



National Ground-Water Monitoring Network

Advisory Committee on Water Information—Subcommittee on Ground Water

National Ground-Water Monitoring Network Cooperative funding opportunity to support data providers

2019 NGWMN Funding Opportunity

Daryll Pope, USGS



Outline

- Background on NGWMN
- Cooperative agreements
- Guidance on application package
- Support resources
- Questions

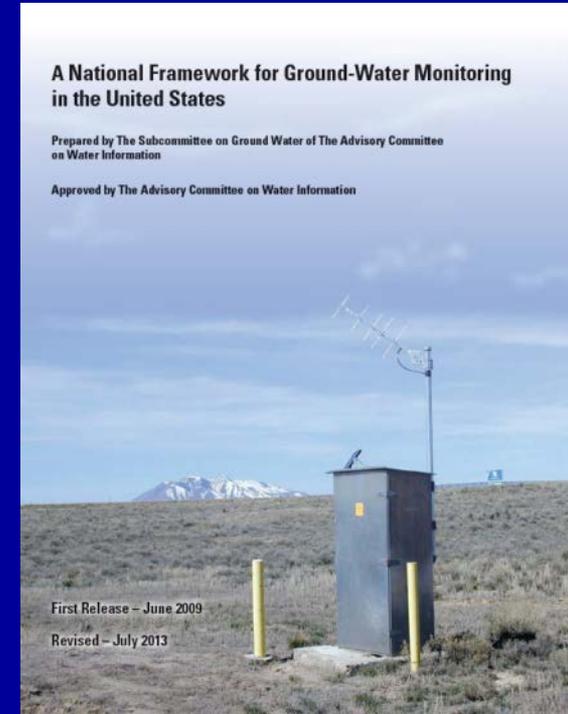


Subcommittee on Ground Water and the NGWMN

- The Subcommittee on Ground Water (SOGW) is part of the Advisory Committee on Water Information (ACWI)
- The original goal of the Subcommittee was to develop a National Ground-Water Monitoring Network (“NGWMN”)
 - Created the ‘Framework Document’ with network design
 - Tested approach in 5 pilots
 - Revised ‘Framework Document’ based on pilot results
 - Began implementation in 2015
 - Established management structure that includes the SOGW, USGS, and the NGWMN Program Board

Framework Document

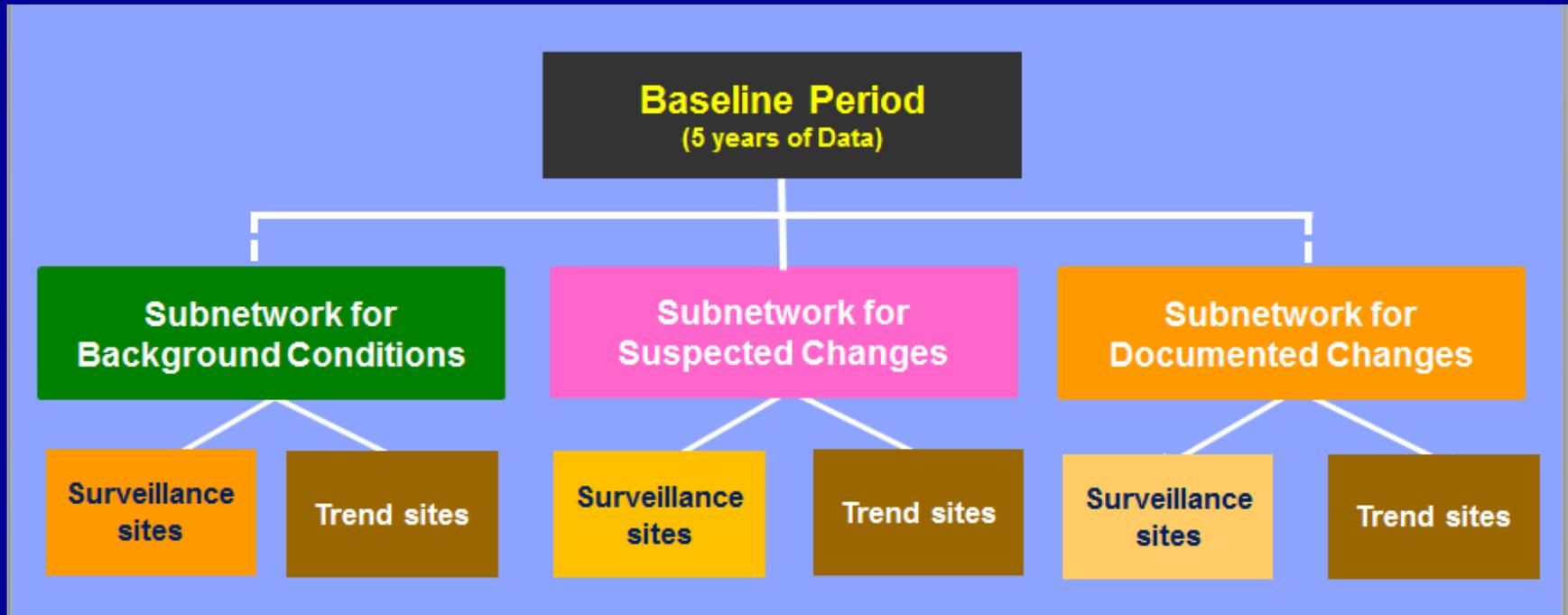
- Design for a collaborative National GW Monitoring Network
- Worked with NGWA, AASG, and GWPC to inventory Federal and State monitoring programs
- Guidance for Field Methods
- Guidance for Minimum Data Elements, Standards, & Management
- Implementation Plan and Recommendations
- Initial version in 2009. Revised in 2013 after pilot phase completed



NGWMN Design Elements

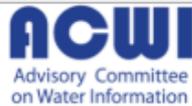
- Principal and major aquifers
- GW levels and quality, focus on availability
- Willing data providers: State, Federal, Tribes, others
- Priority on sites with long-term data
- Network, not a Warehouse or Master Database
- Sites classified by local experts/data providers, and selected sites become part of the Network
- Data provider is the authoritative data source

Network Design: Subnetworks



“Classified” based on water level or water quality change and on frequency of data collection

NGWMN Data Portal



National Ground-Water Monitoring Network

The National Ground-Water Monitoring Network (NGWMN) is a product of the [Subcommittee on Ground Water](#) of the Federal Advisory Committee on Water Information ([ACWI](#)). The NGWMN is a compilation of selected groundwater monitoring wells from Federal, State, and local groundwater monitoring networks across the nation.

