

Network Operations Sub-Committee (NOS) Meeting

Park City, Utah

October 8, 2013

- **Motion to approve minutes** from Spring meeting moved by Eric Hebert, seconded by Jason Karlstrom. **Minutes approved.**
- SOP Update And Equipment Testing (Mark Rhodes)
 - Four SOPs in for approval (http://nadp.isws.illinois.edu/dl/QAAG/For_Review/)
 - o MDN dual Chimney
 - Sample change out
 - Summerization
 - Winterization
 - o NTN Relay Replacement for NCON collector

Motion: Move to approve all four SOPs and make available on-line

Moved by Mark Olson, seconded by Alison Ray

Discussion:

- make the relay replacement SOP official but not make it available on-line due to liability issues. [Roger Claybrooke]
- there have been three sites that relays have been replaced [Jason Karlstrom]
- agrees with Roger C., speak directly with site operator prior to replacement [Eric Hebert]

Friendly Amendment: NTN replacement SOP to be available only as needed, but not made publicly on-line

Motion passed with friendly amendment.

- Mark Olson raised the question on whether other already approved SOPs have similar safety concerns (Roger/Jason indicated there probably no other SOPs that need to be moved)
- Cari Furness asked if all documents approved are made available on the NADP website – they are intended to be posted, but have not due to time limitations of the PO

Site Selection and Installation Manual

- diagrams in Appendix A have been updated and text added in document re: irrigation
- surveyed all NADP sites for presence or absence of irrigation
- 316 negative, 30 no response, 17 positive responses that require follow-up
- 2 sites identified for relocation CA88 (09/78), KY19 (10/03)

- in extreme weather conditions – high winds/direction may impact from further away
- irrigation – may trigger the collector or enter the rain gauge as false precipitation
- not really precip, but irrigation water

- how to help people to recognize impact
- agriculture sites, irrigation shuts down during events
- irrigation systems can fail
- qualification on safe distance
- can vary from single head to large sprinkler systems
- maximum spray field?
- Comparison – another source to determine the number of false activations
- David Gay indicated that PRISM is accurate measurement of precip event
- QAAG investigating whether if it could impact sampling
- Siting issue needs to go forward, how to update
- How much false data in the database

Motion: To include the following text in the Site Selection and Installation Manual and revisit in the Spring if necessary

***Appendix A: Siting Criteria Diagrams - “no impact from: irrigation sources”
and***

III. General Criteria for Site Selection

Wet deposition equipment (i.e. collectors/gauges), AMON sampler and AMNet equipment should be located such that they cannot be impacted by irrigation sources.

Moved by Mark Olson, seconded by Eric Hebert. Motion passed.

Sensor Study

- new Thies rain monitor sensor ~\$190/unit (12 or 24 VDC)
- Thies plastic formula changed with precipitation monitor
- January – Sept 2013 grid sensor study plots were presented
- Thies sensor heated all the time
- Disconnected the heater on Thies as one option – false triggers
- Bird poop is affecting the grid sensors
- Looking to get the results into report for Spring Meeting
- Thies sensors cannot be repaired
 - o Top cover ~\$72, bottom cover ~\$66, circuit board ~\$170
 - o Complete unit \$530

AMoN Travel Blanks

- 2013 is still variable, concentrations can be low or high
- trying to stick to one protocol for extended period of time

Belfort Rain Gauge (electronic)

- installed at Bondville
- data acquisition is via USB stick
- little support, just collecting the data and adding data to database
- there is one running at Beltsville, Maryland site as well

Comparison of Rain Gauge Data

- Ott Pluvios (original and 2s) correspond to optical sensors
- Belfort e-gauge showing activity that the Pluvios are not

NTN Bag Sampling

Still continuing at Bondville (3 ACM, 2 bag sampling) and Arvada (2 NCON, 1 bag sampling)

- similar results between bag/bucket
- hoping for better retention of Nitrogen in bags, not seeing anything worse – very similar
- what should be considered before permitting bag sampling as an approved collection protocol?
- QAAG – okay with bag sampling as approved protocol but not requiring all sites to move to bag sampling.
 - o Argentina – data would become valid
 - o Shipping costs – cost savings at Canadian/Alaska/California
- should consider as approved protocol for special cases
- will continue bag sampling at Bondville and Arvada if that is the best course
- is NOS prepared to jump on ship to sign on to this for international sites [David Gay]
- if bag sampling is approved will anyone be allowed to change to bag sampling [Mark Olson]
- if it is an approved protocol than “yes” [Mark Rhodes]
- CAL should look at shipping cost and offer up as an option, then up to the site to decide
- Once approved NADP would grandfather all samples that have used bag sampling.
- Are there any operational issues to consider [Cari Furness]
- The bag sampling SOP has been approved [Mark Rhodes]
- Argentina – Brazil have a copy of SOP
- No concern for additional contamination
- Huge impact on CAL, no bucket cleaning, save huge \$\$[David Gay]
- Cost savings with shipping in both directions
- Argentina – bags in pouches of 50 bags (1 years supply)
- No buckets, no bags, just 1L bottles come back to CAL
- Would you consider not allowing a site to start bag sampling [Eric Hebert]
- Bag sampling requires clean lids
- Each site requires 2 buckets for sampling
- Concern that a year supply of bags could be contaminated at sites [Alison Ray]
- Could ask manufacturer to pouch in quantities of 10 bags
- Wait for QAAG Report. Revisit with intention of approving in the spring. [Mark Olson]

