TNI Stationary Source Audit Sample Expert Committee Teleconference
September 18, 2012, 2:00 PM, EDT

Attendance:

Maria Friedman – Chair TestAmerica (Laboratory)	Committee member	Absent
Mike Hayes Linde (Provider)	Committee member	Absent
Michael Klein New Jersey DEP (State government)	Committee member	Present
Theresa Lowe CCI Environmental	Committee member	Absent
Paul Meeter Weston Solutions (Stationary Source Tester)	Committee member	Absent
Gregg O'Neal, North Carolina DAQ (State government)	Committee member	Present
Michael Schapira Enthalpy (Laboratory)	Committee member	Absent
Jim Serne TRC Solutions (Stationary Source Tester)	Committee member	Present
Richard Swartz, Vice-chair Missouri DNR (State government)	Committee member	Present
Stanley Tong EPA Region 9 (Federal government)	Committee member	Present
Ken Jackson TNI (Program Administrator)	Program Administrator	Absent
Ty Garber Wibby (Provider)	Associate member	Absent
Shawn Kassner ERA (Provider)	Associate member	Absent
Mike Miller (Member at large)	Associate member	Absent
Wayne Stollings (Triangle Env. Services)	Guest	Present
William Daystrom TNI (Webmaster)	Guest	Present
Charles Simon (VOC Reporting)	Guest	Present

1) Double-check receipt of documents to be referenced in this teleconference

All present confirmed receipt of the documents e-mailed September 17, 2012.

2) Review and approve minutes from teleconference on September 4, 2012

Jim Serne moved to accept the minutes as written. We did not vote on the minutes as we did not have a quorum. The minutes will be voted on by e-mail.

3) Review M25 Subcommittee recommendations

Category #3, item 1 – Charles explained the SSAS table will require the reporting of methane (if approved) and CO_2 from the audit sample analysis. Therefore, the purpose of this change to the promulgated method is so the method allows for the reporting of these constituents.

Category #3, item 2 – Charles summarized the collection system portion of the recommendation. He explained that some audits fail because these procedures are not properly followed. The equipment described is typically required. There was some discussion of what materials are acceptable for use, glass, stainless steel, brass, etc…, and what's not acceptable, Teflon for instance.

Stan asked, regarding 6.4.1, is there something that defines what clean is? Charles also indicated there should be a requirement for a stainless steel diaphragm in the gas regulator, and a CGA 350 connection. Charles explained that clean would be less than 5ppm. Purging the regulator with clean air is how you clean it. A ten minute purge should be adequate. This section should have a specification on what clean is.

Regarding the same section, Gregg asked if we need to specify what type of regulator is required? Charles indicated the size should have no effect.

Charles & Wayne will re-write section 6.4.1 and add specifications regarding cleanliness of the regulator, and require a stainless steel diaphragm and a CGA 350 connection. They will also add any other specifics they feel are appropriate.

It was discussed that typically the laboratory will be providing the set up (regulator, etc…), however, some folks will want to use their own equipment, therefore, the specifications need to be in the federal register.

There was some discussion of the appropriate CGA connection for this application, and if the 350 is the best option. It was decided to stick with the 350.

Charles summarized the audit collection procedure in the recommendation. Charles indicated he and Wayne will add language to 8.5.6 requiring the monitoring of excess flow and other sampling parameters typically recorded during sample collection.

Category #3, item 3 – Charles summarized the recommendation. He explained their field sample study results were much better when they used a blank and were able to correct based on the blank results. This is because there is a background concentration, and contamination, that should be accounted for. For audit samples below 50 ppm a blank correction is very necessary.

Charles further explained that the trip blank, if it's on dry ice, will pick up some contamination during transport & storage prior to delivery to the laboratory.

Regarding the upper limit allowed for blank correction, there was some discussion of including the equivalent concentration in parts per million as carbon (ppmc) in the language. This would be consistent with the SSAS table in that the Method 25 acceptance criteria concentrations in the table are expressed in ppmc. There was some concern and discussion about how the volume of a sample would affect concentrations.

