

Notes

For

Wednesday, March 5, 2008, and Thursday, March 6, 2008

Reston, VA

Version 2, March 17, 2008 Call Clarifications/Corrections

Subcommittee and Work Group Member Participants Present or Participating Via Conference Call: Bill Cunningham, Federal Co-chair; Bob Schreiber, Non-federal Co-chair; Cary Betz; Emery Cleaves; Rick Copeland; Kevin Frederick; John Jansen, Chuck Job; Tim Parker; Tom Patton; Rob Schweinfurth; Rod Sheets; Dave Wardell; Kelly Warner; Steve Wilson; Mike Wireman; Dave Wunsch

Others Present or Participating Via Conference Call: Bob Hirsch; Sharon xxx; Wayne Lapham, Gail Mallard; Chris Reimer, Chuck Spooner; Carol Wakelee

Welcomes and Introductions: The meeting opened with welcomes from the co-chairs and self-introductions of participants.

Announcements: Logistical and housekeeping announcement were made.

Mission: Participants discussed the Subcommittee's mission, as defined by the purpose and scope within the Terms of Reference. In order to get concurrence on other issues, the approach was to reconfirm everyone understood and was in agreement with the mission. Following discussion, a formal motion and second was made that the purpose and scope within the current Terms of Reference captures the Subcommittee's mission and that we move forward. The Subcommittee members approved the motion.

Document: Participants discussed the objectives in developing the document. The primary objective of the framework document was stated as covering all aspects of a national ground water monitoring network, both data collection and management.

The secondary issues goals for the framework document include:

- The importance of brevity. A suggestion was made to move case studies into appendices and attachments.
- The need to add an executive summary that is relevant and easily read by non-scientists and engineers.

Presentation by Design Work Group (see power point presentations): Kevin Frederick and Rick Copeland briefed participants on the Design Work Group's proposal as well as relating Florida's experience in implementing a statewide ground water monitoring program in cooperation with local

and regional governmental entities. The Design Work Group's charge is to develop a draft national framework for ground water monitoring and collaboration to quantify US ground water reserves. Goals and objectives identified for the network include:

- Provide data that is on a national scale
- Eliminate problem of data incompatibility
- Define the status and trends and ground water availability and quality
- Identify potential problem areas
- Provide data to support local, regional and national management actions.

Among the questions identified that the network would help to address include:

- What is natural quality and usability of the nation's aquifers?
- What is the current condition of water levels or pressures in the nation's aquifers?
- How is ground water quality changing over time?

Questions are further stratified into Levels. For example Level I questions are those that the network will be designed and must be able to be answered. Level II questions are those that the network must be able to answer and can using ground water data provided by the network alone. Level II questions are those that the network must address but will require supplemental information to develop an answer.

Participants discussed how to address unevenness in state programs that may affect density of wells across states and that would create problems in comparing data across states.

Among the design features discussed included: the network of network concepts and the fact that the national network is not intended to replace existing efforts nor is it intended to address localized issues.

The suggested organizing principles for a national ground water monitoring network were presented as:

- One based the design on aquifer; not political subdivisions
- A cooperative program
- One integrated with surface water where practicable.

The Design Work Groups suggested sub-networks: background and targeted. Background is defined as data collected in non-pumping and uncontaminated areas, i.e. non-stressed areas. Baseline conditions would be established in these sub-networks to determine current conditions and serve as a benchmark for trends and changes overtime. Targeted is defined as where man-induced impacts are present.

Areas proposed to be monitored for the national ground water monitoring network are the principal aquifers and those identified in the ground water atlas where significant.

Wells would further be tagged as water level, water quality or both. A well could be tagged within the background sub-network for ground water levels and tagged as a ground water quality well in a targeted network. Frequency and length of sampling can be categorized as follows:

- Baseline: initial event
- Surveillance: periodic resampling
- Trend: periodic with frequency greater than surveillance
- Special studies

The difference between surveillance and trend monitoring was explained. Surveillance monitoring is performed periodically at set intervals. From this sampling, an identified area may be selected for trend monitoring, where the frequency would be increased. The frequency would depend on the type of category, aquifer flow and degree of confinement.

Parameters and analytes are identified in Table 4.5.1., with minimum data elements in Table 4.6.1. The Design Work Group suggests minimum selection criteria in Table 4.6.2.

