

REINHOLD ENVIRONMENTAL Ltd.



**2015 NO<sub>x</sub>-Combustion Round Table  
& Expo Presentations**

February 23 & 24, 2015, in Richmond, VA / Hosted by Dominion

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# Trapping The Beast

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February 24, 2015

Darren C. Hanby, P.E.

Steam Generation Equipment Engineering



2015 Reinhold Environmental  
NOx-Combustion Round Table



# Day 1 Left for 2010 Conference





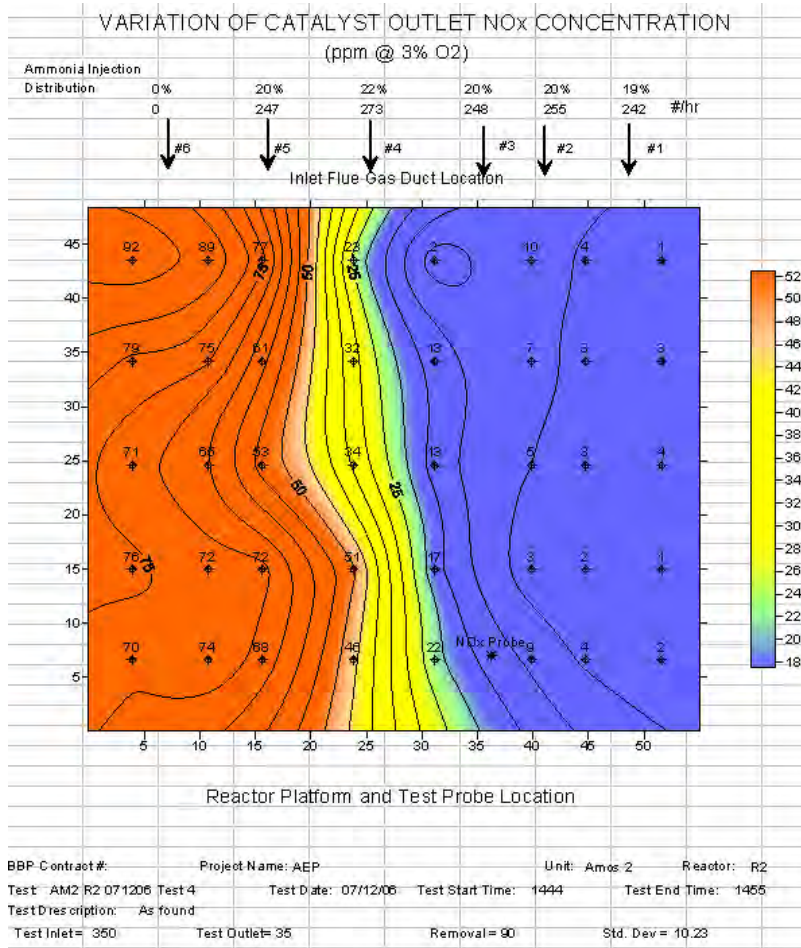
Thank You!!

