MELD Meeting Minutes

2025 NADP Fall Meeting
Virtual
Wednesday, December 17, 2025, at 11am-1pm EST

Co-chairs: Tim Sharac & Connor Olson
Secretary: *Vacant (Please, contact C. Olson if you would like to volunteer)*

Objectives

1. Introduce personnel changes to MELD-relevant leadership positions.
2. Present Hg updates from the NADP program office.
3. Share latest news on Minamata Convention-related activities and international passive sampling efforts.
4. Discuss current laboratory status, including personnel changes, workflows, and backlogs.
5. Discuss initial results from the pilot passive sampling network and potential cost-saving measures.
6. Vote on motions.

Key Takeaways

1. **NADP Program Office Updates**: Trends in network site number are relatively unchanged. Prototype MDN bags have been problematic due to holes and contamination. Other potential options (polypropylene bags, Teflon bottles) are promising but must be tested first for applicability.
2. **Updates on ECCC Global Passive Network and Minamata Effectiveness Evaluation:** Draft reports for data analysis and gaps/recommendations are due in January of 2026. Revised draft reports are expected in July 2026. The global passive network has collected nearly 1,000 samples from 42 countries, with exciting results. A manuscript of initial results is expected soon.
3. **Analytical Report for Mercury Networks**: The lab is operating with few QA/QC exceedances, no major changes or nonconformance events in 2025, and a minimal backlog.
4. **Update on Passive Mercury Pilot Network:** The passive pilot network has completed its first year of samples and has been approved for an additional year of sampling. Results from the first 3 quarters have been analyzed.
5. **Discussion on Reducing Passive Site Sampler and Blank Replicates:** To save costs, the potential reduction in passive and blank replicates at pilot sites was discussed. The primary consideration was the loss of statistical power due to the high variability in replicates observed from some pilot sites. Decreased numbers in samplers would bring the network more in line with the global passive network, which has shown the ability to detect trends, albeit in areas with greater concentrations and expected reductions.
6. **Motions passed**: Four motions were passed to 1) Approve changing the sampling design of the passive network; 2) Reduce the number of Tekran samplers and blanks by 1, while increased the number of WSLH samplers by 1; 3) Approve the 2025 Spring MELD meeting minutes; and 4) Renew the MELD science committee.

Welcome and Introductions

Connor Olson, CU Boulder & Harvard University

Personnel Changes

- *MELD Co-Chair*: **Tim Sharac** (USEPA)
- *NADP PI and Coordinator*: **Sarah Benish**
- *Minamata OESG Co-Chair*: **Sandy Steffan** (ECCC)
- *Mercury Contact for EPA, OITA* : **Andrew Reighart** (USEPA)
- *Passive Pilot Network Co-Advocates*: **Tim Sharac** (USEPA), **Katrina MacSween** (University of Toronto)

Hg Program Office Report

David Gay, WSLH

MDN

- Summary: currently 76 active sites. 2 sites closed recently (CO96, WY06) and 1 opened (NV97).
- 20% of MDN sites (15) have switched to 2-week sampling, starting January 13th, 2026. These sites include the NPS, ECCC, and Northeast Ohio Regional Sewer District (NEORSD) sites.
    - 2-week samples reduce annual cost by $3,787.50 (36.9%).

MLN

- Summary: currently 26 active sites. 1 site may be closing (TX22) and 1 opening is pending (MI94).
- 2024 data will be available online and analysis of 2025 data will begin soon.

AMNet

- Summary: currently 8 active sites; NY98 will cease operations once their argon is depleted.

Hg Passive Pilot Network

- Summary: 10 pilot sites.
- Data on Q1, Q2, and Q3 have obtained.

