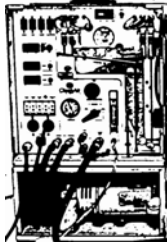


Tip of the Week

December 20, 2004



Making Peace with Your Meter

Everyone knows that EPA Method 5 requires the calibration of the metering system after each field use. We do this either in the field with a critical orifice, or we send it back to the shop for a check against a wet test meter.

It is preferable to do the orifice check in the field for obvious reasons, not the least of which is to eliminate the specter of having to remobilize a job if the meter comes back to the shop out of spec. However, since we don't normally do an orifice calibration until the end of the job, we still risk having to repeat a lot of runs and maybe several days of work if this calibration check fails. So what can we do to monitor our meter's performance on an on-going basis?

There is a way and it requires practically no effort. This is the Yqa check, which is described in the **ALTERNATIVE METHOD 5 POST-TEST CALIBRATION** ([ALT-009](#)), found on the EPA website.

The trick is to use the Meter Box Calibration Check section found in lines 45-49 of the Moisture and Flow tab in the [FPS field workbook](#). Essentially, all you need to do is calculate the average of the square roots of ΔH and plug this value into line 47. The workbook will calculate a value for Yqa (Line 48) and compare this with the Yd of the meter. A deviation of 5% or less between the two is required (Line 49).

45	Meter Box Calibration Check		
46	ΔH	Meter orifice cal. coef. (in. H ₂ O)	1.7939
47	$\sqrt{\Delta H}$	Meter orifice pr. dr. (sqrt in. H ₂ O)	1.5000
48	Yqa	Meter calibration check value	0.9994
49	%Y	Results (+/- 5%)	-0.2%
50	ρ	Gas density (lb/cf)	0.0601
51	Qstd	Gas flow rate (lb/hr)	338,850
52			

It is a good idea to keep track of the meter performance during a job by doing this Yqa check after each run. This will alert you to potential calibration issues with the meter. Any check that is close to or above the 5% criteria should be dealt with by either repairing or replacing the meter before proceeding with additional tests.

*Although the EPA prescribes this as an alternative calibration procedure, CleanAir's policy is to always post-test calibrate our meters using either a critical orifice or a wet test meter. The Yqa-check described here is intended only to be used as a means of evaluating on-going performance of the metering system, and is not a replacement of an orifice or bench calibration.