

Minutes of the Spring 2007 Meeting of
the NADP Network Operations Sub-Committee
Wyndham Hotel, Burlington, VT April 11-12, 2007

Please see attachment 1 for the agenda of the NOS. Many agenda items were accompanied by powerpoint slides and the minutes incorporate those slides by reference. The following information supplements the slides. A list of attendees is provided at the end of these minutes.

April 11, 2007

Marty Risch, NOS Chair, called the meeting to order.

MDN Report (attachment 2)

David Gay reported on the MDN. New requirements in Nebraska and Texas may require new MDN sites in those states—as many as 6 in Nebraska and 20 in Texas. Other sites are being added to MDN and prior average growth of MDN at 9 sites per year could be more than 20 in 2006. All new MDN sites are ordering NCON samplers and ETI rain gages. The lead time on delivery of NCON samplers is about 2 weeks. ETI makes 5 rain gages at a time every 5 weeks, so maximum lead time on delivery would be 5 weeks if none were in stock. Availability of Aerochem samplers from LODA has been very slow.

Network Equipment Depot Report (attachment 3)

David Gay reported on the NED--Network Equipment Depot. Rates of repair and overall costs of repair has been showing a downward trend. It is expected that new rain gages put into operation by the 2009 deadline will further decrease costs to NED for repair and replacement. There was discussion of problems with new samplers and gages. NED will plan to stock parts to support new samplers and gages. Another cost efficiency for NED is development at the Program Office of the LO (Leon/Osborn) drive for the Aerochem sampler. The LO drive uses a linear actuator to open and close the lid and is stronger and more dependable and is coupled with some improvements to the electronics. A sampler can be easily retrofitted with the LO drive in the field. David noted that 5 of the LO drives are in production and will be installed at collocated test sites in 2007. NOS is interested in testing the LO drive as a network-wide replacement of the current motor box and drive design that are so repair-prone.

MOTION: Matt Layden moved that NOS direct the Program Office to build 10 more LO drives to be tested in the next year. Mike Kolian seconded. In the discussion, Bruce Rodger offered to pay the Program Office for 5 of the LO drives and to test them at 5 sites in Wisconsin. The Program Office would determine the locations to test the 5 LO drives that are built. Motion was unanimously approved. David Gay went on record that the Program Office would need to determine if they could afford to build the other 5 LO drives.

Third Party Site Audit Program

Mike Kolian reported on the third party site audit program. EPA extended the current contract with ATS through March 2007. They solicited bids on a new 5-year contract that should be in place by May 2007. The goal is for sites to be visited every 4 years. Orientation meeting will be conducted once contract is awarded. Chris Lehmann presented map of sites visited in the previous year. Chris also presented maps of sites with siting criteria violations as well as a table

with the types of violations. He noted that about half of the sites with violations fixed them before the next site audit visit.

USGS External QA Program - part 1(attachment 4)

Natalie Latysh provide the first part of a report on the 2006 USGS external quality assurance program. She summarized the results of the collocated rain gage and sampler program at sites AZ03, WI98, and VT99. She summarized the results of the interlaboratory comparisons for 6 labs including the CAL and HAL for results of analysis of major ions and mercury.

High Altitude Equipment Testing (attachment 5)

David Gay gave an update on collocated equipment testing at 3 high altitude monitoring sites. Equipment installation should be completed at CO02, CO97, and CO98 by June 2007. A number of concurrent equipment tests will be ongoing during the snow season 2007-2008.

- CO97 will have the LO drive and deep bucket for NTN collector.
- CO98 will have the LO drive and deep bucket plus a collocated Belfort and ETI rain gage. The ETI gage will be used to signal the sampler to open.
- CO02 will have the LO drive and deep bucket collocated with the regular sampler. One Aerochem sensor will open both samplers. A snow fence will surround both samplers.

Past tests indicate the deep bucket improves collection efficiency, but other equipment issues can confound the improvement. The goal is to help the high elevation sites make the annual isopleth maps. Greg Wetherbee noted that previous investigations have shown the chemistry of snow samples at sites with low capture efficiency was comparable to the rest of the NADP.

