

**Minutes of the NADP Network Operations Subcommittee  
Savannah, Georgia April 11-13, 2005**

April 12, 2005 Session

Approval of minutes and status of action items, Karen Harlin

Karen called the meeting to order and the minutes from the fall 2004 meeting were approved. Two pending action items were addressed. A work group was formed to draft an undefined sample protocol. Members are Bob Brunette (chair), Tom Jones, and Scott Dossett. The task group include Chris Lehman (chair), Bob Brunette, David Gay, and Karen Harlin. The group met in Savannah but needs more time for discussion and plans to make a report to NOS at the fall meeting.

USGS external quality assurance for NTN and MDN in 2004, Greg Wetherbee (*Attachment 1*)

For NTN, Greg discussed the results of the last year of the inter-site comparison program for field measurements of pH and SC. He presented results for the field audit program, including estimated bias and contamination. The NTN field audit program was expanded to include all sites each year. He provided findings from the collocated sampler program at two sites. He showed data for 10 constituents measured for the inter-laboratory comparison from 8 laboratories. The NTN For the first year of the MDN external quality assurance, Greg presented data from the inter-laboratory comparison from 6 laboratories. He showed results from analysis of 80 system blanks. Greg listed articles and reports from the USGS external QA program.

USGS quality assurance field audit site operator training video, Greg Wetherbee (*wmv*)

Greg showed an 8-minute training video and asked for comments.

Pending quality assurance action items, Chris Lehman (*Attachment 2*)

1. Chris initiated discussion about the procedure for exceptions to NADP siting criteria and guidelines. The internet discussion forum will continue and a site approval committee was proposed (see motion).

A *motion* was made to recommend that the NOS chair, vice-chair, and QA manager shall have the authority to approve or disapprove proposed NADP sites that do not meet the NADP siting criteria and guidelines, replacing the former internet voting procedure. The internet discussion of proposed sites and related criteria and guidelines will continue.

This change also was recommended by the QAAG from their April 11, 2005 meeting. [Motion was made by Chris Lehman and seconded by Preston Lewis on April 12, 2005. The motion was approved by show of hands: 10 in favor and 9 opposed.]

2. No action was taken on a sample archival program for MDN.

3. The QAAG had met regarding field calibration of rain gages. It was stated that three procedures were proving effective: quarterly checks with weights at MDN sites, weighing NTN sample bottles to compare with the rain gage, and computing of weekly capture efficiencies.

Sub-sampling protocol for NTN sites continuing field chemistry, Scott Dossett (*Attachment 3*)

Scott presented the new protocol for a one-shot 20-mL aliquot removal for on-site measurement of pH and SC, effective January 2005. About 25 sites are continuing field chemistry, but CAL no longer provides support or tracking.

#### New NTN Field Observer Report Form, Scott Dossett (*Attachment 4*)

Scott summarized the steps to revise a new NTN FORF for use January 2005, taking into account discontinuation of field measurements, the 4-in1 shipping, and other modifications. He showed the new form.

#### OTT-PLUVIO updates, Scott Dossett (*Attachments 5 and 6*)

Scott summarized the history of the old and new versions of the OTT-PLUVIO rain gage and described the differences. He showed performance test results for the two models at the ISWS indicating better performance by the new model. Scott also provided a summary of features and early testing of the ETI NOAH IV rain gage (2<sup>nd</sup> *pwrpt*).

#### OTT-PLUVIO modifications, Mark Nilles (*Attachment 7*)

Mark went through a list of 13 potential modifications suggested by OTT for their OTT PLUVIO-NADP rain gage demonstrated at the fall 2004 meeting in Halifax. (A price quoted for this rain gage is expected to be based on the final specifications and the number of units ordered.) He led discussions and explanations of each modification and the *NOS recommendations* (YES or NO) follow.

- 1) Rectify the calibration offset. YES
- 2) Provide field calibration capability and instructions. YES
- 3) Add the capability for 4 digital input signals. NO
- 4) Provide a customized version of PDA software. NO
- 5) Provide PDA software code segments for custom NADP software. NO
- 6) Decrease the data transmission time. NO
- 7) Modify the PDA software file structure. NO
- 8) Provide an option to purchase the PDA from Hach Environmental. NO
- 9) Separate and weatherproof the cable connections for input signals. YES
- 10) Provide a pulse output signal. NO
- 11) Provide a 110-V AC power supply option. YES
- 12) Provide complete installation and operating instructions. YES
- 13) Reduce the effort required to remove the cover. YES

#### Event recorder updates, Scott Dossett

Scott explained that the NOS decided in 2004 that all sites must use event recorders. NC25 now uses an electronic event recorder and the Program Office processes the record.

#### Network equipment depot, Scott Dossett (*Attachment 8*)

Scott gave a report on the network equipment depot (NED). Parts replacements are less frequent but still substantial, especially motor boxes, sensors, and clocks. David Gay is the NED coordinator as of January 2005. Scott reported the rebuilt/redesigned Aerochem sensor works well and 6 rebuilt sensors were in use at sites already. The redesign is hoped to reduce sensor replacement frequency. The LODA redesign of the Aerochem motorbox was selected over a previous approach. (See the next item.)

#### Demonstration of LODA redesign of Aerochem sampler, David Gay (*Attachment 9*)

David brought the redesigned sampler to the meeting to demonstrate the improvements that includes elimination of the old motor box. Now a screw jack opens and closes the lid more efficiently and reliably. There are fewer moving parts and the stronger parts should

resist ice damage. A savings on parts depot, parts shipping, and parts purchase are expected. Another improvement is replaceable electronic boards that work with the rebuilt sensor Scott discussed. Existing collectors can be retrofitted with all the new parts for about \$1300. (The electronics boards were not yet field ready because they are custom-made and need to fit a weatherproof box.)