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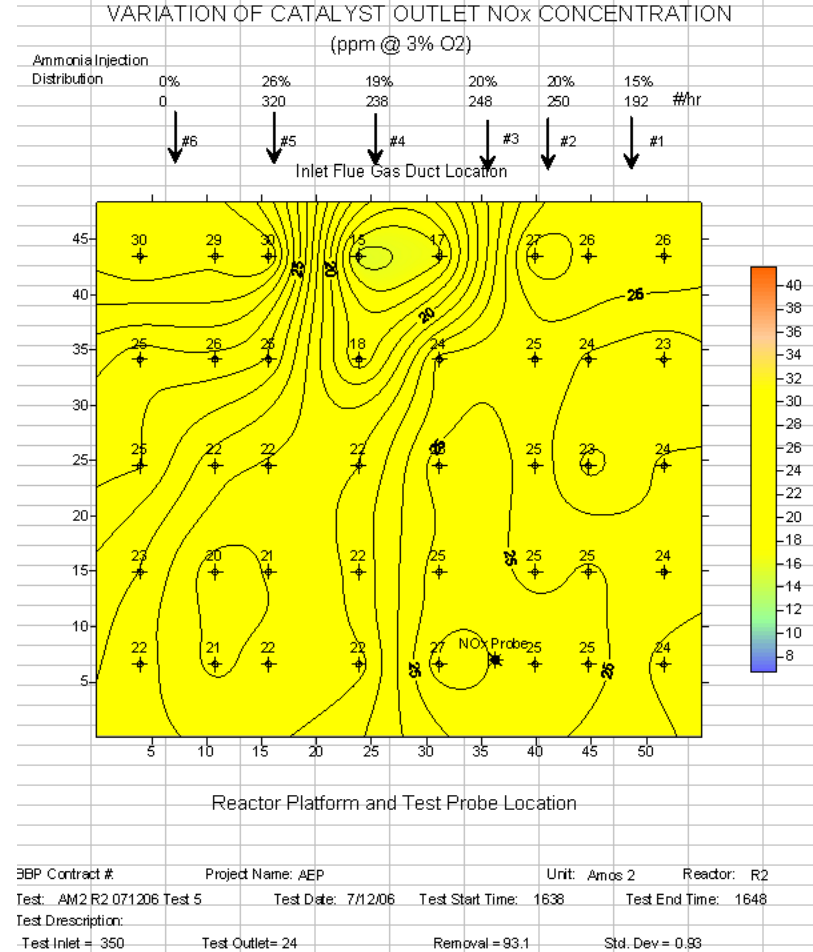


# The Goal of Tuning NH<sub>3</sub> Systems

Make This



Look Like This



What are we trying to capture?