Based on the Inventory Work Group analyses, most of the water level monitoring currently ongoing by reporting states would be classified as surveillance and not baseline monitoring. The monitoring goal most prevalent is identifying changes in ground water use over time. For a national ground water monitoring network, a baseline would need to be established over time or historical data used, if available. It was suggested that it may be difficult to establish a baseline assuming totally natural conditions and caution was suggested in doing so.

The Quality Subgroup of the Inventory Work Group's findings show more than 30 states are sampling for most of the analytes in the proposed table.

The Design Work Group acknowledges the need for flexibility in allowing for changes over time in the classification of wells from background to targeted monitoring.

Language clarity is also needed to denote how data will be used. Wording proposed in the Design Work Group presentation was "provide data to support local, regional and national management actions." Divergent views were expressed regarding whether the terms "local or regional" should be included or whether to use terminology such as "provide data to support national management actions supported by local, state or regional data." Clarification was provided that the purpose of the statement is to reflect benefits flowing to the national level but also some benefits to local and state entities. A question was posed as to whether there are "national management actions" given that the states manage ground water.

Action Items:

- 1. The Design Work Group will consider the discussion regarding the wording "provide data to support local, regional and national management actions" and bring back to the full SOGW proposed wording changes.**
- 2. The Design Work Group should look at the inter-relationship between principal aquifers and sub-aquifers and how monitoring will be done at the sub-aquifer level to answer pertinent questions at the principal aquifer scale. Addressing this inter-relationship gets to design monitoring density.**

- 3. The Design Work Group should address the question presented: If data are available should they be included and made available through the data portal? Then one would select from the wells that meet the minimum data criteria based on the questions one is trying to answer.***

Definition discussion:

Participants discussed the importance of defining terms and using the terms consistently throughout the document. Among the terms requiring definition and consistent use throughout the document are:

- Regional - to differentiate between multi-state and in-state regional networks.
- Local – set aside defining
- Dedicated wells

The proposed hierarchy of terms as related to geographic scope is as follows:

- Local
- State
- Multi-state
- National

Action Item:

- 4. SOGW should review the draft glossary compiled by Dave Langseth and the terms needing definition identified in this and future meetings to finalize a glossary to include with the framework document.***
- 5. Work Groups should identify within their documents where these terms are used and ensure there is consistency across the document once agreement is reached on definition and use protocols.***

Florida Monitoring Program

Participants were briefed on the design principles and process used by the Florida Department of Environmental Protection (DEP) in developing a statewide ground water monitoring network developed cooperatively with local and in-state regional government entities (five water management districts and 67 counties).

Florida proceeded through four separate phases:

Phase I: Adoption of statute and management directive identified the following objectives:

- Establish baseline ground water quality conditions in the major aquifers.
- Detect and predict changes in ground water quality over time
- Disseminate ground water quality data to the public

The Florida Ground Water Quality Monitoring Network includes subnetworks for background, trend, special study and very intensive study areas. Florida has a layered system and monitoring is done in the Floridan Aquifer System, Intermediate Aquifer System and Surficial Aquifer System.

The principal effort in Phase I was to secure the collaboration and participation of the water management districts and counties.

Phase II: Began approximately 6-7 years from initiation.

During this phase, baseline conditions were defined. This was done by sampling approximately 600 wells per year. Sampling included field analytes, major cations and anions and trace metals.

Phase III. Involved sampling over a three year period of field analytes, major cations and anions and synthetic organics.

Phase IV: During this phase field analytes, major cations, anions and pesticides were sampled. During this phase, funding remained level but the purposes for the funding were expanded, with 2/3 of the sampling money going to surface water sampling to support Total Maximum Daily Load development and implementation.

Because of funding changes, the sampling cycle was changed from 3 years to a 4-5 year cycle. Sampling included 200 wells, 200 lake samples and 200 stream samples per year. All locations are randomly selected and annual statewide assessments are completed.

Money flows initially to the Florida DEP. The Department solicits participation and develops contracts with locals that include funding to them as an incentive for their participation. If the water management district participated, they sampled the network in the region. Besides state funding additional benefits to collaborators and partners include the opportunity to participate in meetings and input into program direction, free short courses, and free consulting to address local monitoring issues.

