

REINHOLD ENVIRONMENTAL Ltd.



2012 NO_x-Combustion Round Table & Expo Presentation

February 13-14, 2012, in Columbus, OH / Hosted by AEP

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Top Three Principles For Hg Capture

*Stephen Niksa
Niksa Energy Associates LLC
Belmont, CA*

*2012 NO_x – Combustion Roundtable
Columbus, OH, February 14, 2012*



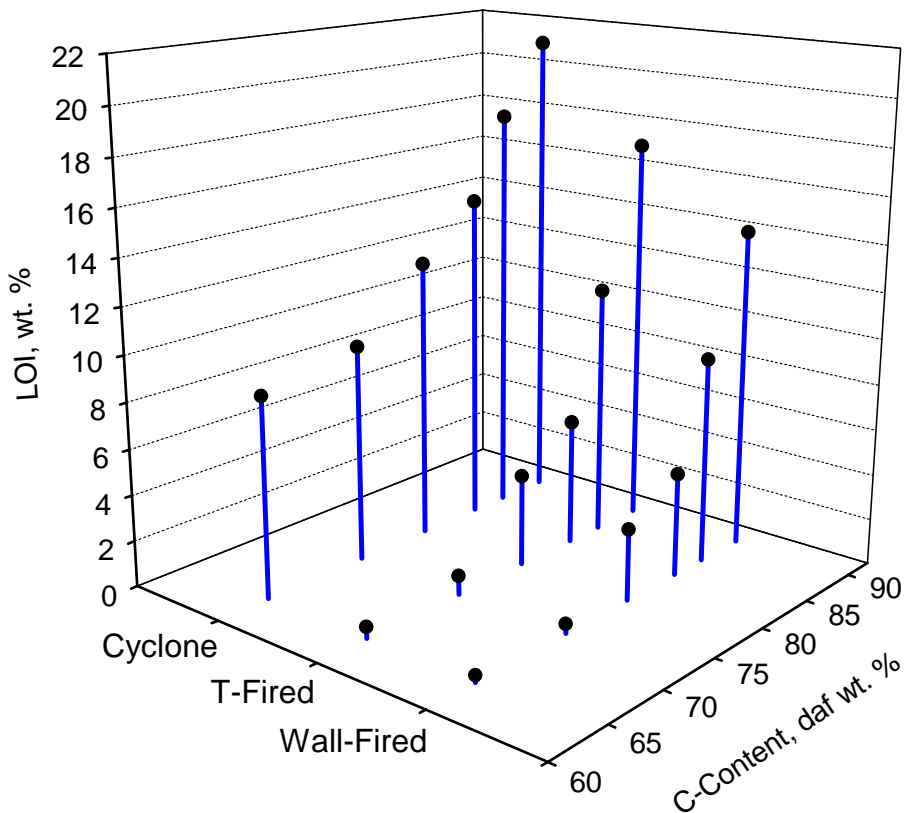