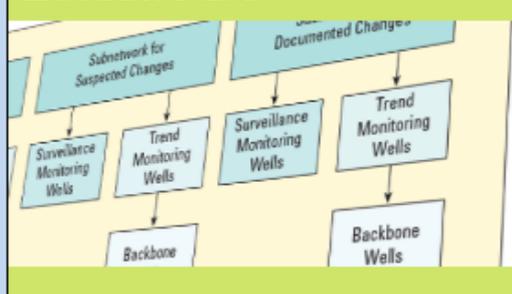
The [NGWMN Data Portal](#) provides access to groundwater data from multiple, dispersed databases in a web-based mapping application. The portal contains current and historical data including water levels, water quality, lithology, and well construction. The NGWMN is currently in the process of adding new data providers to the Network. Agencies or organizations collecting groundwater data can [find out more about becoming a data provider for the Network](#).

Funding to support data providers to the National Ground-Water Monitoring Network is provided through USGS Cooperative Agreements. Agencies can also find information about the status of the [USGS cooperative agreements](#).

CURRENT NETWORK:

7042 water-level wells
1901 water-quality wells
10 subnetworks
27 contributing agencies x administrative units
63 principal aquifers

LEARN about the Network



EXPLORE the Network



NGWM NETWORKS

Water level: 1

Subnetwork: 1

- Background
- Suspected Changes
- Documented Changes

Monitoring Category: 1

- Surveillance
- Trend
- Special

Water quality: 1

Subnetwork: 1

- Background
- Suspected Changes
- Documented Changes

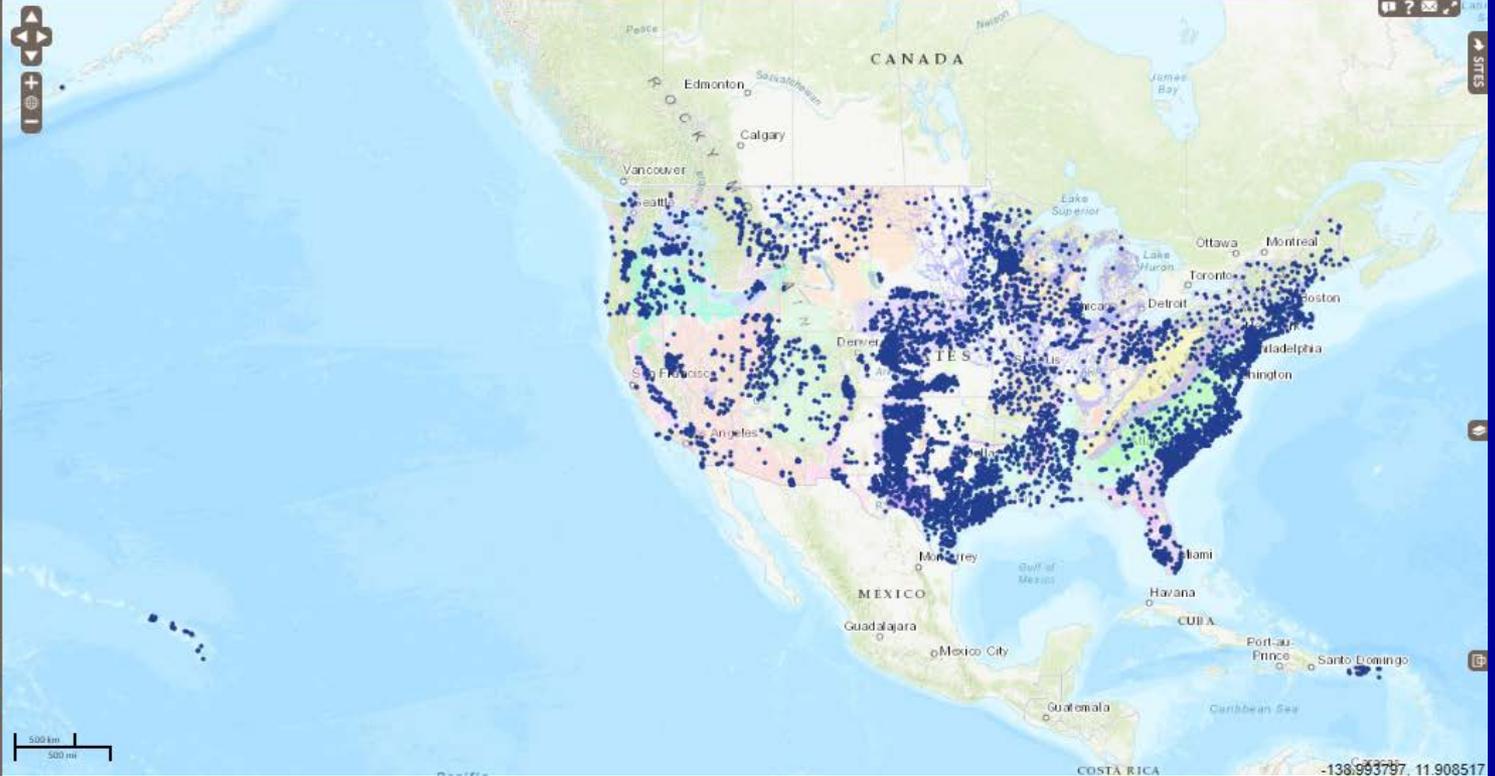
Monitoring Category: 1

- Surveillance
- Trend
- Special

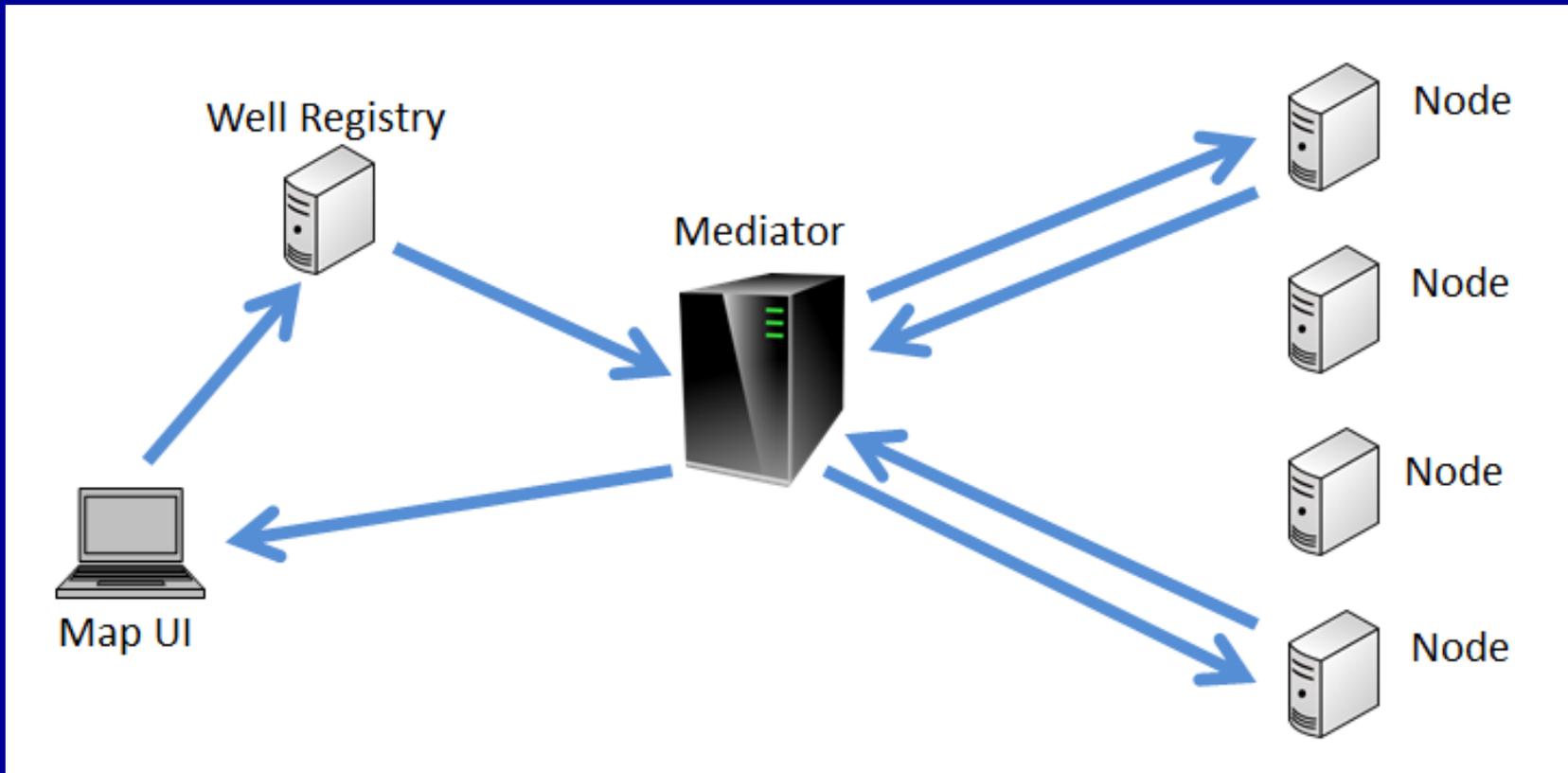
>> FILTER MAP DATA

CURRENT STATUS

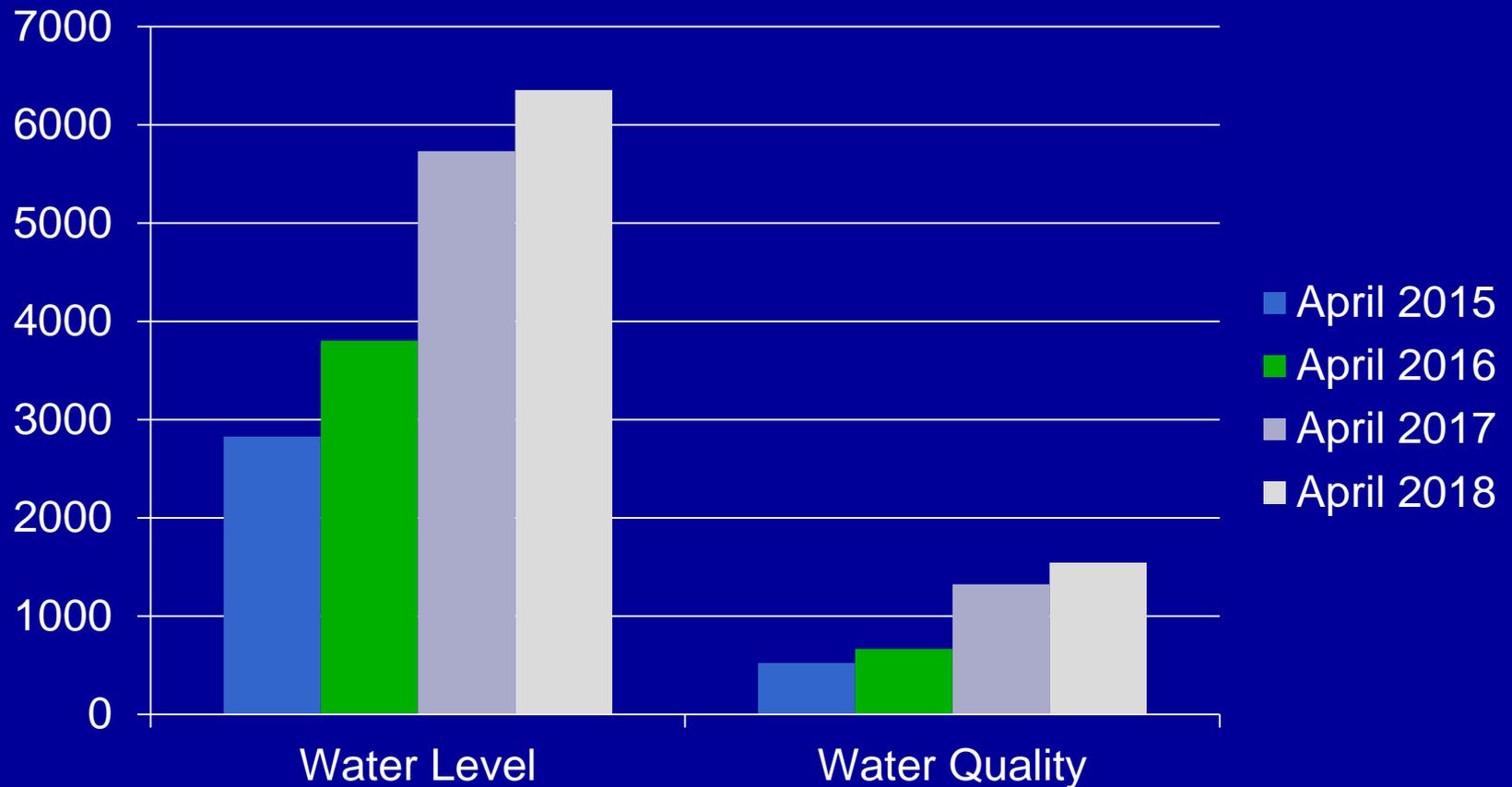
8114 Sites mapped
8131 Sites matching filter
7033 Water-level network wells
1893 Water-quality network wells