Responsibilities undertaken by the Florida DEP that may provide a relevant model for the ENN include:

- Seeking participants (temporary)
- Database management/enhancement
- Program glossary/data dictionary
- Unique IDs
- Sampling/lab QA issues (goal to standardize data)
- Hosting periodic meetings – work out never ending series of issues, e.g. analytes and sampling frequencies
- Program training, such as sampling procedures, hydrogeology, ground water-surface water interactions, geochemistry, data analysis and interpretation.
- Producing statewide interpretative reports. The state did not do reports at the water management districts or county level.
- Network Enhancement (adding wells where needed or deleting wells as necessary)

- Network Maintenance (repairing damaged wells – state/owners; obtaining easements to sample wells)

Potential problems identified from the Florida experience:

- No funding increases and the expansion of funding uses to include surface water sampling (2/3 of funds being used for this purpose)
- Denial of permission to sample because of the Florida DEP's regulatory role and the perception that the information may be tied to regulatory issues. (Participants discussed the possibility of specifying within the framework document that non-regulatory agencies be involved. It was noted, however, that a large majority of ground water quality monitoring is currently done by regulatory agencies; and it would be important to press forward regardless of this situation.)
- Participants decided to leave program, producing big holes in the network
- Insufficient frequency of reporting overall conditions of ground water
- Never established an overall ground water index
- Despite participation of numerous agencies, involvement of deeply committed individuals, enormous fiscal expenditure (greater than \$100-million), and desire for better ground water management, considerable uncertainty remains.

The main reasons for monitoring project failure identified in the presentation are:

- Lack of clear and concisely-stated project objectives and
- Lack of concise project design.

In Florida, the results of the data analysis do not directly drive ground water management decisions automatically. Problems identified in assessments may spur policy decisions. During discussions, it was speculated that issues identified by a national network may cause reaction at the inter- or intra-state level rather than national policy changes.

Priority Issues for Resolution: Each work group identified their top issues and a combined, unranked list of issues was developed (see Attachment 1). Based on discussions during the two-day meeting, the list was updated to identify whether these questions were addressed by the SOGW during the meeting and the work group who has responsibility for incorporation of the decisions made or refinements thereof within their draft documents.

ENN and Related Issues: Based on initial discussions and identification of issues the following strawman was developed and related questions regarding the ENN.

- A specially-created (and new) group (ENN) within the USGS would serve as portal operator
- This group within USGS would create and operate a “data portal” and would specifically NOT maintain a centralized, master data base.
- ACWI and the SOGW would oversee and guide the ENN group within USGS

- ACWI/SOGW oversight would include “exquisite” collaboration among USGS, USEPA, other Federal agencies, and of greatest importance with States, regional entities, professional organizations, academia, and the private sector.
- Piloting and early operation of the ENN will lead to reevaluation and adjustments.

State Your Views on ENN

- Should ENN create and maintain centralized data base/server?
- Should ENN perform interpretative evaluations/analyses?
- Should ACWI/SOGW be the oversight entity – overseeing the ENN?

Participants provided their views regarding the strawman and questions posed. Based on the input of the SOGW, the co-chairs of the ENN Subgroup on day two presented a concept for network oversight, operation and management that identified roles and responsibilities within an ENN organizational framework. In addressing the discussion regarding whether to proceed with a data portal or a national data base, the subgroup recommended: A specially created new group within USGS should be created to serve as a portal operator. The new group would not develop nor maintain a centralized master data base.

Organizational structure and responsibilities were discussed with the following incorporating the group’s thinking from the initial ENN Subgroup proposal and the SOGW’s previous discussions:

ACWI/SOGW would serve in an advisory/oversight role, providing a link to ACWI, offering guidance and oversight as well as advising on activities and resource prioritization, planning and funding. The question was raised as to what role the SOGW can play beyond advisory given its formation under the federal Advisory Committee on Water Information. Acknowledging this potential restriction, the general sense was that it is important to continue the SOGW as part of ACWI. Advantages identified include a voice for ground water on the advisory group as well as an opportunity to interact with other ACWI subgroups.

