REINHOLD ENVIRONMENTAL Ltd.

2013 NOx-Combustion Round Table & Expo Presentations

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

DSI IMPACTS ON SCR & Hg

2013 APC Round Table

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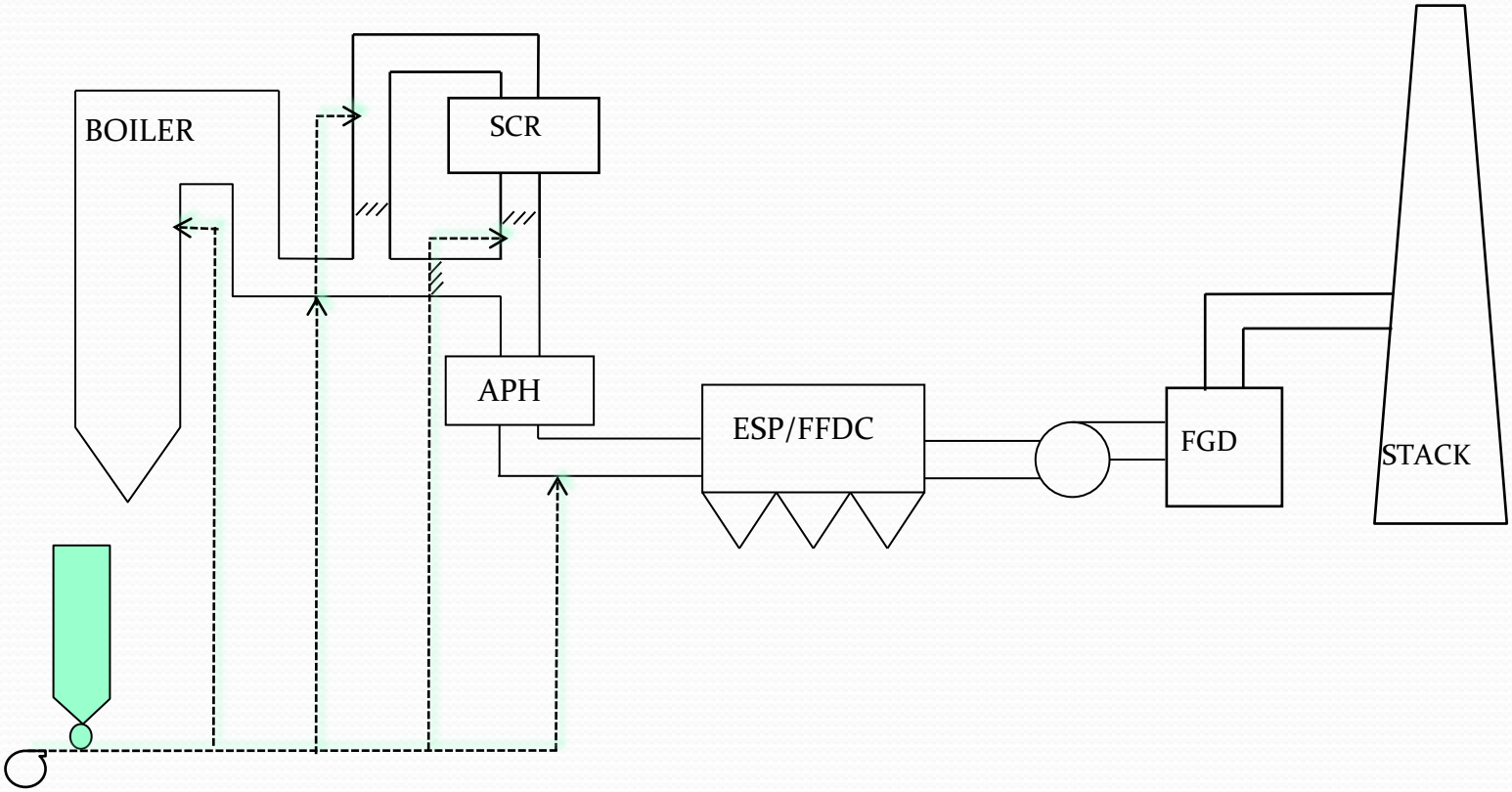
DSI Impacts on SCR & Hg Emissions

