

| Report ID | #turbines | Facility | | Tester | Section 13 Validation | HCI QA Spike | HF QA Spike | MDL Calc | ND Treatment | | Additional Detail | Minor |
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| 22-0270 | 1 | Texas Eastern Transmission LP Somerset Barry Buchanan Barry.Buchanan@enbridge.com | | Nordon Corporation Donald Hayes | None | Failed | Failed | MDC3 | negative or BDL values included in run average, only the run average is considered against RDL | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. System Response time recorded as 5-6 minutes for HCI & HF. All QA data for HCI/HF recorded for a single minute. Also fails to meet Method determination for independent samples. Calculation for spike recoveries is incorrect, and overstates recovery - report shows 81.2% HF, corrected calc is 65%. No post-test signal intensity confirmation, SNR. | |
| 22-0271 | 1 | Texas Eastern Transmission LP Danville Barry Buchanan Barry.Buchanan@enbridge.com | | Nordon Corporation Donald Hayes | None | Failed | Passed (Caveat on number of independent samples) | MDC3 | negative or BDL values included in run average, only the run average is considered against RDL | | System Response time recorded as 5-6 minutes for HCI & HF. All QA data for HCI/HF recorded for a single minute. Also fails to meet Method determination for independent samples. Calculation for spike recoveries is incorrect, and overstates recovery - report shows 70.7% HCI, corrected calc is 45%. HF Recovery states 92.8%, corrected calc is 87.7%. No post-test signal intensity confirmation, SNR. | HCI spike a |
| CEC 325 985 | 2 | BMW Greeg, SC | | CEC Quentin Best | Deficient - no supporting data to determine stability at reported test points. Calc shows significant bias (-8.7%) but this does not appear to be contemplated in the reported values. | Pass (74 & 71%) Caveat on sample duration/stability. | Not Performed | MDC2: 3x StDev 9 replicates of blanks | negative or BDL values included in run average, only the run average is considered against RDL | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. No reported response time for HCI/HF - unable to determine if spikes and validation were performed in a sufficient manner to show stability of the tracer and target analyte. No presentation of instrumental performance (SNR, Signal) | |
| 14713-R1 | 4 | Central Gas Plant & Central Gas Facility, Prudhoe Bay, AK | | SLR - Kenny Sullivan | None | Pass 74.8%, 100%, 73.8%, 78.9% | Not Performed | MDC 2: ASTM D6348 A 2.3.1(3x StDev 8 replicates) - used humidity generator to simulate stack moisture. | negative or BDL values included in run average, only the run average is considered against RDL | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. Individual spikes show detailed data sufficient to confirm validity of performance however Observe data points Appendix F-8. HCI values drop when HCI spike is being performed. Values spike up at 10:45 am 8/22, then are slowly falling until spiking started at 14:25. Difficult to determine system response & lag (changed over to a separate direct analysis) | |
| m224512a | 1 | Northern Natural Gas Company - Waterloo Compressor Station | | Mostardi-Platt; Stuart Sands | None | Multiple passing spikes, each sample comprised of 1 minute of data | Not Performed | ? | RDL applied within run data | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. No response time noted for HCI/HF. Insufficient supporting data to confirm spike stability. No instrumental performance data (signal, SNR, Linearity) | |
| m224512b | 1 | Northern Natural Gas Company - Waterloo Compressor Station | | Mostardi-Platt; Stuart Sands | None | Multiple passing spikes, each sample comprised of 1 minute of data | Not Performed | ? | RDL applied within run data | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. No response time noted for HCI/HF. Insufficient supporting data to confirm spike stability. No instrumental performance data (signal, SNR, Linearity) | |
| m224513 | 1 | Northern Natural Gas Company - Beatrice Compressor Station | | Mostardi-Platt; Robert Carlisle | None | Multiple passing spikes, each sample comprised of 1 minute of data. Spike performed at 20x native concentration. | Not Performed | Method 301 Section 15. 99% confidence in a pure blank stream | RDL applied within run data | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. No response time noted for HCI/HF. Insufficient supporting data to confirm spike stability. Spike performed at 20x native concentration. No instrumental performance data (signal, SNR, Linearity) | |
| m224514 | 1 | Northern Natural Gas Company - Clifton Compressor Station | | Mostardi-Platt; Robert Carlisle | None | Multiple passing spikes, each sample comprised of 1 minute of data. Spike performed at 20x native concentration. | Not Performed | Method 301 Section 15. 99% confidence in a pure blank stream | RDL applied within run data | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. No response time noted for HCI/HF. Insufficient supporting data to confirm spike stability. Spike performed at 20x native concentration. No instrumental performance data (signal, SNR, Linearity) | |