Discussion also focused on what came to be titled a Program Review Board. The preference would be for the board to have oversight responsibilities, although an advisory role is doable. The goal would be for the group to evolve, if it is not initially configured, to provide a grant management element. Composition of such a Board is seen as including SOGW members and stakeholders such as states, water management districts, tribal representatives, USGS, USEPA, organizations and representatives of the private sector. Participants would be drawn from end users and states that are part of the network. The concept of subgroups organized geographically was supported. Representative of the subgroups would be included as Board members on a rotating basis. Responsibilities would include planning and directing activity, and prioritization and resource allocation (Note it was originally suggested that a control and tracking function be included for the Program Review Board, but the Board evolved in the discussion to focus on collaborative grant management.) It is not envisioned that the Board or its subgroups would be involved in day-to-day management or operational issues.

Management and operations are proposed to be done by a new group within USGS during the pilot and full scale implementation. Responsibilities would include portal design and operation, maintenance and dissemination of data, coordination with stakeholders, as well as data evaluation to meet specific objectives of the framework.

The participants also discussed the organizational chart graphic. Questions were raised as to the appropriate organizational structure. No consensus was reached on an exact reporting structure.

Funding was discussed and it was noted that typically new programs draw funding from existing programs. Participants strongly voiced that is not what is sought. It was noted that there may be some funding for the portal in the FY 2009 proposed budget under the Water Census initiative. If funding came from a line-item appropriation to a federal agency, that agency will determine how the funds are spent.

Questions were raised as to whether box 1 and 2 were similar and whether there was a need for the ACWI/SOGW within this organization framework. Differences suggested were that box 1 would require less time than box 2. Box 1 (ACWI/SOGW) would provide a link through SOGW to the Federal Advisory Committee process as well as leaving a voice for ground water on the ACWI. A discussion also took place as to how people would be appointed to the Program Review Board. The Methods Board was mentioned as possible model, but based on input from Chuck Spooner, that may not be applicable. The sense was that the Program Review Board needed to be nimble.

MO was identified as the acronym for the management and oversight function.

Upon a proper motion and second, the Subcommittee on Ground Water approved the concepts for an ENN Framework Organization as presented and refined in discussion.

Action item:

- 6. WHO???** *Talk to Toni Johnson or Bob Hirsch as to whether there is a process that could be used or modeled for appointing individuals/organizations to the Program Review Board .*
- 7. ENN subgroup** *is asked to review the task list and assign them to the three groups, flesh out the concepts and bring them back to the SOGW*
- 8. ENN Subgroup** *is asked to take on the task for completing Chapter 7.*

Further details are contained in the ENN presentation. Note that the organizational chart in the presentation and other details may be revised by the ENN subgroup based on discussions at the March meeting and further evaluation.

Presentation by Robert Hirsch, Associate Director for Water:

Bob Hirsch complimented the Subcommittee on its work and expressed his appreciation for their contributions. He also briefed participants on the proposed Water Census, which would receive some initial funding in the proposed 2009 budget. He identified several drivers for the proposed Water Census including:

An interest by the President and House appropriators in being able to answer the question of how much water is available in a certain area of the country and nationwide. Currently, USGS has information on only the High Plains aquifer. Another area that would require attention to respond the question of water availability is enhancing and providing a better scientific basis for the water use program, such as suggested in the National Research Council report of several years ago. A pilot is also underway on the concepts developed in a national water assessment program. The pilots are taking place in the Great Lakes area and several products have been developed that provide information for local water management planning. Finally, Secretary Kempthorne returned from a trip to Australia, where he witnessed their struggles with drought. When he found that the Survey did not have answers to some basic questions on water availability, he proposed the Water for America Initiative. The Water Census is part of this and would be funded at \$9-million. The concept is to have regional studies to provide big picture look at changes in storage and then do intensive studies in some areas. He shared that the proposed initiative would, however, have a negative impact on National Water Quality Assessment Program and the Cooperative Water Program funding. Another piece of the Water for America Initiative is to increase geologic mapping under the National Geologic Mapping Program. Additionally, part of the money available would go to data accessibility. He suggested that they would look to SOGW suggestions in this area. Among other comments, he also mentioned CUASHI and their efforts, which are in the forefront. He suggested looking at piggybacking on to their investment. He noted data portals are a way to make data available but for the interface to happen a significant monetary investment must be made. Questions posed from the meeting participants included: how is USGS dealing with data quality issues related to volunteers performing stream gauging. The USGS policy is to accept outside data that meets certain criteria for quality assurance and tag it as furnished data. If they cannot assure data quality, they do not take the data. He expressed that a data portal system would be different because the data would not become part of the USGS data base itself.