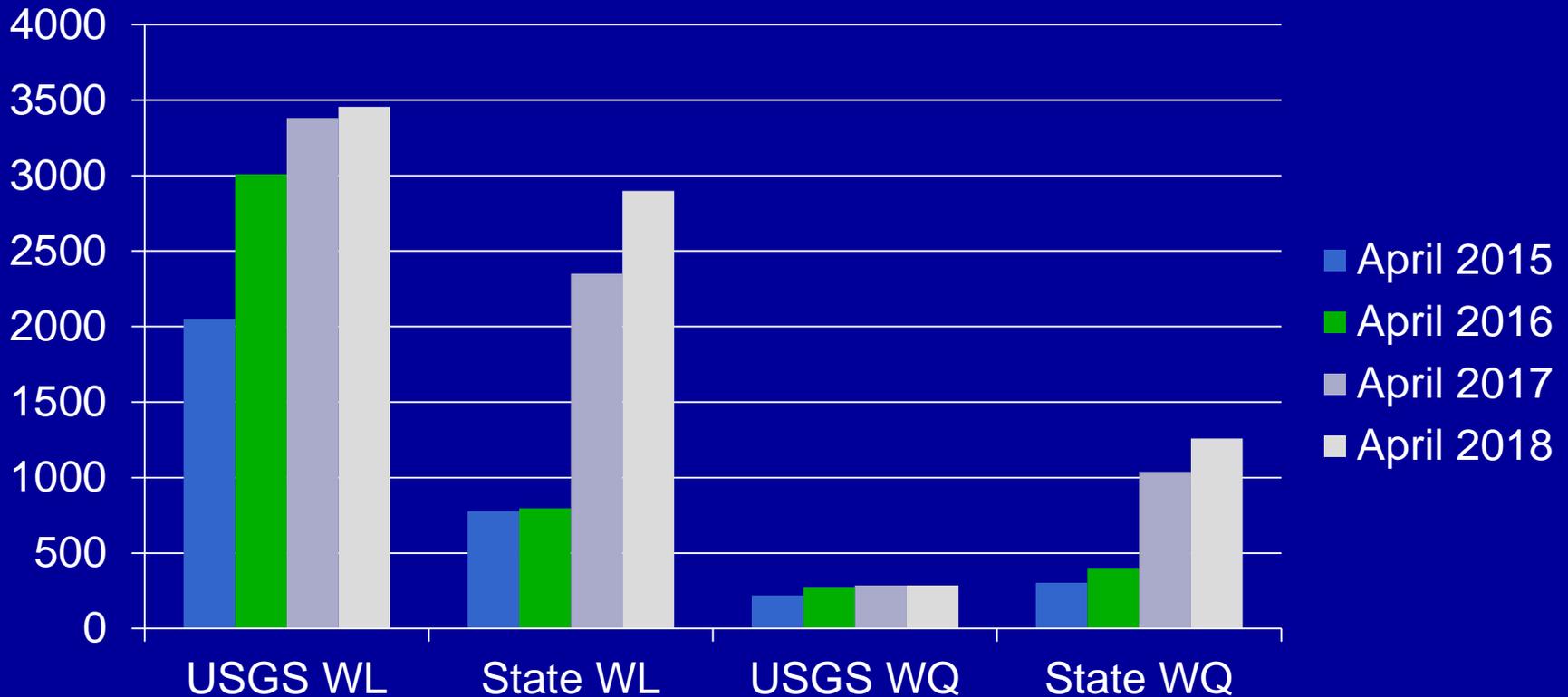
Network Portal Data Model



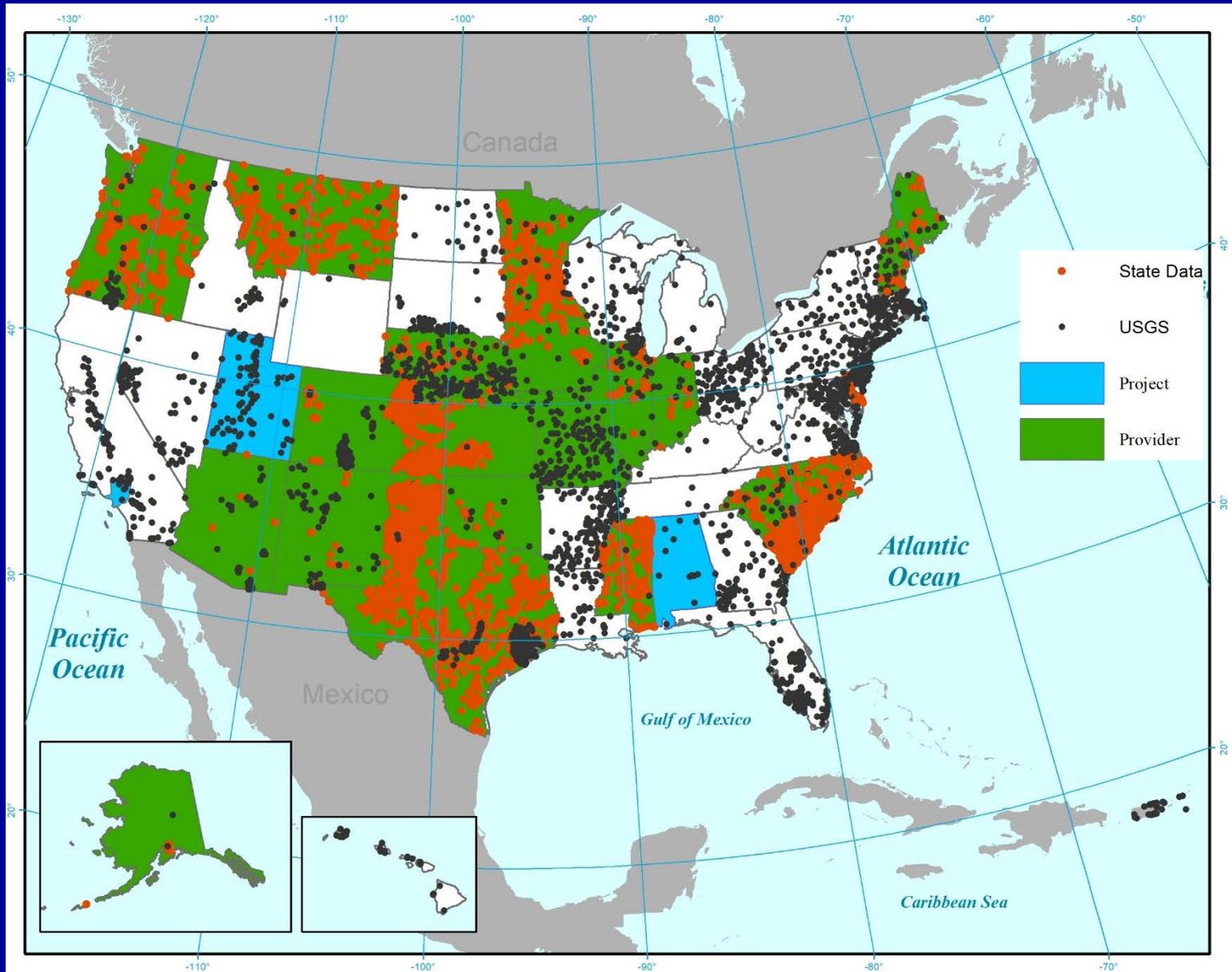
Network growth



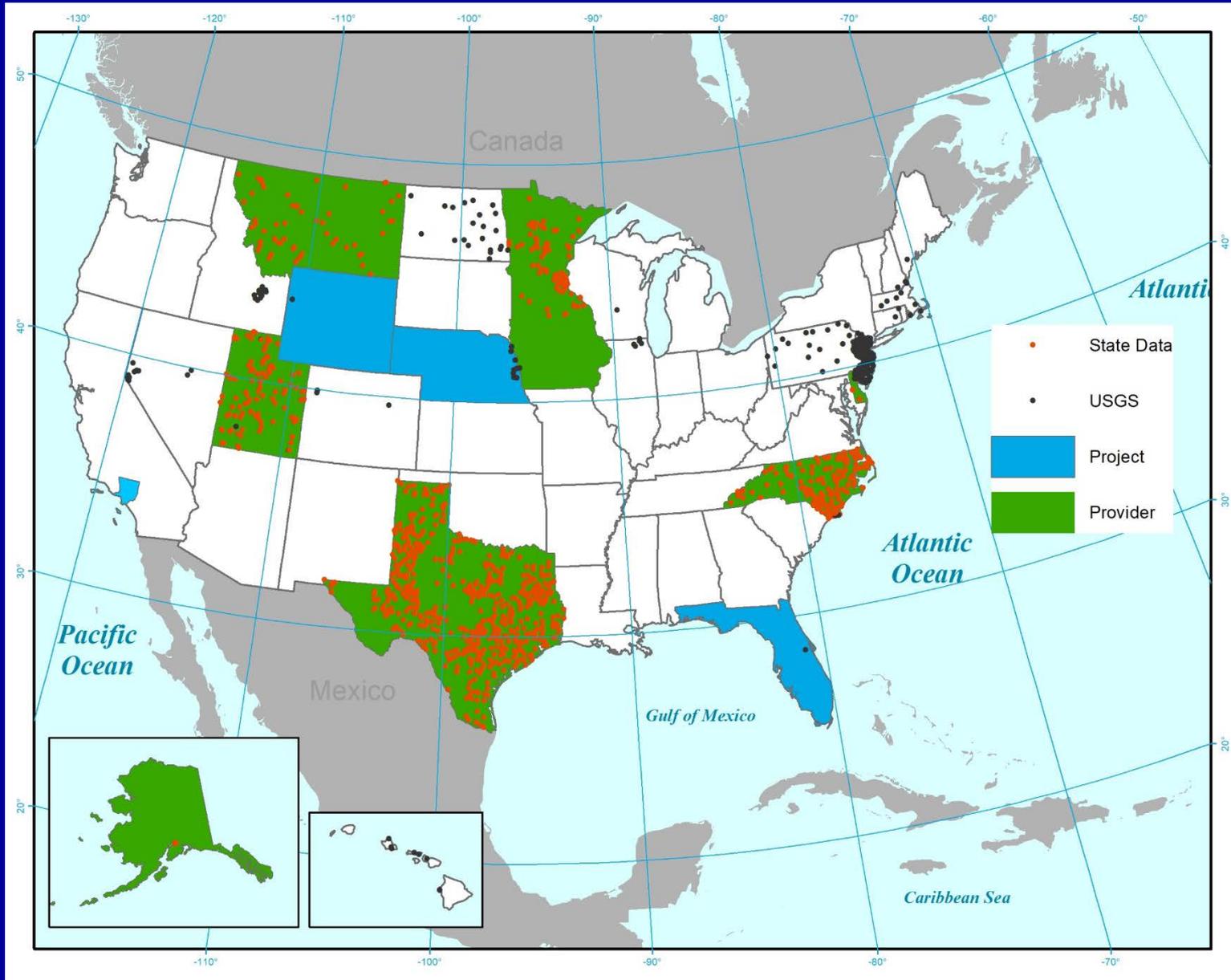
Growth details



Water-level network



Water-quality network



Data Providers

- Data providers are the key to the success of the NGWMN
- Benefits of participating as a data provider
 - Consistent data for shared interstate GW resources
 - Identification of ‘gaps’
 - Opportunity for review of field and data management procedures
 - “Community of Practice”
 - Data Portal provides tools to access data
 - Portal links back to Agencies website
 - Funding available to improve networks
 - Participation in National Network gives your network visibility
- Agencies participating with the USGS to do groundwater monitoring using Cooperative Matching Funds are considered data providers and are eligible to apply for objectives 3-5

Authorization and Funding

- **P.L. 111-11 SECURE Water Act 2009**

Required USGS to work with ACWI and State/Local water agencies to:

- (i) Assess the current scope of GW monitoring
- (ii) Develop and carry out a Monitoring Plan for major aquifers
- (iii) Consult and coordinate with the local water resource agencies

- **Funded through Congressional Appropriations**

- Initial Appropriation in Fiscal Year 2015
- Had increase in NGWMN Appropriation in Fiscal Year 2016 and 2017
- Funding for this Program Announcement is dependent on the Federal FY 2019 Appropriation

Cooperative funding agreements to support NGWMN data providers (CFDA 15.980)

- Funding opportunity available to State or Local groundwater resource agencies
 - Federal agencies, Tribes, institutions, and companies may contribute data, but are not eligible for funding
- Funded 5 new data provider projects in 2018. Provided ongoing support to 19 agencies.
- Summaries of funded projects are on NGWMN Cooperative agreements web page
 - https://cida.usgs.gov/ngwmn/doc/NGWMN_FY16_ProjectSummary.pdf
 - https://cida.usgs.gov/ngwmn/doc/NGWMN_FY17_ProjectSummary.pdf
 - https://cida.usgs.gov/ngwmn/doc/NGWMN_FY18_ProjectSummary.pdf

Funding Opportunity for 2019

- Application period is open from September 4th through November 30th, 2018
- Five objectives are supported
 1. Support to become a new data provider
