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11/13/09:

To Whom it May Concern:

Please amend footnote 25 on Page 33 of the Landfill Project Protocol – Version 3.0 Dated October 2009 as follows (the appended words are in red bold italics):

[25]Field checks and calibrations of the flow meters shall assess the volumetric output of the flow meter, ***or verify that the meter has not shifted or drifted since original factory calibration***

The reason for this requested change in the Protocol is to permit users who have a Sage Metering Thermal Mass Flow Meter or Landtec Thermal Mass Flow Meter (manufactured by Sage) to take advantage of its unique capability to provide a Sensor Functionality and Zero Calibration Self Check, as documented in the accompany pdf titled: "Sensor Functionality and Zero Calibration Self Check". The digital drive and unique temperature compensation mapping of the Sage technology, allows Sage to provide this methodology. Please see the accompanying excerpt (listed below my signature) from page 44 of the Sage Operation and Instruction Manual for the SIP and SRP Series, Revison 07 (or refer to page 44 of the actual Sip/SRP Manual on our website).

Thank you,

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Sensor Functionality and Zero Calibration Self Check

Sage Prime has continuous diagnostics. The raw calibration milliwatts (mw) is always displayed in the upper left hand corner of the meter's display. At any time, you can check this reading at a "no flow" condition and compare the reading to the original reported "zero flow" value noted on the last few lines of your meter's Certificate of Conformance or the flow meter's data tag. This diagnostic procedure not only checks the sensor performance and the "live zero" calibration point, but it verifies that the sensor is clean. It essentially provides a means to validate that the meter is operating properly, verifies that there is no shift or drift, and eliminates the need for annual factory calibrations. This simple field diagnostic procedure also verifies that the sensor is free from contamination, even without inspection.

1. Verify that meter has no gas flow[1]
Close appropriate valves in the process to have a “no flow” condition so you can check the “live zero” mw output of the actual gas (it should be checked at the same pressure as noted on Certificate of Conformance).
If it is not possible to close valves in the process (e.g. natural gas supply must be kept flowing), a user with a Sage SVA05 or SVA07 Isolation Valve Assembly can check “zero” of the actual gas and pressure without shutting off the gas supply.
Refer to SVA SERIES ISOLATION VALVE ASSEMBLY
DETAILS ON PAGE 34.
a) Loosen Lower Collar Clamp completely
b) Slightly loosen compression fitting until Probe can be lifted
c) Lift Probe until Safety Chain is taut
d) Tighten compression fitting
e) Close Valve
f) Check zero mw as per “2” below
Optionally, do an ambient air check by removing probe and covering up sensor by capping the sensor with a plastic bag, empty plastic water bottle or other means of preventing flow (see 8).
2. Observe the raw milliwatts (mw) on the top of the meter’s display. Check the observed reading (after a few minutes of “no flow” stabilization) against the last line(s) of your Meter’s Certificate of Conformance.
3. A value within 5 milliwatts of the original
Factory value (assuming the same gas is checked
1 Sage "zeros" the meter in a horizontal pipe. If you have a vertical pipe, mW will be slightly lower at zero (also see note 4). at same pressure) indicates that the meter is still in calibration.
4. A value greater than 5 milliwatts, but less than or equal to 10 milliwatts, also indicates that the meter is still in calibration, but this reading may have been influenced by one or more of the following factors: gas composition, pressure, dirt, non-zero conditions, and sensor orientation. Any of these factors can have an effect on mWo. It is a very sensitive data point and that is why it is such a good check.
5. Note, if all of the above factors were remedied, it would be expected that the mW zero would report less than or equal to 5 milliwatts.
6. Note, in some cases, contamination of the sensor is the only cause of the additional heat transfer during the “no flow” test. Remove the probe, and clean the sensor (use an appropriate non-corrosive solvent to remove the build up). A soft brush can be used to gently clean the sensing surface, using caution to avoid damaging the sensor elements (the RTD's).
7. In summary, if a technician in the field were able to simulate Sage calibration conditions, he too would find that the mWo would be within one mW or very close to that. Since this is not always possible, we are finding that after considering all of the field variables, a mWo in the field that is within 10 mW is an acceptable value. This would allow for a check to be done in the pipe under application conditions.
8. Note, if desired, a second check can be conducted as well but using ambient air: This validation method requires that the sensor be removed from the pipe and inserted in a container such as an empty plastic water bottle. We would recommend this second check if there is any question at all about the first check (while in the pipe) or if it’s mWo value is anywhere around 10 mW. The sensor should be removed from the pipe, cleaned, and inserted vertically into a clean dry container such as a water bottle. This would allow a field check very similar to the air mWo check that is done at Sage, and more than likely will give the same results that we recorded here at Sage.