USGS National Ground Water Monitoring Network Cooperative Agreement
Final Report

Nebraska Department of Environment and Energy (NDEE)

NDEQ as a new water quality data provider to the NGWMN

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Overview of work

The Nebraska Department of Environment and Energy (NDEE) received assistance from the USGS to participate in the National Ground Water Monitoring Network (NGWMN). Funding allowed the department to complete two major tasks: picking wells and establishing database connections. Conservation and Survey Division (Nebraska's Geological Survey) was contracted to assist with well selection, characterization, and compiling data elements. In all, 529 wells were selected to be included in the NGWMN network. Database connections were done concurrently with a Nebraska database redesign as described below. All components of Nebraska's NGWMN project are completed but the database redesign will not be available to the public until April 30, 2021.

NDEE was created pursuant to the passage of the Nebraska Environmental Protection Act in 1971. The NDEE shares some responsibilities with the state's 23 Natural Resources Districts (NRDs) for groundwater quality monitoring, assessment, and implementation. The NDEE is responsible for controlling point sources of pollution to 'Waters of the State' – which includes groundwater. The Department was also granted authority to regulate nonpoint sources of pollution along with the state's NRDs.

NRDs are local government entities with broad responsibilities to protect natural resources. Legislation was enacted in 1969 which combined 154 special purpose entities, defined 12 broad areas on responsibility (including groundwater quality), and authorized taxing authority. In 1986, each NRD was required to have an approved Ground Water Management Plan reviewed by the state and continually maintained and updated. These plans require each NRD to develop: a monitoring plan, triggers based on monitoring, and required best management practices if triggers are exceeded. Similarly, if the NDEE perceives a problem area, the department can cooperatively or independently sample and assess areas where groundwater problems from nonpoint source contaminants exist or are likely to exist and require management practices.

Legislation passed in 2001 directed NDEE to issue an annual report to the State Legislature concerning the quality of groundwater in Nebraska. This same legislation requires the NRDs to submit all groundwater quality monitoring data to the NDEE or its designee.

Description of Existing water-level and/or water-quality networks including the objectives of the network

The Quality-Assessed Agrichemical Contaminant Database for Nebraska Ground Water (Clearinghouse) was started by the NDEE and the Nebraska Department of Agriculture (NDA) in 1996 to house and manage the numerous groundwater sampling results being collected by state, federal, and local agencies. The Conservation and Survey Division (CSD) of the School of Natural Resources at the University of Nebraska (the state Geological Survey) administers the Clearinghouse. Currently, the clearinghouse holds more than 500,000 individual groundwater analytical results dating back to 1974. Data is screened for essential data elements, evaluated using established criteria and assigned a quality flag that corresponds to one of five quality assessment levels.

To better identify nitrate trends, the NRDs and NDEE joined forces to develop a statewide groundwater monitoring network in 2005. This network was designed to have approximately 1,500 wells. Each well was chosen based on: geographic location, aquifer, well type, and most importantly, a consistent sampling history. This network slowly fell out of favor and needed to be revisited utilizing a smaller number of more carefully chosen wells. Nebraska's NGWMN is replacing our 2005 network.

The Clearinghouse is in the final weeks of a major redesign including:
1) Change from Microsoft Access to SQL
2) Host the database on a secure state server with redundancy/automatic backups.
3) Simplify the process of adding and quality assessing new data to save time and money.
4) Build capacity for direct user uploads into the database from across the state. More than 25 entities contribute to the database making updates cumbersome under old practices.
5) Assist with database administration succession planning.
6) Migrate the public web interface of the database to NDEE from another agency.
7) Include field parameters, additional constituents, aquifer information, etc. The legacy database only includes agrichemical contaminants – nitrate and pesticide data.
8) Communicate with other databases: registered wells, SDWIS, NWIS, etc.
9) Serve data via webservices to participate in the NGWMN

