NEBRASKA

DEPT. OF WATER, ENERGY, AND ENVIRONMENT

# 2025 Nebraska Groundwater Quality Monitoring Report

NEBRASKA

Good Life. Great Resources.

DEPT. OF WATER, ENERGY, AND ENVIRONMENT

**Groundwater Section**
**November 2025**

**Prepared Pursuant to**
**Neb. Rev. Stat. §46-1304**
**(LB389—2001)**

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# 2025 Nebraska Groundwater Quality Monitoring Report

## Introduction

The 2001 Nebraska Legislature passed LB329 (Neb. Rev. Stat. §46-1304) which, in part, directed the Nebraska Department of Water, Energy, and Environment (DWEE) to report on groundwater quality monitoring in Nebraska. Reports have been issued annually since December 2001. The text of the statute applicable to this report follows:

"The Department of Water, Energy, and Environment shall prepare a report outlining the extent of ground water quality monitoring conducted by natural resources districts during the preceding calendar year. The department shall analyze the data collected for the purpose of determining whether or not ground water quality is degrading or improving and shall present the results to the Natural Resources Committee of the Legislature beginning December 1, 2001, and each year thereafter. The districts shall submit in a timely manner all ground water quality monitoring data collected to the department or its designee. The department shall use the data submitted by the districts in conjunction with all other readily available and compatible data for the purpose of the annual ground water quality trend analysis."

The section following the statute quoted above (§ 46-1305), requires the State's Natural Resources Districts (NRDs) to submit an annual report to the legislature with information on their water quality programs, including financial data. That report has been prepared by the Nebraska Association of Resources Districts and is being issued concurrently with this groundwater quality report.

Groundwater monitoring was being conducted years before LB329 was passed. Many entities performed monitoring of groundwater besides the 23 NRDs for a variety of purposes.

Those entities include:

- Nebraska Department of Agriculture
- Nebraska Department of Water, Energy, and Environment
- Nebraska Department of Health and Human Services
- Public Water Suppliers
- University of Nebraska-Lincoln
- United States Geological Survey

The Nebraska Departments of Agriculture (NDA), Environmental Quality (currently DWEE) and the University of Nebraska - Lincoln (UNL) began a project in 1996 to develop a centralized data repository for groundwater quality information that would allow comparison of data obtained at different times and for different purposes. The result of this project was the Quality-Assessed Agrichemical Contaminant Database for Nebraska Groundwater (referred to as the Database this report). The Database brought together groundwater data from different sources and provided public access to this data.

In 2019, the DWEE and UNL staff worked with a contractor sponsored by the Ground Water Protection Council (GWPC) to develop a new application to present the Database to the public. The Nebraska Groundwater Quality Clearinghouse (referred to as the Clearinghouse in this publication) was developed using the Database as an interactive interface that features data, maps, well construction details and statistics.

The Clearinghouse serves two primary functions. First, it provides the public the results of groundwater monitoring for agricultural compounds in Nebraska as performed by a variety of entities. Second, it provides an indicator of the methodologies that were used in sampling and analysis for each of the results. UNL staff examined the methods used for sampling and analysis to assign a quality "flag" consisting of a number from 1 to 5 to each of the sample results. The flag depends upon the amount and type of quality assurance/quality control (QA/QC) that was identified in obtaining each of the results. The higher the "flag" number, the better the QA/

QC, and the higher the confidence in that particular result. Below is information on the groundwater in Nebraska to help the reader better understand what it means to our state.

## Groundwater in Nebraska

Groundwater can be defined as water that occurs in the open spaces below the surface of the earth (Figure 1). In Nebraska (as in many places worldwide), usable groundwater occurs in voids or pore spaces in various layers of geologic material such as sand, gravel, silt, sandstone, and limestone. These layers are referred to as aquifers where such geologic units yield sufficient water for human use. In parts of the state, groundwater may be encountered just a few feet below the surface, while in other areas, it may be a few hundred feet underground. This underground water "surface" is usually referred to as the water table, while water which soaks downward through overlying rocks and sediment to the water table is called recharge as shown in Figure 2. The amount of water that can be obtained from a given aquifer may range from a few gallons per minute (which is just enough to supply a typical household) to many hundreds or even thousands of gallons per minute (which is the yield of large irrigation, industrial, or public water supply wells).

