

REINHOLD ENVIRONMENTAL Ltd.



**2015 APC Round Table
& Expo Presentation**

July 13 & 14, 2015, in Atlanta, GA / Hosted by Southern Company

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Trapping The Beast

July 14, 2015

Darren C. Hanby, P.E.

Steam Generation Equipment Engineering



2015 Reinhold Environmental
APC Round Table

Day I Left for 2012 Conference

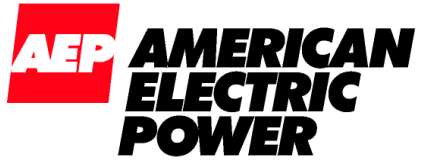


Day I Left for 2010 Conference









Thank You!!



When everything works out right



You May Catch the
Cabbage Beast

The catch does not always work right!

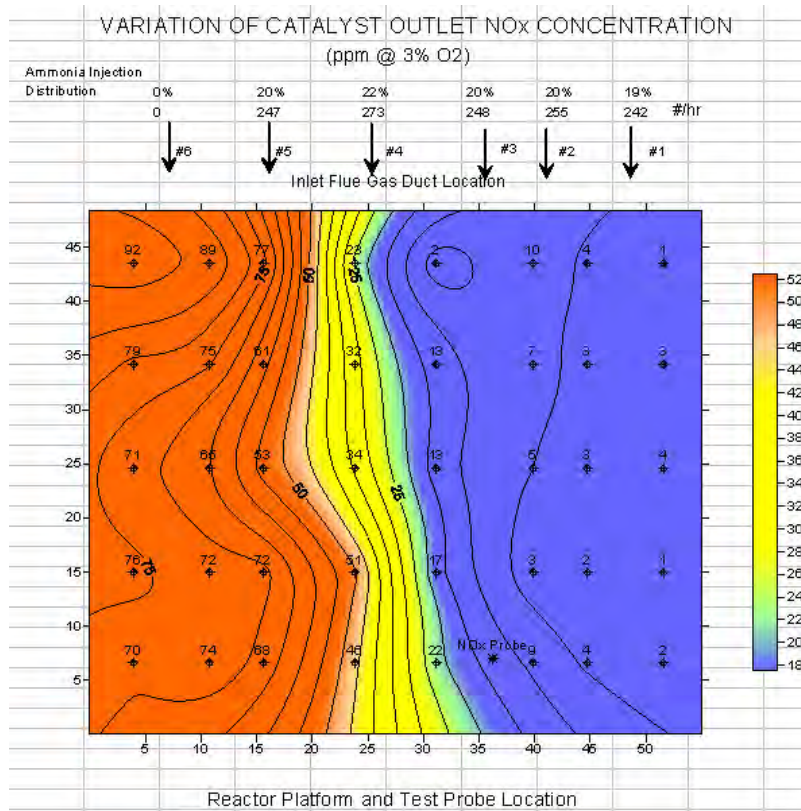


Trapping – May not catch what you are trying to catch



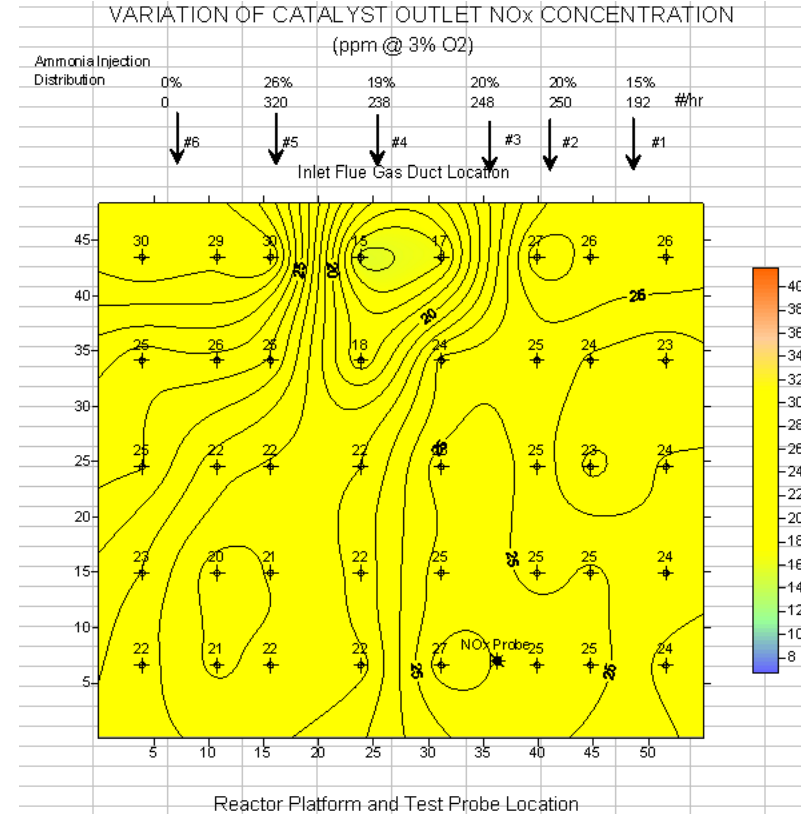
The Goal of Tuning NH₃ Systems

Make This



BBP Contract #: Project Name: AEP Unit: Amos 2 Reactor: R2