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Hg

More Specifically

$\text{Hg}^{+2}$

&

$\text{Hg}^0$

## SMALL NUMBERS



16 miles



TO 1 inch = 1 ppm

Columbus OH

Dublin or Westerville OH



TO 1 inch = 1 ppb



94,410,000 miles



Or 34 Rd. Trips to Moon

TO 6 inch = 1 ppt

## MORE SMALL NUMBERS

30 seconds in 1 year = 1 ppm

1 second in 32 years = 1 ppb

1 second in 33,333 year = 1 ppt

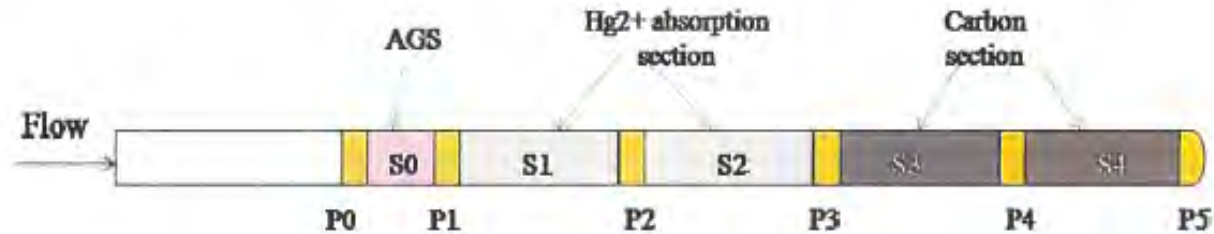


1 ppt is equal to  
1 drop of water  
in 20 Olympic  
swimming pools



# OPEN DISCUSSION

# Hg Speciation Trap



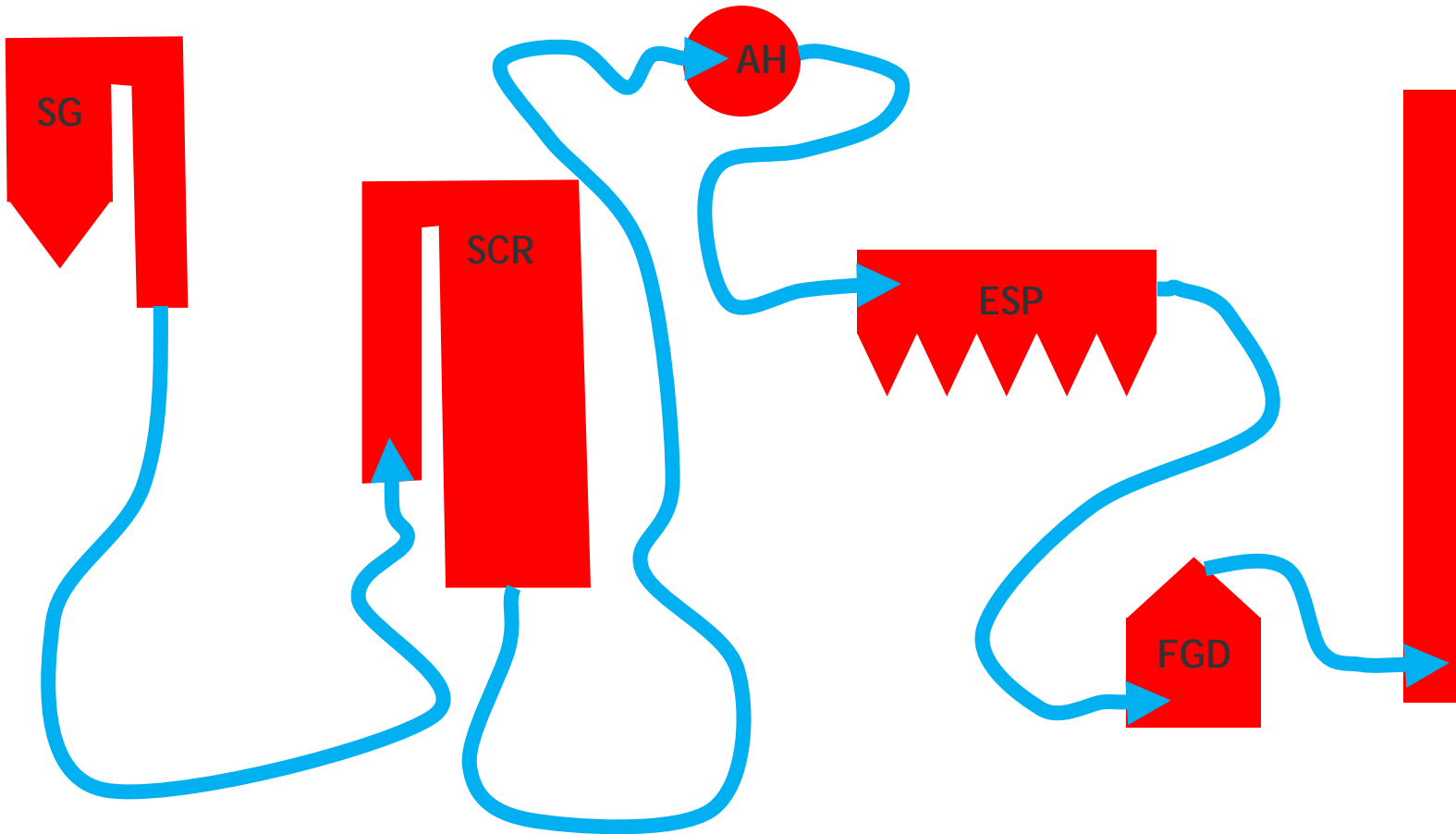
- S0 = Acid Gas Scrubber (AGS)
- S1 = Oxidized Mercury Analytical Bed (KCl)
- S2 = Oxidized Mercury Breakthrough Bed (KCl)
- S3 = Elemental Mercury Analytical Bed (Carbon)
- S4 = Elemental Mercury Analytical Bed (Carbon)

Figure 1. Illustration of a Speciation Trap

# Hg Speciation Trap



# Flue Gas Stream



# Where to go if you have a problem?





# Conclusions

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Develop good Relationship with plant contacts

Favor the field

Relate don't berate

Don't go looking for feathers



Questions?

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