National Ground Water Monitoring Network: Lessons from Planning a Collaborative National Ground Water Monitoring Network

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“Water in the West” Workshop #2
January 29, 2016
Groundwater Data in the SGMA Context
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U.S. Department of the Interior
U.S. Geological Survey
Background

• Why?
  – USGS Network “not adequate for national reporting” (Heinz Center, 2006)
  – Legal requirement (SECURE Act)

• How?
  – Leadership (Federal, in this case)
  – Advocacy (NGO’s, “Data Providers”)
  – Participation; Value Proposition

• Timeline
  – 2006 Idea re-hatched
  – 2007 SOGW formed
  – 2009 SECURE Act; “Framework”
  – 2010 Pilots begin
  – 2013 “Framework” re-issued
  – 2015 Implementation begins
Purpose

• Develop and encourage implementation of a nationwide, long-term ground-water quantity and quality monitoring framework that would provide information necessary for the planning, management, and development of ground-water supplies to meet current and future water needs, and ecosystem requirements.

NGWMN purpose framed by questions (manage expectations):
• “Questions that can be addressed using NGWMN data”
  – What is baseline? Status and trends of water levels/quality?
• Questions that can be addressed using NGWMN data, plus supplemental data
  – What are the impacts of land use change?
• Questions that can be addressed using NGWMN data, supplemental data, and additional resources
  – What are impacts to GW and SW due to pumping?
Scope

• Scope: This national framework for ground-water monitoring and collaboration will be developed to assist in assessments of the quantity of U.S. ground-water reserves, as constrained by ground-water quality.

  – Levels + quality, focus is levels
  – Selected wells (versus “warehouse”)
  – Defined by “Framework” plus “tip sheets”
  – Framework contains (a) network designs, (b) limitations (questions), (c) standards, (d) minimum data elements.
Approach – Key Concepts and Lessons

- Leadership needed at many levels
- Consensus building is critical to buy-in
- Roll local expertise into National design

Key tripping points
- Data ownership vs master database
- Regulatory concerns
- Security issues
  - Data available without restriction
Field/Lab Standards: Key Concepts

• Consensus approach
• Fundamental principle – data provider must have documented standards.
• Result = data consumer obtains data of known quality, but not uniform quality.
Minimum Data Elements: Key Concepts

- Consensus approach.
- Enough information to locate the site (well/spring) in 3 dimensions, and provide basic information.
- Not so strict as to preclude participation.
Implementation Responsibilities

Management of the National Ground-Water Monitoring Network (NGWMN)

Data Providers
[Networks and Individual Sites That Meet NGWMN Criteria]

- Federal
- State
- Tribal
- Regional
- Local
- Other

Advisory Committee on Water Information
Subcommittee on Ground Water
[Federal Interface]

U.S. Geological Survey
Management and Operations Group
[Day-to-day operations]

NGWMN Program Board
[Representatives from Data Providers]
[Guidance and Direction]

• Data Providers: Potentially, anyone with a database connected to the internet
  - Monitoring at a relevant scale or key site(s)
  - Respond to the annual Program Announcement (RFP)
  - Select sites (Framework/Tip Sheets)
  - Set up data sharing with portal
  - Maintain portal connection (and do normal work)
Benefits (from data providers)

• Develops a “Community of Practice”
• Portal provides new tools if not already available
• Opportunity to share data among state agencies
• Provides a single, consistent dataset for shared interstate GW resources
• Opportunity for a critical review of field procedures and data management procedures
• Raises awareness for GW monitoring
• Participation in national program may provide some protection from state cuts
Challenges to a National Network

No legal requirement, so:

• Groundwater monitoring not a priority in all states
• States may be understaffed. Even with outside funds, some states do not have the staff time to participate
• Funds to participate are “not worth their time”
• Expectations are raised for “filling gaps”
  – “fund my network operations”; “drill my wells”; “upgrade my equipment”
Acknowledgements

Advisory Committee on Water Information—Subcommittee on Ground Water

Co-Chair: Bob Schreiber, CDM-Smith
Executive Secretary: Lauren Schapker, National GW Association
Tim Parker, member extraodinaire
Daryll Pope, USGS NGWMN Program Lead