

Fall 2022 Knoxville Meeting

NOS

Secretary: Mike McHale

Called to order at 14:00

14:00 - 14:15 Welcome and Introductions (Ryan McCammon)

14:15 - 14:25 Sample and Supply Processing Report (Amy Mager) Network Analytical/QA Updates

14:25 - 14:40 a. NTN Bag Update (Katie Blaydes/Nichole Miller)

14:40 - 14:45 b. Mercury Bottle Material Test Update (Kirsten Widmayer/Christa Dahman)

14:45 - 15:00 c. SNIpIT Update (Katie Blaydes)

15:00 - 15:10 d. AMNet Update (Wyatt Sherlock)

15:10 - 15:25 e. QA Update (Nichole Miller)

15:25 - 15:55 f. PFAS Update (Martin Shafer)

15:55 - 16:15 BREAK

16:15 - 16:35 g. Data Update (Zac Najacht/Dana Grabowski)

16:35 - 16:50 USGS External QA Project Update (Greg Wetherbee)

16:50 - 17:10 Siting Criteria and QAAG's Recommendations (Tim Sharac)

17:10 - 17:15 Nomination of NOS Secretary (Ryan McCammon)

17:15 - 17:20 Wrap up (Ryan McCammon)

Sample and Supply Processing Updates

Amy Mager – Lab Director of Environmental Surveys Program

Amy gave an overview of the work they do for Sample Processing & Supply

4 Lab technicians

3 students

They work closely with NED/PO staff – Richard, Wyatt, Mike Randall Alex Tanner

Annual Sample Load:

NTN – 1096

AMoN – 235

MDN – 345

MLN – 280/Season (annually) (Amy Mager - This is the number of individual Litterfall bin samples submitted. Samples from each bin end up getting composited across the whole season so it actually boils down to 4 samples per site which are then further composited to get the total Hg number.)

NTN Supply Survey – they have been doing this for 1 year. Before shipping supplies, they reach out to the site operator about what they need. It's been a huge success in not shipping too many supplies

- Conserves sampling stock
- Avoids buildup of supplies at sites
- Identifies problems

NTN – sample bags – began at the end of 2020

- There were production and QA issues with original vendor
- They have a “new” supplier; It's actually the same supplier for the original bags, but these are new bags and the production and QA problems seem to have been solved.
- They have a new gusseted style which is easier for operators
- More to come about bag QA in the QA update section.

MDN Sample Bottles – Moving **back to PETG** from PET

- More to come in Kirsten/Christa's talk

Supply Chain Unpredictability – continues but they are in better shape with many items

- 1L NTN bottles
- 60ML bottles – 1 year plus
- Sampling bags – 2 years
- PETG Bottles, MDN 1 year plus
- To address the supply chain issues they are doing more bulk ordering and less month to month.

Shipping Updates

- The new UPS contract with the University is much more expensive, they are using FedEx for some shipping but not all because of contracting logistics
- Basically this has resulted in a 25% increase since June of 2022

Field Audit and System Blank

- System Blanks (MDN) were sent to all sites in June 2022; 25% of sites have been processed
- Field Audit samples (NTN) were sent to 100 sites in September 2022; with a 20% return
- They need to follow up with sites that have not responded

Data Review and reporting will be given by Zac and Dana

They have hired a new database manager (Mark Kuether), Mark will take over for Bob Larson

Amy's new position includes the following duties:

- NADP
- PFAS
- Soil and Forage analysis lab

She will also advocate for programs

- So they can grow and evolve
- To obtain resources (IT & space)

This may affect the NADP management plan

Bag Update

Katie Blaydes - Lab supervisor for NTN and
Nicole Miller – NADP QA Manager

Initial bag testing Study – Set up replicates - Lower recovery level samples, higher recovery samples

7 days

- Blanks - All analytes were below MDLs
- FR50 (50th percentile solution) – 10 bags, the recoveries were great
- FMDL (low level) – The nutrient recoveries were not great, low recovery

2nd go 'round from FMDL –

- Spiked solution
- Rinsed bags
- Conductivity and pH for solutions on day
- NO₃ and NH₄ had low recoveries –
- They also had low recoveries in the 60 ml bottles