 2. Support persistent data service from existing data providers
 3. Filling gaps in information at NGWMN sites
 4. Well Maintenance
 5. Well Drilling
- The last two objectives are available to current data providers only
- Only one funding opportunity is planned this year

Changes in Program Announcement

- Added 'Points to Remember' section
- Allowable dates to start project are now July 15th through September 30th
- Clarified that agencies working with USGS through Cooperative Matching Funds projects are eligible for work under Objectives 3-5
 - These agencies need a 'Letter of Support' from the local USGS WSC
- Funding not allowed for purchase of downhole cameras, geophysical logging equipment, or GPS equipment
 - Rental of equipment is allowed
- New data provider projects can no longer include Objectives 4 or 5
- Work can be proposed under objective 3 for sites that are in the Well Registry, but not turned on to display
- Clarified in-kind services requirements
- Need letters of support when working with other agencies as part of your project
- Need form SF-424D for drilling work
- Added example budgets for each objective to Attachment B

Points to remember

- Contact us if you have questions
- Allow time to get registered in Grants.gov. Don't wait until last minute.
- Submit work under proper objective
- Include map in new data provider proposals showing any existing NGWMN sites from other agencies
- Maps should include Principal aquifers
- Include table of specific sites for objectives 3-5
- Separate maps of sites for objectives 3-5
- Use budget format shown in section 11.C and as shown in examples in Attachment B
- Include in-kind services for EACH objective (except IT only)
- Providing cost breakdowns for work tasks helps if we need to partially fund work (especially for objectives 4 and 5)
- Costs for contractors should be broken down, when possible
- Make sure budget summary and the SF-424A budget are consistent with detailed budgets

Guidance on Application Package



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G18AS00121
2019 National Ground-Water Monitoring Network
Department of the Interior
Geological Survey

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SYNOPSIS | VERSION HISTORY | RELATED DOCUMENTS | PACKAGE

Print Synopsis Details ?

General Information

