

Wisconsin State Laboratory of Hygiene
NADP Program Office
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NADP AMNet Standard Operating Procedure Site Report C - Laboratory: Quarterly Maintenance



National Atmospheric Deposition Program

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Abbreviations

AIRMoN	Atmospheric Integrated Research Monitoring Network
AMNet	Atmospheric Mercury Network
AMoN	Ammonia Monitoring Network
CAMD	Clean Air Markets Division
CAMNET	Canadian Atmospheric Mercury Network
CASTNET	Clean Air Status and Trends Network
CVAFS	Cold Vapor Atomic Fluorescence Spectroscopy
DFU	Dry Filter Unit
DQO	Data Quality Objectives
GEM	Gaseous Elemental Mercury (expressed in ng/m ³)
GOM	Gaseous Oxidized Mercury (expressed in pg/m ³)
Hg	Mercury, the element (“hydrargyrum”)
LPM	Liters per Minute
LST	Local Standard Time
MDE	Mercury Deposition Event
MDN	Mercury Deposition Network
MSDS	Material Safety and Data Sheets
NADP	National Atmospheric Deposition Program
NIST	National Institute of Standards and Technology
NOAA	National Oceanic and Atmospheric Administration
NOS	Network Operations Subcommittee
NTN	National Trends Network
OSHA	Office Safety and Health Administration
PBM _{2.5}	Particle-Bound Mercury less than 2.5 µm in diameter (expressed in pg/m ³)
PO	NADP Program Office
QA	Quality Assurance
QAAG	Quality Assurance Advisory Group
QC	Quality Control
QR	Quality Rating
RF	Response Factor
RGM	Reactive Gaseous Mercury
RPF	Regenerable Particulate Filter
SOP	Standard Operating Procedure
SQL	Structured Query Language
TGM	Total Gaseous Mercury
UHP	Ultra High Purity
U.S. EPA	United States Environmental Protection Agency
USGS	United States Geological Survey
WSLH	Wisconsin State Laboratory of Hygiene

Introduction

Maintenance activities are required each calendar quarter for each site in the NADP Atmospheric Mercury Network (AMNet). The activities described in this Standard Operating Procedure (SOP) document, *Site Report C - Laboratory: Quarterly Maintenance*, cover aspects of the quarterly maintenance that are completed in the laboratory, before going to the field site. This document identifies consumables that are required, and the tools necessary to perform the work. Clean, non-talc gloves must be worn when handling the Tekran equipment.

Field activities that must be completed on a quarterly basis are described in a separate document, *Site Report C – Field: Quarterly Maintenance*. Field activities are completed after the laboratory activities have been completed.

This SOP is not intended to be a troubleshooting guide. Additional information is available in the user manuals for the instrumentation, the instrument Tech Notes, and from the AMNet site liaison.

Laboratory Activities

Table 1. Quarterly Equipment Maintenance, Laboratory Activities.

Maintenance required	Prepare 2537 Teflon zero air and sample filter
Consumables required	Two 47 mm Teflon filters Reagent grade water Laboratory grade methanol
Tools required	Clean, non-talc gloves Filter wrenches, adjustable

2537 Teflon sample and zero air filter change - Access to a complete set of back-up filter holders is recommended. This facilitates filter changes in a controlled environment.

- Step 1. Remove retaining ring using filter wrenches.
- Step 2. Place ring thread side down on a clean surface.
- Step 3. Remove inlet and filter. Place filter housing outlet onto ring.
- Step 4. Inspect filter inlet and clean with lint free wipe if necessary
- Step 5. Using a pair of clean Teflon-coated tweezers, remove a Teflon filter, discard the blue filter separators. Install the filter smooth side up (grid side to grid).
- Step 6. Place the inlet housing over the outlet housing, ensuring the filter remains flat and forms a seal between the two pieces.
- Step 7. Hand-tighten the retaining ring making sure the inlet housing does not spin on the outlet housing.
- Step 8. Tighten the retaining ring further using the filter wrenches.
- Step 9. Cap the inlet and outlet ends with plastic travel caps and store the housing in a double zip-type bag for storage and transport to the site.
- Step 10. Repeat procedure for second filter. The 2537 sample and zero air filters are identical.