PRE SCR DSI & FSI

- Hydrated Lime
- Trona (Thorough mixing required)
- Fuel Additives

PRE APH DSI

- Hydrated Lime
- Trona (Thorough mixing required)

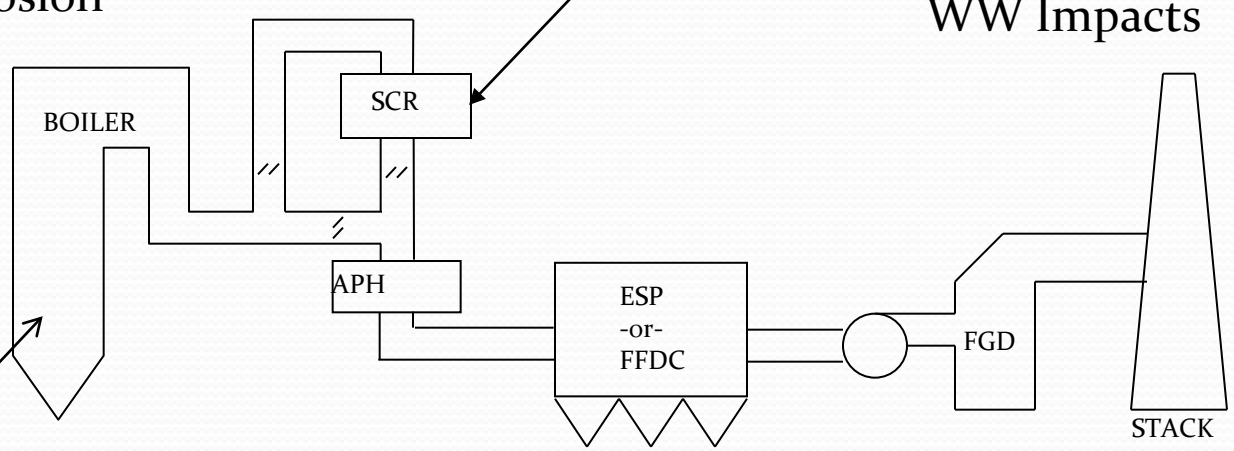


Chlorine & Hg Effects

BAD
Water Wall
Corrosion

GOOD
HCl (Halides)Oxidize Hg

BAD
Chlorine Corrosion
WW Impacts



Solid
Chlorine
from Coal

Gaseous Chlorine

Dissolved Chlorine
in Scrubber Bleed

DSI Impacts on Hg Emissions

- Potential for Reduced Hg Emissions
  - Reduced SO_3 Levels at ESP >> Increased ESP Hg Capture
  - Reduced SO_3 Levels @ APH >> Potential to reduce APH Gas Out Temps >> Increased ESP Hg Capture
- Potential for Increased Hg Emissions
  - Reduced HCl Pre-SCR >> Reduced Hg Oxidation
  - Potential Impacts to Catalyst Hg Ox Properties due to Catalyst Poisoning or Blinding
- Final results contingent on many factors

Pre-SCR DSI Testing (Very Limited)

- One single box SCR box trial showed significant HCl removal
  - HCl was measured at Econ Outlet and APH inlet
  - 15% to 40% HCl removal with Milled Trona
  - 45% to 65% HCl removal with Hydrated Lime
  - HCl removal post ESP would have been higher
  - Higher removal feedrates were high but likely tolerable
- Hg Removal was not measured
- HCl Removal Pre-SCR was not determined
- SO_3 Removals were > 95%
- Other Pre-SCR Injection hasn't evaluated impacts on Hg

Future Pre & Post SCR Testing

- Up-coming Testing to consider SO_3, HCl, Hg
- Balance of Pre & Post SCR DSI
- BOP & Hg Impacts to be evaluated also
  - FGD Chlorides reduction and associated WW impacts
  - Impacts on FGD WW Hg