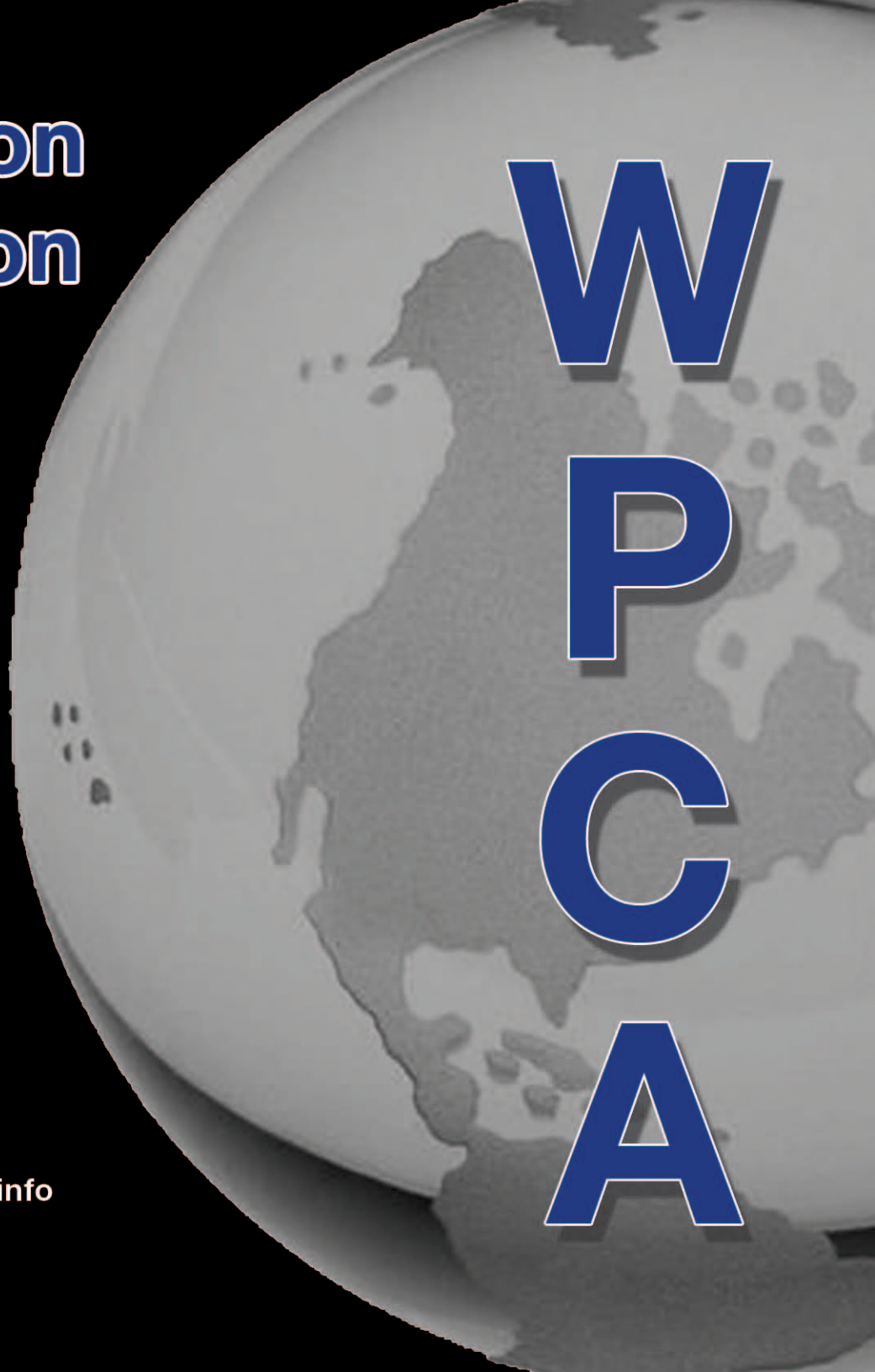
Worldwide Pollution Control Association



Duke Energy Seminar

September 3 – 5, 2008

Concord, NC

WPCA

Vist our website at www.wpca.info

2008 WPCA/Duke Energy
Charlotte, NC
September 4, 2008

ARGILLON

Low SOx Ox Catalyst – Lessons Learned

Ken Jeffers

Low-SOx Oxidation Catalyst

- Approaches to meeting the requirement
  - Formulation, reduce V_2O_5
  - Reduce material, wall thickness
  - Manufacturing methods
  - Raw material selection

- Trade-offs while meeting the requirement
  - Lower k-values, less potential → more volume to meet deNOx
  - Reduced mechanical integrity, less durable catalyst
  - Manufacturing, material cost impacts

Difficult to Verify Performance

- Requires measuring small changes in SO_3 concentration across catalyst
- ΔSO_3 below measurement resolution, undetectable
- Especially difficult for units burning low-sulfur coals
- Missing the target by 0.05% . . .

SO_2 inlet, ppm	0.20% Ox ΔSO_3, ppm	0.25% Ox ΔSO_3, ppm
500	1.0	1.25
1500	3.0	3.75
3000	6.0	7.5

Operation Below ABS Formation T, T_{min}

- Traditional, conservative approach restricts plant operation
- Flexible approach – load, temperature cycling

  Limited, short-time operation with NH_3 below Min T OK

  Follow-up with operation at higher T to burn off ABS