Document Type: Grants Notice	Version: Synopsis 1
Funding Opportunity Number: G18AS00121	Posted Date: Sep 04, 2018
Funding Opportunity Title: 2019 National Ground-Water Monitoring Network	Last Updated Date: Sep 04, 2018
Opportunity Category: Discretionary	Original Closing Date for Applications: Nov 30, 2018
Opportunity Category Explanation:	Current Closing Date for Applications: Nov 30, 2018
Funding Instrument Type: Cooperative Agreement	Archive Date: Dec 30, 2018
Category of Funding Activity: Natural Resources	Estimated Total Program Funding: \$1,800,000
Category Explanation:	Award Ceiling: \$300,000
Expected Number of Awards:	Award Floor: \$0
CFDA Number(s): 15.980 -- National Ground-Water Monitoring Network	

Application Process

- Applications need to be submitted electronically on Grants.gov under funding opportunity number G18AS00121
- Application needs to be submitted by someone with appropriate authority
- Need to be registered with Grants.gov
- Note that registration of new users can take up to three weeks. Suggest starting this process as soon as possible
- Program Announcement contains details on the Electronic Application Requirement

Projects

- Projects can be for up to 2 years
- If a new data provider plans to complete the new data provider objective in the first year of the project, they can apply for Persist data services and/or Site information Gap filling in the second year.
- Current data providers can apply for the ‘Support persistent data service from existing data providers’ objective funding for both years
- A Report is required at end of project
- A 50/50 match of USGS funding and in-kind services is suggested, but not required
- Match can be work related to collecting the data for the Network
- Agencies who have a current project can apply, However, the total funding for any year cannot exceed \$150,000

Application package

- All Projects
 - Proposal Information Summary
 - Use format shown in Attachment A of Program Announcement
 - Proposal
 - Details on each objective
 - Budget Summary
 - Use format shown in Attachment B of Program Announcement
 - Detailed Budget
 - Timeline
- Application must contain information above in a single document that is no longer than 25 pages
- Applicant will submit to Grants.gov along with required Standard Forms SF-424, etc.