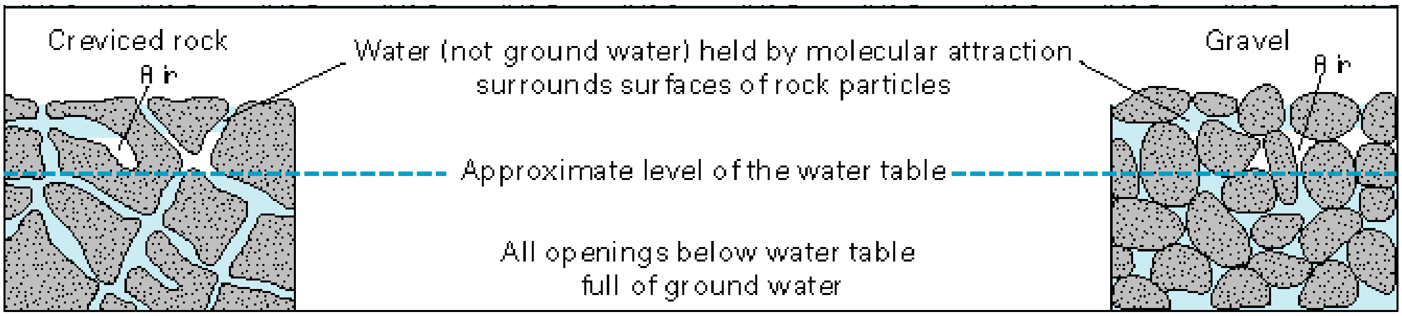



**Figure 1.** Basic aquifer concepts (U.S. Geological Survey).

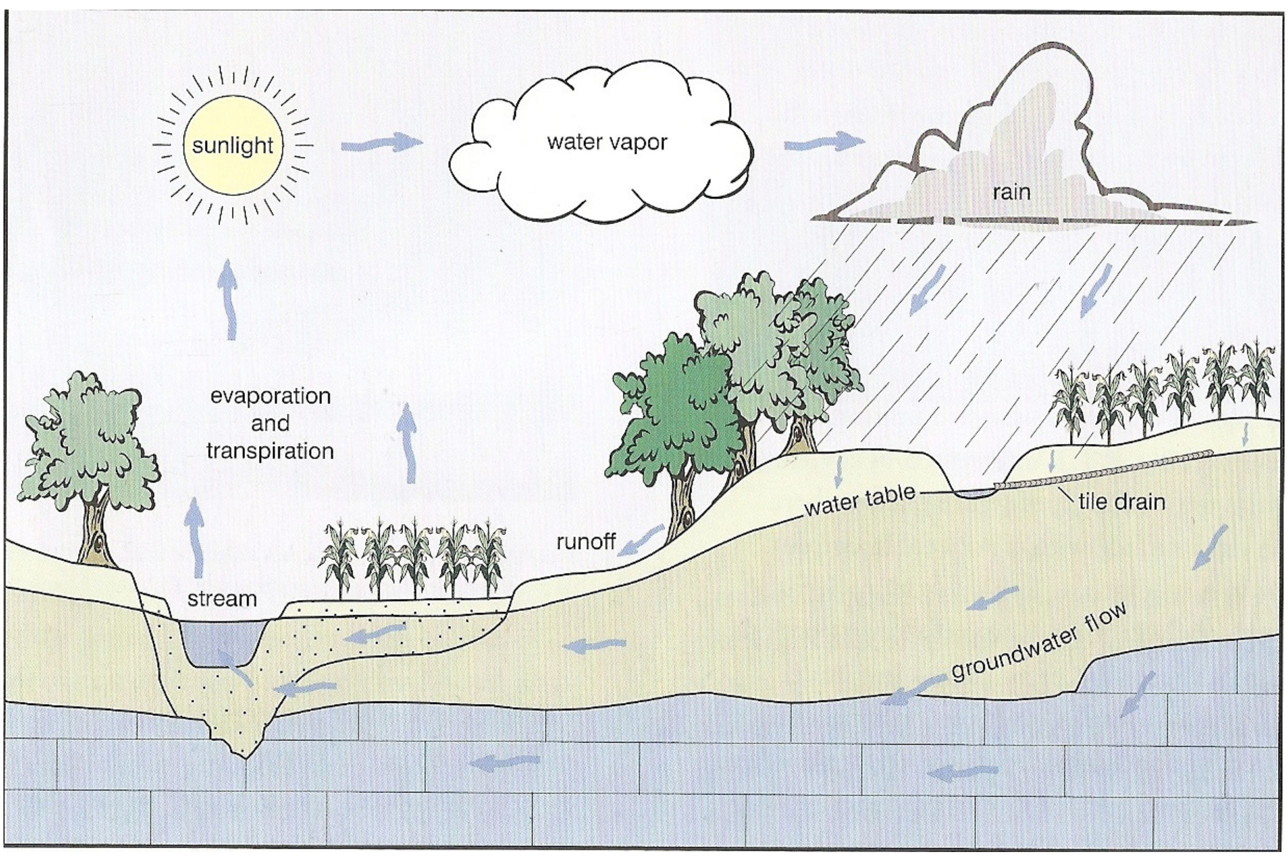



**Figure 2.** Generalized hydrologic cycle (Prior, 2003).

# Depth and Velocity of Groundwater

The depth to groundwater plays a very important role in Nebraska's valuable water resource. A shallow well is cheaper to drill, construct, and pump. However, shallow groundwater is more at-risk from impacts from human activities. Surface spills, application of agricultural chemicals, effluent from septic tank leach fields, and other sources of contamination will impact shallow groundwater more quickly than groundwater found at depth. The map in Figure 3 shows the great variation of depth to water across the state.

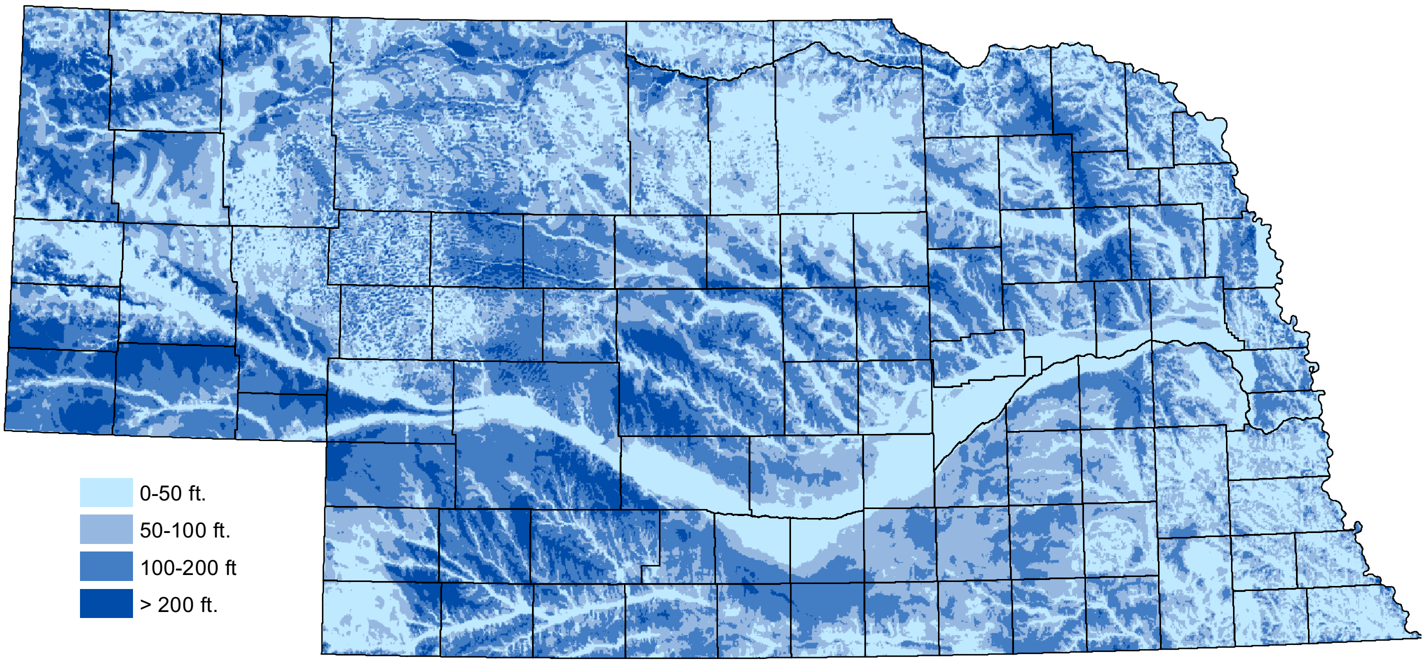



**Figure 3.** Generalized depth to groundwater (University of Nebraska, Conservation and Survey Division, 1998).

In general, groundwater flows very slowly, especially when compared to the flow of water in streams and rivers. Many factors determine the speed of groundwater and most of these factors cannot be measured or observed directly. Basic groundwater features are shown in Figures 1 and 2. The most important geologic characteristics that impact groundwater movement are as follows:

- The sediment in the saturated zone of the aquifer. Groundwater generally flows faster through gravel sediments than clay sediments.
- The 'sorting' of the sediment. Groundwater in aquifers with a mix of clay, sand, and gravel (poor sorting) generally does not flow as fast as in aquifers that are composed of just one sediment, such as gravel (good sorting).
- The 'gradient' of the water table. Groundwater flows from higher elevations toward lower elevations under the force of gravity. In areas of high relief, groundwater flows faster. A typical groundwater gradient in Nebraska is 10 feet of drop over a mile (0.002 ft/ft).
- Well pumping influences. In areas of the state with numerous high-capacity wells (mainly irrigation wells), groundwater velocity and direction can be changed seasonally as water is pumped.

Ultimately, groundwater scientists have determined that groundwater in Nebraska can flow as fast as one to two feet per day in areas like the Platte River valley and as slow as one to two inches per year in areas like the Pine Ridge in northwest Nebraska or the glacially deposited sediments in southeast Nebraska.

# Geology and Groundwater

Nebraska has been "underwater" most of its history. Ancient seas deposited multiple layers of marine sediments that eventually formed sandstone, shale, and limestone. These geologic units are now considered "bedrock" and underlie the entire state. Limited fresh water supplies can be found in this bedrock mainly in the eastern portion of the state. After the seas retreated, huge river systems deposited sand and gravel eroded from mountain building to the west to form groundwater bearing formations such as the lower Chadron, Ogallala (Figures 4 and 5) and Broadwater. Next, the combination of erosion (statewide) and glaciation in the east introduced new material that was deposited by wind, water, and ice to form the remainder of the High Plains Aquifer (Figures 4 and 5).