Description of site selection criteria and process

Five hundred and twenty-nine wells that are actively sampled by the NRDs are identified for inclusion in the national network. The most basic criteria for selection are that the well is registered in the Groundwater Wells Database maintained by the Nebraska Department of Natural Resources, and that the registration record includes lithologic information and screen interval(s). The secondary criterion for well selection is that it contributes to a relatively even spatial distribution across the state and adequate representation for each of the national aquifers. If more than one well with similar characteristics are in proximity to each other, preference is given to dedicated monitoring wells and wells with a history of five or more samples. Of the 529 wells selected, 51% are irrigation wells, 40% dedicated monitoring wells, 8% domestic wells, and 1% livestock wells.

The five national aquifers represented are: High Plains (N100HGHPLN), Glacial (N100GLCIAL), Alluvial (N100ALLUVL), Lower Cretaceous (N300LCRTCS), and Upper Cretaceous (N300UPCRTCS). Thirty wells are assigned to N9999OTHER; these wells are screened in various paleovalley aquifers that contain unconsolidated sand and gravel of unknown age and are locally important. The High Plains aquifer is subdivided into four local aquifers: Quaternary (110QRNR), Ogallala (121OGLL), Arikaree (122ARIK), and Brule (123BRUL). The Upper Cretaceous aquifer is subdivided into two local aquifers: Niobrara (211NBRR) and Pierre (211PIRR). All the wells assigned to the Lower Cretaceous aquifer are screened in the Dakota aquifer (211DKOT). A local aquifer code is assigned if the screen interval is entirely within that aquifer. If the stratigraphy associated with the screen interval cannot be identified or the screen includes more than one local aquifer, no local aquifer code is assigned.

Assigning Subnetworks, Monitoring Categories, and Baseline

The three subnetworks are: Background, Suspected/Anticipated Changes, and Known Changes. Natural nitrate concentrations in Nebraska may reach about 2 ppm. A well is assigned to the Background subnetwork if all the nitrate analyses from that well are less than or equal to 2 ppm. Wells in which all the nitrate concentrations are greater than 2 ppm and less than or equal to 3 ppm are assigned to the Suspected/Anticipated Changes subnetwork. All remaining wells are assigned to the Known Changes subnetwork. The distribution of selected wells by subnetwork is: 26% Background, 9% Suspected/Anticipated Changes, and 64% Known Changes.

The two monitoring categories are Trend and Surveillance. A well is assigned to the Trend category if it was sampled at least once per year between 2013 and 2018. All other wells are assigned to the Surveillance category. Some recently installed monitoring wells are sampled at least annually but because their records are relatively short, and their sampling frequency may decrease they are assigned to Surveillance. Of the wells selected, 31% are identified as Trend, and the remaining to Surveillance.

Five years of results is the suggested baseline threshold below which assigning subnetworks and monitoring categories is optional. For the purposes of the Nebraska network, baseline was technically considered achieved if at least one sample was collected between 2013 and 2018. All the wells selected meet this criterion and were assigned to a subnetwork and monitoring category. In practice, all the wells selected had more than one result during this timeframe but some of them had fewer than five results.

Description or link to Field techniques for water-level measurements and water-quality sample collection (as appropriate for you network)

Applicable SOPs can be found at http://dee.ne.gov/NDEQProg.nsf/SOPView.xsp include: GW-060, GW-061, GW-070, GW-072, GW-080, GW-100, GW-140, GW-170, and GW-171.