Round 3 was focused on the 60 ml bottles

- They used the FR50 solution
- This study showed great recoveries for NO₃ and NH₄, still some loss of NH₄
- It might be caused by the NH₄ compound used to make the solution which they are looking into further

Mercury Bottle Material Test (MDN)

PET vs PETG

Kirsten Widmayer – Chemist, Trace Element clean lab
Formerly the primary Hg analyst for MDN/Litterfall

They had to switch to PET bottles because of supply issues
Initial studies looked good for PET bottles (from Corning)

- The idea was to test long-term blank concentrations
- Spike recovery
- Hg natural samples
- Material performance based on BrCl exposure
- Material performance based on HCl exposure

Fisher was the supplier for both PET and PETG

The blanks did not look good, 4 ng/L in most of the samples and those concentrations doubled after 38 days

The PETG Bottle blanks looked good, below MDLs

The travel blank samples looked OK for the Corning bottles which is what they started with, it was the Fisher bottles that gave poor blanks – there were blanks that looked good and blanks that had about 8 ng/L

They determined that the problem was leaching from the bottles and a lot of variation within bottle lots. All Fisher PET bottles are no longer being used and they were able to buy a years supply of PETG bottles

About 250 samples were affected by this problem (so far, there will probably be more)

These data are not and likely will not be in the database.

SNIPIT Update – Ttotal Nitrogen (TN) and Total Phosphorus (TP)

Katie Blaydes

This work started at Duke Forest and the Arboretum

Originally there was a negative discrepancy TN was lower than the organic nitrogen concentrations. Katie thought it was an over acidification problem. They were using the same amount of acid for low volume samples.

They did a volume study with two concentrations (high and low). They aliquoted them at different volumes but acidified them at the same amount. Right at the 50 ml volume the percent recovery dropped for TN. This impacts natural matrix samples and low concentrations the most. For TP the drop happened at the 75 ml mark.

They ran 42 more natural samples and they are seeing the same thing. Quantifying the TP issue is challenging because of low concentrations

Next steps: They want to try a base titration step to reduce over acidification
They could also dilute the standards and samples

SNIPIT sampling has been paused for now until they sort this out.

Questions:

John Walker, what is the pH of the less than 50 ml samples?

Answer: less than 1

There is no easy answer to this problem.

Martin – maybe we can add base not through a titration, but through a set amount based on volume.

AMNet Update

Wyatt Sherlock

Wyatt started in January 2022 after Mark Olson left.

EEMS is now doing site audits for AMNet sites, and they have now fully taken that over. There have been 3 site audits this year.

New site in Mexico City begins AmNet this year.

All data for 2021 has been reviewed and processed, and they are sending out quarterly reminders

Wyatt would like to transition to automated data retrieval. Data would be transferred automatically and data issues can be solved more quickly.

Wyatt has plans for an AMNet site operator Zoom Session
He plans to investigate auto data retrieval further

QA Update

Nicole Miller

Nicole has taken over from Camille as the QA manager.

Topics:

Transition

Overview of 2021 QC/Lab Occurrences

Training

Nicole is training with Camille Danielson

Nicole is prioritizing the work backlog, still helping in the lab as a chemist as necessary and helping to train the new chemist. Nicole will then transition out of the lab.

Overview

Ca and Cl are the only analytes with QA over MDLs, 8-10% of the QA samples for Ca and Cl were greater than the MDLs although only by a bit.

AMoN QA looks great except some of the jar blanks.

MDN – no supply QC samples over the MDL for MDN.

Sample Train blanks for MDN look really good, no contamination issues.

“Major” Changes

- They have reduced some QC protocols to 1 filter blank per day instead of 2.
- Syringe filter QC has been reduced.
- AMoN bodies get a max of 8 uses now.
- Reagent expiration has been increased to 4 weeks for AMoN FIA.
- Some relocation of fridges and freezers
- Ended Methyl Hg aliquot from THg samples
- Glass jar QC processed changed to the preparation blank procedure (better incorporates how the jars are used)
- Started sending Degage bags in supply boxes
- Switched to glass samples tubes for NTN FIA due to supply contamination

QAR – Quality Assurance Report

This is late, but they just haven't had time, they will have it out by the Spring meeting

The HAL section is done, the CAL section is not.

Audits

An external lab audit was completed in 2021.

Program Office audit was completed in 2022.

