

REINHOLD ENVIRONMENTAL[®]



2024 Reinhold/PCUG Round Table Presentation

Hosted by LG&E/KU and Co-hosted by Southern Co. and TVA
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Fuel Flexibility and O&M Impacts

Ann Palmer
Southern Company
June 2024 Reinhold Conference

Topics to Cover

- Situations for Fuel Flexibility
- Coal Firing Fuel Flexibility Issues/Considerations
- Co-Firing and Natural Gas Burning on Coal Fired Sites

Situations for Fuel Flexibility

- Fuel switches due to cost saving associated with coal types
- Fuel switches due to availability of coal types
- Burning down existing coal piles/unit retirements
- Regulations and projects to switch to a co-firing and/or 100% natural gas firing

Cost Savings and Availability

- Transportation from various source/limited trucks/rail/barge options
- Mines closing down
- New contracts and delays
- Competition for supplies domestically/internationally
- Unit specific design limitations (Boiler house equipment vs environmental equipment)

Burning Down Coal Piles

- Unknowns in the piles
- High variability and blending capabilities (Design limitations)
- Chemistry, heavy metals and halogens (Hg, As, S, Ash, Cl, Se, etc)
- Operational control flexibility/turndown capability of the various equipment on backend
- Fire protection requirements/Dust suppression capabilities

Conversions to Natural Gas and Co-Firing

- Regulation requirements
- Moisture impacts (baghouse, scrubber inlet temperatures, corrosion to equipment/ductwork)
- Operational procedure changes (Documenting and Training)
- Turndown and ramping up of environmental equipment under the different operating scenarios (Hg control equipment, oxidation air rates, limestone slurry pumps, gypsum drawoff pumps/frequencies)
- Chemistry impacts (Hg, density, ORP, pH)

Example of a Coal Evaluation

Coal Properties to Consider

BTU

% Sulfur

Halogens

Alkali

Fusion

Arsenic

Chlorine

Selenium

Mercury



Plant Systems	Considerations
Boiler	Fusion Temperatures, BTU's and coal rates required, Chlorides
SCR	Catalyst As poisoning; Limestone mitigation costs
SAMC/ACI/MRCS	Turndown capabilities and ramp rates, Hg, halogens, activate carbon and hydrated lime consumption rates
Air Heater	Fouling potential
Precipitators	Opacity impacts if running injection systems at higher rates; Cl ash sales impact
Baghouse	Ash handling capabilities, increased pull rates
Scrubber	Hg capture, water balance impacts, SO2 removals, limestone consumption, oxidation air requirements, gypsum sales
FGD Waste Water	WWT requirements for ELG limits



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