Charles indicated they conducted a statistical evaluation to come up with the maximum blank concentrations allowed. These concentrations are based on the actual mass of VOC's in a 5 liter sample volume.

It was further discussed that the laboratory will calculate the blank corrected VOC values in their report as opposed to the stack testing company calculating the blank corrected value.

Michael Klein reminded us that the reason we are considering blanks is so the acceptance criteria can be tightened. We need to keep that in mind as we discuss this topic.

In summary, it was noted that Charles and Wayne are going to work on amending the language in items 2 & 3 of category #3. They will have that done before the next meeting which will be in two weeks. As there is not a quorum present at this meeting, decisions regarding acceptance or rejection of the recommendations will be held off until the next meeting.

At this time Stan Tong took the floor and informed us of discussions he had with EPA's Office of Enforcement, Compliance, and Assistance (OECA). OECA would like to take a look at a sample of our recommendations so they can decide what would constitute a change in the guidance document or a change in the CFR. Stan would be willing to provide this to them at some point. In addition, instead of updating the guidance document, EPA would be more likely to add an addendum to the guidance document.

Charles indicated he is in agreement that an addendum would be good, or even an alternate method as the CFR is difficult to change.

The meeting is adjourned. The next meeting will be October 2, 2012, 2:00 PM EDT.

TNI Stationary Source Audit Sample Expert Committee Teleconference Agenda for September 18, 2012:

1) Double-check receipt of documents to be referenced in this teleconference

2) Review and approve minutes from teleconference on September 4, 2012

3) Review M25 Subcommittee recommendations

VRi

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for 9-4-2018
& 9-18-2012
pm

September 4, 2012

M25 improvement subcommittee submital of approved reccommendationsto the full TNI-SSAS committee

Charles Simon (chair)	VOC Reporting Inc., lab analyst & field tester	cgsimon@gowebway.com
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Tom Mattei	Air Test Auditors, field testing consultant	tmattei@airtestauditors.com

Our recommendations are presented in three different category formats. The first category addresses audit issues and is directed to the TNI-SSAS committee only. The second category can be described as "guideline procedures", which are helpful tips that don't require changes to M25 procedures. The third category requires changes in Method-25 CFR language.

Please consider them carefully. We will continue discussion of 10 remaining topics and submit our final approved recommendations in a few weeks.

-Charles Simon

Category 1 – M25 audit procedures

1. **Designate methane as the "tracer gas" for the Method 25 audits.** Place a footnote in the SSAS table that says "There shall be 100-1000 ppm of methane, and 4-8% carbon dioxide in each Method 25 audit sample gas mixture. A record of the methane, carbon dioxide and non-methane organic (NMO) concentrations shall be maintained by the audit provider. The methane and NMO concentrations shall be measured and reported by the laboratory."

2. **Use results from the pilot study of the new Method 25 audit gas blend to calculate initial acceptance criteria.** Use the SSAS Table management SOP to affect this change.

3. **Allow EPA protocol gas vendors to produce and supply directly to users Method 25 audit gases according to established and approved procedures.** Send this recommendation directly to Candace if approved by the full committee.

Category 2 – M25 guideline procedures

These topics could be published privately and made available to users on the web. They are not requirements, and they are not prohibited by Method 25. Individual permitting authorities have the right to require any or all of these procedures to be followed by testers.

approved on 9-4-2012 – send to subcomm Shawn

1. The audit cylinder pre and post audit pressures should be recorded on the Field Data Sheet. An audit sample should not be used of the starting pressure is below 200 psi.

2. Record the clock time (pre and post if applicable) of all significant/key steps of the sampling on the Field Data Sheet to ensure they are properly performed, especially in cases of unobserved tests. These steps include: (a) leak checks (b) temperature/pressure readings (c) heat-up (d) purge start/stop (e) time dry ice is applied to traps, (f) sample start/stop times and 5-minute interval readings of the sample tank pressure, the sample train flow rate, and the filter and probe temperatures. An example Method-25 Field Data Sheet is attached.

