

Reinhold Environmental Ltd.



2008 NOx-Combustion Round
Table & Expo Presentation

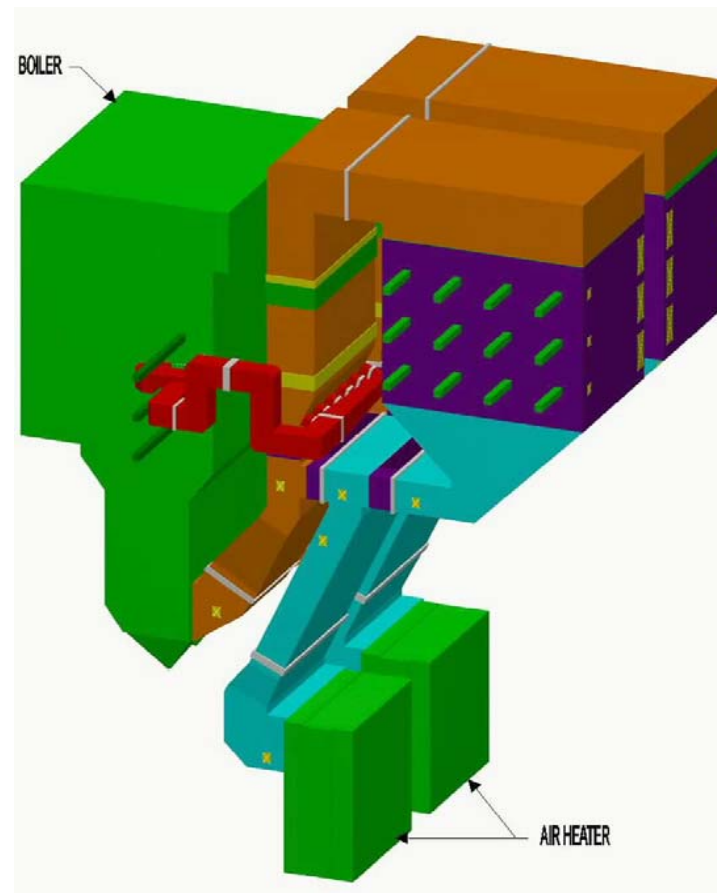
February 4-5, 2008 in Richmond, VA



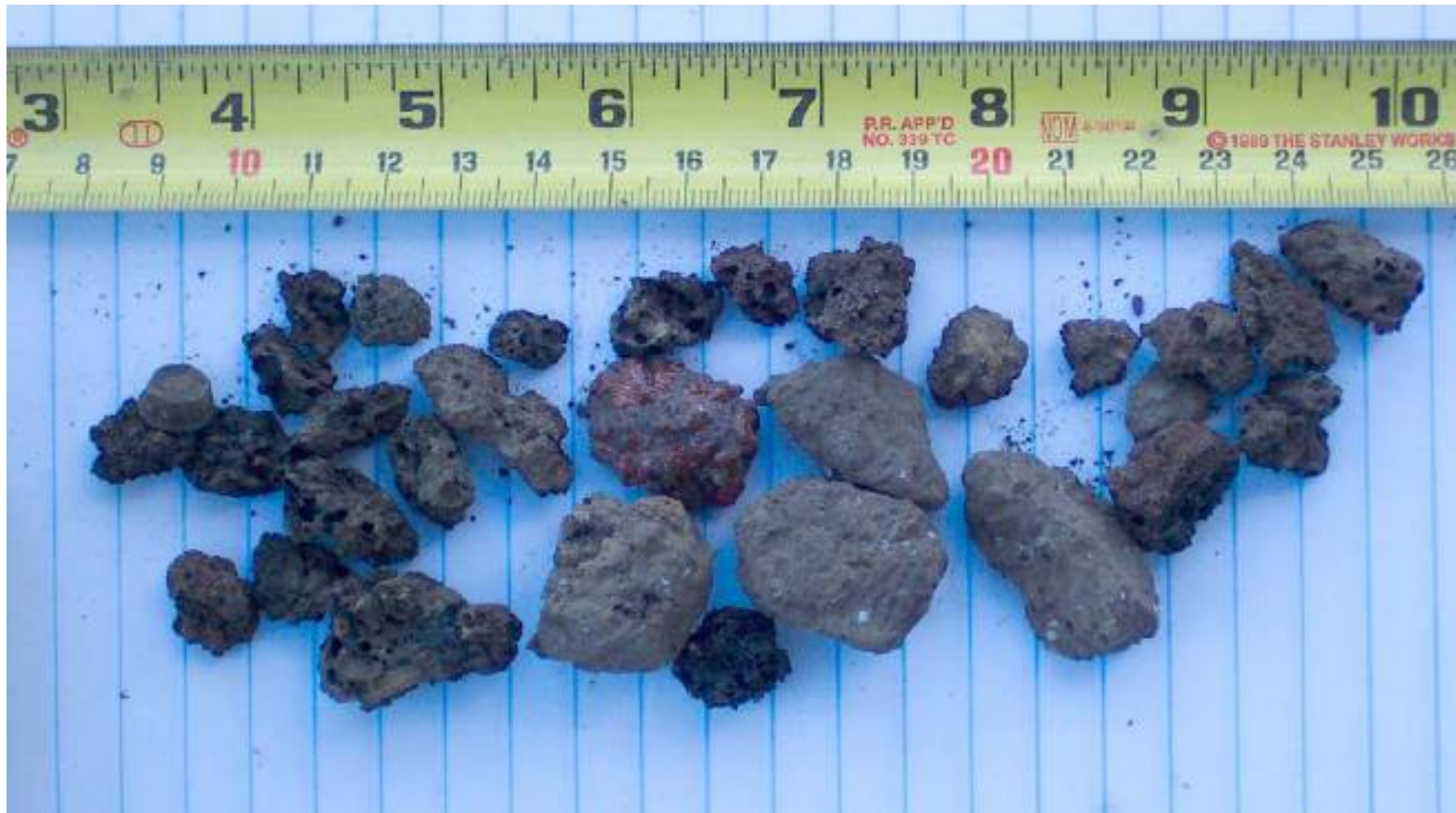
SCR O&M Issues