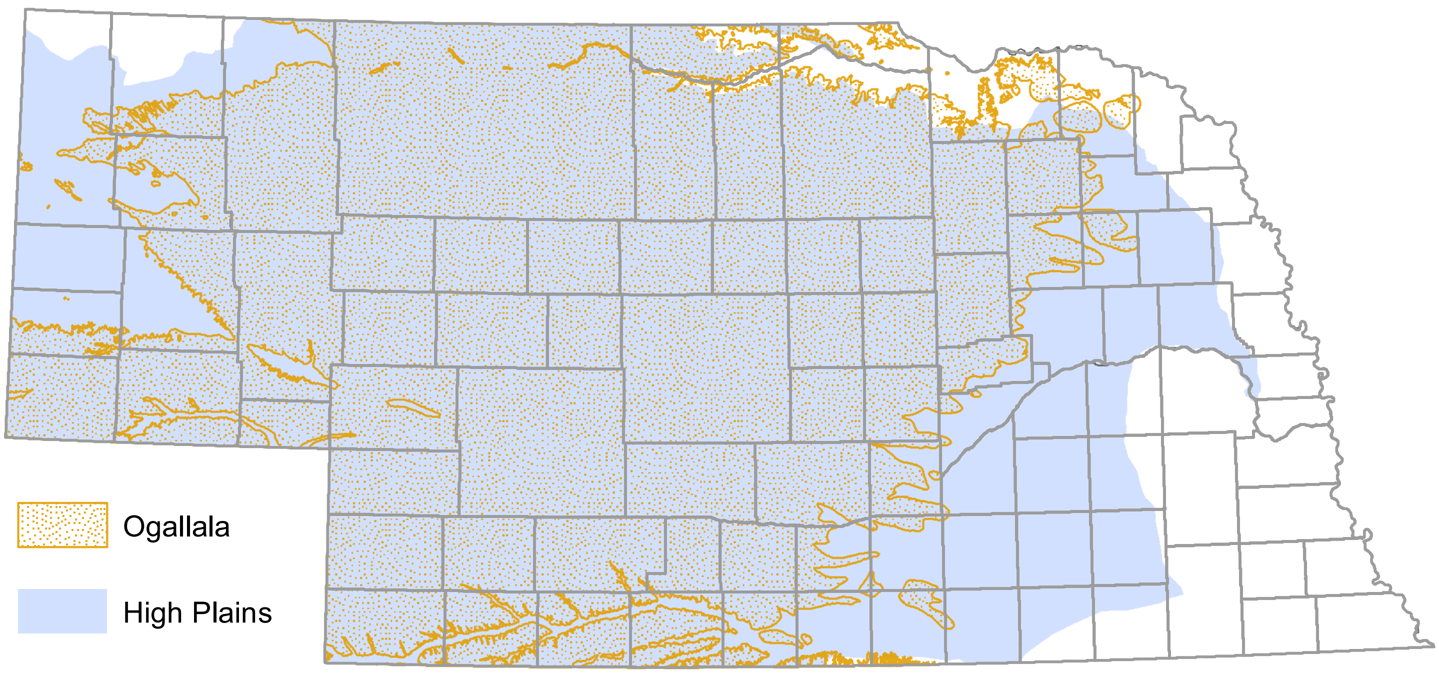



**Figure 4.** Map of the High Plains aquifer identifying the Ogallala Group. (University of Nebraska, Conservation and Survey Division, 2013).

The High Plains Aquifer is a conglomeration of many separate groundwater bearing formations such as the Brule, Arikaree, Ogallala, Broadwater, and many more recent unnamed deposits (including the Sand Hills). Many of the unnamed deposits are found mainly within the stream valleys (recent or ancient) and are a common source of groundwater (Figure 6, left pane). No single formation completely covers the entire state. However, when these numerous formations and deposits are combined, they form the High Plains Aquifer, covering almost 90% of Nebraska.

There are parts of eastern Nebraska where the High Plains Aquifer is not present. These areas rely heavily on groundwater from buried ancient river channels (paleovalleys) or recent alluvial valleys (Missouri, Platte, and Nemaha Rivers) (Figure 6, right pane).

# Importance of Groundwater

Nebraska is one of the most groundwater-rich states in the United States. Approximately 88% of the state's residents rely on groundwater as their source of drinking water. If the public water supply for the Omaha metropolitan area (which gets about a third of its water supply from the Missouri River) isn't counted, this rises to nearly 99%. There are over 1,950,000 people living in Nebraska. Of that total just over 1,600,000 are served water by community water systems (including rural water systems). That leaves just over 360,000 Nebraskans that depend on private domestic wells for their drinking water supply. Not only does Nebraska depend on groundwater for its drinking water supply, but also the state's agricultural industry utilizes vast amounts of groundwater to irrigate crops and water livestock. Nebraska experiences variable amounts of precipitation

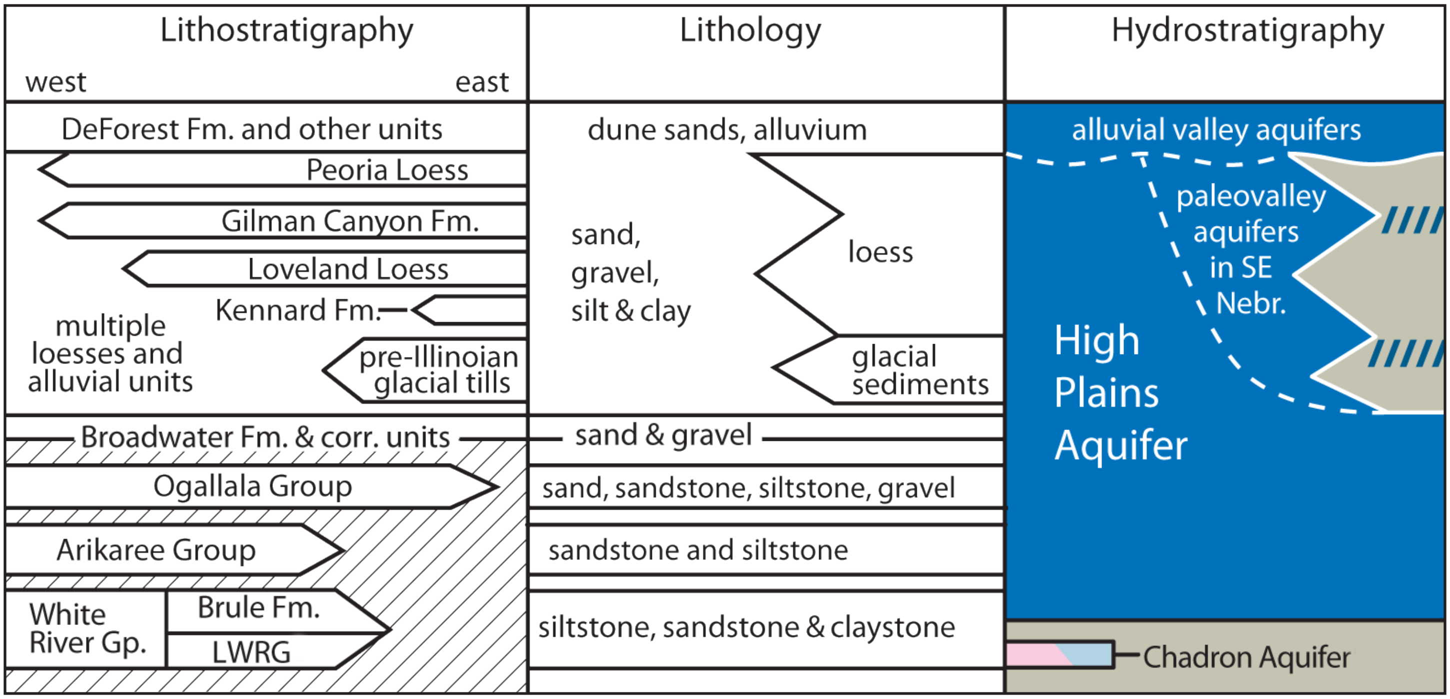



**Figure 5.** Excerpts from the generalized geologic and hydrostatigraphic framework of Nebraska (University of Nebraska, Conservation and Survey Division, 2013).