USGS External QA Program - part 2 (attachment 4)

Greg Wetherbee provided a second part of a report on the 2006 USGS external quality assurance program. He summarized the results of the MDN blind audit program of the HAL and the system blank program for 18 sites. He summarized the results of the NTN field audit/equipment rinseate tests and the NTN triple blind audit tests at the CAL.

Siting Criteria and Site Audits (attachment 6)

Chris Lehmann reported on the new language in the NADP siting criteria for the new site classification category of "special purpose site". The data will be in the data base and flagged, but the data will not be on the annual isopleths map.

MOTION: Greg Wetherbee moved to accept siting criteria revisions. Bruce Rodger seconded. Motion was unanimously approved.

Chris Lehmann provided information on the third party site audits. He noted that for the NCON sensor--the arm should be pointing west, the eyes face north-south, and the receiver faces north. Chris Lehmann reported on the move of WI28 10.6 km. There was a question for NOS as to whether WI28 needs to reapply to NADP for approval and whether the ID would change.

MOTION: Chris Lehmann moved to approve the new location of WI28 and to allow the site ID to be retained. Natalie Latysh seconded. Motion was unanimously approved.

April 12, 2007

Marty Risch, NOS Chair, called the meeting to order.

He summarized the minutes of the NOS fall 2006 meeting and made copies available.
MOTION: Natalie Latysh moved to accept the minutes of NOS fall 2006 meeting in Norfolk, VA. Mike Kolian seconded. Motion was unanimously approved.

Marty Risch acknowledged that this NOS meeting would be a joint meeting with DMAS for the purpose of hearing the HAL audit review, methylmercury sample issues, and followup to the and CAL audit.

Mercury Analytical Lab (HAL) Audit and Responses (attachment 7)

Bob Brunette and Greg Wetherbee provided a point-counterpoint approach to a long list of items in the HAL audit that Greg led. These items were topical and will be summarized into findings, recommendations, and observations. The format was for Greg to present the HAL audit result and Bob provided the HAL response. As issues involved the NOS, questions and discussion occurred, sometimes leading to a motion from the floor.

On the issue of taping the cap of sample bottles sent to selected sites where leaks often occur during shipment, there was discussion as to whether return shipment also needed to have the bottle caps taped to prevent leaks.

MOTION: David Gay moved that the current system be retained for taping only selected outgoing bottle caps and not requiring incoming bottle caps to be taped. Natalie Latysh seconded and the motion passed unanimously.

Some recommendations that were agreed upon include the following:

- HAL will increase communication with new site operators and update the site operator data base.
- HAL will post site winterization procedures on the MDN website.

ACTION ITEM: For the fall meeting, the Program Office will bring a list of action items from the HAL audit and their status of implementation. This list will be brought to a subsequent meeting if implementation needs further updates.

Trace Sample Coding

There was a discussion on the coding of trace samples occurred which recognized that two different purposes were involved. The HAL needs to know if a sample was a field bottle blank or not and the Program Office needs to know if a sample has deposition or not. The HAL overrides the site operators MOF if more than 0.02 inch precipitation occurs, but the Program Office SOP set the limit at 0.05 inch precipitation.

ACTION ITEM: The Program Office and HAL will develop a unified and consistent procedure for coding samples as trace or dry and will document and communicate the policy.

CAL Review Response and Action Items

Chris Lehmann, Mike Kolian, and Karen Harlin reported on the CAL review action items and the CAL responses. The review team and Program Office are comfortable with the responses to potential deficiencies and opportunities for improvement. Mike will prepare a list of remaining action items. A followup on the action items will be provided at the fall meeting.

MOTION: Bob Brunette moved to accept the CAL review report, the CAL responses, and the summary of action items. The motion was seconded and passed unanimously.

NOS Support for Atmospheric Mercury Initiative (attachment 8)

Eric Prestbo provided a report to the NOS on potential equipment issues related to the proposed Atmospheric Mercury Initiative. He described how an automated sampling and analysis system works, commenting on parts and repair needs, and on maintenance and operation procedures. Eric notified NOS that attention may be needed in 2008 for the following items related to the transition network:

- encourage the equipment manufacturer (Tekran) to provide equipment support,
- provide a system for backup supplies,
- start a depot for key parts,
- develop and test new accessories,
- provide event-based wet deposition operator training.