Ronald L Richard
Senior Consultant
RE Consulting

Typical SCR Layout



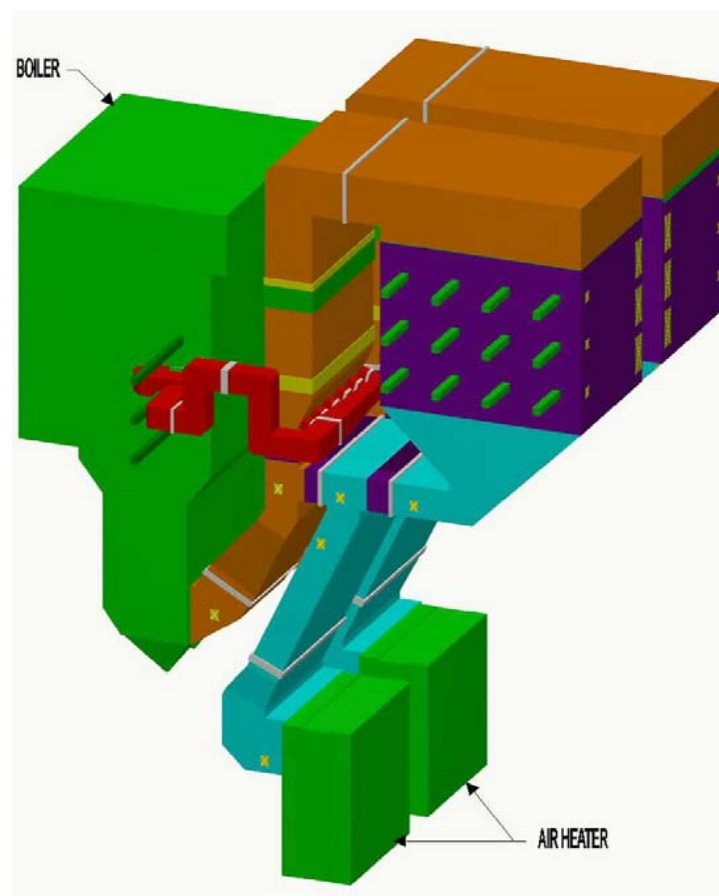
LPA (Popcorn Ash)



One Vendor's LPA Screen



Typical SCR Layout



Dampers

Dampers should be inspected for:

- Blade Warpage
- Erosion Damage
- Seal Condition
- Actuator and Linkage Damage

Ammonia Injection Nozzles





Ammonia Injection Nozzles



Ammonia Injection Piping



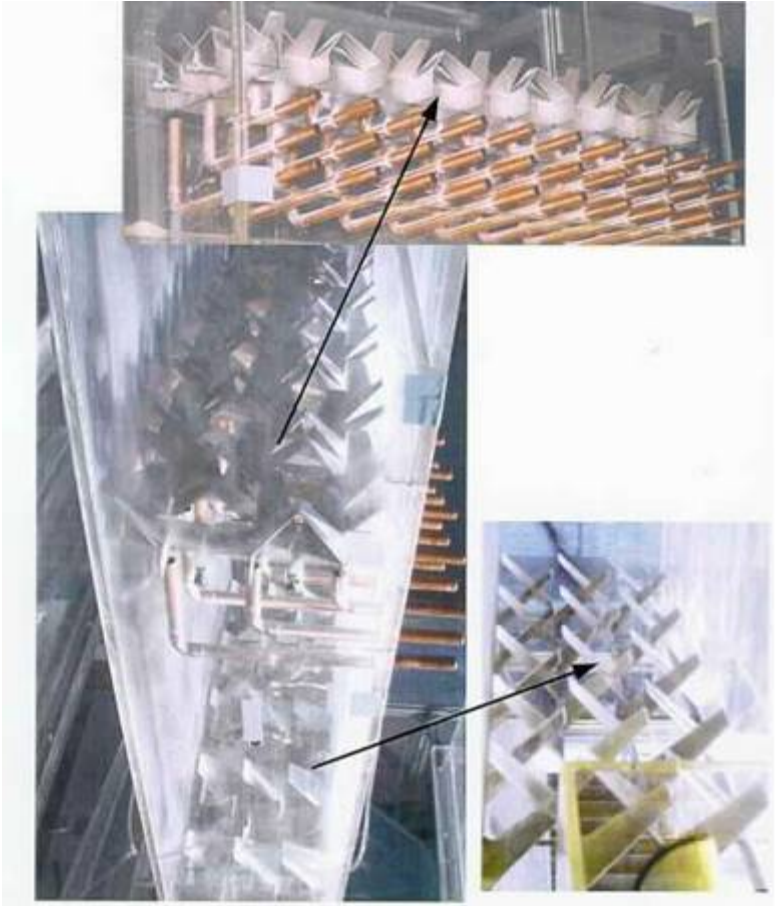
Delta Wing Ammonia Feed



Delta Wing Ammonia Feed



Static Mixer Ammonia Feed



Static Mixer Ammonia Feed