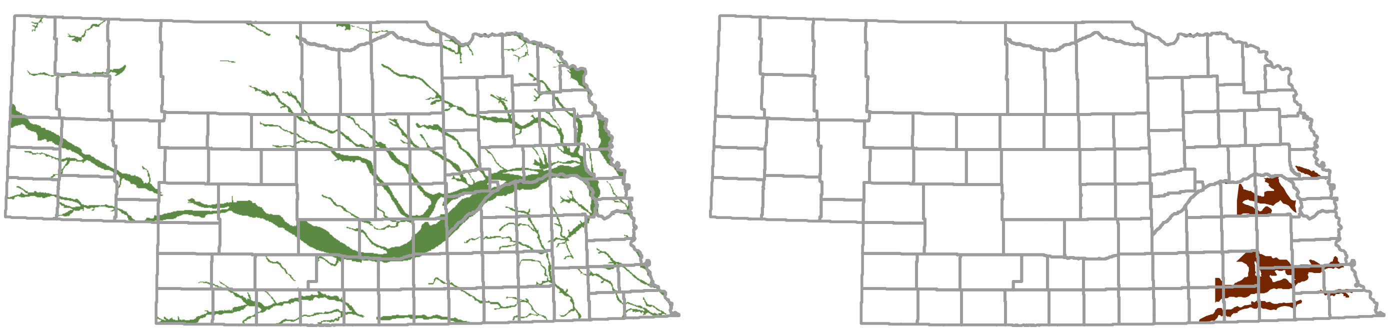


**Figure 6.** Map of valleys topographic region (left) and paleovalley aquifers (right) (University of Nebraska, Conservation and Survey Division, 2013).

throughout the year, so irrigation is used, where possible, to ensure adequate amounts of moisture for raising such crops as corn, soybeans, alfalfa, and edible beans. As of November 2025, DWEE listed over 96,900 active irrigation wells and over 36,300 active domestic wells registered in the state. Domestic wells were not required to be registered with the state prior to September 1993, therefore thousands of domestic wells exist that are not registered with DWEE. A tabletop exercise was performed in 2024 comparing known residences in a county to registered wells. It was calculated that only 23.8% of the domestic wells were registered in that county. Using that ratio statewide, it calculates out to approximately 145,000 domestic wells. In 2022 it was estimated that there were 2.5 people per household in the United States. If there were 145,000 domestic wells and each well represented one household, domestic wells would be serving approximately 362,500 people. Figure 7 and information shown in Table 1 help illustrate this.

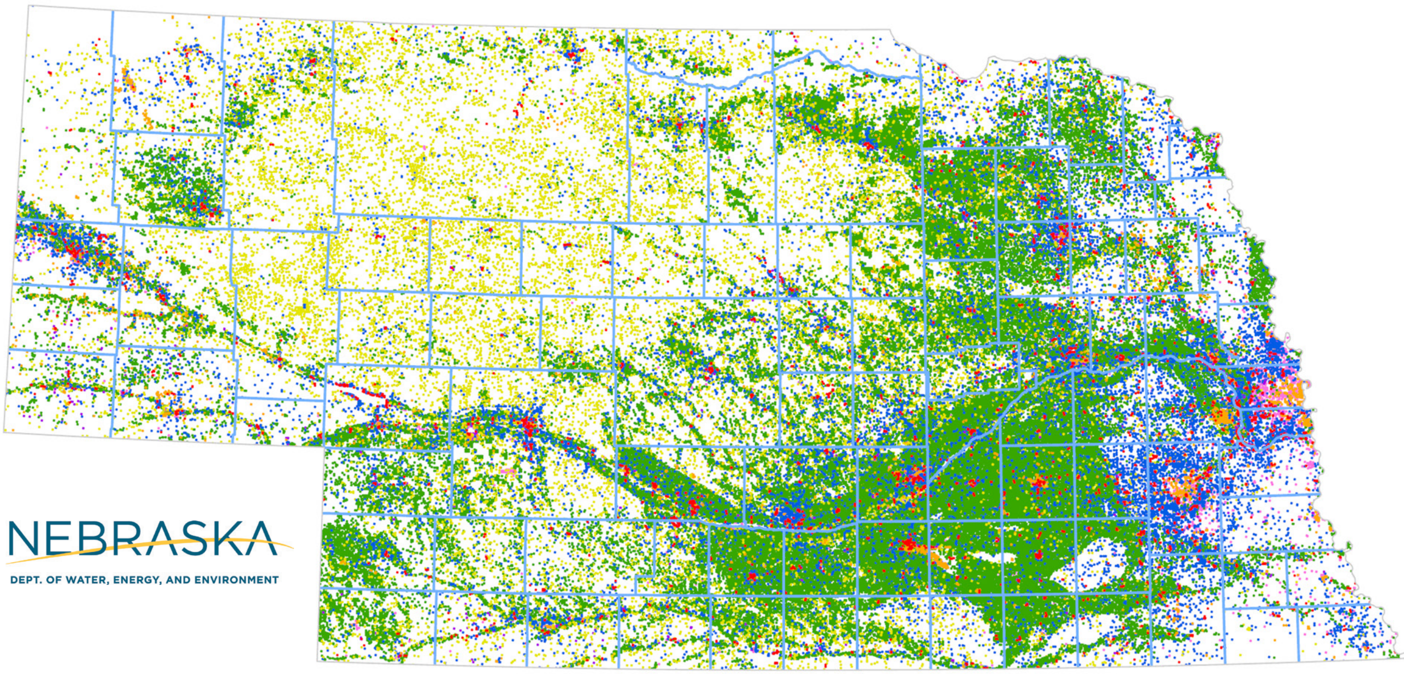



**Figure 7.** Active registered water wells as of November 2025 (DWEE Registered Well Database, 2025).

**Table 1.** Active registered water wells and use as of November 2025 (DWEE Registered Well Database, 2025).

| | Water Use | Active |
|---|---|---|
| ● | Irrigation | 96,992 |
| ● | Domestic | 36,320 |
| ● | Livestock | 26,896 |
| ● | Monitoring (groundwater quality) | 19,522 |
| ● | Pubic Water Supply (all wells) | 3,175 |
| ● | Commercial/Industrial | 1,868 |
| ● | Other | 8,203 |
| | **Total** | **192,976** |

## Groundwater Quality Data

Groundwater quality data presented in this report reflect the data already present in the Clearinghouse of November 1, 2025. The dates for these data range from mid-1974 to 2024.

There are still over 1,846,600 samples tested for 321 potential contaminants from over 41,900 public and private wells currently in the Clearinghouse. This information is readily available to the public through a user-friendly interface.

### *Samples collected*

The data summarized in Table 2 represent the quantity of water samples analyzed from a variety of well types. Historically, most wells that have been sampled are irrigation or domestic supply wells. Irrigation and domestic wells are constructed to yield adequate supplies of water, not to provide water quality samples (longer screens across large portions of the aquifer). However, in recent years, monitoring agencies have been installing increasing numbers of dedicated groundwater monitoring wells designed and located specifically to produce samples (shorter screens in distinct portions of the aquifer). By utilizing such varied sources, groundwater data from a range of geologic conditions can be obtained.

