

REINHOLD ENVIRONMENTAL®



2026 Reinhold/PCUG Round Table Presentation

Hosted by TVA, Southern Company and Vistra
in the Sonesta Nashville Airport Hotel, Nashville, TN
on June 22-23, 2026

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2026 REINHOLD ROUNDTABLE

FGD O&M PANEL DISCUSSION

John Brotherton (Duke Energy – Retired) – Panel Moderator

Greg Betenson (PacifiCorp – Retired)

Tony Bondy (Duke Energy)

Tom Kaforey (American Electric Power)

Ann Palmer (Southern Company)

AGENDA

- ▶ Introduction of Panel
- ▶ Compliance Impacts to Scrubber
- ▶ Materials of Construction & Equipment Issues
- ▶ Operation Experience / Changes / Lessons Learned

PANELIST INTRODUCTIONS

- ▶ John Brotherton (Duke Energy – Retired) – Panel Moderator
 - ▶ Greg Betenson (PacifiCorp – Retired)
 - ▶ Tony Bondy (Duke Energy)
 - ▶ Tom Kaforey (American Electric Power)
 - ▶ Ann Palmer (Southern Company)
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COMPLIANCE IMPACTS FOR SCRUBBERS

- ▶ SO₂ – Limestone quality & Gypsum quality Standards
 - ▶ Limestone Reactivity Testing?
 - ▶ Manganese limits?
 - ▶ Original Expectations / Testing vs Today's Requirements

Gypsum Quality Requirements			Gypsum Quality Requirements	
Chemical Specifications	Guaranteed Specifications	Rejection Specifications	Wallboard (most stringent) Purity: 94% minimum Moisture: <12% free moisture Chlorides: 120 ppm or less CaSO ₃ : 1% max SiO ₂ : 1% max Mean particle size: 20-65 microns pH: 6-8	Cement (Facility dependent) Purity: 90% minimum Moisture: 12-15% free moisture (most require 12% or less) Chlorides: most require 200 ppm or less; some will take up to 500 ppm
Minimum Available Calcium Carbonate	94%	<92%	Agriculture (Least stringent) Purity: 90% minimum Calcium: 22% minimum Sulfur: 17% minimum Chlorides: less stringent than wallboard or cement manufacturing	Synthetic Materials Mineral filler in fiberglass production Specifications are facility dependent
Maximum Iron Oxide	0.25%	>.50%		Agri-B Industrial use in the production of fertilizer Specifications are facility dependent
Maximum Silicon Dioxide	1.00%	>2.5%		
Maximum Aluminum Oxide	0.50%	>.75%		
Maximum Moisture Content	0.50%	>1.0%		

COMPLIANCE IMPACTS FOR SCRUBBERS

- ▶ MATS/Opacity:
 - ▶ More re-emission / high Hg stack events
 - ▶ Real vs. CEMS Contamination
 - ▶ Load impacts
 - ▶ ME considerations:
 - ▶ Design
 - ▶ Wash Sequencing
 - ▶ Other modifications for improved reliability?
- ▶ ELG:
 - ▶ Water balance and ZLD impacts

MATERIALS & EQUIPMENT ISSUES

- ▶ Spare / Repair Part Lead Times – Global supply challenges – What are suppliers seeing?
- ▶ FRP – Any new / better methods of evaluating condition?
- ▶ Inspection Approach – Owner vs. Contracted Inspection Teams
- ▶ ME Materials of Construction – Upgrade considerations
- ▶ Chloride Control (i.e. limits, strategy, etc.)
- ▶ Full vs. partial rebuilds – life expectancy of unit, Capital vs. O&M?

OPERATIONAL EXPERIENCE & LESSONS LEARNED

- ▶ FGD Additive Solutions – Foaming, Scaling, & Biological Treatments
 - ▶ Best Practices for Shutdowns – Short vs. Medium vs. Long
 - ▶ Maintain X% Density?
 - ▶ Keep Oxidation Air running or shut down?
 - ▶ Issues with plugage of air lines?
 - ▶ Reaction Tank full vs. empty?
 - ▶ Challenges with refill on Stebbins vessels
 - ▶ Maintenance Storage Tanks – how to manage
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QUESTIONS?

