Measurement Optimization for Plants with Wet Scrubbers

April 16th 2015

Matthew Pollack

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Advanced Air Quality Technologies

Why It Matters

- With the implementation of MATS many plants already have their control strategies
- Mercury control technologies continue to advance
- In order to properly evaluate these technologies economical savings and emission compliance additional instrumentation is needed before the scrubber
  - Economizer outlet – baseline shifts
  - FGD inlet – speciation, re-emission
- Sampling in the flue gas environment before the scrubber can be challenging
  - High SO_2/SO_3
  - High particulate loading

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Issues to Consider

- Mercury is one of the most challenging pollutants to measure in a flue gas environment
- When making mercury measurements upstream of a wet scrubber you the oxidation state of the mercury must be known
- Mercury measurements are often biased/interfered with by elements of the flue gas stream. (Addition of $CaBr_2$, SO_2/SO_3, Particulates)
- So what is the most economical way to get the correct information?

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Measurements made with EPA Method 30B

- Method 30B is a reliable and seemingly cost effective way to make measurements at the stack
- The Method measures all mercury caught on the trap regardless of which section the mercury is on
- Speciation traps are easily biased in the presence of an oxidant
- Total mercury results can be biased high in the presence of significant particulate bound mercury
- The Method is not a real time Hg measurement technique
- On-site analyses of traps is a must for trials

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Continuous Mercury Monitors (CMMs)

- Currently CMMs are thought of as a luxury item for measurements. They can be costly to operate and require much operator attention
- CMMs that use an inertial filter like the one pictured below are not effected by high levels of particulate (eliminate bias)

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CMMs Continued

- CMMs currently can not directly detect oxidized mercury as it has no unique spectrum
- The biggest advantage of the CMMs is showing unanticipated events in real time allowing the causes to be studied (e.g., re-emission studies)

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