Nebraska Public Water Supply Program Summary Report 2020

Nebraska Department of Health and Human Services
Division of Public Health

Nebraska's Public Water System Program
2020 Annual Report

January 1 to December 31, 2020

Nebraska's 25th Annual Report

June 22, 2021

Nebraska Department of Health and Human Services
Drinking Water Division

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http://dee.ne.gov/NDEQProg.nsf/OnWeb/PWS

Available in alternate format

To Obtain a Copy of the 2020 Public Water System Report

As required by the federal Safe Drinking Water Act, the State of Nebraska has made the 2020 Annual Public Water Systems report available to the public. Interested individuals can obtain a copy at:

http://dee.ne.gov/NDEQProg.nsf/OnWeb/PWS

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Terms Used In This Report

Capacity Development

Capacity development is the process through which water systems acquire and maintain adequate technical, managerial, and financial capabilities to enable them to consistently provide safe drinking water.

Consumer Notification

Every community water system is required to deliver to its customers a brief annual water quality report. This report includes educational material to help understand the report, information on the source water for the public water system (PWS), levels of any detected contaminants, and information on any issues with compliance drinking water regulations.

Corrosion Control Treatment

Treatment that minimizes the lead and copper concentrations at a customer's water tap.

DHHS

Department of Health and Human Services

GWUDI

Groundwater Under the Direct Influence of Surface Water
with (1) a significant occurrence of insects or other macro-organisms, algae, or large-diameter pathogens such as *Giardia lambia* or *Cryptosporidium*, or (2) significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH, which closely correlate to climatological or surface water conditions.

Maximum Contaminant Level (MCL)

Under the federal Safe Drinking Water Act, the U.S. Environmental Protection Agency (EPA) sets national limits on contaminant levels in drinking water to ensure that the water is safe for human consumption. These limits are known as Maximum Contaminant Levels (MCLs).

Maximum Residual Disinfectant Level (MRDL)

EPA sets national limits on residual disinfectant levels in drinking water to reduce the risk of exposure to disinfectant byproducts formed when a public water system adds chemical disinfectant(s) for either primary or residual treatment. These limits are known as Maximum Residual Disinfectant Levels (MRDLs).

Monitoring

A PWS is required to monitor and verify that the levels of contaminants present in the water do not exceed the MCL or MRDL. If a PWS fails to have its water tested as required or fails to report test results correctly to DHHS, a monitoring violation occurs.

NDEE

Nebraska Department of Environment and Energy

Primacy State

A State granted primary enforcement authority for a set of federal regulations. Nebraska has primacy from the U.S. Environmental Protection Agency to enforce the federal Safe Drinking Water Act.

Public Notice Violations

The Public Notification Rule requires all public water systems to notify their consumers any time they violate a national primary drinking water regulation or have a situation posing risk to the public.

Public Water System (PWS)

A Public Water System is a system that provides potable water to at least 15 service connections or serves an average of at least 25 people for at least 60 days each year. For this report when the acronym "PWS" is used, it means systems of all types unless specified in greater detail.

There are three types of public water systems:

1. Community water systems (CWS) (a) serve at least 15 service connections used by year-round residents in the area or (b) regularly serve at least 25 year-round residents. They include such entities as mobile home parks, rural water districts, and sanitary improvement districts, as well as municipalities.

2. Non-transient, non-community water systems (NTNC) regularly serve at least 25 of the same individuals over six months of the year. Examples include a manufacturing company with its own well or a rural school with over 25 students.

3. Transient non-community water systems (TNC) do not regularly serve at least 25 of the same individuals over six months per year. Examples of a transient non-community system would be a café, interstate rest area, or state park that has its own well.

Safe Drinking Water Act (SDWA)

See Attachment A

Safe Drinking Water Standards

See Attachment B

Sanitary Survey

Is an on-site review of the water source, facilities, equipment, operation and maintenance of a PWS for evaluating the system's adequacy and ability to reliably produce and distribute safe drinking water following regulatory requirements.

Significant Monitoring Violations

Occur when no water samples were taken to evaluate water quality or no laboratory results were reported during the required compliance period.

Significant Consumer Notification Violations

Occur if a community water system failed to provide its customers with the required annual water quality report.

Treatment Techniques

Equipment, procedures or other actions that are necessary to control unacceptable levels of certain water contaminants, such as nitrates and/or bacteria, and/or to address issues that impact water aesthetics, such as color, taste, or odor.

Variances and Exemptions

A primacy state can grant a PWS a variance from a regulation if the characteristics of the raw water source(s) reasonably available to the PWS do not allow the system to meet an MCL for a naturally occurring contaminant (ex. selenium). To obtain a variance, the system must agree to install the best available technology, treatment technique(s), or other means for limiting drinking water contamination. Cost is a consideration in making this determination. DHHS must find that the variance will not result in an unreasonable risk to public health. The variance will be reviewed not less than every 5 years to determine if the system remains eligible for the variance.