Static Mixer Ammonia Feed



Turning Vane Deposits



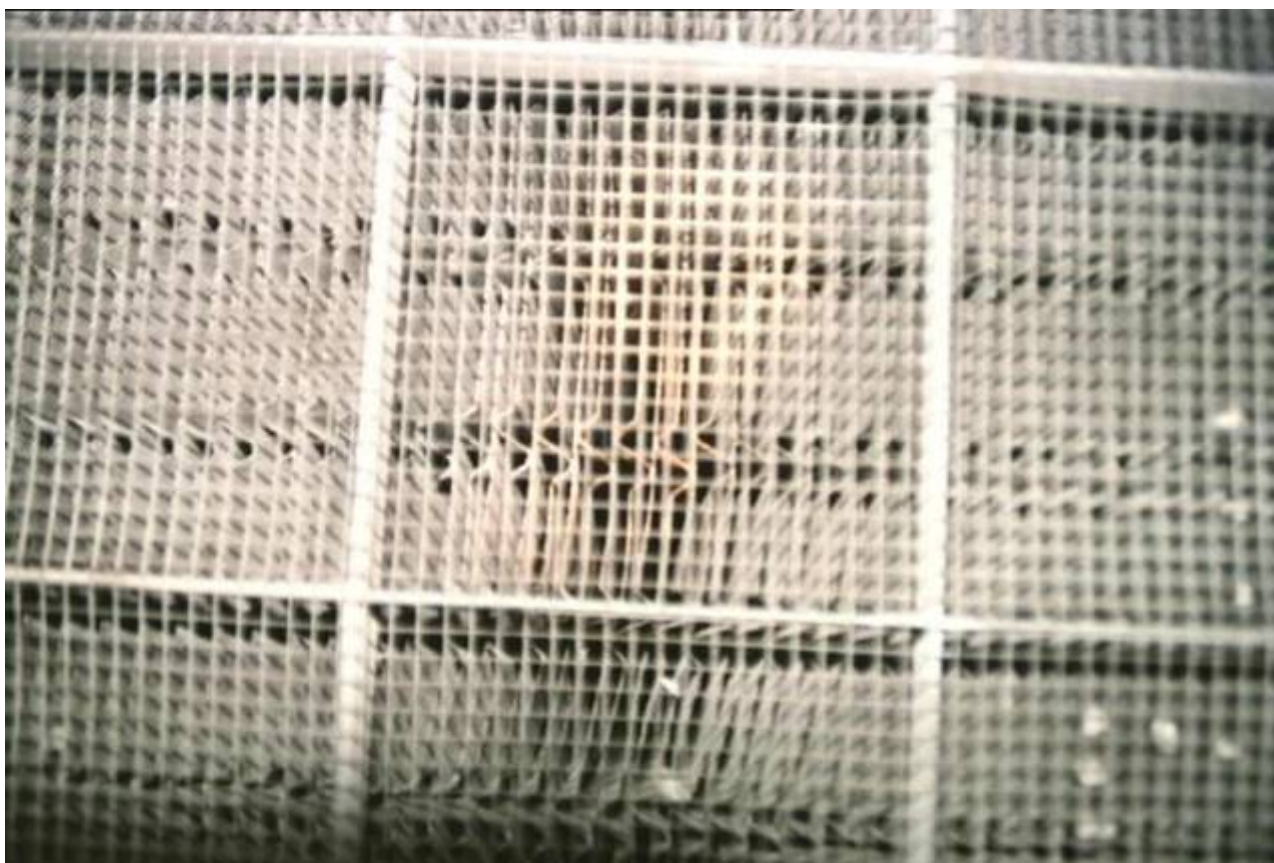
Turning Vane Deposits



Clean Honeycomb Catalyst



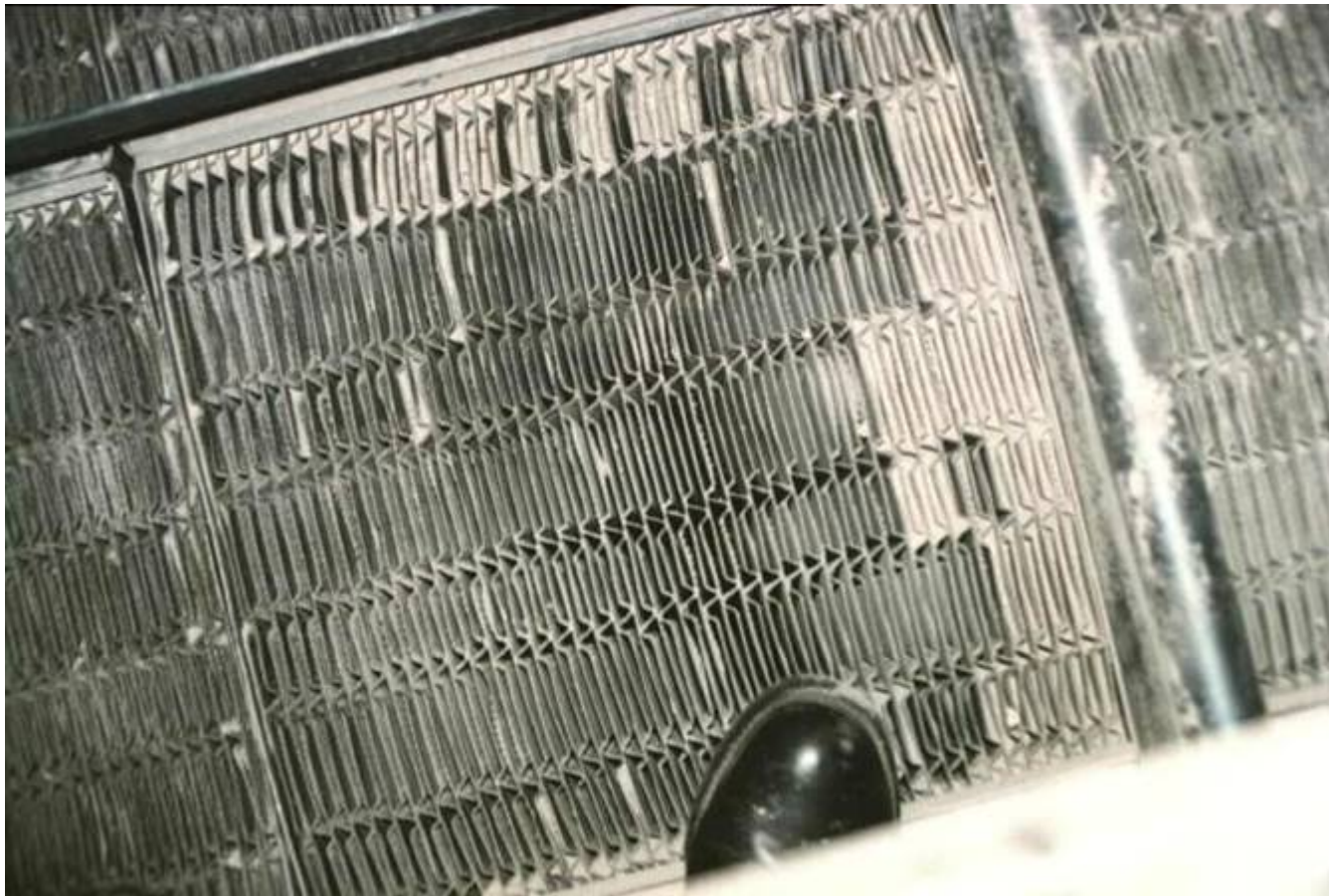
Clean Plate Catalyst



Plugged Honeycomb Catalyst



Plugged Plate Catalyst



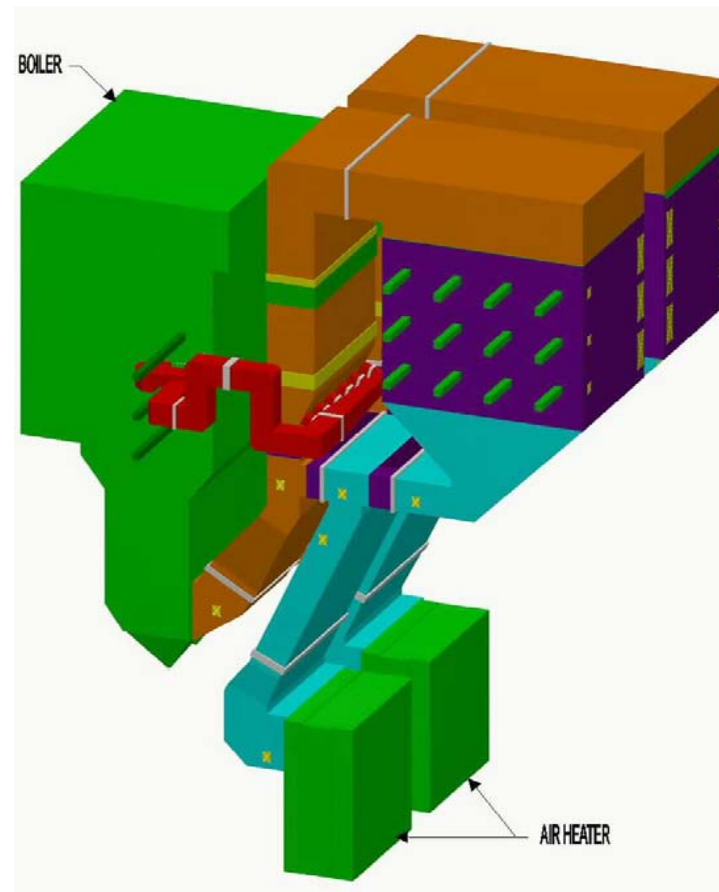