| M223610E | 1 | Middletown Power, Middletown CT (Unit 13) | | Mostardi-Platt; Chris Trezak | None | Multiple spikes - but clear evidence of "juicing", even in 1 minute of data as presented. See Worksheet | Not Performed | Method 301 Section 15. 99% confidence in a pure blank stream | RDL applied within run data | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. No response time noted for HCI/HF. Insufficient supporting data to confirm spike stability. Spike performed at 10-40x native concentration (depending on start of spike to end of spike). No instrumental performance data (signal, SNR, Linearity) | |
| | 1 | Middletown Power, Middletown CT (Unit 15) | | Mostardi-Platt; Chris Trezak | None | Multiple spikes - but clear evidence of "juicing", even in 1 minute of data as presented. See Worksheet | Not Performed | Method 301 Section 15. 99% confidence in a pure blank stream | RDL applied within run data | | HCI & HF mass rates appear to be calculated from O2 corrected ppm values. No response time noted for HCI/HF. Insufficient supporting data to confirm spike stability. Spike performed at 10-40x native concentration (depending on start of spike to end of spike). No instrumental performance data (signal, SNR, Linearity) | |
| W002AS-023392-RT- | 2 | DTE Sunshine Gas Producers, Sylmar CA | | Montrose; Pete San Juan | None | Performed at 30x native, individual spike performed for 1 minute. | individual spike performed for 1 minute | MDC2 - report notes that spectra used had similar moisture to stack. | RDL applied within run data | | Mass rates clearly calculated from uncorrected ppmvd (proper). Borosilicate glass filter for PM removal - unclear if spiking was performed through this filter (HF reactivity) | |
| 491281 | 2 | Georgia Power - McIntosh, Rincon, GA | | TRC; Jason Grizzle | HCHO Validation OK, HF validation OK, HCI validation caveat | Good for both units, conditions | Good for both units, conditions | MDC2, using ~10% moisture (pg 256, 265, 273, 281). (MDC3 would be higher typically (2-5x)) | RDL applied within run data | | HCI validation appears that the HCI was juiced into the system and captured on a downswing - direct system response time was 14 minutes for HCI, but during validations some were less than 10 minutes, and exhibit a high value that is greater than the final spiked value in the validation spike. SF6 does not show this, so possibly build-up of residual HCI during unspike time, or burst of pressure from initiating spike. *Possibly OK, deference to testers on this point. | |
| 499970 | 2 | Georgia Power - McDonough, Smyrna GA | | TRC; Jason Grizzle | HCHO Validation OK, HF validation OK, HCI validation caveat | Good | Good | MDC2, using ~10% moisture. (MDC3 would be higher typically (2-5x)) | RDL applied within run data | | The use of MDC 2 provides a lower than reasonably expected measurement, however the inclusion of H2O in the MDC test data does alleviate the most significant concern of using this approach. Still however, the ICR called for MDC3 determinations. | |
| 511153 | 2 | Enbridge Energy Partners - Holbrook, Wind Ridge, PA | | TRC; Ray Potter | Not included, but reference to McIntosh/McDonough test validations. Unclear if 5% moisture is considered similar to 10% moisture at GP | T-1 HCI spike juiced, T2 insufficient stability | Good | MDC2, using ~5% moisture. (MDC 3 would be higher) | RDL applied within run data | | The use of MDC 2 provides a lower than reasonably expected measurement, however the inclusion of H2O in the MDC test data does alleviate the most significant concern of using this approach. Still however, the ICR called for MDC3 determinations. | |
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| General commentary on specifics | | | | | | | | | | | | |
| MDC3 is generally regarded as an instrumental detection limit, but does not consider interfering compounds (i.e. FAU/MAU) which we believe is critical for a component such as HF in the moisture levels observed. | | | | | | | | | | | | |
| Many reports performed 50 calculations for MDC. However none performed the second part of the MDL procedure using an actual low level spike. The blank approach only works when compared with an actual low level spike (The MDL procedure now uses method blanks to calculate an MDL, in addition to the spiked samples that have always been used to calculate the MDL. As a result, the new definition of the MDL is: "The method detection limit (MDL) is defined as the minimum measured concentration of a substance that can be reported with 99% confidence that the measured concentration is distinguishable from method blank results.") | | | | | | | | | | | | |
| On the amount of time recorded for spikes - See Method 320 Section 9.2.2 | | | | | | | | | | | | |
| 9.2.2 Determine the response time (RT) of the system by continuously collecting spectra of the spiked effluent until the spectrum of the spiked component is constant for 5 minutes. The RT is the interval from the first measurement until the spike becomes constant. Wait for twice the duration of the RT, then collect spectra of two independent spiked gas samples. Duplicate analyses of the spiked concentration shall be within 5 percent of the mean of the two measurements. | | | | | | | | | | | | |