Ability to Measure Ammonia, Acid Gases and PM

Hot Topic Hour, October 13, 2011

From a stack testing company’s perspective
Learn from our experiences

• Accurate gas flow measurements are critical
  - When, where and how to take measurements

• Follow the method
  - Minimizes bias
Ammonia Testing

- Change filters between test runs
- Collect field train blank
- Obtain audit samples (use in-field or send to lab)
- Keep samples cool in poly bottles
- Continuous NH$_3$ is available for trending purposes and mapping.
HCl

- Teflon filter holder (precondition)
- Filter media
- Probe/filter temps
- Wrong sampling location
- Recover impingers separately
- Audit samples
- MDL – 0.4ppm
SO$_3$

- Minimum Detection limit – 0.5ppm
- Change filters
- Condenser Temperatures
- Rinses
- Titration vs. IC
- Turnaround time between results
Expectations with Current Method

• Single point sampling

• Maximum SO$_3$ emitted

• Snap shot depiction
Pentol Continuous $\text{SO}_3$ Monitor
Batch Method fails to show true nature of SO3 trend.

SO\textsubscript{3} Trending
PM Back Half Condensables

- Glassware prep critical
- Filter temps monitored on both sides
- Addition of coil condenser
- New filter temps set
- Impinger bucket – wet/dry compartments
- Use all glass (avoid Teflon jumpers)
- Filter media
- N₂ purging procedure critical
- Field blank train
Summary

• If the methods are done by the book the results will be consistent and accurate
• Base decision making on accurate measurements
• Continuous $\text{SO}_3$ and $\text{NH}_3$ monitors are tools for trending and mapping pollutants in the duct