The next audit will be combined.

Nicole is working with staff to complete open findings from the 2021 lab audit.

PFAS Update

Martin Shafer

This effort has been going on for 2 years to try to integrate PFAS sampling into NTN

Basically, it seems to be working well.

In 2020, 8 sites were tested in WI for 14 weeks. Published in Atm Environ Sept 2022 (PUB).

Concentrations were in the sub nanogram range but sometimes as much as 1-2 nanogram.

Areas close to sources of PFAS can be much higher.

In 2020, they started weekly collections at 6 sites for 2 years with more than 70 samples per site; they have added 4 more sites in the last year.

Similar compounds are being detected at each site.
Wet Dep can amount to 50% of the flux to some ecosystems.

Other studies

There is a Great Lakes Study Tracing Atmospheric deposited PFAS from the atmosphere to sediment in the Great Lakes. This study will go on for the next 2 years, it is linked to tributary monitoring of Lake Superior (28 tribs on the US side).
Combustion Ion Chromatography is what they use to make these measurements.

They also are doing a year-long study to look at gas and aerosol phases at 2 sites to see what's getting into the air at Eagle Heights and Devil's Lake.

Data Review

Zac & Dana

Intro to Data Review

Dana gave a short description of the data review process
Review of the Precip data review - ~290 gauges
With all of the other info, open buckets, etc.

Network Site and Sampling Updates

Dana gave an overview of network sites, losses and gains of sites
AMoN lost 25 sites this year, several were short-term research sites and some were EPA sites.

Data Reporting

Their reporting goal is 90 days for all networks, they are at 102 to 130 days right now.
They were doing better in 2021, but high again in 2022.
MDN was pretty good but NTN and AMoN were at 120+ days.

Zac talked about things that affect turn-around times; personnel turnover was one of the major factors that have affected turnaround times.

The updated network sample deployment and hold times updates are complete.
They have weekly meetings to improve communication and data.

DMAG – Mark Keuther and Zac will co-chair DMAG for the next year taking over from Chris Rogers.

Data Review updates

They are developing a plan to upgrade the data review programs and processes – this is ongoing and will be done over a period of time, taking one thing at a time.

Zac talked about a branched data review process (rather than linear) that allows steps to be done concurrently.

USGS External QA Project

Greg Wetherbee

Core Programs Planned for 2023

Interlaboratory Comparisons

NTN – 11 labs, 4 samples/month

MDN – 9 labs, 6 samples/quarterly

The NTN Field Audit will continue

There are no co-located studies planned for FY2023.

Products

The 2019-2020 External QA Report is still at the USGS Pubs unit

2021-2022 Data – PCQA External QA data release is online.

Questions

Kristi: Why no co-located sites in 2023?

Ans: Plans fell through for the sites planned.

Siting Criteria Workgroup

Tim Sharac

Tim said that 3 motions were passed in QAAG relating to siting criteria.

There are 23-24 siting criteria. EPA does site audits to assess site based on these criteria.

Only about 20% of sites meet all of the criteria so they are looking at which criteria are worthwhile and which are excessive. Tim went through a description of the criteria that seemed excessive.

The top 5 most violated siting criteria, which therefore have the largest sample size to compare, do not show significant impacts to data completeness. Three were proposed in QAAG to be changed from rules to guidelines:

- Collector 5m radius 1m height rule (27% of audits)
- Collector 0.6 m height, vegetation rule (9% of audits)
- Collector herbicide use within 20m rule (6% of audits)

So QAAG proposed and passed 3 motions to change these 3 siting criteria to guidelines rather than rules.

They also proposed posting siting criteria violations to a spreadsheet on the NADP website to help people interpret the data

Questions:

Comment –

Zac: gave a compliment to all of the work Tim has done for this.

Amanda: Do the criteria account for whether the sites are regionally representative? Will there be something that lets users know if the site is regionally representative?

Answer: Many of the criteria do not address the regional question – these are much more locally relevant criteria.

Motion

Kristi Morris: made a motion to nominate Winston Luke as NOS secretary with the understanding that he will not commit to three-year rotation through NOS, serving in an interim capacity.

Melissa P: second

Motion passed with no Nays

Motion to Adjourn

Greg Wetherbee

Second Winston Luke

Motion was approved unanimously