Description of data management procedures in place. Describe data quality and quality assurance processes

Applicable SOP is GW-061 and can be found at http://dee.ne.gov/NDEQProg.nsf/SOPView.xsp

List Minimum Data elements and how they are provided to the Data Portal (via the Well Registry or web services)

Agency; Well Registry
Site Number; Well Registry and Web Services
Site Name; Well Registry
Latitude; Well Registry
Longitude; Well Registry
Horizontal Datum: Well Registry
Horizontal Location Method: Well Registry
Horizontal Location Accuracy: Well Registry

Altitude; Well Registry
Altitude Units; Well Registry
Altitude Datum; Well Registry
Altitude Method; Well Registry
Altitude Accuracy; Well Registry
National Aquifer Code; Well Registry
Local Aquifer Name; Well Registry
Local Aquifer Code; Well Registry
County; Well Registry
State; Well Registry
County; Well Registry
Well Depth; Well Registry
Site Type; Well Registry
Aquifer Type; Well Registry
Display Well; Well Registry
WQ Subnetwork; Well Registry
WQ Baseline; Well Registry
WQ Well Characteristics; Well Registry
WQ Well Type; Well Registry
WQ Well Purpose; Well Registry
WQ System Name; Well Registry
Water Level Subnetwork; Well Registry
Sample Date; Web Services
Sample Time; Web Services
Sample Time Zone; Web Services
Analyte Name; Web Services
Analyte Value; Web Services
Parameter Unit; Web Services
Sample Fraction; Web Services
Result Detection Condition; Web Services
Analytical Method System; Web Services
Top Depth of Casing Interval; Web Services
Bottom Depth of Casing Interval; Web Services
Depth of Casing Interval Unit of Measure; Web Services
Casing Interval Material; Web Services
Top Depth of Screen Interval; Web Services
Bottom Depth of Screen Interval; Web Services
Depth of Screen Interval Unit of Measure; Web Services
Screen Interval Material; Web Services
Lithology ID; Web Services
Lithology Description; Web Services
Observation Method; Web Services
Beginning Depth of Lithologic Unit; Web Services
Ending Depth of Lithology Unit; Web Services

Notes on any sites that have missing required data elements

The required data elements are reported for all sites, although sometimes the reported value is 'Unknown'.

Note any sites that do not meet requirements in Table 4.5.1.1 and/or 4.5.2.1 of the Framework Document

A well is assigned to the Trend category if it was sampled at least once per year between 2013 and 2018. All other wells are assigned to the Surveillance category regardless of aquifer type or flow characteristics.

A description of the web services used or installed for this project

Web services were developed to supply data to the USGS National Ground Water Monitoring Network (NGWMN) for Construction (casing and screening), Lithology, and Water Quality data. Each service accepts a Site Number parameter and returns data collected by the NRDs that has been accepted into the NDEE database. Web service results can be returned either in XML or JSON format as specified by the Accept Header (i.e. application/xml or application/json). The web services were developed in .NET Core 3.1 connected to a Microsoft(c) SQL Server database.

Sample XML output:

Construction (/api/ngwmn/constructionbysitenumber?sitenumber=35936):

```
1 <ArrayOfNGWMN_Construction xmlns:i="http://www.w3.org/2001/XMLSchema-
instance" xmlns="http://schemas.datacontract.org/2004/07/RbdmsEnvAPI.Models">
2   <NGWMN_Construction>
3     <AgencyCode>NDEE</AgencyCode>
4     <CasingBottom i:nil="true" />
5     <CasingDepthUnit i:nil="true" />
6     <CasingDiameter>Unknown</CasingDiameter>
7     <CasingDiameterUnit>Unknown</CasingDiameterUnit>
8     <CasingInterval i:nil="true" />
9     <CasingMaterial>Unknown</CasingMaterial>
10     <CasingTop i:nil="true" />
11     <HoleSize i:nil="true" />
12     <HoleSizeUnit i:nil="true" />
13     <ScreenBottom>26</ScreenBottom>
14     <ScreenDepthUnit>FT</ScreenDepthUnit>
15     <ScreenDiameter>Unknown</ScreenDiameter>
16     <ScreenDiameterUnit>Unknown</ScreenDiameterUnit>
17     <ScreenInterval>22 - 26</ScreenInterval>
18     <ScreenIntervalMaterial>Unknown</ScreenIntervalMaterial>
19     <ScreenTop>22</ScreenTop>
20     <SiteNumber>35936</SiteNumber>
21   </NGWMN_Construction>
```

```
22  <NGWMN_Construction>
23    <AgencyCode>NDEE</AgencyCode>
24    <CasingBottom i:nil="true" />
25    <CasingDepthUnit i:nil="true" />
26    <CasingDiameter>Unknown</CasingDiameter>
27    <CasingDiameterUnit>Unknown</CasingDiameterUnit>
28    <CasingInterval i:nil="true" />
29    <CasingMaterial>Unknown</CasingMaterial>
30    <CasingTop i:nil="true" />
31    <HoleSize i:nil="true" />
32    <HoleSizeUnit i:nil="true" />
33    <ScreenBottom>46</ScreenBottom>
34    <ScreenDepthUnit>FT</ScreenDepthUnit>
35    <ScreenDiameter>Unknown</ScreenDiameter>
36    <ScreenDiameterUnit>Unknown</ScreenDiameterUnit>
37    <ScreenInterval>30 - 46</ScreenInterval>
38    <ScreenIntervalMaterial>Unknown</ScreenIntervalMaterial>
39    <ScreenTop>30</ScreenTop>
40    <SiteNumber>35936</SiteNumber>
41  </NGWMN_Construction>
42</ArrayOfNGWMN_Construction>
```