Niksa Energy Associates LLC

1745 Terrace Drive, Belmont, CA 94002

Phone: (650) 654 3182 Fax: (650) 654 3179

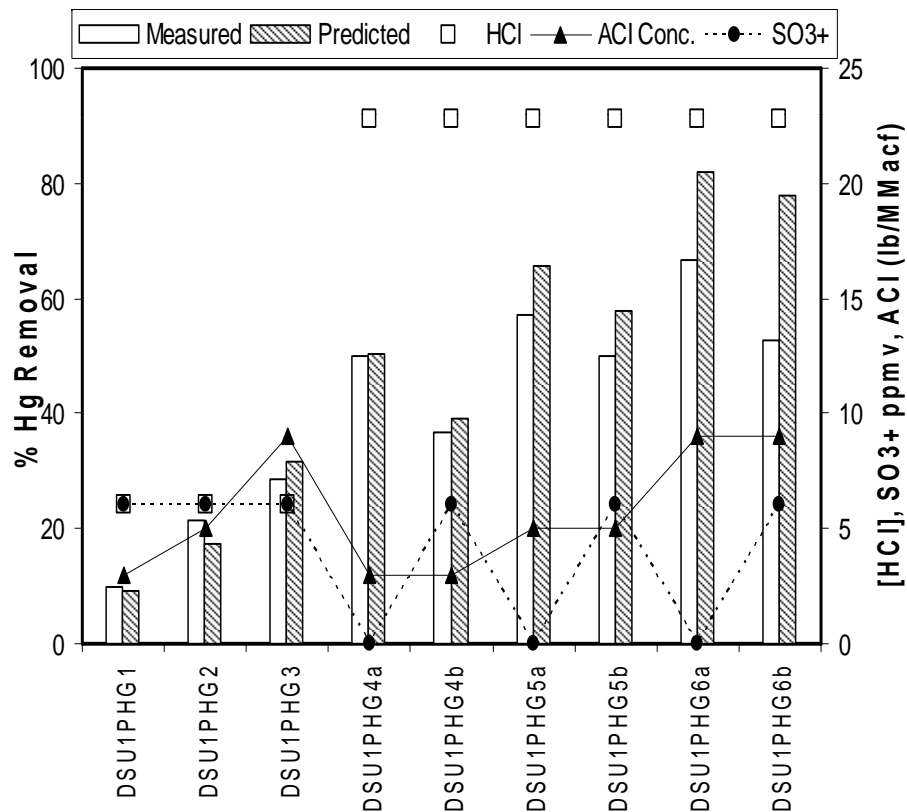
e-mail: neasteve@gmail.com

Know Your Fuel Quality Impacts



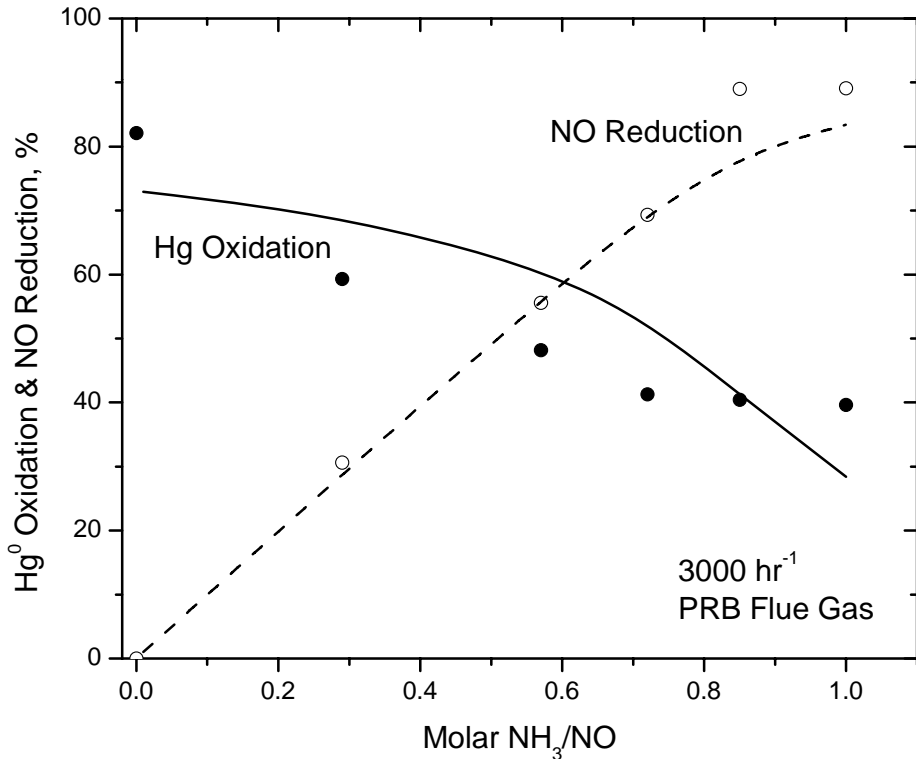
- *Coal rank determines LOI.*
- *Coal-CI can fluctuate wildly.*
- *Do you need to add halogens ?*
- *When does coal-S knock out ACI ?*