Rake Type Soot Blower



Sonic Horn



Typical SCR Layout

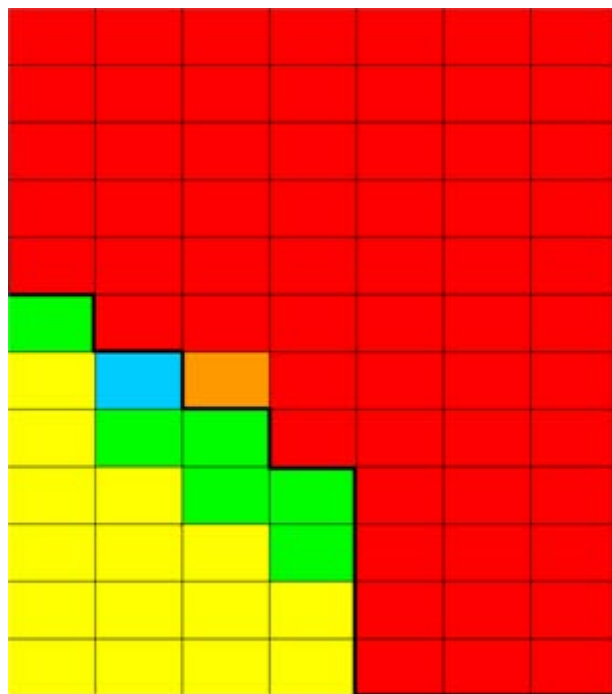


Dirty Catalyst Station X

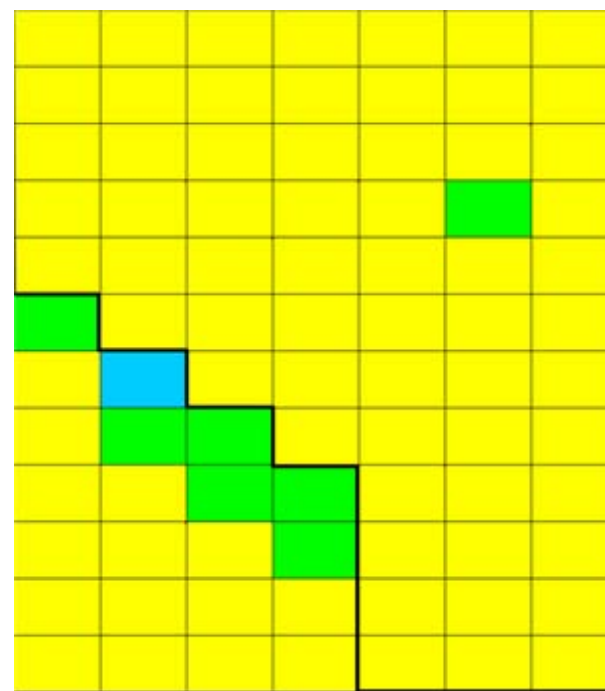


Station X Top Layer

Before Cleaning

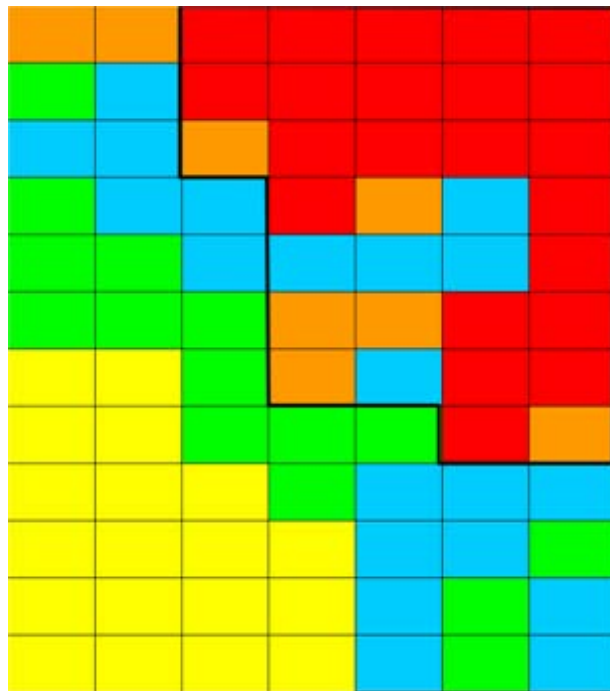


After Cleaning

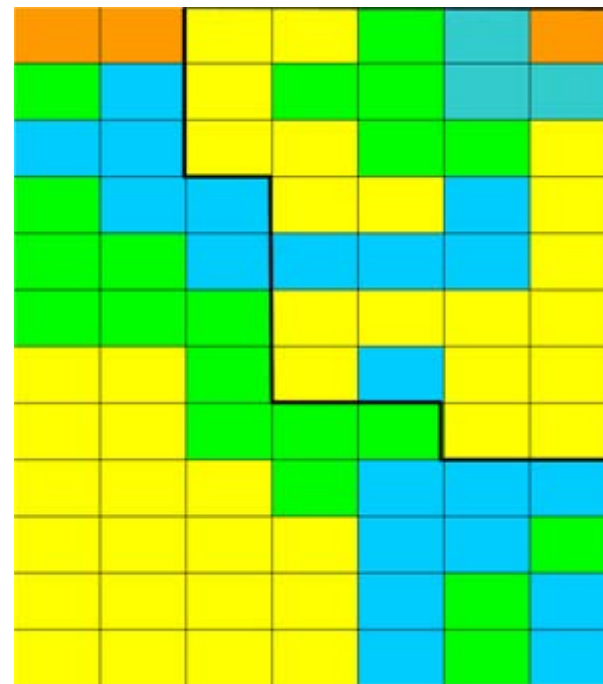