DHHS can grant a PWS a temporary exemption to an MCL and/or treatment technique violation, if the system's noncompliance results from extenuating circumstances, such as financial hardship or an extreme weather event. The state will require the PWS to comply with the MCL or treatment technique as expeditiously as practicable however, but no later than three years after the otherwise applicable compliance date.

For all the details regarding exemptions and variances, see Title 179 NAC 6, Variances and Exemptions http://dee.ne.gov/NDEQProg.nsf/OnWeb/PWS

Overview of the Federal Public Water System Supervision (PWSS) Program

The EPA established the Public Water System Supervision (PWSS) Program under the authority of the 1974 Safe Drinking Water Act (SDWA). Under the SDWA and the 1986 Amendments, EPA sets national limits on contaminants in drinking water to ensure that it is safe for human consumption, referred to as, Maximum Contaminant Levels (MCLs) and Maximum Residual Disinfectant Levels (MRDLs). For some regulations, the EPA requires treatment techniques (TTs) to control unacceptable levels of certain contaminants, such as nitrates and/or bacteria, and/or to address issues that impact water aesthetics, such as color, taste, or odor.

EPA also regulates how often a PWS is required to monitor and report levels of contaminants to the state primacy agency and to their agency. Generally, the larger the population served by a PWS, the more frequent the monitoring and reporting requirements. In addition, EPA requires some PWSs to monitor for unregulated contaminants to provide data for future regulatory

development. Finally, EPA requires PWSs to notify their consumers when they have violated the regulations of the SDWA. The 1996 Amendments to the SDWA require consumer notification to include a clear and understandable explanation of the violation, its potential adverse health effects, steps that the PWS is undertaking to correct the violation, and the possibility of using alternative water supplies during the violation.

The federal SDWA applies to all 50 states, the District of Columbia, Indian Lands, Puerto Rico, the Virgin Islands, American Samoa, Guam, and the Commonwealth of the Northern Mariana Islands.

The SDWA allows states and territories to seek EPA approval to administer their own PWSS program(s). The authority to run a PWSS program is called primacy. For a state to receive primacy, EPA must determine that the state meets certain requirements laid out in the SDWA and the federal regulations, including the adoption of drinking water regulations that are at least as stringent as the federal regulations and a demonstration that they can enforce the program requirements. Of the 56 states and territories, all but Wyoming and the District of Columbia have primacy. The EPA regional offices administer the PWSS programs within these two jurisdictions.

The 1986 SDWA Amendments gave Indian tribes the right to apply for and receive primacy. EPA currently administers PWSS programs on all Indian lands except the Navajo Nation, which was granted primacy in late 2000.

Annual State Public Water System Report

The mission of the Drinking Water Division is to protect the public health and welfare of Nebraskans by assuring safe, adequate, and reliable drinking water. People expect their water will be safe to drink when they turn on their faucet, program staff across the State work in many areas to assure this.

On July 18, 2017 the Nebraska Department of Health and Human Services (DHHS) and the Nebraska Department of Environmental Quality (now the Nebraska Department of Environment & Energy (NDEE)), entered into a Memorandum of Agreement (MOA), with the purpose of enhancing the protection of public health and the environment through improved customer service, and increased efficiency. The DHHS Drinking Water Division staff continue to administer the PWSS program under the supervision of NDEE. Legislation was proposed in 2021 and adopted by the State Legislature to merge the DHHS Drinking Water Program with NDEE. This will be effective July 1, 2021.

Each quarter, primacy states submit data to the EPA using the federal Safe Drinking Water Information System (SDWIS/FED) database. The data submitted includes, but is not limited to, public water system (PWS) inventory information; the incidence of MCL, MRDL, monitoring, and TT violations and other information on enforcement activity related to these violations. In addition, section 1414(c)(3) of the federal SDWA requires states to provide EPA with an annual report of violations of the primary drinking water standards. This report provides the numbers of violations in each of six categories: MCLs, MRDLs, TTs, variances and exemptions, significant monitoring violations, and significant consumer notification violations.
The following report is a summary of the compliance of Nebraska's PWSs with the SDWA as required by the 1996 Amendments to this federal act. Other significant program activities that

the program staff perform in assuring water is safe for human consumption are also included in this report.

More information about systems with violations that occurred in 2020 is available from the Drinking Water Division, 245 Fallbrook Blvd, P.O. Box 98922, Lincoln, NE 68509-8922, phone: 402-471-2186 or on EPA's website at:

https://www.epa.gov/enviro/sdwis-search

This report is also available on the NDEE's website at:

http://dee.ne.gov/NDEQProg.nsf/OnWeb/PWS

Notices of the report's availability are also provided to public libraries and local health departments across the state.

