

Title: Sample Management		Copy No: ##
SOP No.: 6.01/3.0/S	Effective Date: September 20, 2013	Location: ###

QSM Approval: _____

Sample Management

1. INTRODUCTION

- 1.1 The following procedures are to be followed when receiving samples for analysis in the Particulate Characterization Unit of the Analysis and Air Quality Section.
- 1.2 Samples received will be from several programs:
 - 1.2.1 The National Air Pollution Surveillance (NAPS) network, Dichot/Partisol program sampling of air particulates deposited on Teflon filters.
 - 1.2.2 The NAPS PM 2.5 Speciation program sampling of air pollutants (particulate and gaseous) deposited on Quartz, Teflon and Nylon filters and citric acid and sodium carbonate coated denuders.
 - 1.2.3 Other projects from non-NAPS sampling sites.

2. PROCEDURES

2.1 NAPS Network Dichot/Partisol Program:

- 2.1.1 The flow of samples from the NAPS Network Dichot/Partisol program, received for analysis in the Particulate Characterization Unit is presented in Appendix 1.
- 2.1.2 The Gravimetric Laboratory conditions, assigns identification numbers and pre-weighs blank Teflon filters prior to shipping to the NAPS stations across Canada. Pre-weight information is stored in an electronic sheet for the appropriate stations (Form 6.08M/F1-ver*.*)). When loaded filters are returned from the NAPS stations, the field data and samples are reviewed to determine sample validity and subsequently sent for post-weight determination. (Consult Method 6.08/*.*M) This information is entered into the Station sheet along with information sent by the field operator regarding instrument operation (Form 6.08M/F1-ver*.*)).
- 2.1.3 When approximately 100 filters have been post-weighed, they are grouped together in a "Batch". A "sample-tracking sheet", both hardcopy and electronic is prepared (Form 6.08M/F2-ver*.*) and the filters are transferred to the appropriate laboratory depending on the analysis requested along with a blank Teflon filter to

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be used as a lab blank. They are stored in these labs until analysis. Untreated filters can be stored indefinitely.

2.1.4 Upon reception of a batch of filters in one of the analysis laboratories, the filters are visually inspected for any damage, and to ensure there are no discrepancies between what is recorded on the tracking sheet and what is received. If any discrepancies occur the lab supervisor is notified. If the discrepancy can be corrected, it is done and a note is placed on the sample-tracking sheet, or the sample may be invalidated. The electronic sample login sheet for the appropriate laboratory is subsequently filled in.

2.1.5 Any time samples are transferred from one laboratory to another, the accompanying tracking sheet is appropriately filled out by the laboratory receiving the samples.

2.2 NAPS Network PM 2.5 Speciation Program:

2.2.1 The flow of samples from the NAPS Network PM 2.5 Speciation program, received for analysis in the Particulate Characterization Unit can be seen in Appendix 2.

2.2.2 The sample-handling laboratory prepares the ChemComb sampling cartridges. (Consult SOP 6.09/*.*S and 6.10/*.*S). These cartridges are shipped to NAPS stations across Canada. Cartridge component information is entered into an electronic station sheet (Form 6.10S/F1-ver*.*).

2.2.3. Lab blanks are prepared for Teflon and Nylon filters along with citric acid and sodium carbonate coated denuders on the same day as the denuder coating solutions are prepared. Quartz filter lab blanks are part of each lot initially obtained from the OC/EC laboratory. When a lot of quartz filters has two remaining, they are used as lab blanks. After labeling of the blanks a "sample-tracking sheet" is prepared (Form 6.10S/F2-ver*.*) and the components are transferred to the appropriate laboratory depending on the analysis requested.

2.2.4. When cartridges are returned from the NAPS stations the field data and samples are reviewed to determine sample validity they are subsequently disassembled and all components labeled for analysis. (Consult SOP 6.09/*.*S and 6.10/*.*S). This information is added to the station sheet (Form 6.10S/F1-ver*.*) along with information sent by the field operator regarding instrument operation.