3. When at all possible, trains should be dedicated as Inlet (high VOC loading) and Outlet (low VOC loading) trains across test programs.

Category 3 – Method 25 CFR procedures

1. The CFR will need minor changes to incorporate reporting of methane and carbon dioxide in the audit samples.

11.2.3 Analysis of Sample Tank. Perform the analysis as described in Section 11.2.2, but record only the value measured for NMO (C_{tm}) unless other constituents are to be reported.

2. A description of the recommended Method 25 audit collection system and procedures should be incorporated in the CFR.

6.4 Audit Collection. The audit sampling system consists of a mechanism to connect a high pressure audit cylinder to a sampling system as described in Section 6.1(see Figure 25-1). The following equipment is required for each audit performed:

6.4.1 Gas Regulator. A clean high pressure gas regulator with a CGA 350 connection and the ability to regulate outlet pressure between 20 and 50 psig.

6.4.2 Flow Controller. A flow controller capable of maintaining a flow of at least twice the desired sample rate. A metering valve or critical orifice are acceptable options.

6.4.3 Flow Measurement. Two identical flow measurement devices to simultaneously monitor flow from the regulator and to the waste vent. A minimum scale of 0 to 200 cc/min is required. A glass-tube rotameter and metering valve assembly is acceptable.

6.4.4 Flow Valve. A suitable stainless steel valve capable of stopping the flow from the cylinder through the sampling system.

6.4.5 Waste Bypass. A stainless steel tee which is connected to the two flow measurement devices (see Section 6.1.3) and the sampling system (see Figure 25-1)

8.5 Audit Collection

8.5.1 Sampling System. Assemble the sampling system per the instructions in Section 8.2

8.5.2 Audit Sampling System.

8.5.2.1 Attach the gas regulator to the high pressure audit cylinder to be collected and flush with audit gas before proceeding.

8.5.2.2 Connect the regulator to the flow valve.

8.5.2.3 Connect the waste bypass (see Section 6.1.5) to the inlet flow measurement/flow controller, the outlet flow measurement and the sampling system.

8.5.3 With the sample valve in the sampling system (see Figure 25.1) in the off position, open the valve on the audit gas cylinder and adjust the pressure regulator to the desired outlet pressure in the 20-50 psig range.

8.5.4 Open the audit collection flow valve and adjust the flow to approximately twice the desired sample rate.

8.5.5 Confirm that the inlet and outlet flow rates are identical.

8.5.6 Purge the sampling system as required in Section 8.2.2 and proceed with collection of the audit gas as a field sample.

3. Specify the subtraction of a blank analysis, with upper limits, from all samples based on the audit study. The upper limits shall be in mgC/m3 so sample volumes will not be a factor. We ask the TNI-SSAS committee to consider two types of blanks and decide on one, both, or none.

7.5.3 It is required that a blank audit sample be analyzed in conjunction with the field samples. The blank audit sample shall be a clean gas (<1 ppm THC), such as zero air, which is sampled according to the procedures for sampling a performance audit. Alternately, a trip blank, which is an unopened condensate trap and sample tank, shall be sent to the lab along with the samples and analyzed at the same time. The actual results of the blank analysis shall be subtracted from all sample and audit results. An upper limit of 15 mg/m3 shall be allowed for an audit blank. An upper limit of 10 mg/m3 shall be allowed for a blank

4. Specify equipment cleaning procedures in the method.

8.1.1 Condensate Trap Cleaning. Before its initial use and after each use, a condensate trap should be thoroughly cleaned and checked to ensure that it is not contaminated. Both cleaning and checking can be accomplished by installing the trap in the condensate recovery system and treating it as if it were a sample. The trap should be heated at least 50 °C (122° F) hotter than the recovery temperature as described in Section 11.1.3. A trap may be considered clean when the CO_2 concentration in its effluent gas drops below 10 ppm at a flow rate of 100 ml/min or less. Note:—Subjecting some forms of stainless steel to temperatures in excess of 425°C (800°F) can have long term impacts on structural stability, which should be considered. Low carbon 304 and 316 stainless steels in Method 25 condensate trap applications have demonstrated retention of structural integrity for >200 cycles of heating to 600°C.