Station X Middle Layer

Before Cleaning

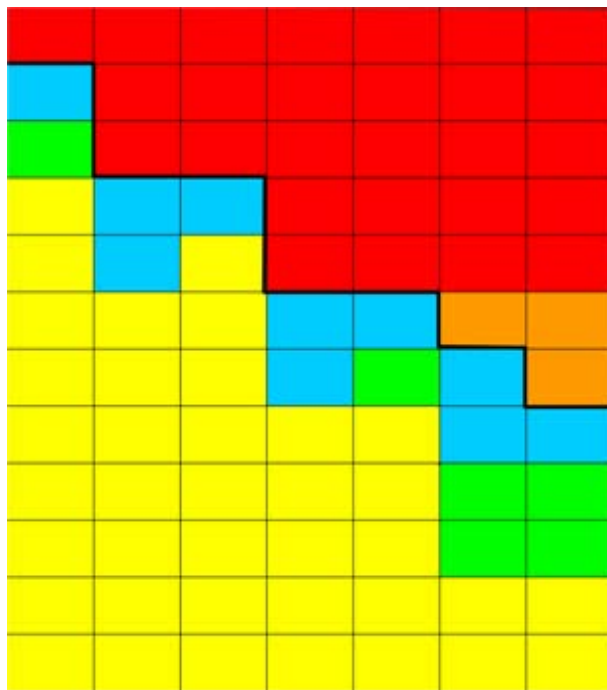


After Cleaning

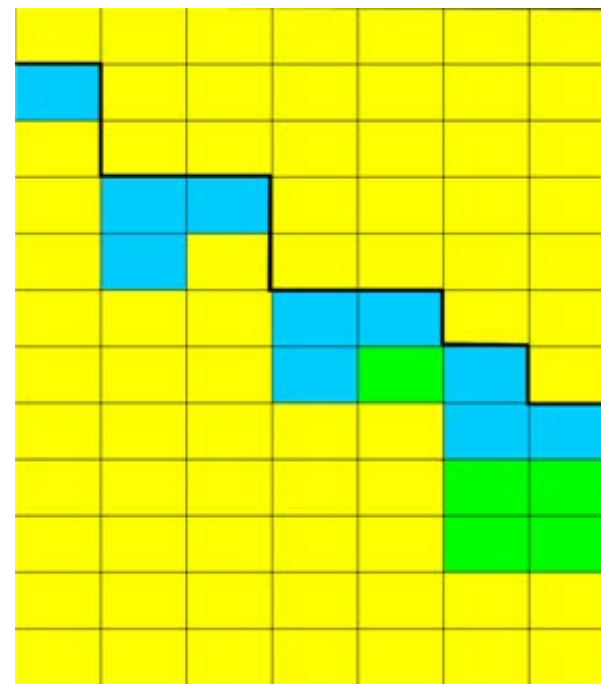


Station X Bottom Layer

Before Cleaning



After Cleaning



Dirty Catalyst Station Y



Dirty Catalyst Station Y



Cleaned Catalyst Station Y

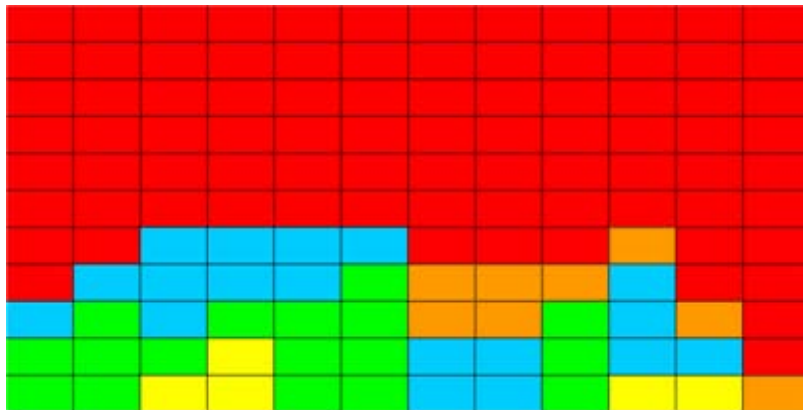