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2.2.5 After labeling of the components a “sample-tracking sheet” is prepared (Form 6.10S/F2-ver*.*).and the components are transferred to the appropriate laboratory depending on the analysis requested. They are stored in these laboratories until analysis.

2.2.6 Upon reception of the sampled components in one of the analysis laboratories, they are cross-checked with the information on the tracking sheet. If any discrepancies occur the supervisor is notified. If the discrepancy can be corrected, it is done and a note is placed on the sample-tracking sheet, or the sample may be invalidated. After they have been reviewed and accepted, the tracking sheet is filled in and stored in the laboratory.

2.3 Other Projects:

2.3.1 Samples received from other projects are accompanied by tracking sheets containing information relating to the client, number of samples, date and analysis requested.

2.3.2 Upon reception the samples are visually inspected for any damage, and to ensure there are no discrepancies between what is recorded on the tracking sheet and what is received. The field data and samples are reviewed to determine sample validity (6.08/*.*M, 6.10/*.*S). The lab supervisor is notified of any discrepancies. If the discrepancy can be corrected, it is done and a note is placed on the sample-tracking sheet, or the sample may be invalidated. After the samples have been reviewed and accepted they are transferred to the appropriate laboratory for analysis.

3. APPLICABLE SOPs AND METHODS

6.08/*.*M "Determination of the Weight of Particulate Matter Collected on Teflon Membrane Filters"

6.09/*.*S “Coating and Extraction of Honey Comb Denuders”

6.10/*.*S "Preparation, Shipping and Unloading of ChemComb Cartridges"

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4. REVISIONS

- September 1997: Author: David Mathieu; New document
- September 2003: Major revision to body of SOP
 New sections for each project
 New header added
- September 2004: Section 2.2 modified to include information on lab blanks
 Appendix 7 and 8 become 8 and 9, new appendix 7 for lab blanks
 Modify appendices 1 and 5
 Include information of Sodium Carbonate Denuders in tracking sheets
- December 2009: Section 1.2.3 and 2.3 Delete all references to NAPS TSP project and renumber sections accordingly.
 Section 2.1.3 add sentence “Untreated filters can be stored indefinitely.”
 Add Section 5 – “References”
 Change name “Inorganic Section” to “Particulate Characterization Unit” throughout document and appendices.
- January 2010: Corrected errors in header, formatting and bulleted lists
 Backdated revisions history to original version
- May 2011: Section 1.2.1, 1.2.2, 2.1.1, Appendices 1, 5, 7 and 8, change project to program and add “network” after NAPS.
 Section 2.2.3 change preparation of lab blanks from “day of cartridge assembly” to the day that the “denuder coating solutions are prepared”.
 Lab blanks for quartz filters changed from one to two.
 Modify appendices 2 and 6 to reflect changes to client.
- September 2013: Section 2.1.2, 2.2.4 and 2.3.2 insert information regarding sample validation
 Section 2.1.3 insert reference to electronic tracking sheets
 Section 2.1.4 remove reference to log sheet in room 172
 Section 2.2.1 and 2.2.4 insert reference to SOP 6.09/*.*S
 Add 6.09/*.*S to “Applicable SOPs and Method”
 Appendix 1 Use new design of flowchart
 Appendix 2 removed and referenced by Form 6.08M/F1-ver*.* instead
 Appendix 3 removed and referenced by Form 6.08M/F2-ver*.* instead
 Appendix 4 Use new design of flowchart and rename to Appendix 2
 Appendix 5 removed and referenced by Form 6.10M/F1-ver*.* instead

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Appendix 6 removed and referenced by Form 6.10M/F2-ver*.* instead
 Appendix 7 removed and referenced by Form 6.10M/F2-ver*.* instead
 Add “membrane” to applicable method 6.08

5. REFERENCES

US EPA, Compendium Method IO-3.1, Selection, Preparation and Extraction of Filter Material, June 1999