Information required for all proposals

- Background information
 - Description of Agency and purpose of monitoring
 - Description of the Agency's existing monitoring networks
 - Water level
 - Water quality
 - Identification of USGS principal or other major aquifers monitored
 - Describe previous projects with the NGWMN
 - Describe your IT Infrastructure
- Project Summary
 - Brief description of the project and objectives that will be included
 - Make sure to include tables of all sites listed for work under each objective. The tables do not count towards the page limit.

Project Description

- For each objective:
 - Work plan
 - Describe work and benefits to NGWMN
 - Identify personnel involved in work
 - Include table of sites for which the work will be done
 - Budget
 - Total cost to accomplish objective
 - Include overhead
 - List the in-kind services that will be used to match the work if they are not a part of the objective
 - Use format shown in section 11.D
 - Timeline
 - Specific requirements for the 5 objectives vary

Objective 1: Support to become a new data provider

- Perform work necessary to become a data provider to the NGWMN. Can also be used by existing data providers to add new web services or add a large set of new wells
- Costs typically range from \$30,000 to \$60,000 of USGS funds
- Work plan elements
 - Select and classify sites for the NGWMN
 - Provide required data elements for selected sites.
 - Populate the NGWMN Well Registry with site Network information
 - Connect databases to portal using web services
 - Water Level, Water Quality, Lithology, Well Construction
 - Expand services (if applicable)
 - Document field and data management practices
 - Prepare a brief report documenting project

Objective 2: Support persistent data service from existing data providers

- Perform activities necessary to maintain persistent data services from agency databases to the NGWMN Portal.
- Generally from \$5,000 to \$15,000. Can be up to \$30,000 under special circumstances
- Work plan elements
 - Maintain list of sites in Well Registry
 - Keep site information updated
 - Populate data elements for new sites
 - Maintain web services connection to Portal
 - Routine updates to metadata
 - Describe additional work (special circumstances)
 - Example: update web services because of database changes

Objective 3: Filling gaps in information at NGWMN sites

- Perform work necessary to fill metadata gaps in the required data elements listed in the NGWMN Framework Document.
- Allowable work includes
 - Data collection to fill metadata gaps (logging, GPS, sounding)
 - Data entry to fill metadata gaps (entry of lithology from logs)
 - Data entry to fill NGWMN data gaps (entry of historic data)
- Work plan elements
 - Description of the information gap
 - Planned approach to fill the gap
 - Description of field techniques, provide references
 - Include a table of sites
 - Describe plan to quality assure any new data Document gap filling activities in the final report for the project

Objective 4: Well Maintenance

- Perform maintenance of wells in the NGWMN to ensure that data are of high quality.
- Examples include:
 - Well redevelopment
 - Pumping to maintain connection
 - Well-integrity testing
 - Well rehabilitation
 - Install surface casing
- Work plan elements
 - Describe the need for the maintenance
 - List the proposed activity at each well, describe approach
 - Include a table of sites
 - Describe who will be doing the maintenance
 - Describe plan to quality assure any new data
 - Document activities in the final report for the project

Long-term data collection is not supported
Cannot be part of new data provider project

Objective 5: Well Drilling

- Install wells to enhance or maintain the NGWMN.
- Preference will be given to projects with direct cost-sharing of the well drilling costs.
- Work plan elements
 - Provide justification for each well
 - Describe proposed drilling methods. Include references
 - Include drilling cost for each proposed well
 - Provide a table of proposed wells
 - If the wells is to be a replacement well for an existing NGWMN site, please list the existing site name and NGWMN number
 - Describe who will be drilling the well
 - Document well drilling activities in the final report for the project

Budget

- SF 424 budget form
- Budget summary for each year (Attachment B)
- Detailed Budget
 - For each objective
 - Include in-kind services
 - If data collection at network sites is used as match, need to include in budget tables
 - Specify Indirect Cost rate used and include in budgets

Note: a copy of the indirect cost negotiated rate agreement should be attached to the proposal. If no negotiated rate agreement is available, use 10% as indirect cost rate.

- Use new format

Project Report Requirements

- New data provider projects
 - Summarize work done for the Project
 - Describe networks
 - Site selection approach
 - Site classification approach
 - Describe data collection techniques
 - Describe methods for quality assurance of data
 - Description of web services
 - Analyte list for water-quality sampling
 - List of laboratories
- Existing data provider projects
 - Describe work to provide persistent data service
 - Web service status
 - Planned upgrades in databases that could affect portal
 - Describe any work done for the last 3 objectives
 - Site information gap filling
 - Well Maintenance
 - Well Drilling

>> NGWMN NETWORKS

∨ FILTER MAP DATA

>> Principal Aquifer

>> Available Data

>> Site Type

>> State and County

∨ Contributing Agency

- All
- Alaska Department of Natural Resources
- Arizona Department of Water Resources
- Delaware Geological Survey
- Illinois Environmental Protection Agency
- Illinois State Water Survey
- Indiana Geological Survey
- Kansas Geological Survey
- Maine Geological Survey

11S 21W 29DDD 01

SUMMARY WELL LOG WATER LEVELS

Agency	Kansas Geological Survey
Site Name	11S 21W 29DDD 01
Site #	390341099400601
Site Type	WELL
Lat/Long(NAD83)	39.0602,-99.6696
Well Depth	140 ft
Local Aquifer Name	Ogallala Formation
National Aquifer Name	High Plains aquifer
Aquifer Type	UNCONFINED
Water Level Network	Surveillance - Documented Changes
Water Quality Network	-
Additional info	link



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Data Provider Pages

National **Ground-Water** Monitoring Network Kansas Geological Survey (KGS) Data Provider Information



Link to: [Kansas Geological Survey Website](http://www.kgs.ku.edu)

NGWMN Contact:

Brownie Wilson
(785) 864-3965
bwilson@kgs.ku.edu

The Kansas Cooperative Water-Level Network is administered by the KGS and includes support from the Kansas Department of Agriculture. Nearly 1,400 wells are monitored with a focus on the High Plains aquifer. KGS also maintains and Index Well Program that provides continuous data at 9 wells. The Kansas Geological Survey (KGS) began participation as a data provider to the NGWMN in 2015. Their participation focuses on water-level monitoring in the High Plains aquifer.