Know Your Fuel Quality Impacts

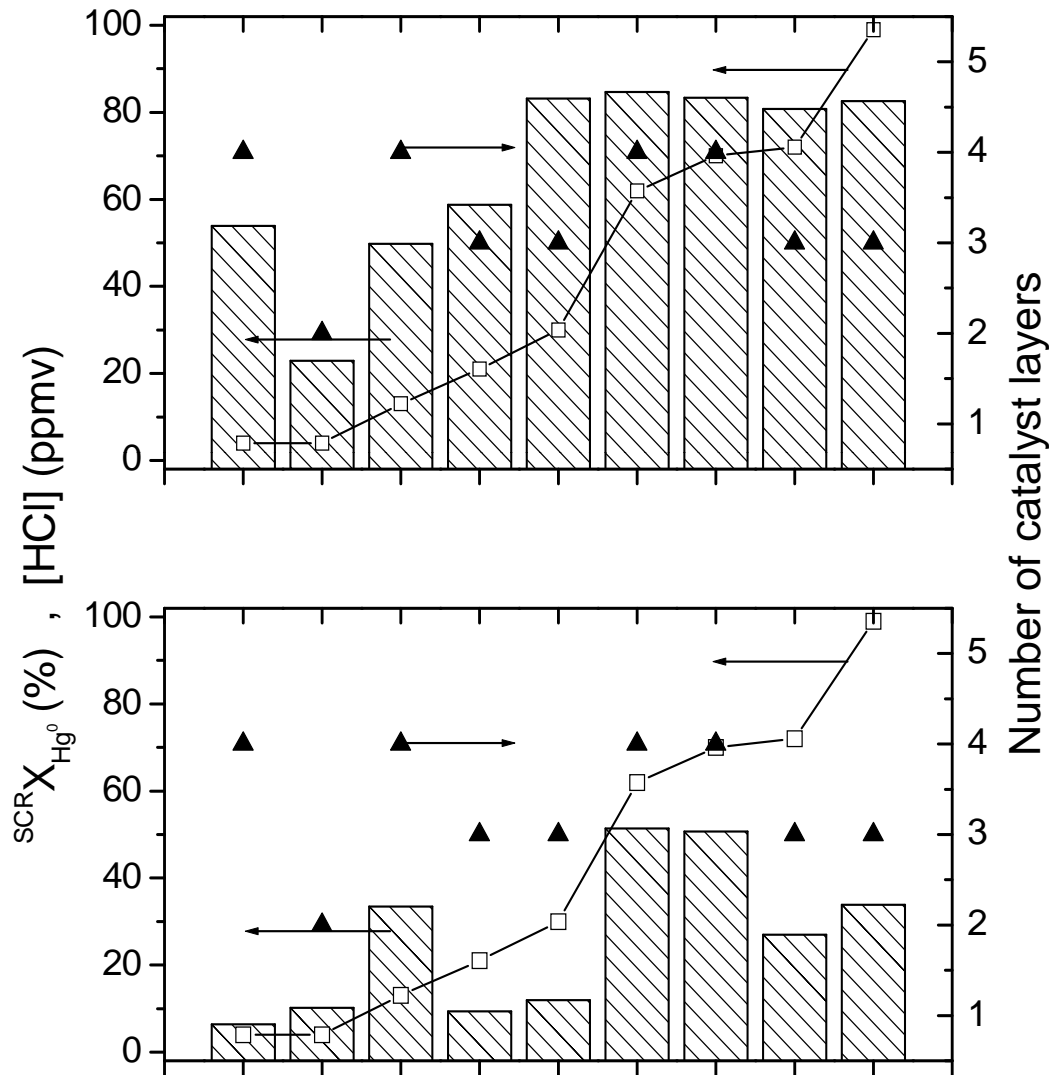


- *SO₃ levels can be accurately estimated.*
- *Key to ACl performance is avoiding H₂SO₄ condensation.*