### *Monitoring Parameters*

As already mentioned, numerous entities across Nebraska have been monitoring groundwater quality for many years, for a wide variety of possible contaminants. However, much of this monitoring has been for area-specif-

| Well Type | Number of Analyses | Number of Wells |
|---|---|---|
| Irrigation | 132,203 | 19,645 |
| Domestic | 88,519 | 13,274 |
| Public Water Supply | 1,354,904 | 5,278 |
| Monitoring | 266,155 | 2,911 |
| Commercial/Industrial | 2,598 | 84 |
| Heat Pump (GW source) | 8 | 5 |
| Other | 2,257 | 733 |
| **Total** | **1,846,644** | **41,930** |

**Table 2.** Total number of groundwater analyses by well type (DWEE, 2025).

ic (part of an NRD), or at most, regional purposes (entire NRDs), and it has been difficult to assess data on a statewide basis for more than a short period of time. Creation of the Clearinghouse has provided an important tool for such analysis. Appendix A lists the compounds for which groundwater has been sampled and analyzed since 1974.

The table in Appendix A shows a wide variety of compounds for which groundwater samples have been analyzed, the majority of which are used in agricultural production. Since the creation of the Clearinghouse, analytes which Public Water Systems test for have also been added (approximately 30) to the list. The Clearinghouse has been set up so that new analytes may be added in the future. Currently, there are 321 analytes in the Clearinghouse.

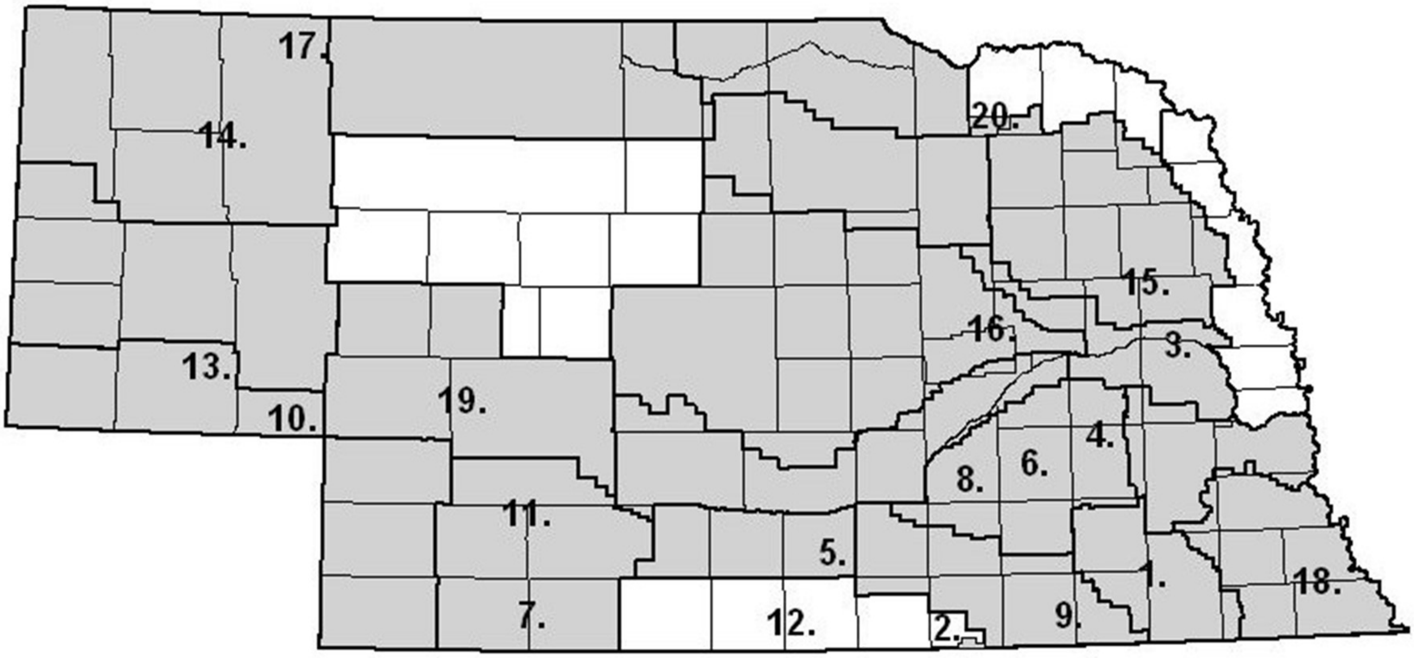
# Discussion and Analysis

This report highlights the presence of elevated levels of nitrate in groundwater and the occurrence is associated with the practice of irrigated agriculture, especially corn production (Exner and Spalding 1990). In response, the Natural Resources Districts have instituted Groundwater Management Areas (GWMAs) in nearly all the 23 districts based on the results of this data. The implementation of Groundwater Management Areas indicates a concern and recognition of nonpoint source groundwater contamination and a need to protect this state's most valuable natural resource. Additionally, DWEE's Groundwater Management Area Program has completed 20 studies across the state since 1988, identifying areas of nonpoint source contamination attributed in part to the widespread application of commercial fertilizer and animal waste (Figure 8).

While irrigated agriculture has been documented as a source of nitrate in groundwater, there are many other sources that can contribute. The application of commercial fertilizer on green spaces such as yards or golf courses, septic systems, waste lagoons (municipal, private or livestock) or the application of livestock waste are some examples (Appendix B, Nitrogen Cycle).

The State of Nebraska has a geographic area of over 77,000 square miles. Accurately characterizing the quality of Nebraska's groundwater in a complex aquifer system has always been challenging. Collaboration and taking a statewide view of all the groundwater data collected provides for robust trend analysis. The goal is to ascertain areas in Nebraska where groundwater contaminant levels are decreasing through better management and farming practices so that these positive trends can be spread across the state.

Though we have groundwater data, there are over 192,000 active registered wells in Nebraska and only enough resources to collect samples from less than 12% of them annually (since 2000). However, that data still can be utilized to determine where there are water quality issues in Nebraska. Figure 9 clearly shows where there are areas of high nitrate. Up until 2019, only 1,638 domestic wells (converts to 4,095 people) have been sampled of the 36,320 registered domestic wells. There are most likely domestic wells within the area of high nitrate shown in Figures 9 that have not been sampled. However, both the NRDs and the DWEE have been working together to try and fill those gaps. Since 2000, over 4,700 domestic wells have been sampled for nitrate.




1. Beatrice/DeWitt, 1988
2. Superior, 1988
3. Fremont, 1988
4. E. Upper Big Blue, 1989
5. Wilcox/Hildreth, 1989
6. York/Polk Co., 1990
7. Red Willow/Hitchcock Co., 1990
8. W. Upper Big Blue, 1991
9. E. Little Blue, 1992 - 1994
10. Deuel Co., 1992
11. N. Middle Republican, 1995
12. Lower Republican, 1996 - 97
13. E. Cheyenne Co., 1996
14. Box Butte Co./Mirage Flats, 1998
15. S. Lower Elkhorn, 1999
16. E. Lower Loup, 2000
17. E. Sheridan Co., 2001
18. Humboldt, 2001
19. Keith-Lincoln Co., 2002 - 2003
20. Bazile Triangle, 2004

**Figure 8.** Locations of Groundwater Management Area studies completed by DWEE.

## *Nitrate Trends Utilizing the Database*

Nitrate monitoring data have been collected from wells for many years, and the purpose of collection has varied by the agency or organization performing the work. For instance, public water system operators sample their drinking water wells to ensure they are in compliance with the Safe Drinking Water Act while the NRDs have been collecting data to make groundwater management decisions.

The Clearinghouse now makes accessing and reviewing groundwater data relatively straightforward, but users need to be aware that differences in wells may result in incorrect assumptions. Data may be collected from:

- deep wells (bottom of the aquifer) vs. shallow wells (top of the aquifer) or
- irrigation wells (potentially screened across multiple aquifers) vs. dedicated monitoring wells (with perhaps only 10 feet of screen) or
- wells located near potential sources of contamination such as septic tanks or past chemical spills vs. wells located in pristine rangeland or
- wells used for measuring water levels (observation) vs. wells used for water quality.