The High Plains Principal aquifer is the only aquifer included in the NGWMN from the KGS.

Data Provider Pages, continued

NGWMN progress reports:

[Final report from initial NGWMN project, July, 2015 to July 2016](#)

Current NGWMN Projects

2016 Cooperative Agreement: 10/1/2016 to 9/30/2017

Project to support maintenance of database connections to NGWMN portal.

NGWMN presentations

[December 2016 presentation to SOGW](#)

Site Selection and Classification	Data Collection Techniques	Data Management	Other Agency Information
<h3>Site Selection and Classification</h3> <hr/> <h4>Kansas Geological Survey</h4> <h5>Site Selection</h5> <p>At the start of this project, Kansas had four operational index wells sites that were selected to be trend wells in the NGWMN (fig. 3). Over the summer months of 2016, three additional index well sites were drilled and another two existing observation wells were equipped with pressure transducers and telemetry units. These additional index well sites will be included in the NGWMN in calendar year 2017 as Trend sites.</p> <p>Kansas Cooperative Network wells were reviewed for sites that were 1) measured in the winter months every year since 2012 and 2) had matching WWC5 well records, indicating the availability of construction and lithologic data for the site. The wells were further selected subjectively to provide a uniform distribution across the Kansas High Plains aquifer region. A total of 133 Kansas Cooperative Network wells were selected as surveillance wells and linked to the NGWMN.</p>			

Proposal Evaluation

- Each objective proposed will be evaluated and ranked by the NGWMN Program Board using the following criteria (each of equal weight)
 1. Relevance.
Fill Network gaps, enhance available data, or supports long-term goals of NGWMN
 2. Technical quality of proposal.
Work plan follows PA requirements, Approach is acceptable and documented, and demonstrates familiarity with NGWMN Framework Document.
 3. Budget.
Cost is reasonable relative to benefit to Network. Objectives with less than 50 percent in-kind services for non-IT work will be scored lower.
- The NGWMN Program Board will evaluate the proposals
 - The Program Board consists of 10 members, six of which are current data provider agencies.
 - The Program Board will meet in January to review the proposals and will make funding recommendations. You will receive feedback from the Program Board on your proposal

Support Resources

National Ground-Water Monitoring Network

The National Ground-Water Monitoring Network (NGWMN) is a compilation of selected groundwater monitoring wells from Federal, State, and local groundwater monitoring networks across the nation.

The NGWMN is a product of the Subcommittee on Ground Water of the Federal Advisory Committee on Water Information (ACWI).

The NGWMN Data Portal provides access to groundwater data from multiple, dispersed databases in a web-based mapping application. The portal contains current and historical data including water levels, water quality, lithology, and well construction. The NGWMN is transitioning from a pilot phase into full implementation. In the future we will be adding additional data providers to the network.

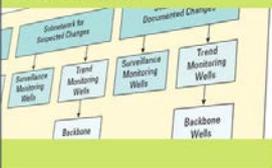
CURRENT NETWORK:
3550 water-level wells
578 water-quality wells
19 subnetworks
8 contributing agencies
43 states
33 principal aquifers

GET INVOLVED WITH THE NATIONAL GROUND-WATER MONITORING NETWORK!

The network is made up of selected wells from existing monitoring networks across the nation. Agency groundwater data can become data providers for the Network. [Learn about contributing data from you.](#)

NEW - Information about USGS cooperative agreements to fund data providers is available [here](#).

LEARN about the Network



EXPLORE the Network



National Ground-Water Monitoring Network

The National Ground-Water Monitoring Network (NGWMN) is a compilation of selected wells monitoring groundwater aquifers all around the nation. The NGWMN Data Portal brings groundwater data together in one place to provide users with current and reliable information for the planning, management, and development of groundwater resources.

ABOUT THE NETWORK

THE DATA PORTAL

DATA PROVIDERS

GET INVOLVED

About the Network

Background | Network Design | Network Status

Background

The NGWMN network is sponsored by the Advisory Committee on Water Information's (ACWI) Subcommittee on Ground Water (SOGW) and was established in 2009 with a pilot network.

The goal of the National Ground-Water Monitoring Network (NGWMN) is to provide information needed for planning, management, and development of groundwater supplies to meet current and future water needs and ecosystem requirements. This will be accomplished by aggregating suitable

Support

- ACWI Subcommittee on Ground Water page
<http://acwi.gov/sogw/index.html>
- Framework Document
http://acwi.gov/sogw/ngwmn_framework_report_july2013.pdf
- NGWMN Web Page
<http://cida.usgs.gov/ngwmn/>
 - NGWMN Cooperative agreements page
<http://cida.usgs.gov/ngwmn/cooperativeagreements.jsp>
 - Includes Frequently Asked Questions
<http://cida.usgs.gov/ngwmn/cooperativeagreementsfaq.jsp>
 - This Presentation
Will be available on the Cooperative Agreements page shortly.

Tip Sheets

- Created to help data providers with common tasks
- Current tip sheets
 - NGWMN Subnetwork
 - NGWMN Monitoring Categories
 - NGWMN WL Criteria
 - NGWMN WQ Criteria
 - NGWMN Well Registry
 - NGWMN Minimum Data Elements
 - NGWMN Web services
 - Standard Elements for Water-Quality Web Services

<https://cida.usgs.gov/ngwmn/learnmore.jsp#dataProviders>

Further information

- If you have specific questions about your agencies participation in the NGWMN, contact me and we can set up a conference call to discuss
- We can also set up a call that includes your IT staff and staff from the USGS NGWMN Portal team who can discuss setting up web services for the Network

- Daryll Pope

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<http://acwi.gov/>

<http://acwi.gov/sogw/index.html>

<http://cida.usgs.gov/ngwmn/>



Questions