Cleaned Catalyst Station Y

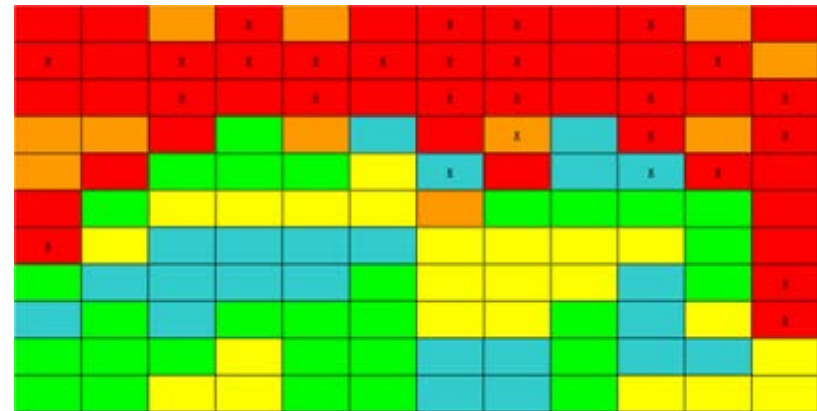


Station Y Top Layer

Before Cleaning

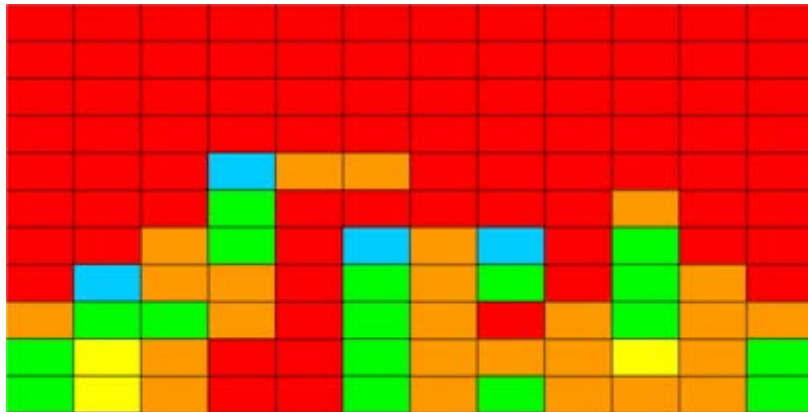


After Cleaning

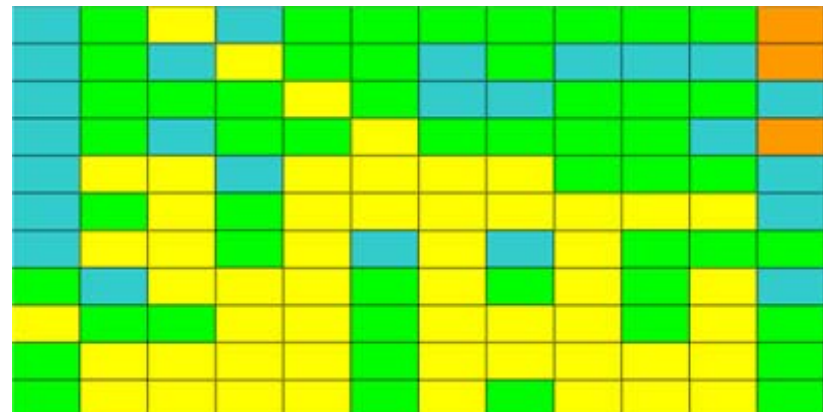


Station Y Middle Layer

Before Cleaning



After Cleaning



Station Y Bottom Layer