A discussion of rescuing data that is now stored in paper files was initiated. The idea of seeking funding for data rescue has not been a priority. Discussions also took place regarding data for ecological decision making and the increasing emphasis on the fluxes and interfaces. In discussing how data are exchanged between state and local government and the USGS, there is openness to discussions if someone approaches USGS. The issues typically revolve around funding and whether there is a willingness and interest on both sides. In response to a question regarding CUASHI and their willingness to collaborate on meta data requirements, it was noted that they have been flexible. Bob Hirsch also expressed a continuing role for the SOGW in finishing the framework document work, seeing where that leads and determining what's next on the agenda. He noted that the process that may lead to funding is very non-linear and unpredictable. He has seen the importance of having the ideas ready for when the questions or needs arise.

Work Group Break Outs

The Work Groups broke out into separate meetings to address specific work group questions and discussion.

Update on National Water Quality Monitoring Network for Coastal Waters

Gail Mallard and Chuck Spooner provided participants with an update on the Network pilot studies. The history of the network was traced and the impetus for development of the proposed framework. The pilot phase was undertaken for two reasons: (1) no money for full implementation, (2) no cost estimate and (3) no one knew how institutions would react to the proposal. When beginning the pilot phase, statements of interests were requesting. In issuing the call, it was made clear that no current funding was available during the pilot phase. A Program Review Board was established, that set up criteria and chose from among those submitting statements of interest. Entities chosen included ones from the San Francisco Bay area, Delaware River Basin, Great Lakes and Gulf of Mexico. The applicants had various organizational structures but all included multiple entities. A specific list of pilot study tasks was developed. From these tasks, data gaps were identified. The applicants had various management concerns in their areas. Cost estimates were developed and range across the pilots. Various cost categories were reported including cost of what is being done now that can be credited toward network design, what would need to be added and what additional monitoring is being done to meet local issues. The presenters also spoke to how ground water was included within the overall design document and in the pilots. Ground water related questions explored through the pilots were:

- Is network design document section on ground water clear
- Is ground water of significance in pilot study area based on criteria in design document
- If important, what kind of data would be required to address ground water?

Lessons learned from pilots

- Willingness to coordinate is key
- Early agreement on major data tables and key elements of the final report (agreed on report outline and what major data tables would look like)
- Apples to apples comparison (repeatedly went over gap analysis and cost estimates)
- Regular conference calls for dialogue (once a month or more frequent plus a lot of emails)
- Expect differences driven by local interests and number of participants

Phases of the effort include:

Phase I – Network Design FY05 and 06

Phase II – develop and carry out pilot studies

Phase II – demonstration projects (08 and 09)

Phase IV – implementation and beyond

Links to relevant reports are: <http://acwi.gov/monitoring/network/pilots>
<http://acwi.gov/monitoring/network/index.html>

During discussion period, major points raised were the importance of funding for making progress. As far as coordination between the Coastal Network and SOGW, it is important to continue dialogue and generate interest outside of core groups in developing standards of practice and implementing these programs without funding availability. The SOGW's efforts may play a role in the national entity envisioned in providing consistency in how ground water portion of design is incorporated. However, it was pointed out that while ground water level monitoring may help, it may not handle all the questions related to flux to coastal waters. A group of experts for individual situations may be required. It was suggested that the pilot areas for this network may be potential areas for consideration if pilots are done of the NGWMN.

Action items:

- 9. SOGW and Work Groups should acknowledge the work of the coastal monitoring and identify linkages to that effort within the SOGW framework document.**
- 10. SOGW should go back to NOAA's representatives on NWQMC or ACWI and ask them to get someone involved.**
- 11. SOGW should work to get someone from Natural Resource Conservation Service involved as well. The NRCS person on the Source Water Collaborative was suggested as a place to start.**

Work Groups Reports:

Inventory Work Group

The work group reported that they received for the quality portion: 60 responses representing 49 states. Thirty three states have active monitoring networks and more to them than I would have guessed – may be statewide or regional or both. Eleven states have no program and five states have inactive programs. Information from this assessment may be helpful in selecting pilots and identifying partners for collaboration. Twenty-four of the states programs are aquifer based. Only five states consider political subdivisions. As far as funding, twelve states rely solely on federal funding (probably exclusively EPA funds, esp. 319 nonpoint source). Program management is spread among agencies, but largest number is under a state Department of Environmental Protection or Environmental Quality (12 states). State Geological Survey have responsibility in seven states. The number may be an under-representation because some surveys are housed within larger departments. The good news on the analytes is that most are doing indicator monitoring. Seven states include all seven analyte groups identified. Data are available on the web as follows:

- Yes – 12 states
- Some data – 4 states
- No data on web – 7 states
- Restrict access – 2 states

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It was suggested that someone should data check the web sites.