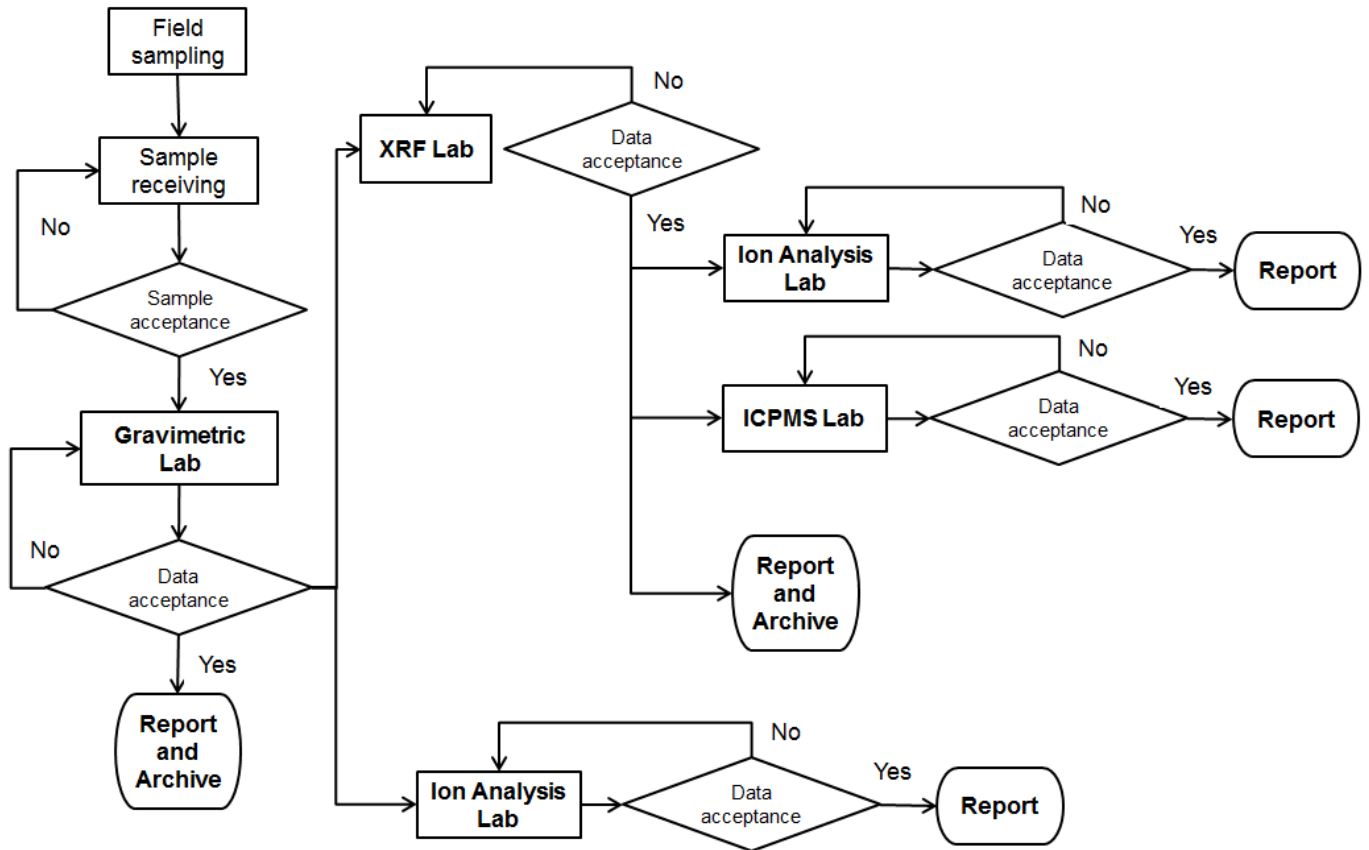
Lead Reviewer: David Mathieu
Title: Supervisor, Particulate Characterization Unit