Maps are used in an attempt to show "current" statewide groundwater quality from the most recent time the well had been sampled (aiming to show the most current water quality at that location). A township (36 square miles) map was developed using the entire data set from the Clearinghouse. The most recent sample for each well analyzed from 2000 to 2019 was used to calculate the median value of nitrate for each township (Figure 9).

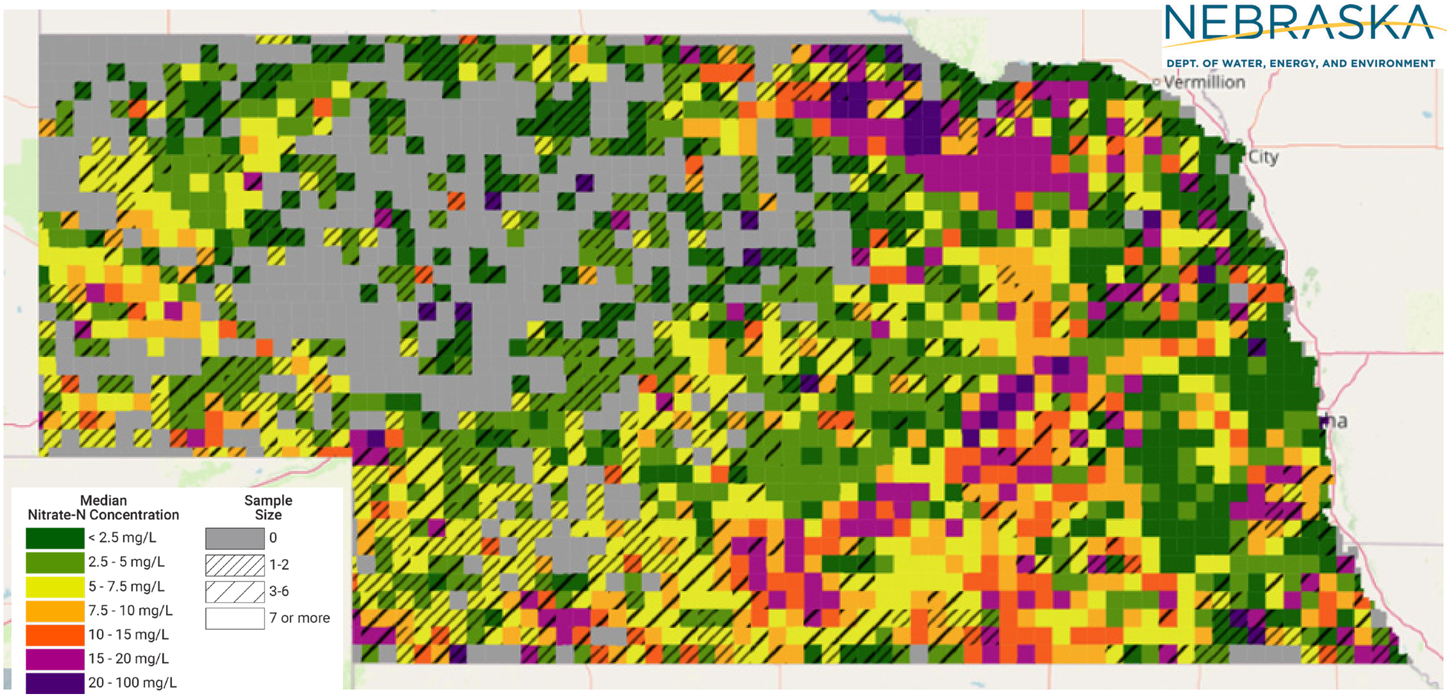



**Figure 9.** Median of the most recent Nitrate-N concentration by township of 26,647 water wells (all types) during 2004-2024. (Nebraska Groundwater Quality Clearinghouse, 2025). *Gray areas indicate no data reported, not the absence of nitrate in groundwater.*

This is the fifth year Nebraska has participated in the USGS National Groundwater Monitoring Network. This network has over 500 wells that have known aquifer parameters and consistent sampling. The NRDs prioritize sampling these 500 wells, which DWEE utilizes as the Statewide Monitoring Network.

## *Nitrate in Public Water Supplies*

In an effort to protect the drinking water quality of America's public water systems, the federal Safe Drinking Water Act authorizes the EPA to set national drinking water standards. These standards include maximum contaminant levels based on health effects due to exposure of both naturally occurring and man-made contaminants. When a Public Water System (PWS) exceeds the Maximum Contaminant Level (MCL) for a regulated contaminant, Public Notification to the customers of the system is mandatory. If exceedances continue, an Administrative Order (AO) will be issued. This AO will mandate that the PWS make changes to their water system to bring the contaminant results consistently below the MCL for that contaminant.

The MCL for nitrate-nitrogen is 10 mg/L, but PWS systems with wells or intakes testing over 5 mg/L may be required to perform quarterly sampling. Of the 1,329 PWS in Nebraska that supply their own water, 932 PWS get their water from groundwater wells and another 90 purchase groundwater from one of them. 264 of the 932 PWS must perform quarterly sampling for nitrate. If a PWS exceeds the nitrate-nitrogen MCL two times in a rolling 9 month period, an AO will be issued. A nitrate AO will mandate that the PWS take steps to bring their nitrate results consistently below the MCL such as drilling a new or deeper well, hooking on to a neighboring water system, blending, or building a water treatment plant. Figure 10 shows the location of active community PWS systems that have their own source of water. Colors indicate if there is an administrative order for nitrate, systems required to perform quarterly sampling, and systems treating water because of high levels of nitrate. AOs due to high levels of nitrate do not necessarily fall in the areas of highest nitrate problems, as indicated in Figure 9.

Several recent studies considered the relationship of nitrate leaching into the subsurface and uranium concentrations found in groundwater. Research indicates that natural uranium in the subsurface may be oxidized and mobilized as the nitrate (in many forms) moves through the root zone and eventually to groundwater. Uranium is found naturally in sediment deposited mainly by streams and rivers.