Types of observation points

- 4 states use only dedicated wells
- 19 states use some dedicated wells with other wells

Who operates program

- State employees only – 17 states
- State employees and partners – local/fed
- USGS – in 6 states only USGS and 8 states USGS partners with state.

Participants held a brief discussion of whether the NGWMN should require the use of dedicated wells; and if so what **is** the definition of dedicated wells. There was no consensus reached on this topic.

Ground water level inventory report was provided as follows:

6 significant data gaps were identified:

#1 Gaps in networks:

- 13 states identified as lacking state managed networks
- 8 have no networks
- 5 only identified regional.
- Of states without state network, 5 USGS operated one

#2 Lack of information on regional networks, including number, where they are located and their purpose.

#3 Lack of written SOPs on field data collection in 8 states

#4 Lack of direct information about partnerships between USGS and state, regional and local agencies.

#5 Frequency vary from once in 5 yrs to real time.

#6 Discrepancies on information related to length of well records.

The final report will move away from questions, but data gaps section is probably going to be left as written.

Items noted by participants were:

- Potential that some state networks are for drought and climate change and may not monitor principal aquifers.
- Acceptable design may depend on what questions you want to answer.

- Considering the 3-D component is very important in a nationwide network.
- For ground water levels, most state considered aquifers to some degree but also added other criteria.
- A question was raised as to whether we know whether the concept of network of networks is feasible? The answer supplied at this time is that we know we have some gaps and need to address that. There are some good states and then everything in between. It was suggested that we will know the answer to this after we do some pilots.

The information should be viewed broadly and not over-interpreted. Some states provided multiple answers to questions. The information about regional networks is lacking. Respondents may have interpreted some of the questions differently. Information related to number of wells, frequency of sampling and duration of record was very difficult to interpret. While the inventory information may be helpful in selecting pilots, it should not be only criteria. One may want to issue a call for proposals.

Action item:

- 12. Work Groups and SOGW are asked to let Inventory Work Group know whether there are follow up questions that should be pursued. They would be able to do this if a small number of states are involved.**
- 13. Inventory Work Group may want to check whether web sites are actually up and running. (Note: There is a web site list of ground water level monitoring that was compiled by Ralph Haefner. It is posted on the SOGW and NGWA web sites)**
- 14. Chris will send DSDM Work Group tables on metadata, web site posting, electronic compilation of data.**
- 15. Chris will send to SOGW a copy of the form so they can identify what data analysis they believe the Inventory Work Group should include**

Data Standards and Data Management Work Group

The work group presented a list of data elements that includes those identified by the DSDM, Design and Field Practices Work Group. The list is down to 77 elements with 45 of the 77 data elements mainly on address/locational aspects. Changes agreed to included:

General:

Separate out items requiring one time inputting

Suggestion to organize this with major headers above that – fixed one time entry, repeat information fields, etc

Suggestion to look at physical attributes versus other information in organization.

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Categorize data elements for sharing, and second category that states need to collect with one being required and other guideline

How are we going to handle possible elimination of trend data?

Need to grandfather in a lot of data and tag it.

Use USGS naming convention (third column)

Could generate a tool that could be available to states for data mapping. Each state may need to adjust or modify tool. State would need to do one time.

Section 1.0 – Point of Contact

1.1 - source of data – point of contact – consider adding position of person in agency.

Section 2 – Site Identification

Keep 2.2 because need to know type of well, e.g. residential, commercial, public water supply well

Should land use be required?

Section 3.0 - Geologic/Hydrologic Description

3.1 – do you want HUC code – make clear want HUC code (Decided)

3.2 - There is no standard way of identifying geomorphic unit – so decided to take that out.