News Out of Asia

- Asia Pacific Mercury Monitoring Network:
    - 14 sites measuring Hg wet deposition.
    - Based in Taiwan with Dr. Guey-Rong Sheu.
- Proposed Pacific Island Network:
    - Deploy passive samplers across islands in the Pacific to extend the APMMN and NADP passive networks.
- Proposed African Hg Monitoring Network:
    - Wet deposition and passive sampling network across parts of Africa and the Indian Ocean to complement the APMMN network.
    - Led by Dr. Lynwill Martin

Protocol MDN Bag Effort

- David has proposed three paths moving forward for optimizing collection of MDN samples:
    - Teflon Bags

        - Issues: Holes in bags, Hg contamination
        - Pros: Design is done, manufacturer on board
    - Polypropylene Bags:
        - Issues: Untested
        - Pros: Cheap, Teflon design can be used
    - Teflon Bottles:
        - Issues: Would need to be tested and cleaned, expensive to buy
        - Pros: Cheap, long-lasting, May be sourced from labs
        - Would need 300-400 Teflon bottles to make this system work

Group Comments on Program Updates

- NPS is conducting tests at three sites to compare 1-week vs 2-week MDN samples; results may be available for the Spring meeting (**Mike Bell**).
- Concerns about the ability to clean used Teflon bottles are raised by **Dave Krabbenhoft**; past efforts resulted in ~90% failure rate to effectively clean bottles to blank level.
    - Teflon bottles also have memory affects, so high mercury samples could lead to problems for subsequent samples (**Sarah Janssen**).
- Past Teflon bag efforts have also had issues with contamination (**Dave Krabbenhoft**).

Updates on ECCC Global Passive Network and Minamata Effectiveness Evaluation

Sandy Steffan, ECCC (Recording)

Updates on the Open-Ended Science Group (OESG)

- Status of OESG:
    - Currently made up of 42 OESG members and 112 experts.
    - 2nd face-to-face meeting of the OESG was held in March 2025.
- OESG Goals:
    - Two scientific reports:
        - The first asks if the convention measures have resulted in changes in environmental mercury levels.
        - The second focuses on lessons learned in regard to gaps or barriers in addressing the above question and, what can be done to address these problems.
- OESG Products:
    - Plans for data collection, release, and analysis were presented at COP5 (2024)
    - Draft Report on available data was presented at the COP6 meeting in November 2025.
    - Draft Reports on data analysis and gaps/recommendations is currently underway, with a deadline of January 2026.
    - Revised draft reports are expected by June 2026.

Global Passive Network - GHgP

- Started in 2019, spans 42 countries and ~ 100 monitoring sites. Nearly 1,000 samples taken!
- Samples quarterly using the MerPAS samplers.
- Katrina is near finishing a publication of results!

Analytical Report for Mercury Networks

Christa Dahman, WSLH

Staffing Changes

- Walter Ballesteros – now (full-time) primary analyst for MDN.
- Chris Lepley – taking lead on MLN and passive mercury analysis.
- Christa is now overseeing the PFAS research center as well as the Trace Element Laboratory.

Backlog and Workflow

- MDN backlog is minimal.
- 2025 – 2026 MLN samples still being received and processed.
- Passive samples finished through Year 1 Q3.

Special Efforts

- Teflon bottle testing:
    - Developing funnel for Teflon bottles.
    - Cleaning procedures are being developed to minimize labor.
- NTN metals background:
    - Analysis of NTN field blanks to determine analytical potential for future metals work. Data collection is complete, with evaluation underway.

Overall

- No major changes or nonconformance events in 2025!
- Minimal quality control exceedances!

Update on Passive Mercury Pilot Network

Katrina McSween, UOT (Presented by Tim Sharac)

Overview of Network

- Quarterly samples using Tekran MerPAS at 10 sites.
- Each site currently uses 4 samplers (3 from Tekran, 1 repacked from NADP) and 2 trip blanks.
- Year 1 of sampling is complete.

Current Data

- Good consistency between sites and within sites; some seasonality thought to be observed.
- Wisconsin State Laboratory of Hygiene (WSLH) prepared samplers tend to be higher in Q3 than Tekran samplers, but overall trends still agree. WSLH-prepared blanks do not show this increase.
- Trip correction average is 0.4 ng. Blanks are consistent between Tekran and WSLH-prepared blanks.