Approved By: Ewa Dabek
Title: Head, Particulate Characterization Unit

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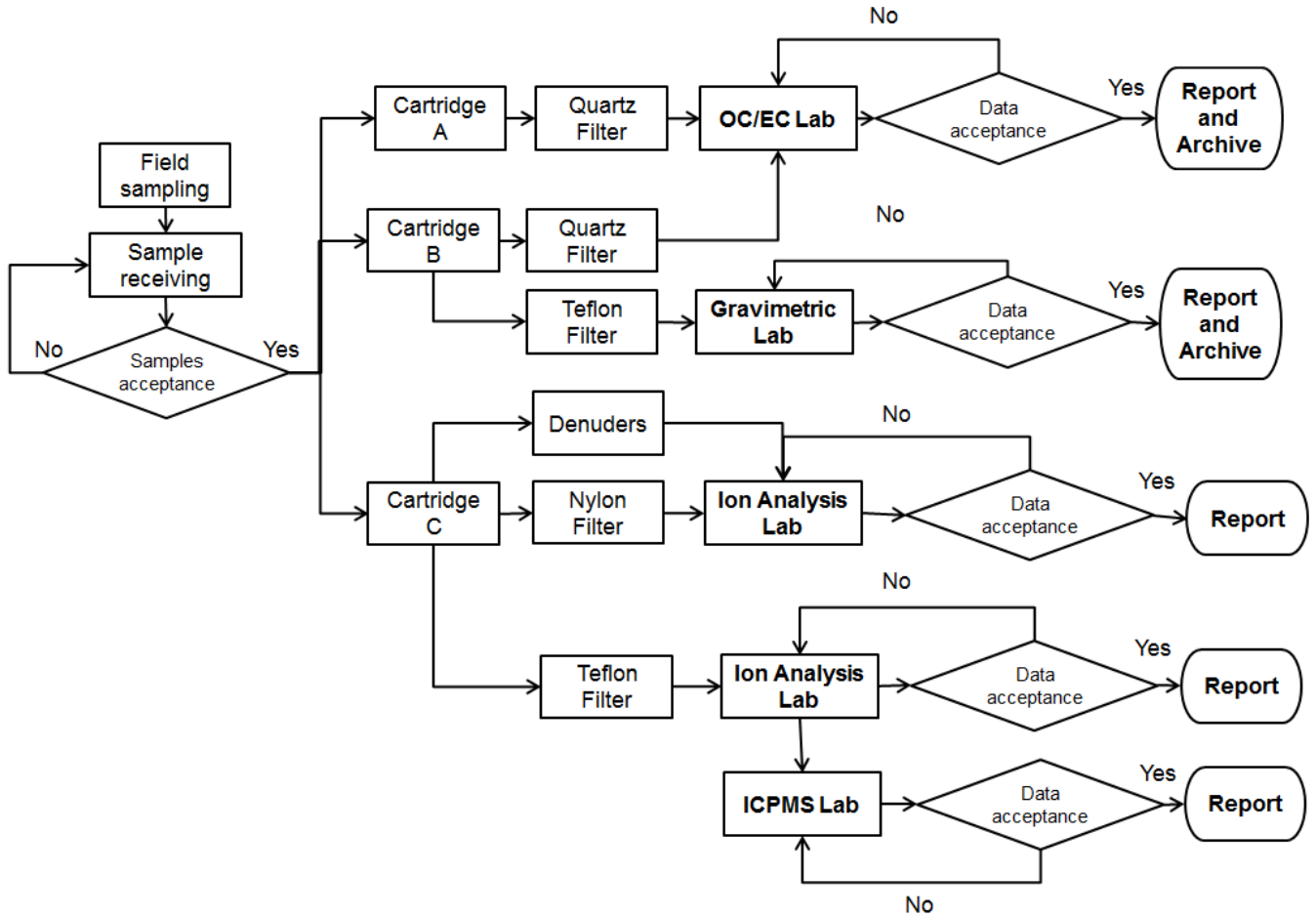
Appendix 1: NAPS Network Dichot/Partisol Program Sample Management Flow Chart



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Appendix 2: NAPS Network PM 2.5 Speciation Program Sample Management Flow Chart



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