 Test: AM2 R2 071206 Test 4 Test Date: 07/12/06 Test Start Time: 1444 Test End Time: 1455
 Test Description: As found
 Test Inlet = 350 Test Outlet = 35 Removal = 90 Std. Dev = 10.23

Look Like This



BBP Contract #: Project Name: AEP Unit: Amos 2 Reactor: R2
 Test: AM2 R2 071206 Test 5 Test Date: 7/12/06 Test Start Time: 1638 Test End Time: 1648
 Test Description:
 Test Inlet = 350 Test Outlet = 24 Removal = 93.1 Std. Dev = 0.93

What are we trying to capture?

Hg

More Specifically

Hg^{+2}

&

Hg^0

SMALL NUMBERS

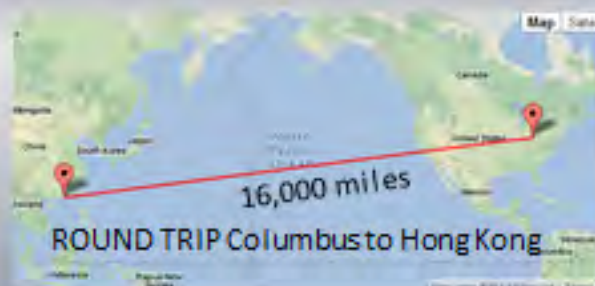


16 miles

TO 1 inch = 1 ppm

Columbus OH

Dublin or Westerville OH



TO 1 inch = 1 ppb



94,410,000 miles



Or 34 Rd. Tripsto 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

What are we intending to cover?

The Speciated trap

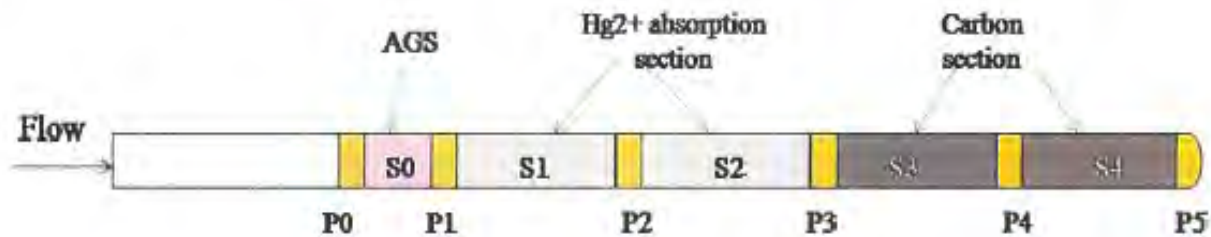
Information gleaned from test locations along the flue gas stream