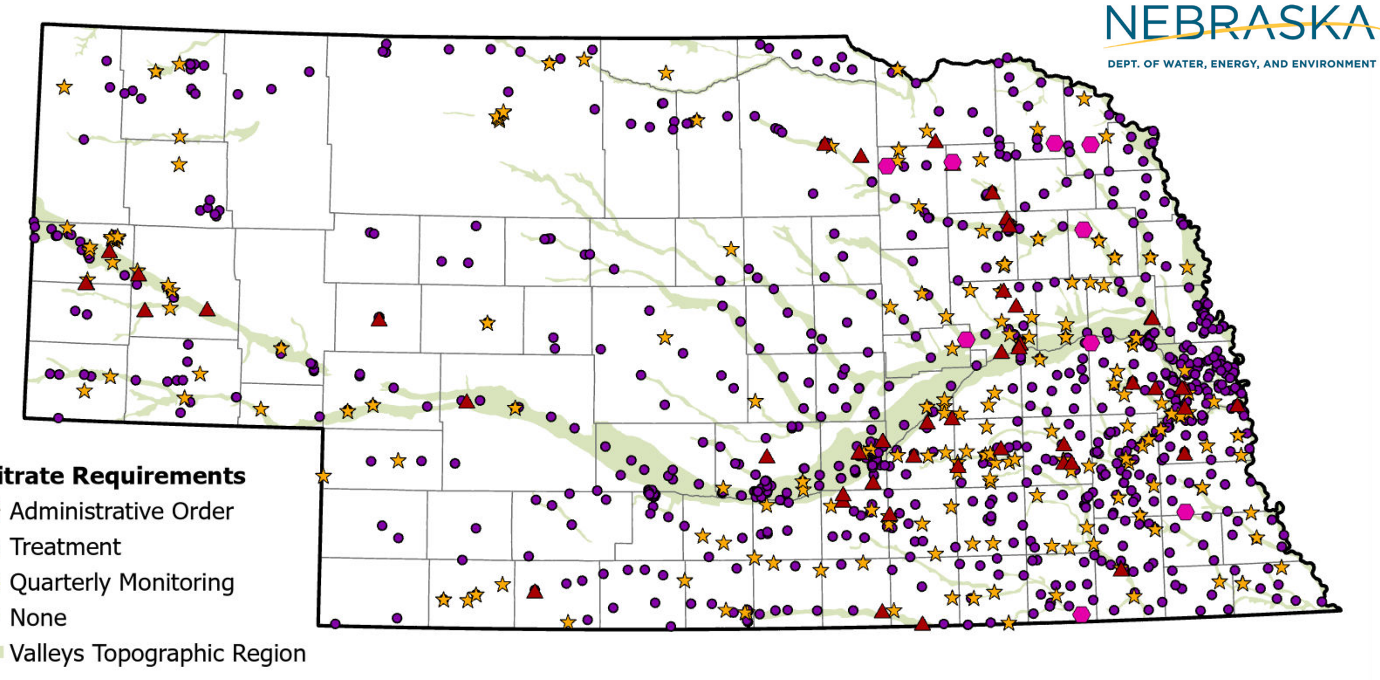



**Figure 10.** Community public water supply systems with requirements for nitrate (DWEE Drinking Water Division, 2025).

Some public water supply systems treat not only nitrate, but also uranium. The MCL for uranium is 0.030 mg/L. Figure 11 shows the location of active community public water systems with uranium requirements.

# Conclusions

**Groundwater is Nebraska's most valuable natural resource.** 93% of Nebraska's ~1,300 public water systems serve populations under 3,300 and 95% of those systems rely solely on groundwater. Most public water supplies that utilize groundwater in Nebraska do not require any form of treatment. The rest of the rural

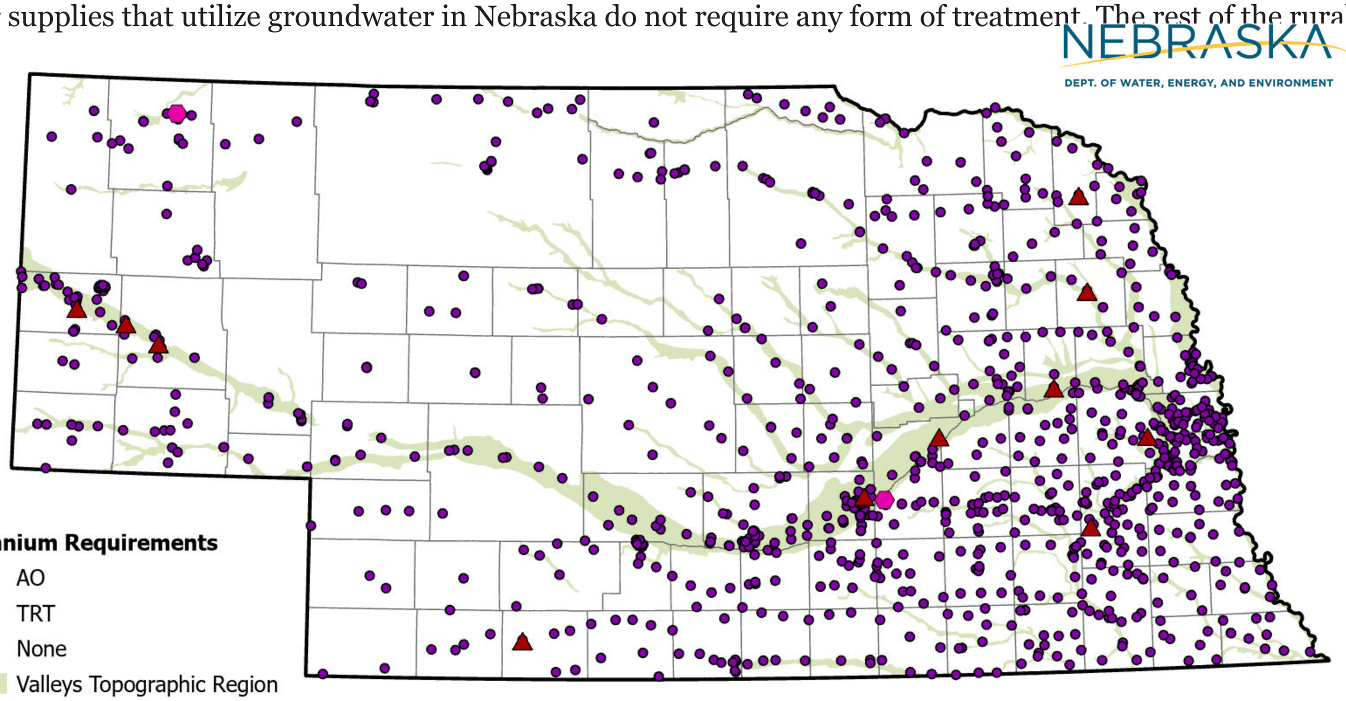



**Figure 11.** Community public water supply systems with requirements for uranium (DWEE Drinking Water Division, 2025).

population relies solely on groundwater as their source of drinking water. Agriculture and industry in Nebraska rely heavily on groundwater for production. The state's reliance on groundwater highlights the importance of maintaining the quantity and quality of this resource. Monitoring groundwater contaminant trends statewide helps to ensure this.

**The Clearinghouse is available to aid in managing Nebraska's valuable groundwater resource.** The report authorized by Neb. Rev. Stat. § 46-1304 (LB 329, 2001) led the way to the development of the Clearinghouse. All 23 of the NRDs are vital contributors of quality data to the Clearinghouse. Now both recent and historic groundwater quality data can be easily viewed in one location for analysis, mapping, or other uses.

**Concentrations and trends of contaminants.** Figure 9 presents the median nitrate concentration in groundwater from 2004 - 2024 in Nebraska. Over 81% of the population receives drinking water that meets the drinking water standard while the rest of the population relies on groundwater from domestic wells. Data in the Clearinghouse only represents a small fraction (13,274 domestic wells sampled since 1974) of the probable 145,000 domestic wells in use. Until more data can be obtained from domestic users, they must assume that if their domestic well is located in an area of high nitrate as illustrated in Figure 9 that they may also have high nitrate and should have their groundwater tested. Once the USGS network can be utilized along with the Clearinghouse, more detailed trend analyses for nitrate will be conducted. There is not enough recent data statewide for atrazine, alachlor, metolachlor, or simazine to conduct any trend analyses.

**The Future.** Continued attention and resources directed toward groundwater monitoring data for the Clearinghouse and implementation of the USGS National Groundwater Monitoring Network will be crucial for the successful management of Nebraska's groundwater. Best-Management practices, such as adjusting fertilizer application rates and timing, must continue to see improvements in Nebraska's groundwater quality.