Lithology (/api/ngwmn/lithologybysitenumber?sitenumber=69791):

```
1 <ArrayOfNGWMN_Lithology xmlns:i="http://www.w3.org/2001/XMLSchema-
instance" xmlns="http://schemas.datacontract.org/2004/07/RbdmsEnvAPI.Models">
2   <NGWMN_Lithology>
3     <AgencyCode>NDEE</AgencyCode>
4     <DepthUnit>FT</DepthUnit>
5     <LithologyBottom>70</LithologyBottom>
6     <LithologyDescription>CLAY Other</LithologyDescription>
7     <LithologyId>CLAY Other</LithologyId>
8     <LithologyTop>0</LithologyTop>
9     <ObservationMethod>Unknown</ObservationMethod>
10    <SiteNumber>69791</SiteNumber>
11  </NGWMN_Lithology>
12  <NGWMN_Lithology>
13    <AgencyCode>NDEE</AgencyCode>
14    <DepthUnit>FT</DepthUnit>
15    <LithologyBottom>100</LithologyBottom>
16    <LithologyDescription>COARSE SAND SANDSTONE Other</LithologyDescription>
17    <LithologyId>COARSE SAND SANDSTONE Other</LithologyId>
18    <LithologyTop>70</LithologyTop>
19    <ObservationMethod>Unknown</ObservationMethod>
20    <SiteNumber>69791</SiteNumber>
21  </NGWMN_Lithology>
22  <NGWMN_Lithology>
23    <AgencyCode>NDEE</AgencyCode>
24    <DepthUnit>FT</DepthUnit>
25    <LithologyBottom>115</LithologyBottom>
26    <LithologyDescription>COARSE SAND Other</LithologyDescription>
27    <LithologyId>COARSE SAND Other</LithologyId>
28    <LithologyTop>100</LithologyTop>
```

```xml
29    <ObservationMethod>Unknown</ObservationMethod>
30    <SiteNumber>69791</SiteNumber>
31  </NGWMN_Lithology>
32  <NGWMN_Lithology>
33    <AgencyCode>NDEE</AgencyCode>
34    <DepthUnit>FT</DepthUnit>
35    <LithologyBottom>154</LithologyBottom>
36    <LithologyDescription>COARSE SAND SANDSTONE Other</LithologyDescription>
37    <LithologyId>COARSE SAND SANDSTONE Other</LithologyId>
38    <LithologyTop>115</LithologyTop>
39    <ObservationMethod>Unknown</ObservationMethod>
40    <SiteNumber>69791</SiteNumber>
41  </NGWMN_Lithology>
42  <NGWMN_Lithology>
43    <AgencyCode>NDEE</AgencyCode>
44    <DepthUnit>FT</DepthUnit>
45    <LithologyBottom>160</LithologyBottom>
46    <LithologyDescription>COARSE SAND Other</LithologyDescription>
47        <LithologyId>COARSE SAND Other</LithologyId>
48    <LithologyTop>154</LithologyTop>
49    <ObservationMethod>Unknown</ObservationMethod>
50    <SiteNumber>69791</SiteNumber>
51  </NGWMN_Lithology>
52  <NGWMN_Lithology>
53    <AgencyCode>NDEE</AgencyCode>
54    <DepthUnit>FT</DepthUnit>
55    <LithologyBottom>186</LithologyBottom>
56    <LithologyDescription>COARSE SAND TRACE FINE GRAVEL Other</LithologyDescription>
57    <LithologyId>COARSE SAND TRACE FINE GRAVEL Other</LithologyId>
58    <LithologyTop>160</LithologyTop>
59    <ObservationMethod>Unknown</ObservationMethod>
60    <SiteNumber>69791</SiteNumber>
61  </NGWMN_Lithology>
62  <NGWMN_Lithology>
63    <AgencyCode>NDEE</AgencyCode>
64    <DepthUnit>FT</DepthUnit>
65    <LithologyBottom>188</LithologyBottom>
66    <LithologyDescription>LIMESTONE Other</LithologyDescription>
67    <LithologyId>LIMESTONE Other</LithologyId>
68    <LithologyTop>186</LithologyTop>
69    <ObservationMethod>Unknown</ObservationMethod>
70    <SiteNumber>69791</SiteNumber>
71  </NGWMN_Lithology>
72  <NGWMN_Lithology>
73    <AgencyCode>NDEE</AgencyCode>
74    <DepthUnit>FT</DepthUnit>
75    <LithologyBottom>225</LithologyBottom>
76    <LithologyDescription>COARSE SAND SANDSTONE Other</LithologyDescription>
77    <LithologyId>COARSE SAND SANDSTONE Other</LithologyId>
78    <LithologyTop>188</LithologyTop>
79    <ObservationMethod>Unknown</ObservationMethod>
80    <SiteNumber>69791</SiteNumber>
81  </NGWMN_Lithology>
```

```
82   <NGWMN_Lithology>
83     <AgencyCode>NDEE</AgencyCode>
84     <DepthUnit>FT</DepthUnit>
85     <LithologyBottom>252</LithologyBottom>
86     <LithologyDescription>COARSE SAND TRACE FINE GRAVEL Other</LithologyDescription>
87     <LithologyId>COARSE SAND TRACE FINE GRAVEL Other</LithologyId>
88     <LithologyTop>225</LithologyTop>
89     <ObservationMethod>Unknown</ObservationMethod>
90     <SiteNumber>69791</SiteNumber>
91   </NGWMN_Lithology>
92   <NGWMN_Lithology>
93     <AgencyCode>NDEE</AgencyCode>
94     <DepthUnit>FT</DepthUnit>
95     <LithologyBottom>260</LithologyBottom>
96     <LithologyDescription>CLAY AND SHALE Other</LithologyDescription>
97     <LithologyId>CLAY AND SHALE Other</LithologyId>
98     <LithologyTop>252</LithologyTop>
99     <ObservationMethod>Unknown</ObservationMethod>
100     <SiteNumber>69791</SiteNumber>
101   </NGWMN  Lithology>
102</ArrayOfNGWMN_Lithology>
```