3.3 – reference the geologic atlas

Section 4.0 – Well Location

4.1.3 and 4.1.4. Better to have latitude and longitude as separate identifiers.

4.2.1 should be renamed altitude of wellhead

5.0 – Well Characteristics.

Need to add unique well # for putting well into system.

Do we agree that it is important to have state or local well identifier number? Should be how state identifies well not necessarily state permit number

Question how do you handle well log? Decision: ask whether log and/or completion report is available and where it might reside. Having a log or completion report is not necessarily required to have well in national network.

5.1. Add well purpose under 5.1 and others have categories to choose.

5.4. and 5.5. - Don't include 5.4 and 5.5 as required.

How do you handle well type 5.11 and 6.1. and that it may be different for level and quality? Need to be moved somewhere else. – under purpose or characterization of sampling event. Figure this out and not decided

Section 6 – Reason for Measurement

6.1. Need to clarify 6.1 and who does the data inputting

Section 7 - Quality

No changes

Section 8 – Measurement Location

Major point of where state/others need training.

8.2. Concern that may knock a lot of wells out. Could grant money going to GPS surveying? Decision: only need water level elevation.

Section 9 – Measurement of Levels and Flow

9.2. Defer to USGS on whether to put in 9.2

Section 10.0 - Results

Need to get info from Chuck and Scott: missed this section

Action Item:

16. Who?? go back to questions now that have adjusted data elements and check if all the fields are there and needed. The pilot could also be used to test the data elements.

17. Rod Sheets will provide the DSDM Work Group with the USGS minimum list of data elements for acceptance as part of their ground water level monitoring

Benefits of National Network

- Participants discussed the question of what are the benefits of a national ground water monitoring program. Among points made were:
- Highlight questions that the network is intended to answer
- Note that ground water component of NIDIS is missing.

- Use other documents, such as the Office of Science and Technology Policy, Coastal Monitoring Network, Ground Water Protection Council Call to Action and National Ground Water Association documents.
- The Pennsylvania drought identification and response system was discussed, but people were cautioned that this is a national network. It may be a tool used by the locals but it is not intended that a federal agency would implement drought plans.
- Look at the annotated outline that contains some initial thoughts
- Caution was suggested in using states rather than aquifers as the reporting structure.

Report Structure and Format

Specific formatting suggestions to consider in revising your portion of the framework document include:

- Incorporate, as appropriate, references to the National Water Monitoring Network for Coastal Waters and other ACWI documents to demonstrate integration and coordination.
- Reference materials from the inventory section in other parts of the document, but do not repeat the materials.
- Combine data element tables/lists from the various chapters into a combined list/table in the appendix. (Is this something the Data Standards and Data Management Work Group would be willing to take ownership of doing? Is that okay and will it work for other work groups or are the tables in flux?)
- Move inventory maps to appendix
- Incorporate short discussion of piloting of the concept into document. The NWQMC developed a short next steps list, with the pilot as one component of the list (see their document on the ACWI web site). Section 7.8 seems to be most appropriate place for this discussion.
- Strive for brevity
- Work for consistency of terms, e.g. use of the term multi-state regional on in-state regional. Watch for a draft glossary.
- Identify areas where tasks are identified and clarify entity with responsibility using the decisions made at the Reston meeting on ENN structure or general operations. Highlight areas in your draft chapters where tasks are discussed and it is unclear whose responsibility they are even after the Reston meeting.
- Begin thinking of graphics that explain the concepts presented in your Chapter (s) of the framework document. These graphics can be used to form the basis of the May conference presentations and also help succinctly and accurately convey the concepts in the draft framework document.

Action Items:

- 18. Work groups are asked to take the next two weeks to revise their draft documents based on discussions at the meeting. I will try to get out meeting notes as soon as possible but please move forward based on the discussions that impact your work group.**
- 19. The ENN Subgroup is asked to use the decisions made at the meeting to move toward drafting Chapter 7. No specific deadline was set, although there is a recognition that it may be impossible to have the initial draft in two weeks. (NOTE: ENN will do Sections 7.6, 7.7 and 7.8. Bill Cunningham will do other sections in Chapter 7 unless someone else would like to volunteer)**
- 20. The goal remains to solicit input on the draft framework document – at least the major provisions, during the May National Water Monitoring Conference, albeit wording may still be under final development.**