

**REINHOLD ENVIRONMENTAL Ltd.**



**2013 APC Round Table  
& Expo Presentation**

**July 8-9, 2013, in St. Louis, MO / Hosted by Ameren**

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# ***WFGD O&M Discussion Group***

## ***Foam***

***2013 APC Conference***

***St. Louis, Missouri – July 8-9, 2013***

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**Greg Bielawski**  
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## ***Example of Foam: Plant A***



## ***Trench with Foam: Plant B***



# *Getting Worse*



# ***Auditioning for a Horror Film Movie Set?***



# ***Foaming in WFGD Systems***

- **Some Wet FGD systems never have the problem; many rarely have it**
- **Whether foaming happens is independent of the type of FGD design**
- **Can be a housekeeping nightmare and a safety issue**
- **Can cause level control issues**
- **Can be a rapidly dissipating foam or a stable foam**
- **Can be around for days**
- **Different color foams have been reported at the same unit**
- **Identical units: One can foam and the other not**
- **Can happen at startup, but also has been reported to start weeks after startup from an outage**
- **Many of the potential causes of foam work by causing lower surface tension**
- **Foams collapse by “draining” of the individual bubbles and then film rupture**
- **The lower the surface tension, the lower the drain rate and the stronger the foam**

## ***Foaming: Possible Causes***

- **Oil from incomplete combustion during startups**
- **High total dissolved solids**
- **Fine suspended solids (flyash buildup or from an ESP upset or high limestone inerts)**
- **Organic material in the limestone (wood lignin)**
- **Organic material in river water used as makeup (leaves, grass)**
- **DBA**
- **Coal pile runoff used as makeup water**
- **Glycols, even in small amounts, from antifreeze that may be used on limestone in winter, or from equipment and washed into sumps**
- **Oil from equipment (i.e., gearboxes) or mobile equipment, being washed into sumps**

## ***Cure for Foaming in WFGD Systems***

- **Add antifoam agent**
- **Spray the foam to break the bubbles**
- **Reduce oxidation air**
- **Increase blowdown**
- **Recycle less water from dewatering**

## ***Foaming: Anti-Foam Agents***

### **AntiFoam Agent**

- **Must be non-organic (no oils) and safe for use with rubber linings**
- **Recommend water-based agents**
- **Absorber temperature destroys many antifoam agents**
- **Effectiveness begins to drop within several hours**
- **Loss due to purge is minor**
- **Can reduce oxidation air effectiveness if over-used**
- **Some de-foaming agents may influence gypsum crystal morphology**

### **Selection of Agent**

- **Do a Jar test**



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***THANK YOU***

**Greg Bielawski**  
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