# Appendix A

*Compounds for which groundwater samples have been analyzed*

| Description | | | |
|---|---|---|---|
| 1,1,1-Trichloroethane | Acetochlor ethane sulfonic acid | Butylate | DDT |
| 1,1,2-Trichloroethane | Acetochlor oxanilic acid | Cadmium | Dechloroacetochlor |
| 1,1-Dichloroethene | Acetochlor sulfynilacetic acid | Calcium | Dechloroalachlor |
| 1,2,4-Trichlorobenzene | Acifluorfen | Carbaryl | Dechlorodimethenamid |
| 1,2-Dibromo-3-chloropropane | Acrylamide | Carbofuran | Dechlorometolachlor |
| 1,2-Dibromoethane (Ethylene dibromide) | Acrylonitrile | Carbon disulfide | Deethylatrazine |
| 1,2-Dichlorobenzene | Alachlor | Carbon tetrachloride | Deethylcyanazine |
| 1,2-Dichloroethane | Alachlor ethane sulfonic acid | Carboxin | Deethylcyanazine acid |
| 1,2-Dichloropropane | Alachlor ethane sulfonic acid secondary amide | Chloramben methyl ester | Deethylcyanazine amide |
| 1,3-Dichloropropane | Alachlor oxanilic acid | Chlordane | Deethylhydroxyatrazine |
| 1,4-Dichlorobenzene | Alachlor sulfynilacetic acid | Chloride | Deisopropylatrazine |
| 1-Naphthol | Aldicarb | Chlorimuron-ethyl | Deisopropylhydroxyatrazine |
| 2,3,7,8-TCDD | Aldicarb sulfone | Chlorobenzene | Delta-HCH |
| 2,4,5-T | Aldicarb sulfoxide | Chloroform | Demethylfluometuron |
| 2,4,6-Trichlorophenol | Aldrin | Chlorothalonil | Desulfinylfipronil |
| 2,4-D | Alkalinity | Chlorpyrifos | Desulfinylfipronil amide |
| 2,4-D Methyl ester | Alpha-HCH | Chlorpyrifos Oxon | Di(2-ethylhexyl)adipate |
| 2,4-DB | Ametryn | Chromium | Di(2-ethylhexyl)phthalate |
| 2,4-Dinitrophenol | Antimony | Chromium VI | Diazinon |
| 2,6-Diethylaniline | Arsenic | Cis-1,2-dichloroethene | Diazoxon |
| 2-(Methylsulfonyl),-4-(Trifluoromethyl benzoic acid | Asbestos | Cis-1,3-dichloropropene | Dicamba |
| 2-[(2-Ethyl-6-methylphenyl),-amino]-1-propanol | Atrazine | Cis-permethrin | Dichlobenil |
| 2-[(2-Ethyl-6-methylphenyl),amino]-2-oxoethane sulfonic acid | Azinphos-methyl | Clopyralid | Dichlorprop |
| 2-Chloro-2,6-diethylacetanilide | Azinphos-methyl oxon | Clothianidin | Dichlorvos |
| 2-Ethyl-6-methylaniline | Azoxystrobin | Combined Radium (-226 & -228) | Dicrotophos |
| 226 Radium | Barium | Conductivity | Didealkylatrazine |
| 228 Radium | Bendiocarb | Conductivity, field | Dieldrin |
| 3,4-Dichloroaniline | Benfluralin | Copper | Dimethenamid |
| 3,5-Dichloroaniline | Benomyl | Cyanazine | Dimethenamid ethane sulfonic acid |
| 3-Hydroxycarbofuran | Bensulfuron-methyl | Cyanazine acid | Dimethenamid oxalic acid |
| 4,6-Dinitro-o-cresol | Bentazon | Cyanazine amide | Dimethoate |
| 4-Chloro-2-methylphenol | Benzene | Cyanide | Dinoseb |
| 4-Chloro-3-methylphenol | Benzo(A)pyrene | Cycloate | Dinotefuran |
| 4-Nitrophenol | Beryllium | Cyfluthrin | Diphenamid |
| 6-Chloro-N-methylnicoinamide | Beta-HCH | Cypermethrin | Diquat |
| 6-Chloronicotinic acid | Boron | Cyprazine | Dissolved Oxygen, field |
| 6-Chloronicotinic aldehyde | Bromacil | Dalapon | Disulfoton |
| Acenaphthene | Bromomethane | DCPA | Disulfoton sulfone |
| Acetamidprid | Bromoxynil | DCPA Monoacid | Diuron |
| Acetochlor | Butachlor | DDD | Endosulfan I |

| Description | | | |
|---|---|---|---|
| Endosulfan Ii | Hydroxydimethenamid | Naphthalene | Silver |
| Endosulfan sulfate | Hydroxymetolachlor | Napropamide | Silvex |
| Endothal | Hydroxysimazine | Neburon | Simazine |
| Endrin | Imazaquin | Nicosulfuron | Simetryn |
| Endrin aldehyde | Imazethapyr | Nitrate-N | Sodium |
| Epichlorohydrin | Imidacloprid | Nitrite as NO2 | Strontium |
| Eptc | Imidacloprid desnitro | Norflurazon | Styrene |
| Esfenvalerate | Imidacloprid olefin | Oryzalin | Sulfate |
| Ethalfluralin | Imidacloprid urea | Oxadiazon | Sulfometuron-methyl |
| Ethion | Indoxacarb | Oxamyl | Sulfoxaflor |
| Ethion monoxon | Iodomethane | Oxyfluorfen | Tebuthiuron |
| Ethoprop | Iprodione | P,P-DDE | Temperature, field |
| Ethyl parathion | Iron | Pebulate | Terbacil |
| Ethylbenzene | Isofenphos | Pendimethalin | Terbufos |
| Fenamiphos | Isoxaflutole | Pentachlorophenol | Terbufos oxon sulfone |
| Fenamiphos sulfone | Isoxaflutole diketonitrile | Permethrin | Terbuthylazine |
| Fenamiphos sulfoxide | Lead | pH | Terbutryn |
| Fenuron | Lindane | pH, field | Tetrachloroethene |
| Fipronil | Linuron | Phorate | Thallium |
| Fipronil sulfide | Magnesium | Phorate oxon | Thiacloprid |
| Fipronil sulfone | Malathion | Phosmet | Thiamethoxam |
| Flufenacet | Malathion oxon | Phosmet oxon | Thiamethoxam urea |
| Flufenacet ethane sulfonic acid | Manganese | Picloram | Thiobencarb |
| Flufenacet oxanilic acid | MCPA | Picoxystrobin | Toluene |
| Flumetsulam | MCPB | Polychlorinated biphenyls | Total Dissolved Solids |
| Fluometuron | Mercury | Potassium | Total Xylenes |
| Fluoride | Metalaxyl | Prometon | Toxaphene |
| Fonofos | Methidathion | Prometryn | Trans-1,2-dichloroethene |
| Fonofos oxon | Methiocarb | Propachlor | Trans-1,3-dichloropropene |
| Glyphosate | Methomyl | Propachlor ethane sulfonic acid | Triallate |
| Gross alpha | Methoxychlor | Propachlor oxanilic acid | Trichloroethene |
| Gross beta | Methyl paraoxon | Propanil | Triclopyr |
| Hardness (calc.) | Methyl parathion | Propargite | Trifloxystrobin |
| Heptachlor | Methylene chloride | Propazine | Trifluralin |
| Heptachlor epoxide | Metolachlor | Propham | Turbidity, field |
| Hexachlorobenzene | Metolachlor ethane sulfonic acid | Propiconazole | Uranium |
| Hexachlorocyclopentadiene | Metolachlor oxanilic acid | Propoxur | Vernolate |
| Hexazinone | Metribuzin | Propyzamide | Vinyl chloride |
| Hydroxyacetochlor | Metsulfuron-methyl | Pyraclostrobin | |
| Hydroxyalachlor | Molinate | Selenium | |
| Hydroxyatrazine | Myclobutanil | Siduron | |

# Appendix B

*Diagram of the Nitrogen Cycle*