Water Quality (/api/ngwmn/waterqualitybysitenumber?sitenumber=35936):

```
1 <ArrayOfNGWMN  WaterQuality xmlns:i="http://www.w3.org/2001/XMLSchema-
instance" xmlns="http://schemas.datacontract.org/2004/07/RbdmsEnvAPI.Models">
2   <NGWMN_WaterQuality>
3     <AgencyCode>NDEE</AgencyCode>
4     <AnalyteName>Nitrate-N</AnalyteName>
5     <AnalyteValue>11.7</AnalyteValue>
6     <AnalyticalMethodSystem>Unknown Method</AnalyticalMethodSystem>
7     <DetectionLimit>0.1</DetectionLimit>
8     <DetectionLimitUnit>MG/L</DetectionLimitUnit>
9     <Method>Unknown</Method>
10     <ParameterUnit>MG/L</ParameterUnit>
11     <ResultDetectionCondition>Not Reported</ResultDetectionCondition>
12     <SampleDate>07/30/2019</SampleDate>
13     <SampleFraction>Unknown</SampleFraction>
14     <SampleTime>00:00:00</SampleTime>
15     <SampleTimeZone>Central Time</SampleTimeZone>
16     <SiteNumber>35936</SiteNumber>
17   </NGWMN_WaterQuality>
18   <NGWMN_WaterQuality>
19     <AgencyCode>NDEE</AgencyCode>
20     <AnalyteName>Nitrate-N</AnalyteName>
21     <AnalyteValue>9.5</AnalyteValue>
22     <AnalyticalMethodSystem>Unknown Method</AnalyticalMethodSystem>
23     <DetectionLimit>0.1</DetectionLimit>
24     <DetectionLimitUnit>MG/L</DetectionLimitUnit>
25     <Method>Unknown</Method>
26     <ParameterUnit>MG/L</ParameterUnit>
27     <ResultDetectionCondition>Not Reported</ResultDetectionCondition>
28     <SampleDate>07/24/1989</SampleDate>
```

```xml
29      <SampleFraction>Unknown</SampleFraction>
30      <SampleTime>00:00:00</SampleTime>
31      <SampleTimeZone>Central Time</SampleTimeZone>
32      <SiteNumber>35936</SiteNumber>
33    </NGWMN_WaterQuality>
34    <NGWMN_WaterQuality>
35      <AgencyCode>NDEE</AgencyCode>
36      <AnalyteName>Nitrate-N</AnalyteName>
37      <AnalyteValue>16.1</AnalyteValue>
38      <AnalyticalMethodSystem>Unknown Method</AnalyticalMethodSystem>
39      <DetectionLimit>0.5</DetectionLimit>
40      <DetectionLimitUnit>MG/L</DetectionLimitUnit>
41      <Method>Unknown</Method>
42      <ParameterUnit>MG/L</ParameterUnit>
43      <ResultDetectionCondition>Not Reported</ResultDetectionCondition>
44      <SampleDate>08/06/2004</SampleDate>
45      <SampleFraction>Unknown</SampleFraction>
46      <SampleTime>00:00:00</SampleTime>
47      <SampleTimeZone>Central Time</SampleTimeZone>
48      <SiteNumber>35936</SiteNumber>
49    </NGWMN_WaterQuality>
50    <NGWMN_WaterQuality>
51      <AgencyCode>NDEE</AgencyCode>
52      <AnalyteName>Nitrate-N</AnalyteName>
53      <AnalyteValue>20</AnalyteValue>
54      <AnalyticalMethodSystem>Unknown Method</AnalyticalMethodSystem>
55      <DetectionLimit>0.1</DetectionLimit>
56      <DetectionLimitUnit>MG/L</DetectionLimitUnit>
57      <Method>Unknown</Method>
58      <ParameterUnit>MG/L</ParameterUnit>
59      <ResultDetectionCondition>Not Reported</ResultDetectionCondition>
60      <SampleDate>07/17/1995</SampleDate>
61      <SampleFraction>Unknown</SampleFraction>
62      <SampleTime>00:00:00</SampleTime>
63      <SampleTimeZone>Central Time</SampleTimeZone>
64      <SiteNumber>35936</SiteNumber>
65    </NGWMN_WaterQuality>
66    <NGWMN_WaterQuality>
