

REINHOLD ENVIRONMENTAL Ltd.



**2013 NO_x-Combustion Round Table
& Expo Presentations**

February 18 & 19, 2013, in Salt Lake City, UT / Hosted by PacifiCorp

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Panel I – NO_x in Context. What Works, and What are the Consequences?



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February 18, 2013

Ken Jeffers



Johnson Matthey

Favored SCR Operating Conditions, Design Features

- Flue Gas Temperature: 650 – 750 °F
- Flue gas linear flow velocity: 5.0 – 5.5 m/s
- Sufficient Fan capacity to fully utilize available catalyst levels
- Thorough NH_3 - NO_x mixing for high de NO_x , low NH_3 slip: $\leq 5\%$ RMS
- LPA screens upstream of SCR
- Even flow and fly ash distribution
- Soot-blowers or sonic horns
- Means to keep catalyst dry and frost-free during outage periods
- Appropriate catalyst storage facility

Trade-offs, Challenges

- Fuel changes – affect catalyst performance and lifetime, e. g.
 - Higher ash content → plugging, erosion
 - Higher sulfur fuels → more SO₃
 - Unfavorable Arsenic : Calcium ratio → catalyst deactivation
 - Suitability of installed catalyst after fuel change
- More frequent load cycling , low temperature operation
- Ultra low SO₂ conversion catalyst → give up deNO_x potential, durability
- Competing priorities, e. g. deNO_x vs Hg oxidation
- Timing catalyst change-outs to coincide with unit outage schedule
- PRB Coal → generally difficult for SCR operation