



Title: VOC Sample Management Procedures		Copy No: 7
SOP No.: 7.15/1.6/S	Effective Date: September 11, 2013	Location: 126

QSM Approval: _____

VOC Sample Management Procedures

1.0 Scope

This Standard Operating Procedure provides instructions for management of 3 L and 6 L ambient air samples which are taken on a routine, scheduled basis.

2.0 Shipping of Cleaned Canisters to Sites

Canisters cleaned as per SOP 7.01/*.*S are shipped to designated locations on a routine basis in order to ensure that no scheduled sampling days are missed. The schedule is maintained by the staff member responsible for liaising with site operators (“site liaison”) or designate. All canisters are shipped in specially constructed cases which are individually numbered. The 3 L canisters are shipped six per case with the 6 L canisters in cases of two. If no cases are available, the canisters may be shipped in cardboard boxes with adequate protection. Generally, the 6 L canisters will be shipped as a lot of six with each being individually boxed within a suitably sized and rated containment box. All canister and case numbers are recorded along with the locations to which they are being shipped and the date of shipment. This information is maintained in appropriate Microsoft Excel spreadsheets on the designated computer in Rm. 1701. Shipping labels are affixed to the cases/boxes with the address of the required site. The cases/boxes are then given to the 335 River Road Shipper/Receiver who will arrange for their transportation by an approved courier.

3.0 Reception of Samples

Samples arrive at the 335 River Road Shipping & Receiving loading dock. Air Toxics personnel are informed of their arrival either verbally, via telephone or email by the Shipper/Receiver. As per section 4.1 of 1.02/*.*M, all samples must be analysed within four months of the sampling date stated on the enclosed data sheet(s). Most canisters will be received within two to four weeks of their sampling date; however, Air Toxics cannot control the rate of return from the site operators. Processing is generally done within 24 hours of receipt. Samples that arrive outside of the four month deadline will be declared void. Any samples which are close to the deadline will be identified and their analyses expedited. Every effort is made to analyse the samples as quickly as possible after their arrival.

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3.0 Processing of Samples

- 3.1 Examine the VOC Sampling Data Sheet(s) (**Forms 7.15/F1, 7.15/F2, 7.15/F3, and/or 7.15/F4**) submitted with each sample shipment. All data sheets will be stamped with the date of receipt and have the shipping case number recorded along with the initials of the individual processing the samples. Ensure that the canister identification codes recorded on the data sheet(s) correspond to the codes on the received canisters. If any canister code does not match the data sheet, check the appropriate Sampling Data Sheet binder to determine if a data sheet was previously received for the sample in question. If not, consult the applicable Excel spreadsheet to ensure that the canister was sent to that site. If it was, request that the site liaison contact the operator to confirm which canister was used.
- 3.2 Examine the information recorded on the data sheets to assess the integrity and validity of samples.

3.2.1 Check for correct (i.e. scheduled) sampling date. If an incorrect sampling date is recorded and there is no explanation by the operator in the comments section, check the dates on which the canister was installed and removed from the sampler. This may reveal that the error lies in the *recording* of the sampling date. Ask the site liaison to request confirmation of the actual sampling date from the site operator. If otherwise valid, a sample collected on an unscheduled sampling date is normally analyzed, but the reported data is flagged to note the error in sampling date.

3.2.2 Check for correct initial pressure. The recorded initial pressure for all samples should be in the range of -26 to -30 in. Hg (pressure gauges on different samplers “read” differently), and recorded pressures should be consistent within ± 1 in. Hg for all samples collected with a given sampler. A higher than “normal” initial pressure likely indicates a canister leak prior to sampling. If the recorded pressure provides clear evidence of a leak, the sample is immediately declared VOID, and recorded as such on the data sheet, along with the analyst’s initials and the date. The canister should be removed from circulation until a leak check can be done. Put a sticker on it marked “**Leak Check Required**” and place it in the designated area. If evidence of a leak is NOT clear (i.e. recorded pressure only 1 or 2 in. Hg above “normal” for that sampler), the recorded pressure is circled or highlighted on the data sheet and the sample is tentatively accepted as valid. Sampling data sheets are checked again during final review of analytical data.

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Any sample which generated VOC data suggestive of a leak, and whose initial pressure was questionable, is declared VOID at this stage.

3.2.3 Check for correct final pressure. If the sampler flow rate is set correctly, and if the sampler operated for the scheduled sampling duration, a final pressure in the range of 15 to 25 psi is normally achieved. The site liaison should be advised of any sample where: 1) the final pressure exceeds 25 psi, 2) the final pressure is below 10 psi, or 3) the final pressure fluctuates significantly among samples from a given site. A recorded final pressure of 0 psi is usually accepted as evidence of a leak (operator error or sampler-related) during or after sampling. Such samples, and any with a final pressure of less than 4 psi, are usually declared VOID upon receipt. This is noted on the data sheet along with the analyst's initials and the date.