Discussion on Reducing Passive Site Sampler and Blank Replicates

- As a cost saving measure, it was proposed to change the replicate numbers per site. Three options were suggested:
    - No Change: 4 Samplers (3 MerPAS, 1 WSLH-prepared), 2 blank (MerPAS,WSLH-prepared). Total annual cost: $4,000
    - Option 1: 3 Samplers (1 MerPAS, 2 WSLH-prepared), 1 blank (WSLH-prepared). Total annual cost: $2,500.

    - Option 2: 4 Samplers (2 MerPAS, 2 WSLH-prepared), 1 blank (WSLH-prepared). Total annual cost: $3,400.
- A rudimentary power analysis suggested that reducing replicate number will reduce trend detection power at sites with high replicate variability, while having low impact of sites with good agreement.
- **Mike Bell** asks how we measure whether the change was effective and whether the samplers are performing equally? What should we expect from either change in sampling.
    - **Christa** responded, citing the need from more WSLH-prepared samplers to better inform their performance. This was not feasible initially but now can be achieved.
    - **Connor** noted that adjusting to a sampling design that allows for comparison to the global passive effort would be desirable.
- What is the cost-saving differences between the two options?
    - Option 1 reduces costs by $1,500 per site year.
    - Option 2 reduces costs by $500 per site year.
- **Angie** asked about the status of Minnesota passive site MN02.
    - They are operating somewhat independently and doing everything through Tekran (**David Gay)**.
- **Collin Eagles-Smith** and **Sarah Janssen** both raised questions about whether the network would be able to detect anticipated trends for the United States in relation to the goals of Minamata.
    - Several sites show substantial variability across replicates, which could make detection of subtle trends difficult.
    - **Katrina** noted that trend detection will improve once we have a more robust monitoring record, and notes that the global passive network has demonstrated the ability to detect trends in air concentrations.
        - **Sarah** notes that global trends are likely much greater than those anticipated across the United States, and so the level of variability may not be as problematic for the global network in terms of statistical power.
            - **Katrina** points to observable trends in areas with little nearby anthropogenic sources as a source of confidence in the ability to detect more subtle trends.
    - **Dave Krabbenhoft** is concerned with the low concentrations observed at TN11. Questions are raised about verifying questionable values without additional metrics for comparison.
        - **Connor** asks about the possibility about pairing a Tekran site with a passive site to allow for an on-going quality control measure.
        - **Katrina** suggests that all of the TN11 replicates being low likely suggests that it was not a device issue; further investigation will be needed to determine what is driving the low concentrations.

Motions

Motion #1:

- *Motion to make a change from the current sampler deployment of the Passive Hg Pilot Network.*
    - Motion passed.

Motion #2:

- *Motion for the Passive Hg Pilot to change from 3 Tekran MerPAS and 1 WSLH-Prepared samplers and 1 Tekran MerPAS and 1 WSLH-Prepared trip blanks to 2 Tekran MerPAS and 2 WSLH-Prepared samplers and 1 WSLH-Prepared trip blank. To be implemented ahead of the March 31, 2026 sample start..*
    - Motion passed.

Motion #3:

- *Motion to approve the Spring 2025 MELD minutes.*
    - Motion passed.

Motion #4:

- *Motion to renew the MELD science committee.*
    - Motion passed

Meeting Adjourned

Meeting Agenda (December 17th, 11am-1pm EST)

11:00 am: Welcome and Introductions *(Connor Olson et al.)*
11:15 am: NADP's Hg Program Updates *(David Gay)*
11:35 am: Updates on the ECCC Global Passive Network and Minamata Effectiveness Evaluation *(Sandy Steffan)*
12:05 pm: WSLH Updates and Discussion *(Christa Dahman)*
12:20 pm: Passive Mercury Pilot Network Updates *(Katrina McSween et al.)*
12:35 pm: General Discussion on Passive Sampling Network (*All*)
12:55 pm: Votes on Minutes and Passive Sampling Motion *(All)*
1:00 pm: Round Robin and Adjourn *(All)*