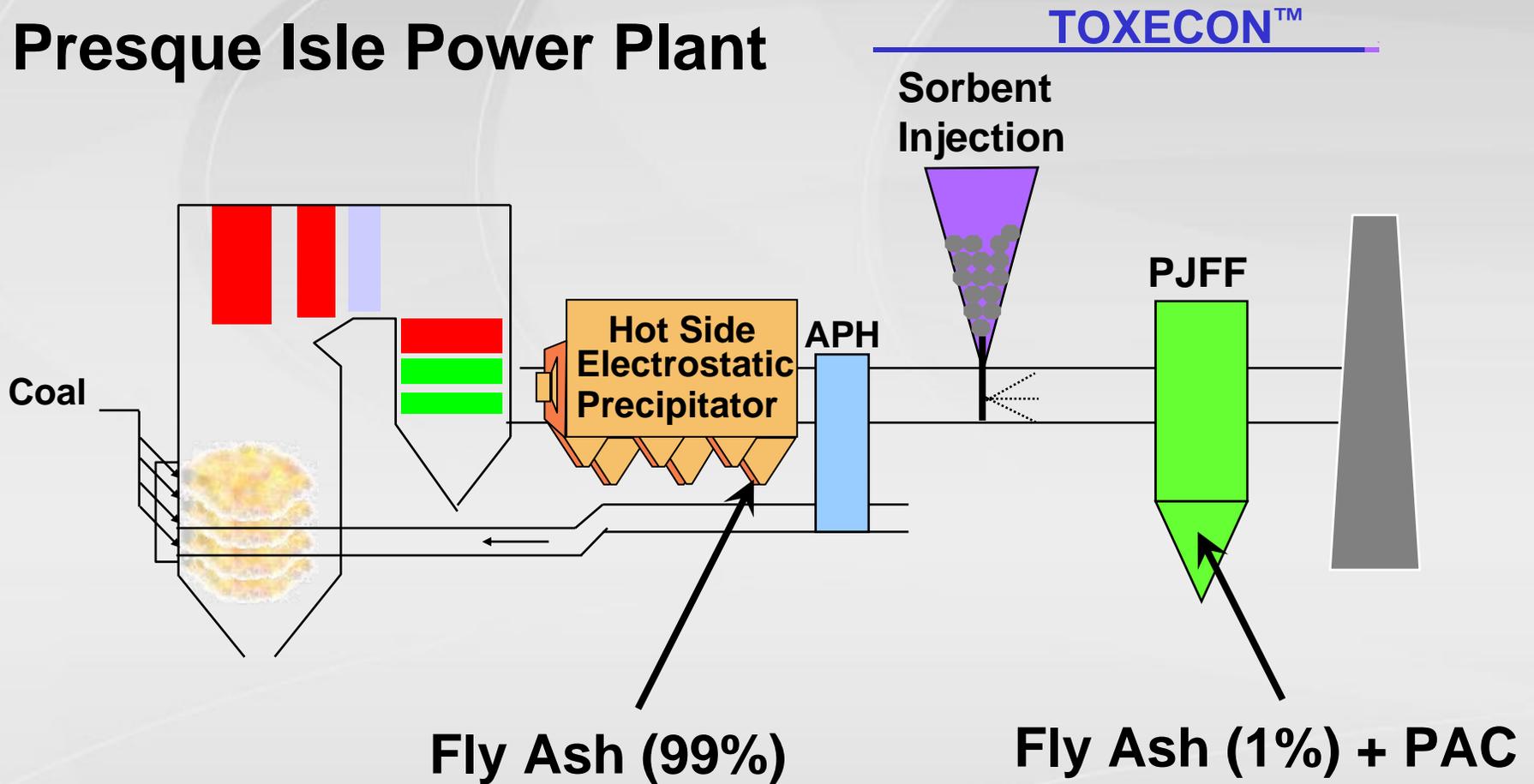
# TOXECON™ – 270 MW Demonstration

- **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% SO<sub>2</sub> Control\***
- **30% NO<sub>x</sub> Control\***
- \* Potential



# TOXECON™ – 270 MW Demonstration

## Presque Isle Power Plant



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



# Balance of Plant Issues

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

# Problem with Overheating PAC

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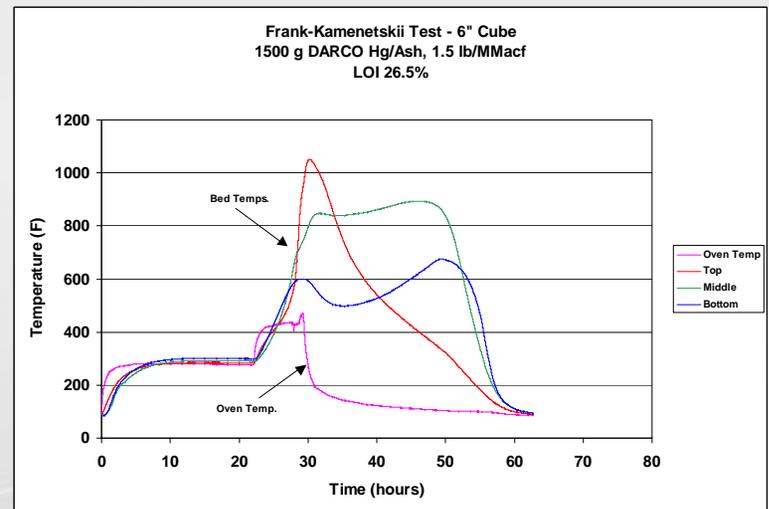
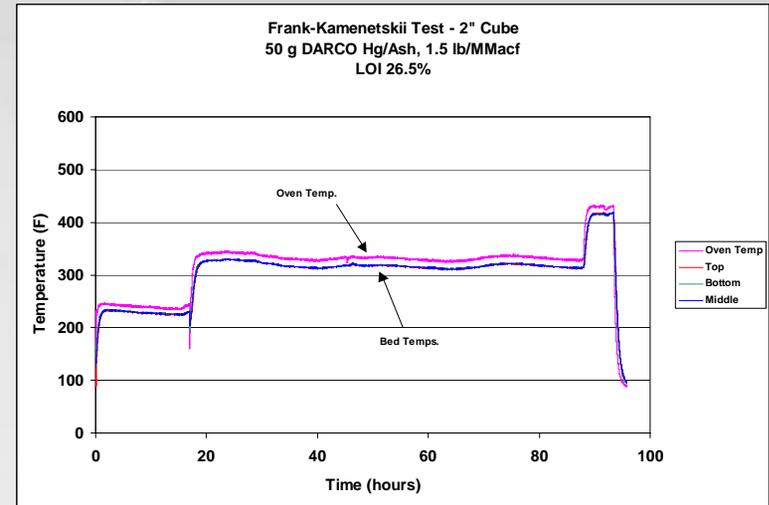
- Hot burning embers found in all compartments two weeks after the start of carbon injection
- Baghouse isolated to cool ash and clean out hoppers
- While extinguishing burning embers, unintentionally created additional flames in two compartments
  - 117 bags were failed in Compartment #4
  - 83 bags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

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- 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