67      <AgencyCode>NDEE</AgencyCode>
68      <AnalyteName>Nitrate-N</AnalyteName>
69      <AnalyteValue>15.2</AnalyteValue>
70      <AnalyticalMethodSystem>Unknown Method</AnalyticalMethodSystem>
71      <DetectionLimit>0.1</DetectionLimit>
72      <DetectionLimitUnit>MG/L</DetectionLimitUnit>
73      <Method>Unknown</Method>
74      <ParameterUnit>MG/L</ParameterUnit>
75      <ResultDetectionCondition>Not Reported</ResultDetectionCondition>
76      <SampleDate>08/11/2016</SampleDate>
77      <SampleFraction>Unknown</SampleFraction>
78      <SampleTime>00:00:00</SampleTime>
79      <SampleTimeZone>Central Time</SampleTimeZone>
80      <SiteNumber>35936</SiteNumber>
81    </NGWMN_WaterQuality>
```

```
82    <NGWMN_WaterQuality>
83      <AgencyCode>NDEE</AgencyCode>
84      <AnalyteName>Nitrate-N</AnalyteName>
85      <AnalyteValue>12</AnalyteValue>
86      <AnalyticalMethodSystem>Unknown Method</AnalyticalMethodSystem>
87      <DetectionLimit>0.02</DetectionLimit>
88      <DetectionLimitUnit>MG/L</DetectionLimitUnit>
89      <Method>Unknown</Method>
90      <ParameterUnit>MG/L</ParameterUnit>
91      <ResultDetectionCondition>Not Reported</ResultDetectionCondition>
92      <SampleDate>08/10/1984</SampleDate>
93      <SampleFraction>Unknown</SampleFraction>
94      <SampleTime>00:00:00</SampleTime>
95      <SampleTimeZone>Central Time</SampleTimeZone>
96      <SiteNumber>35936</SiteNumber>
97    </NGWMN_WaterQuality>
98    <NGWMN_WaterQuality>
99      <AgencyCode>NDEE</AgencyCode>
100     <AnalyteName>Nitrate-N</AnalyteName>
101     <AnalyteValue>9.3</AnalyteValue>
102     <AnalyticalMethodSystem>Unknown Method</AnalyticalMethodSystem>
103     <DetectionLimit>0.1</DetectionLimit>
104     <DetectionLimitUnit>MG/L</DetectionLimitUnit>
105     <Method>Unknown</Method>
106     <ParameterUnit>MG/L</ParameterUnit>
107     <ResultDetectionCondition>Not Reported</ResultDetectionCondition>
108     <SampleDate>07/19/1974</SampleDate>
109     <SampleFraction>Unknown</SampleFraction>
110     <SampleTime>00:00:00</SampleTime>
111     <SampleTimeZone>Central Time</SampleTimeZone>
112     <SiteNumber>35936</SiteNumber>
113   </NGWMN_WaterQuality>
114</ArrayOfNGWMN_WaterQuality>
```

Analyte list used for water-quality sampling network

Nebraska currently prioritizes nitrate sampling statewide. As state funding opportunities arise, additional analytes will be prioritized at NGWMN wells. In 2021 and 2022, NDEE in cooperation with NRDs plan to sample all NGWMN wells for: uranium, arsenic, selenium, manganese, iron, boron, strontium, Nitrate-N, fluoride, chloride, and sulfate as prioritized by NRDs, UNL, and the Department in a 2020 survey. Field measurements will also be collected via multi-meters. The Department will complete a QAPP and provide training for all sampling activities.

List of laboratories and their accreditation for analyzing properties and constituents included in the monitoring program if water-quality data are served.

Ward
Servi-Tech
Midwest Laboratories
DHHS
American Agricultural Laboratory - formerly Olsen's Lab
Platte Valley Labs
Energy Labs (Colorado) - not used since 2014