

# Mercury Measurements Workshop

Ontario Hydro Method Discussion  
July 13<sup>th</sup>, 2004

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## Particulate Issues with Ontario Hydro Effects of Reactive Ash

% Flue Gas as Oxidized Hg		
Sample Location	Ontario Hydro	SCEM
ESP Inlet	88	51
ESP Outlet	41	37

## Particulate Issues with Ontario Hydro Effects of Reactive Ash

Measurement Method	Gas Phase Total ug/Nm <sup>3</sup>	Particulate ug/Nm <sup>3</sup>	Overall Total ug/Nm <sup>3</sup>
OH	2.51	2.72	5.23
SCEM	4.99	-	4.99
OH	2.39	2.90	5.29
SCEM	4.76	-	4.76

## Effects of Hydroxylamine Sulfate Solution ( $\text{HASO}_4$ )

- $\text{HASO}_4$  solution – used in the analytical process
  - Reductant
  - Added to release mercury held in Potassium Permanganate ( $\text{KMnO}_4$ )
- $\text{HASO}_4$  is added during three steps in OH procedure
  - recovery of  $\text{KMnO}_4$  impinger
  - After recovering KCl and  $\text{KMnO}_4$  Impingers
  - M7470 digestion step

## Effects of HASO<sub>4</sub> Addition

- Reduces oxidants present in digestate
- Excess HASO<sub>4</sub> creates reducing environment
  - Can reduce and volatilize mercury in solution
- Potential low-bias if solution not analyzed immediately
  - Not always possible to complete analysis immediately
- Ontario Hydro method calls for high excess of HASO<sub>4</sub>
- Recommend using lower amount

## Concerns of Inconsistencies in Analytical Procedure

- Handling of Ontario Hydro samples by commercial analytical labs
  - Inconsistencies observed
- Analysis of  $\text{KmnO}_4$  impingers
  - Addition of potassium dichromate
- Analytical in M7470 vs analytical steps in ASTM OH method
  - ASTM OH method uses higher level of  $\text{HASO}_4$