Hg⁰ Oxidation Across SCRs is Very Tricky

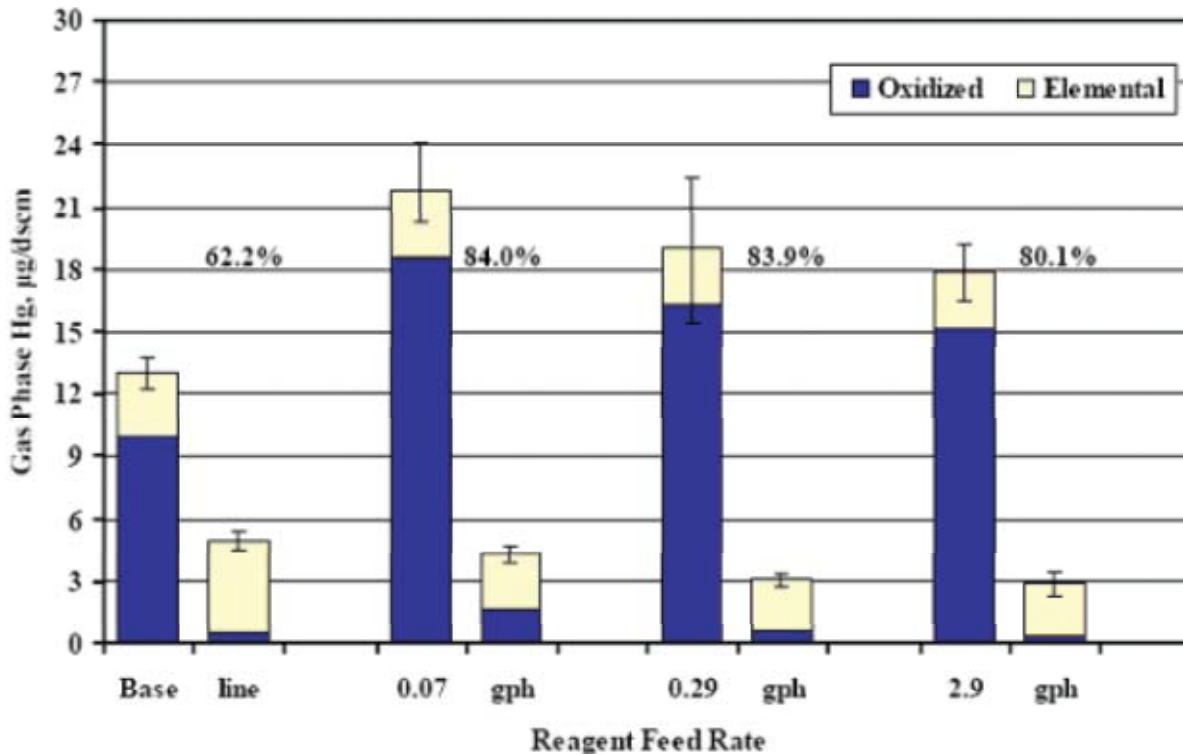


- *NH₃ inhibits adsorption of species that oxidize Hg⁰.*
- *Most Hg⁰ oxidizes through the trailing layers.*
- *No SCR has yet been designed for Hg⁰ oxidation.*
- *Catalyst deactivation allows deeper NH₃ penetration, which inhibits Hg⁰ oxidation.*



- *SCRs in the field often have layers with different design specs & ages.*
- *Must analyze deactivation on a layer-by-layer basis.*
- *Deactivation lets more NH₃ penetrate deeper into the SCR.*
- *Significant reductions in Hg⁰ conversion.*

Hg⁰ Re-Emission Is Important If You (Really !) See It



- *Occurs in cloud and rain water cycles.*
- *Well-documented in several pilot- and full-scale FGDs.*
- *S(IV) species implicated in Hg²⁺ reduction in aqueous solutions, and Cl⁻ & O₂ suppress re-emission.*
- *Cations (Ca²⁺, Mg²⁺) promote re-emission.*