A *motion* was made to recommend that the Program Office pursue, at all due speed, the development, testing, and refinement of the LODA redesign of the Aerochem sampler demonstrated at the spring 2005 meeting. The Program Office should report their progress on the sampler at the Budget Committee June 2005 meeting. [Motion was made by Scott Dossett and seconded by Bruce Rodger on April 12, 2005. Motion was approved unanimously by voice vote.]

#### April 13, 2005 Session

ATS field survey and 2004 survey report, Tom Jones (*Attachment 10*)

Tom made a presentation titled "How to Conduct a Field Survey", bringing mirth and colorful scenery to the morning session. He then summarized the ATS field surveys for 77 NTN, 22 MDN, and 3 AIRMon sites. Generally, 2004 results indicated fewer operational problems than observed during 2003.

ATS 2005 field survey, Jim Kertis (*Attachment 11*)

Jim introduced the plans for the ATS 2005 field survey program.

ATS report recommendations, resolution of issues, Joel Frisch

Joel initiated a lengthy discussion, involving many subcommittee members, regarding the response to operational problems identified by ATS field surveys. Fixing the problems was considered to be important, but corrective actions were inconsistent and not always verified. Methods to encourage and document corrective actions were discussed.

A *motion* was made to recommend to the Program Office that the QA manager issue an annual report to those funding agencies eligible for the Budget Committee. The report will summarize the ATS survey results (non-compliance with criteria and guidelines) for each agency from the previous year. The QA manager should provide for each agency to respond to the report, showing status of corrective actions. [Motion was made by Scott Dossett and seconded by Rick Artz on April 13, 2005. Motion was approved unanimously by voice vote.]

Rain gage pens, Nick McMillan

Nick made the reminder that MDN is supposed to use fillable reservoir pens on the rain gages, not felt-tip pens which may not work.

Rain gage field calibration task group

The group was Bob Brunette (chair), Scott Dossett, and Tom Jones. When it is shown that a rain gage is out of calibration and cleaning does not correct the problem, the tower is usually replaced. A shortage of towers for the rain gages prompted the discussion of

whether a good SOP and proper tools could be provided to site sponsors and operators to do a field calibration of the rain gage instead of replacing the tower. Tom does not think all site operators could correctly complete field calibration. He reminded us that you need special tools and an alternative to the Belfort manual. Scott is opposed to field calibration. The whole issue was not resolved, but Bob reported that, as a result of the task group discussion, a protocol was developed for cleaning a rain gage that had poor quarterly calibration checks. David Gay and Bruce Rodger agreed to join the task group and provide another report to NOS at the fall meeting.

New shipping protocol updates, Scott Dossett (*Attachment 12*)

Scott reported that the 4-in-1 shipping protocol was written and that 150 sites had been participating, some for as much as 18 months. Sites were being added alphabetically with the plan to have full participation by late 2005. Scott described the 4-in-1 system and its rationale.

New ion chromatography instrument updates, Karen Harlin (*Attachment 13*)

Karen described the new ion chromatograph purchased in June 2004 for analysis of chloride, nitrate, and sulfate (the Dionex ICS-2000). The new instrument was compared with the ion chromatograph that has been used for the past 10 years, following a seven item checklist. Generally, the new instrument was comparable or an improvement over the current instrument.

A *motion* was made to recommend that the Central Analytical Laboratory begin using the new ICS-2000 IC for routine analysis of NTN and AIRMon samples as soon as possible. [Motion was made by Scott Dossett and seconded by Rick Artz on April 13, 2005. Motion was approved unanimously by voice vote.]

Total nitrogen measurements, Karen Harlin (*Attachment 14*)

Karen reported that the CAL has analyzed total nitrogen in selected samples since 2002 and routinely analyzed inorganic nitrogen. Organic nitrogen can be computed by subtracting inorganic nitrogen from total nitrogen. CAL has been successful and is now ready to provide a white paper on the total nitrogen analytical program and to accept special projects. Discussion occurred regarding the effects of field collection on organic nitrogen detection. Interest was expressed in the percentage, bioavailability, and fate of organic nitrogen in precipitation. Karen offered to make total nitrogen (and thus organic nitrogen) available as an add-on analysis for routine samples (an extra 50 mL is needed).

Precipitation collector replacement, Scott Dossett and Mark Nilles

Advantages and disadvantages of optical sensors for the precipitation collector were discussed. Mark reported that several NCONN samplers had been bought for MDN sites and he was working with David Gay to get NCONN samplers installed at IL11 and WA18. He said development of an NCONN sampler for NTN has stopped.

Next, the Yankee sampler was discussed. The Aerochem, NCONN, and Yankee had been assessed with a rating system based on 40 paired samples. Results had been presented in a powerpoint to NOS in spring 2004 and in a poster in fall 2004. For a rain gage, a Phase-I, Phase-II, Phase-III process was used for evaluation. The Yankee is ready for the Phase III evaluation, which could require 7 units, 18 months, and about \$100,000 to complete.

A *motion* was made to recommend that the Executive and Budget Committees, at the June 2005 meetings, authorize a multi-site phase III trial be conducted for the Yankee TPC-3000 collector for the NTN. [Motion was made by Mark Nilles and seconded by Van Bowersox on April 13, 2005. Motion was approved unanimously by voice vote.]

A total of 6 motions and 1 set of recommendations were made by the NOS on April 12-13, 2005 in Savannah and submitted to the Joint Committee on April 13, 2005.

Minutes prepared by Martin Risch, NOS secretary for Karen Harlin, NOS chair (April 2005)