Mercury Control Technology Using Sorbent Enhancement Additives

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Keys to Dry Sorbent Injection
Midwest Energy Emissions Corp

Commercialization Arm of UND- EERC Technology
* 20+ years of development pilot testing and field implementation
* Center for Air Toxic Metals
* On-Going Innovation and Research

Delivering Cost Effective Mercury Capture Systems
20+ Patents, Pending, & Allowances – US, Canada, China, & Europe
Self Designed/Engineered Feed Equipment
13 Utility Boilers Under Contract (2 since 2011)

Sorbent Enhancement Additive Technology
10+ years development
$60+M investment by ME₂C, EERC, DOE, Participating Utilities
35+ Field Utility Demonstrations
All boiler types, fuel sources, and Particulate Control Devices (PCD)
Injection and Sampling Diagram

<table>
<thead>
<tr>
<th>Injection Locations</th>
<th>Sampling Locations</th>
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<tbody>
<tr>
<td>1 – SF10</td>
<td>3 – Solids, Coal</td>
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<tr>
<td>2 – SB24 Sorbent</td>
<td>4 – Solids, ESP Ash</td>
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<tr>
<td></td>
<td>5 – Gas, CMM, Sorbent Traps</td>
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- Coal Bunkers
- SF10 Injection System
- SB24 Sorbent Injection System
- Unit 1 Boiler
- Air Heaters: Secondary, Primary, Secondary
- Dual ESPs
- Wet FGD
- Duplicate ID Fans
- Stack

ME2C
Midwest Energy Emissions Corp
KEYS TO DSI

* TARGETED TEMPERATURE WINDOW
  * DON’T FORCE RESULTS
  * TOO HOT – TOO COOL
  * ECONOMICS

* KNOW YOUR PRODUCTS AND REACTIONS/ROLES

* DISTRIBUTION FLOW
A **tunable** (2 Product) approach to mercury capture and control

* **SF10 - Sorbent Enhancement Additives** (Front End)
  * Proprietary Blend of Specific Chemicals
  * Designed to Promote and Protect activated sites
  * Distribute chemical throughout furnace system

* **SB24/SB31 - Sorbent** (Back End)
  * Proprietary Blend of Specific Chemicals
  * Provide active capture sites for mercury adsorption
  * Protect activated capture sites
DISTRIBUTION FLOW - INITIAL
DISTRIBUTION FLOW - AFTER
Thank You

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