

NOS/DMAS Subcommittee Meeting Minutes

April 28-29, 2009

Pensacola, FL

Tuesday, April 28, 2009

Matt Layden called the meeting to order at 1:30 PM

Greg Wetherbee *Motioned* to approve the meeting minutes from the Fall Mtg in Madison, WI
Jason Karlstrom *Seconded* the motion, *Motion PASSED*

Collocated MDN study, Greg Wetherbee, USGS

The study included 3 collectors:

- The modified ACM
- The N-CON
- The MIC

*The greatest difference was between the ACM and the MIC bottle catch efficiency

*There were also minor differences between the ACM and the N-CON

Greg concluded that there was:

- No bias for ACM catch efficiencies or Hg concentrations
- No statistical significance between the ACM and the MIC except for catch efficiency
- A statistical significant difference between the ACM and the N-CON for total mercury, but that the difference was still very small

CAPMon Update, Dave MacTavish, Environment Canada

Environment Canada operates a comprehensive precipitation monitoring program

- Currently expanding to fill gaps in Western Canada geographic coverage
- This network could be compared to the AIRMoN network
- Also operate dry deposition sites much like Castnet:
 - o 3 Nitrogen deposition sites
 - NO₂, NO_y, NO, etc.
 - o ~ 8 MDN (CAPMon) sites
 - Operating and planned sites
 - o 4 total gaseous mercury sites
 - No speciation units
 - No plans for speciation
 - o 15 ozone sites
 - o 15 PM_{2.5} sites
 - Using continuous monitors
- Oldest period of record dates to 1977
- They also have their own collectors

New Equipment Support, Mark Rhodes, Program Office

Mark discussed the condition of the NED

- Currently providing good support for ACM collector operations
 - o Motorboxes and sensors mostly
- Currently no support for N-Con collectors
 - o No parts are stocked
 - o No sensors are stocked
- Fewer problems with the N-CONs, but there will likely be more as the equipment ages
- NOAH IV and Ott Pluvios
 - o Providing PDA's

Do we need a NED Committee?

- Tom Bergerhouse asked if new equipment has parts that can be refurbished like the ACM collector?
 - o Jack replied that motorbox failure was very rare.
- Mark Niles voiced concerns that we need to standardize sensors. He explained that this was a network of sensors and that data can only be comparable when collected using the same sensor. The author agrees.

The NED Committee was chosen:

- Matt Layden
- ?

Siting criteria and NTN "C" coded samples, Greg Wetherbee, USGS

Greg inquired as to whether individual siting criteria protect sample integrity. He conducted a violation study.

- The scope of the study included sites with only 1 violation into 5 groups and 1 control
 - 1) 45 degree cone
 - 2) 30 degree cone
 - 3) Vegetation >0.6m
 - 4) 1m high objects
 - 5) Fence
 - 6) Plus 1 control group
- The results indicated:
 - 1) Significantly higher contamination
 - 2) Significantly higher contamination
 - 3) No significant difference
 - 4) No significant difference
 - 5) No significant difference
- Greg made a *motion* to change group 3, 4, and 5 rules to guidelines as they pose no significant threat to sample quality. *No second, no vote*

The next issue addressed was whether the raingage and collector distance matters or influences capture efficiency.

- Greg *motioned* to change the 5-30m rule to a guideline. *No second, no vote*

The final suggestion was to send out a list of criteria summaries to each site operator

- Possibly add it to the calendar next year

7 VS 11 Grid Sensors, Greg Wetherbee, USGS and Mark Rhodes, Program Office

The basic problem encountered by the different sensors is that:

- The 11-grid sensor opens sooner
- The 7-grid sensor closes sooner

Greg *Motioned* that the NED shall replace returned, faulty NTN 7-grid sensors with 11-grid sensors until the NTN is retrofitted with 11-grid sensors OR until a new collector configuration is selected.

- There was much discussion about sensor issues including missed, wet, and dry exposure times
- There *No Second, No Vote*

Kristi Morris *Motioned* to table the issue

Gary Lear *Seconded*

Motion Passed

MDN N-CON collector issues, Mark Rhodes and Roger Claybrooke, Program Office

There is a very high frequency of <33F temperatures

- They tested a retrofit for the N-CON using a foil-backed polystyrene insulation, like the ACM and discovered that the temperatures were different.
 - 1) Should we revisit the Tmin and Tmax for “B” coding samples?
 - 2) Where do we measure T?
 - 3) Do we need a ring heater?
 - 4) Should the heaters be active or passive?
 - 5) Do we need a retrofit?

New MDN field test comparing ACM and N-CON sample trains, and Considering loss to sample trains, Greg Wetherbee, USGS and Mark Rhodes, Program Office

The testing is divided into 2 phases:

- Phase 1 – Rain
- Phase 2 – Snow, if needed

Coolers are being shipped to sites to get operator participation

USGS QA Report, Greg Wetherbee, USGS

- The CAL and HAL are operating sufficiently and meeting data quality objectives
- System Blank data indicates that Hg contamination in MDN samples are increasing and may be introduced
- The HAL seems to have a negative bias in comparison to other labs
- During the Blind Audit Program:
 - o Maximum contamination (90th percentile and 90% CI) has increased over the past 5 years
 - o This creates conflicting issues/problems
 - o Much discussion and more information needed

NADP Site Survey Program, Eric Hebert, EE&MS

37 sites surveyed in 2007

141 sites surveyed in 2008

Issues encountered:

- Motorboxes and sensors worked good overall
- Some temperature sensors were out more than 5F
- MDN overflow
 - o False overflow reported due to
 - Leaking chimneys?
 - More likely poorly fitting funnels?
 - o Need to send info sheet to site operators
- N-CON
 - o No failures
 - 0/6 mist
 - 0/6 temperature
- Heaters / Sensors
 - o Typically warmer than ambient
 - o Typically heat to 60F +/- 10F within 4-8 minutes
- Location and siting criteria
 - o There may be problems

Procedures:

- Manuals
 - o Need to keep them updated
- Calendars
 - o To remind operators of changes to operations/procedures/seasonal
- Sample quality maintained
 - o Like gloves
 - o Cleaning
- Belfort checks
 - o Few (4) have serious trouble
 - o Most were good
 - o 70% required turnover adjustment
 - o $R^2 = 0.999$
- Electronic gages
 - o $R^2 = 1.000$, Very good

Is it time to retire the Belforts altogether?

Wednesday, April 29, 2009

Training Course Report, Jason Karlstrom, Program Office

The old format vs. the new format:

- Focus is on regional operations
- Increased operator participation at the Spring meeting
- Saved \$\$ ~ 30%
 - o Trained as many operators this session as both session last year
- Recommend continuing the new format of training at the Fall Meeting in NY

E-Gage and windshield update, Bob Larson, Program Office

The network has 96 E-gages installed

- 128 including the gages that are on order

Data processing:

- Semi-automatic
- Can enable diagnostics

Data editing issues:

- Zero and missing data
- Alternate precipitation data

Problems:

- Data loss due to various problems
- Loss of 3.2% of 2008 data
- Weak feet on the gage

- Wind screen issues
 - o Weak plate
 - o Not independent

Possible solutions:

- New ETI optical sensor

Pluvio II Evaluation – 2nd generation

Pluvio, Pluvio II, Stick gage comparison

- Stick gage caught the most
- Pluvio II
 - o 4% greater capture than Pluvio
 - o 1.7% less than the stick gage

Bob Larson *Motioned* to approve the Pluvio II for network operations

Mark Niles *Seconded* but offered an amendment

- to have Hach Environmental upgrade any Pluvio I gages on order to Pluvio II
- There was much discussion on the subject
- Bob did not accept the amendment
 - o PO and Vendor issues will be addressed by Exec Committee
- Chris Lehman offers to remove the amendment

Motion *PASSED* with no amendments

NED Report, Matt Layden, Program Office

Replacement parts shipments:

- Slight increase in shipments for NTN
- Slight decrease for MDN

David Gay suggested the need for boots to cover the pivot points on NTN collectorsto prevent ice damage to motorboxes.

- A target of \$10 per arm / \$40 per collector or less would make it affordable

Linear actuator update:

- May be making progress to getting them working
 - o Found that drilling out the plastic nut helped out
- Discussion of possible solutions and options
- Conclusion: More testing!

Dry and Misses Exposure Coding and Sensitivity of Sensors, Gerard van der Jagt, HAL

Many issues were discussed in relation to the quality and coding of the data

- Mark Niles suggested that we use one sensor be used for all of our many collectors

No viable solutions were offered

- Decision to look at raw (15 min) data and review data like a Belfort chart over the next 2 weeks at the program office.

Jason recommended that the HAL not use “c” coding based solely on dry exposure for N-CON and ETI raingaged data using the web table format.

- **Skipping 2 NOS agenda items**
 - Soybean Rust update, Roger Claybrook
 - Methly-Hg Status, Bob Larson

Co-Located Sampler Program Results, Greg Wetherbee, USGS

Comparison of AZ03 and VT99

- Belfort vs. Belfort
 - Typical results
- Belfort vs. OTT
 - Good correlation
- NOAH IV vs. Belfort
 - Good correlation
 - NOAH IV performs better at capturing frozen precipitation...maybe
- ACM vs. ACM-Deep bucket
 - No significant benefit

Comparison of WI96 and WI98

- Belfort vs. ETI vs. YES
 - ?
- ACM vs. YES
 - YES tends to collect more for all types of precipitation
 - Differences found in some NTN parameters

Conclusions:

- Deep bucket offers no improvement
- YES offers no improvement
- ETI shows no bias
 - No step function shift discovered
- OTT shows a slight positive bias vs. Belfort
 - Could generate a small step function

DMAS Agenda Items

Sample Contamination Coding, Tom Bergerhouse, Program Office

Tom ***MOTIONED*** that the CAL only observe samples with LAB detected contamination; to NOT categorize field detected contamination; and only record samples as contaminated or non-contaminated.

Gary Lear ***SECONDED*** motion
MOTION Passed unanimously

Management and Reporting Objectives (What is a reasonable time frame to process data?, Bergerhouse /Larson, Program Office

- Bob Larson and Chris Rogers commenting:
 - What is the timeframe for processing data?
 - Could we get products out faster?
 - o Maybe, but probably not.
 - It should get better after the growing pains of network improvements that are ongoing

Uniform Data Mangement for All NADP Networks, Bergerhouse/Larson, Program Office

- Tom Bergerhouse discusses uniform data management for all NADP Networks
 - Is there interest in moving NTN data toward the MDN/AirMon format?
 - Are there efficiency improvements that can be made by uniform data management?
- Review of current HAL/CAL/PO operations concerning data management
- Redundancies discovered and evaluated for effectiveness
- Possible unified automation program
- Need to proceed slowly and methodically to avoid overloading staff

Tom Bergerhouse ***Motioned*** to adjourn
Chris Rogers ***Seconded***
Passed