Difficulties encountered at the locations

Experiences

Whatever else comes up

Hg Speciation Trap



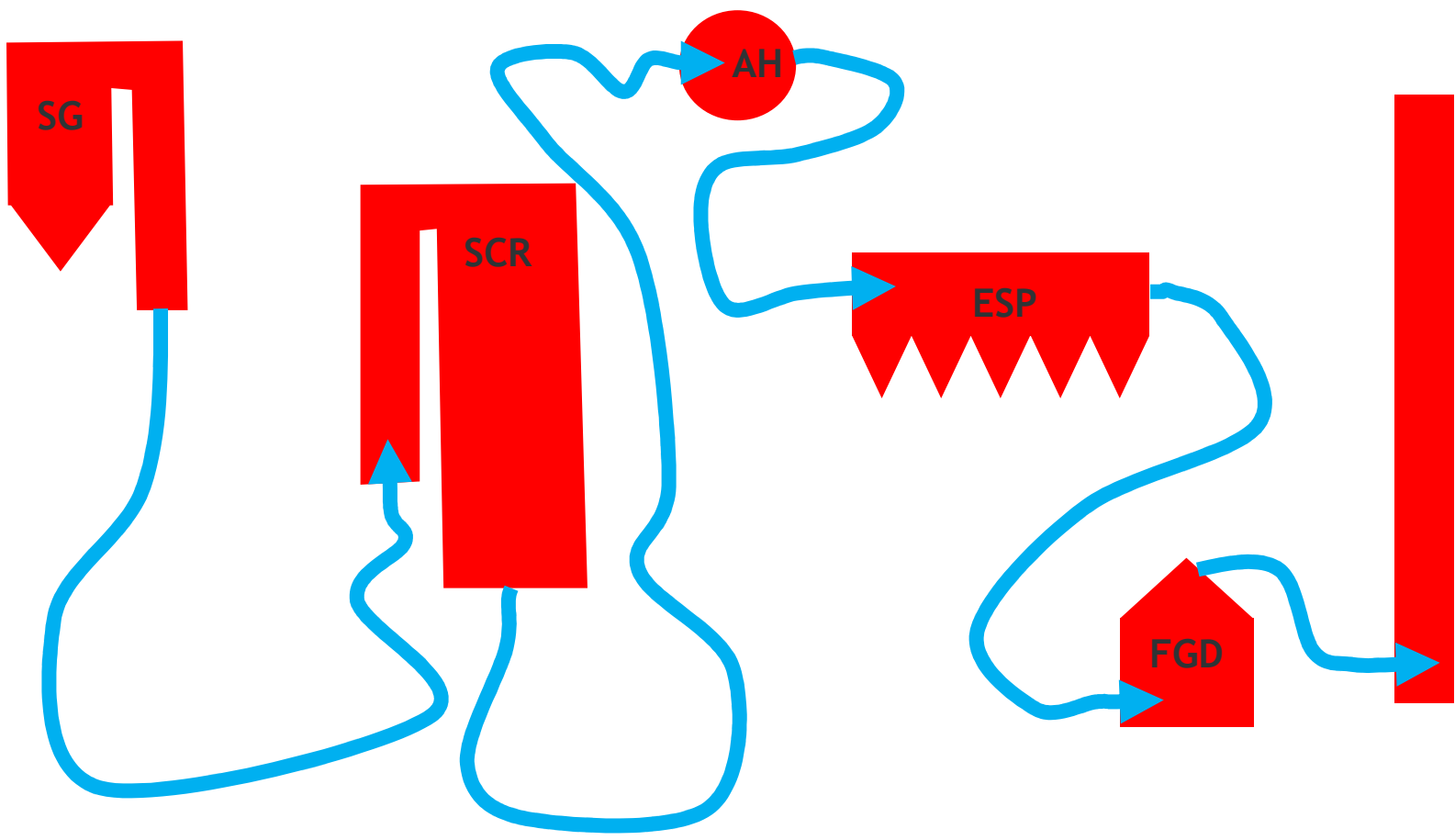
- S0 = Acid Gas Scrubber (AGS)
- S1 = Oxidized Mercury Analytical Bed (KCl)
- S2 = Oxidized Mercury Breakthrough Bed (KCl)
- S3 = Elemental Mercury Analytical Bed (Carbon)
- S4 = Elemental Mercury Analytical Bed (Carbon)

Figure 1. Illustration of a Speciation Trap

Hg Speciation Trap



Flue Gas Stream



Where to go if you have a problem?







Conclusions



Develop good Relationship with plant contacts

Favor the field

Relate don't berate

Don't go looking for feathers



Questions?