8.1.5 Sample Tank Cleaning. Before its initial use and after each use a sample tank should be thoroughly cleaned and checked to ensure that it is not contaminated. The cleaning may be a mass dilution consisting of several cycles of being evacuated and filled with clean gas with or without being heated. After the final evacuation the sample tank should be pressurized with a clean gas and analyzed for NMOC content. The sample tanks should be considered clean if there **is** <2 ppmC NMOC, and less than 20 ppmC combined CO, CO_2, and CH_4, in the sample tank gas.

8.1.6 ICV Cleaning. Before its initial use, and after each use, an ICV should be thoroughly cleaned and checked to ensure that it is not contaminated. The cleaning may be a mass dilution consisting of several cycles of being evacuated and filled with clean gas with or without being heated. After the final evacuation the ICV should be pressurized with a clean gas and analyzed for NMOC content. The ICV should be considered clean if there is <2 ppmC NMO, and less than 5 ppmC combined CO, CO_2, and CH_4, in the ICV gas.

8.1.7 Sample Console Cleaning. Before its initial use and after each use, a sample console should be thoroughly cleaned and checked to ensure that it is not contaminated. Cleaning can be accomplished by flushing the console with a clean gas while the probe and filter are heated to operating temperature. Checking can be accomplished by connecting the console to the condensate recovery system and treating it as if it were a sample. The console should be heated to the normal operating temperatures as described in Section 8.2.1. A console may be considered clean when the CO_2 concentration in its effluent gas drops below 10 ppm.

5. **Designate the use of dual traps ice water/dry ice, as recommended by EPA guidelines, for sources with high moisture (>40%) to prevent trap plugging and the need to warm the trap to recover flow during sampling.**

AND

6. **Require crushed dry ice be added to the sample trap 10 min (not 30 minutes) before the start of sampling.**

8.1.3 Sampling Train Assembly. Just before assembly, measure the tank vacuum using a mercury manometer. Record this vacuum, the ambient temperature, and the barometric pressure at this time. Close the sample tank valve and assemble the sampling system as shown in Figure 25-1. Immerse the condensate trap body in crushed dry ice at least 10 minutes before commencing sampling to improve collection efficiency. If the moisture content of the sample gas is >40% by volume, connect two Method 25 condensate traps in series. When this arrangement is used, immerse the first trap the sample gas will pass through in water-ice, and immerse the second trap in crushed dry ice.

7. Require that the calculation for allowable train leak rate include the volume of all connecting tubing/fittings to the manometer.

8.1.4 Pretest Leak-Check. A pretest leak-check is required. Calculate or measure the approximate volume of the sampling train from the probe tip to the sample tank valve, and the leak-check manifold and gauge volumes. After assembling the sampling train, plug the probe.

8. Report the sum of all carbonaceous compounds recovered from the analysis of the ICV.

11.2.2 Analysis of Recovered Condensate Sample. Purge the sample loop with sample, and then inject the sample. Under the specified operating conditions, the CO_2 in the sample will elute in approximately 100 seconds. As soon as the detector response returns to baseline following the CO_2 peak, switch the carrier gas flow to back flush, and raise the column oven temperature to 195°C (380°F) as rapidly as possible. A rate of 30°C/min (54°F) has been shown to be adequate. Record the value obtained for the condensable organic material (C_{cm}) measured as CO_2 and any measured NMO, CO and CH4 in the ICV. Return the column oven temperature to 85°C (185°F) in preparation for the next analysis. Analyze each sample in triplicate, and report the average C_{cm}.

9. Correct an error in the nomenclature section of the method.

12.1 Nomenclature.

N = Carbon number of the liquid compound injected
(N = ~~12~~ 10 for decane, N = 6 for hexane)