Methylmercury Sampling Train Options (attachment 9)

David Gay and Bob Brunette presented the issue of methylmercury sample analysis volumes related to the current sampler. At least 5 picograms of mercury mass are needed to quantify the mercury, but low volume samples may not have enough mass. With such low masses in the samples, the calibration curve for the analysis needs lower concentration standards. The total mercury analysis is the priority in low volume samples. There was discussion of approaches to improve the volume of samples for methylmercury analysis. These were:

- Do nothing and keep splitting methylmercury samples from one sample bottle.
- Install a second sampling train.
- Install a flexible thistle tube to bypass the internal obstructions.
- Use a short bottle in the second sample chimney, similar to the bottle for the NCON.
- Change the amount of sample split for methylmercury.

After discussion, it was found that a preferred option could be a second sampling train to be inserted in the second chimney. The two sampling trains would be identical and would provide double the volume of the current setup. The problem is that the internal push rod that connects the lid and the motor obstructs the path for the thistle tube of a second sampling train. David Gay reported that a prototype of a modified Aerochem MDN sampler had been constructed with the LO drive and it could accommodate the second sampling train. It would likely not be a field modification.

MOTION: Bruce Rodger moved that the Program Office will install the modified Aerochem MDN sampler at the Bondville site and use the second sampling train to test the operation. David Gay will report back to NOS on the performance of the modified sampler with the two sampling trains, starting at the fall meeting. Jane Rotherth seconded and the motion passed unanimously.

Wind shields for Rain Gage (attachment 10)

Greg Wetherbee and Roger Claybrooke led a discussion on the use of wind shields for rain gages. All sites with more than 20% of precipitation as snow and sites at elevations greater than 1000 meters should have wind shields because of the undercatch of wind blown snow. Different types of wind shields are available. The dual fence is the standard used for intercomparisons by the World Meteorological Organization (WMO). The Nipher is the standard for Canada. The Tretyakov is the standard for Europe. The Alter is the standard for the USA. WMO results for shield and unshielded gages showed a 20-25% undercatch for unshielded gages.

Roger Claybrooke presented results of a study of a shielded and unshield stick gage at Bondville. No statistical difference was shown for liquid precipitation. Mixed snow and liquid precipitation

showed a significant but small difference. For snow, the significant difference was 0.1 inch. The NADP manual states that if more than 20% of the annual precipitation is snow, the rain gage should have an Alter-type wind shield. The lack of consistent compliance with the policy might have been due to a poor definition of 20% snow. The difference is in the snow to liquid ratio. Roger showed maps of regions of the US with more than 20% snow based on 14:1, 10:1, and 6:1 ratios. With the 6:1 ratio, 124 of the 288 NADP sites would be required to have wind shields for the rain gages; 46 of these sites have shields, including 31 sites above 2000 meters elevation. MOTION: Greg Wetherbee moved that all sites in the 6:1 snow to liquid ratio region based on Roger's map should be required to have an Alter-type wind shield for the rain gage by the deadline for new rain gages of January 2009. Van Bowersox seconded the motion. During discussion it was stated that exceptions to the rule could be requested, although who would review and grant the exceptions was not confirmed. The motion passed unanimously.

These minutes are respectfully submitted by Matt Layden, 2007 NOS Secretary and Marty Risch, 2007 NOS Chair.

NOS Spring 2007 Attendees

Greg Wetherbee	Natalie Latysh	Marty Risch
Matt Layden	Chris Lehmann	David Gay
Jane Rothert	Roger Claybrooke	Bob Larson
Bruce Rodger	Jim Trochta	Bob Brunette
Gerard Van derJagt	Eric Prestbo	Rick Artz
Jay Zuelke	Mim Pendleton	Kristi Morris
Tom Burgerhouse	Karen Harlin	Van Bowersox
Mike Kolian	Cari Furiness	Gary Conley