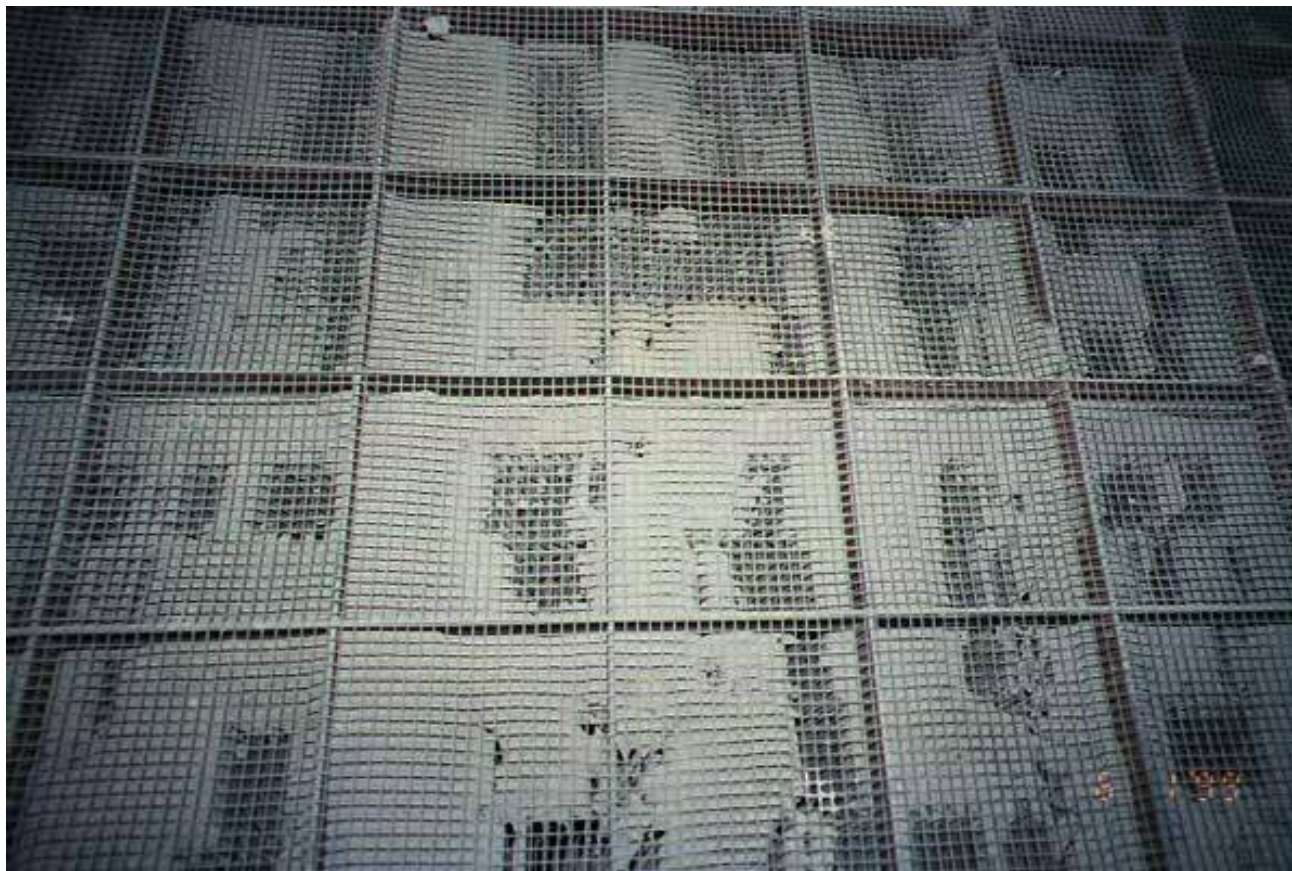
Before Cleaning



After Cleaning



Economizer Leak

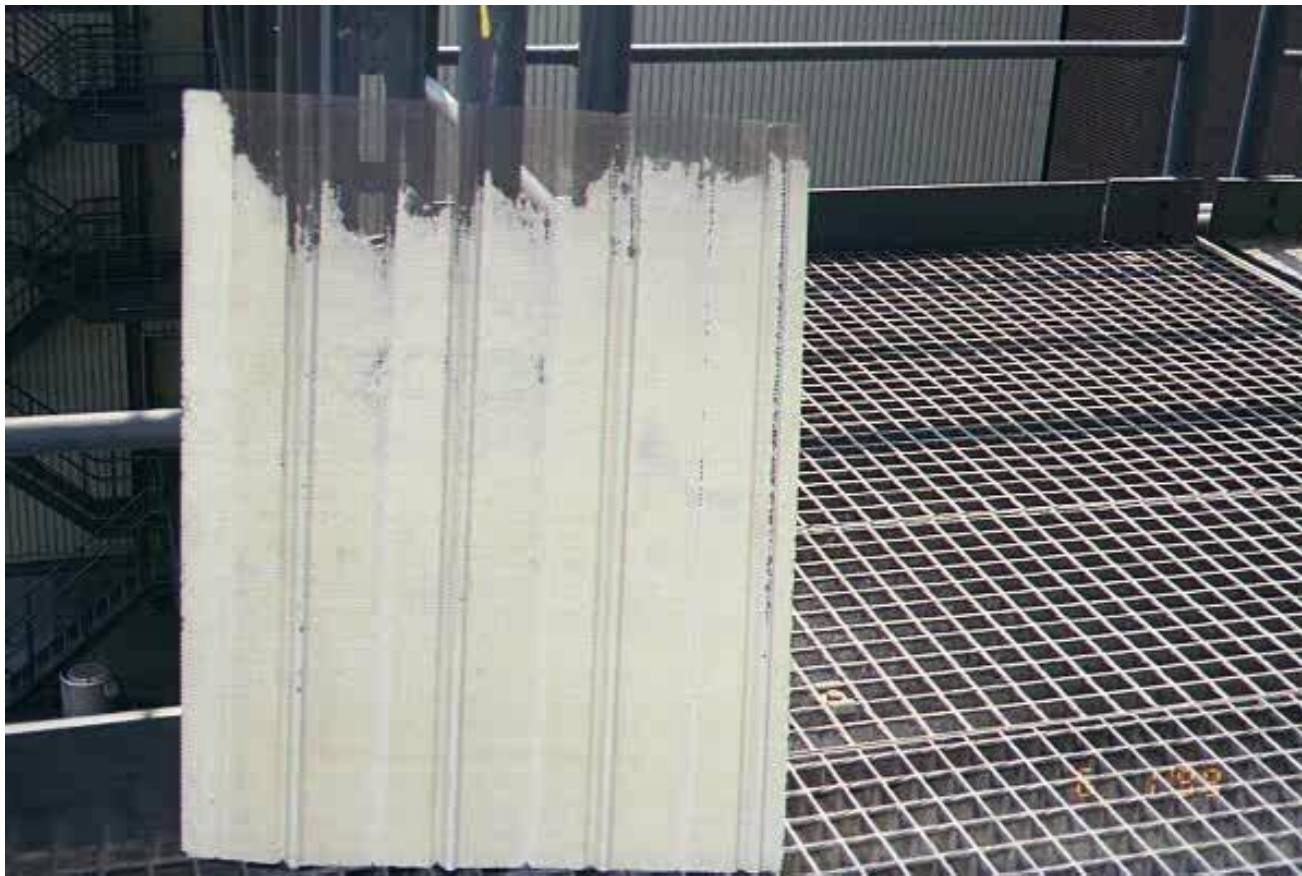




Sampling Plate Catalyst



Ash Erosion of Plate Catalyst



Honeycomb Test Element



SCR Test Grid Points



Ammonia Tank



Urea System



Urea System



Urea System





Questions?