3.2.4 Check that recorded "Time On" and "Time Off" times are correct, and that they are consistent with the recorded elapsed time from the sampler clock, and with the recorded sample pressure. For 3 L samples, the sampler should run from 1200-1600 hrs local time (four hours). 6 L samples should be taken from 0000-2359 hrs local time (24 hours ± 2 hours is considered acceptable). Bring any inconsistencies to the attention of the site liaison.

3.2.5 Note any comments recorded on the data sheets by the site operator. Normally, comments relate to operator errors or sampler malfunctions. If any comment is not clearly understood in terms of its relevance to a decision on sample validity, bring it to the attention of the site liaison. **All comments relating to sampler malfunctions should be brought to the attention of the site liaison.**

3.3 Remove all address and shipping labels from canister shipping cases, and store the cases in the shipping room (Rm. 1701).

3.4 On the designated computer in Rm. 1701, use Microsoft Excel to log-in all received samples and cases. Information recorded in Excel includes canister identification code, site location, date of shipment to site, date of receipt from site, and sampling date. **MAINTAINING THE ACCURACY OF CANISTER AND CASE INVENTORY INFORMATION IN EXCEL IS IMPORTANT. BE VERY CAREFUL IN EDITING THESE INVENTORIES, AND ENSURE THAT CHANGES ARE SAVED AS SOON AS EDITING IS COMPLETE.**



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- 3.5 File all sampling data sheets in the appropriate binder in Rm. 176 (6 L samples) or Rm. 177 (3 L samples).
- 3.6 Canisters containing non-valid samples are placed on designated shelves in Rm.1701 to await cleaning.
- 3.7 Prepare sample identification / analysis tracking labels for all valid samples.
 - 3.7.1 Labels are created using Microsoft Word and Microsoft Excel templates residing on a designated computer. Labels include the following information : 1) assigned sample code (a combination of site code and a sequential alphanumeric code), 2) site location, if the same site code applies to more than one site (e.g. Toronto sites include Brampton, Etobicoke, Kipling, Newmarket, etc.), 3) canister identification code, 4) sample date, and 5) required analyses. Open all cases in a shipment before preparing the labels. Keep samples from each site in chronological order and subsites, as in the Toronto example above, in alphabetical order (e.g. Brampton from 6 and 12 Sep come before Etobicoke samples taken on the same dates, etc.). Affix printed, adhesive-backed labels to plastic or paper tags, and attach the tags to the canisters. Copy the assigned sample code to the appropriate data sheet for reference purposes. Sample canisters are placed on designated shelves to await analysis with the appropriate analyst being notified of their arrival.

4.0 After sample analysis

Once a sample has been analysed, this must be indicated on the sample identification tag using the designated colour. “MSD” analysis is indicated by highlighting the analysis in green, “FID” analysis in pink and “Polar” analysis, if required, in orange. When the sample analyses are complete and the results satisfy the requirements of 1.02/*.*M, the sample canister may be deemed ready for cleaning. This may be indicated by placing a clearly visible check mark or line through the analyses on the sample identification tag. If space allows, the canisters may be transferred to designated shelving unit in Rm. 1701. Otherwise, canisters must remain on the laboratory shelves with the person responsible for their cleaning being notified of their location. Canisters awaiting cleaning should be segregated from those still awaiting analysis.

5.0 Revisions

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- Sep 2011: Section 3.2.3 replaced 'psig' with 'psi' as those are the units on the sampler gauges; and, changed site liaison notification point 1 to 25 psi from 30 psi
 Section 3.2.4 added acceptable time range for 24 hour samples
 Sections 3.4 and 3.7: deleted references to specific computers
 Section 3.7.1 added more detailed instructions for sample identification label preparation
 Included requirement to add date to analyst initialed notes
- Jan 2012: Changed title from Canister Log-In Procedure to Sample Management Procedures
 Added section 2.0 on shipping canisters
 Section 3.0 – changed “Fridays” to “Friday afternoons” as samples received in the AM will be processed before the end of the day
 Section 3.7.1 – added need to notify analyst of sample arrival
 Added section 4.0 on what to do after sample analysis
- Aug 2013: Corrected grammatical errors
 Added email to list of Shipping/Receiving contact methods
 Section 3.0 – removed exception of “Friday afternoons” from Sample processing
 Deleted 2009 revisions

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