MDN Evaporation Test

- NCON, ACM, HAL prototype glassware
- Seeing evaporation at PO
- Ongoing problem – work with HAL on how to go forward

• Methyl Mercury (Mark Rhodes)

- HAL composite (fake data) versus “True” Composite
 - o Look at what could be happening

- Analysis focused on 10/2002 to 01/2013
- Data in 1996-2002 in different format, to be analyzed separately
- Data analysis/validation focused on reproducibility of mass and gross and net concentrations
- Calculated corresponding composite samples of Total Hg for comparison
- Some differences between HAL and PO values
- Concentration low % differences higher – misleading due to very small numbers
- Where are we?
 - o Verify 2 sample high concentration
 - o Verify 12 samples which have a gross concentration but no net concentration
 - o 310 samples have negative net concentration (verify blank, zero value)
 - o is there a reporting limit (PQL) and whether it should be applied to dataset
 - o can low volume MDN samples be diluted to allow all component samples to be used in the composite sample
 - if sample is less than 25 ml, it does not contribute to the composite – is dilution an option?

Consider (pending resolution of questions to HAL)

- accept HAL's values for net concentration of Methyl Mercury for October 2002 forward
- include data advisory explaining limitations of the composite (i.e. samples low volume not included)
- apply QR codes as discussed by DMAS at Spring 2013 meeting

- Update on N-CON NTN Off-grid Progress (Richard Tanabe)

- N-CON NTN conversion from AC to DC raised at Spring Meeting
- CAPMoN is investigating options to convert MIC C300 to 24 VDC version
- Honeywell motor box for N-CON is spec'd for 24V, not advertised
- Presented wiring schematic with parts list (~\$20 in parts)
- 24VDC now runs sensor arm and open/close relay
- [Mark Rhodes] asked whether the modified motor still has a continuous draw? Additional testing is required to answer the question
- modified setup allows for either AC or DC operation with same 9 pin connector
- more testing required
- working on a 3 sensor CAPMoN grid sensor for NTN sampler
- CAPMoN continuing development of C400 wet-only collector

***Motion: Program Office to test DC conversion this winter and report back in the Spring.
Moved by Chris Rogers, seconded by Eric Hebert. Motion passed.***

- MDN Evaporation Study (Jason Karlstrom)

Training Videos – Jason showed an example of a training video

MDN Evaporation Study

- previous testing at Program Office

- initial testing with MDN ACM, cooling fan with sample train led to significant evaporation
- HAL Testing #1
 - o 6 months
 - o 2 ACM collectors – 1 fan on/1 fan off
- HAL Testing #2
 - o 8 weeks
 - o Same protocol
 - o No evaporation
 - o Concentration recovery >90%
 - o Monitored internal temperature

2012 Field Samples

- Quantified Dry Samples 116
- Dry Samples 61 (21 ACM/40 NCON)
- Field Blank (less than 15ml) 55 (36 ACM/19NCON)
- Equal evaporation for both types of collectors
- Final data with low humidity not evaporation
 - o Possibly the reason why HAL didn't see evaporation

ACM Samples are the issue

- do we turn off the fan?
- do we replace ACM train with N-CON train?
- requires new piece of glassware, new SOPs, new cooler configuration
- N-CON has a higher rate of breakage
 - o Increased operation costs

- NTN Sample Analytical Priority – Low Volume – (Chris Lehman)

- Wet dilute – 50 ml sufficient volume for full analysis
- Propose to follow AIRMON analysis order for NTN
 - o Change NTN sample Processing Flow
 - o Analysis FIA/IC/ICP/pH/Conductivity
- More scatter with sequential dilution
- The stats conclude that data are statistically equivalent

Issues

- no re-analysis possible with proposed protocol (max 1 run/instrument)
- data quality improves, but QA suffers
- this will affect screening level (SL) validation for NTN samples
- NADP validation of NTN samples will also require modification. Current protocol is to invalidate all chemistry if any one parameter is missing
- Should changes also apply to AIRMoN?
- Implement protocol change for Jan 1
- Does it need further discussion
- [Mark Olson] there are still many issues and Table it to the Spring. Update in the Spring.

- Collocated MDN/NTN Precipitation (Bob Brunette)
 - a large MDN sponsor has raised concern
 - if there is no primary or back up precipitation data
 - o the protocol is to use bucket/bottle catch
 - o this could result in two different depths at the same site, two deposition values
 - o the concern is that it could be challenged in court
 - o what to do?
 - The issue was raised 2 years ago, proposal was dismissed by NOS
 - o Use of modified NWS stick for backup
 - o Use NTN bucket catch as default,
 - o default to higher catch (NTN/MDN)
 - Noted as too time consuming for PO
 - [Bob Larsen] sample doesn't always start/stop at same time
 - differences are small, if large then disqualify the sample volume for that site
 - **Action item: Mark Rhodes will look at a couple of collocated sites and compare the different approaches and report back in the Spring.**

Modified NWS Stick Gauge

- Mineral oil placed in it to prevent evaporation
- Weekly reading rather than daily

Motion: Weekly stick gauge with mineral oil be a valid alternative for backup rain gauge data. Moved by David Gay, seconded by Chris Rogers

Abstain: Rhodes/Hebert/Ray

Motion passed

- Nomination of incoming secretary for NOS (Mark Olson)
Mark Rhodes nominates Richard Tanabe, seconded by Rob Tordon. Nomination approved.
- **Motion to adjourn** moved by Chris Rogers, seconded by Tom Bergerhouse. ***Motion passed.***