Nebraska's Public Water Systems

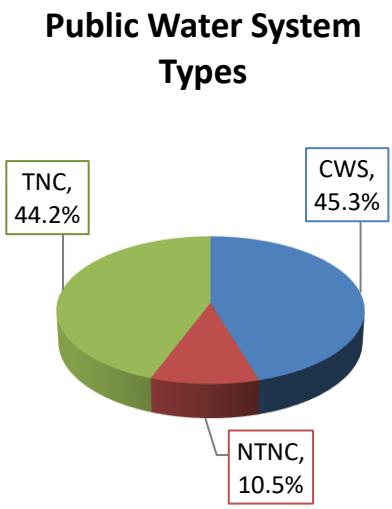
Population and Type of System

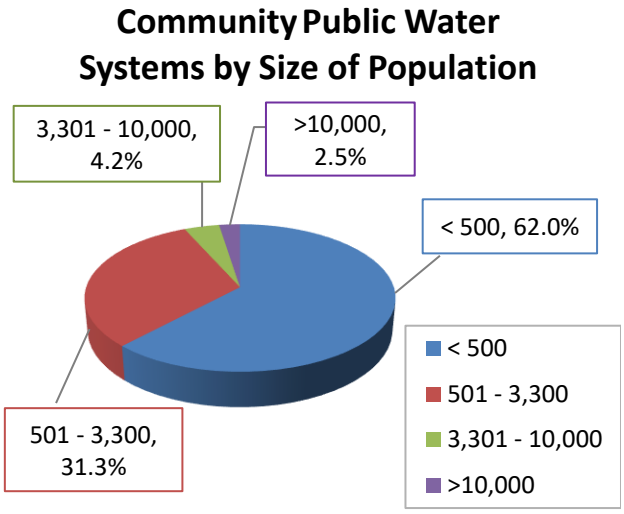
Nebraska public water systems can be broken down into categories based on the size of the population served and/or the type of population served.

Population	CWS	NTNC	TNC	Total Systems	Percentage*
<101	102	76	492	670	50.8%
101-500	268	45	86	399	30.2%
501-1,000	98	7	6	111	8.4%
1,001-3,300	89	8	0	97	7.3%
3,301-10,000	26	2	0	28	2.1%
10,001-50,000	12	0	0	12	0.9%
>50,000	3	0	0	3	0.2%
TOTAL	598	138	584	1,320	100.0%

**Based on approximate population*

CWS = Community ..... 598 systems
NTNC – Non-transient, non-community .....138 systems
TNC = Transient, non-community .....584 systems





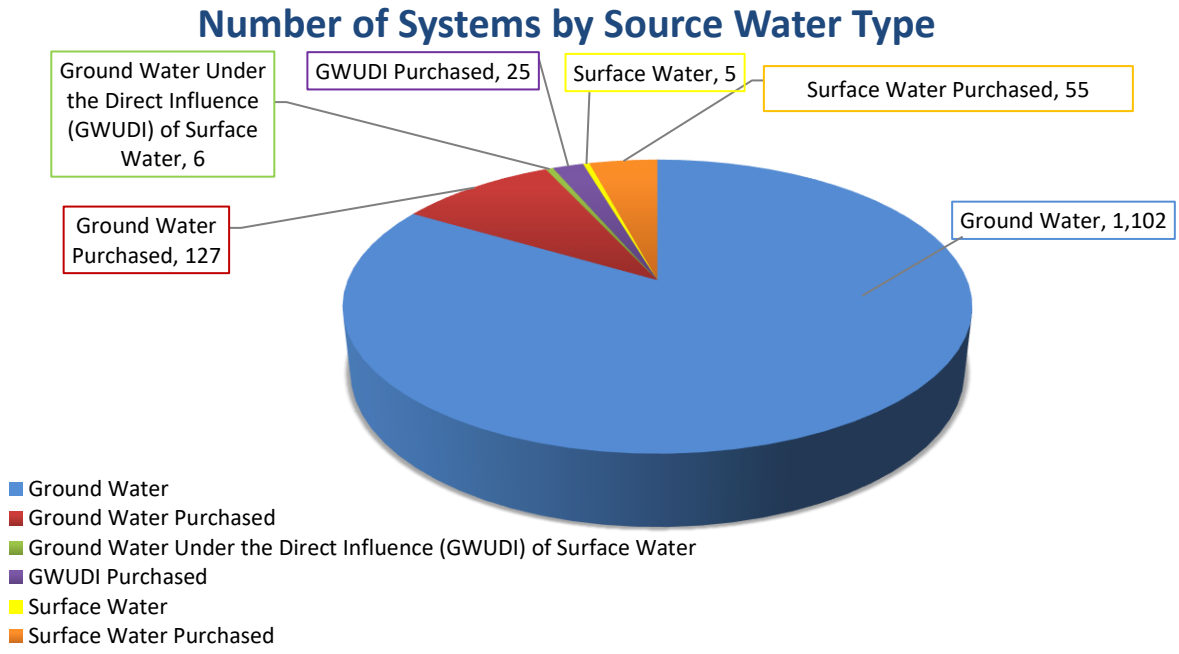
Approximately 80% of all Nebraskans get their water from a community public water system. Private domestic wells provide water for the remaining 20% of the overall State population.

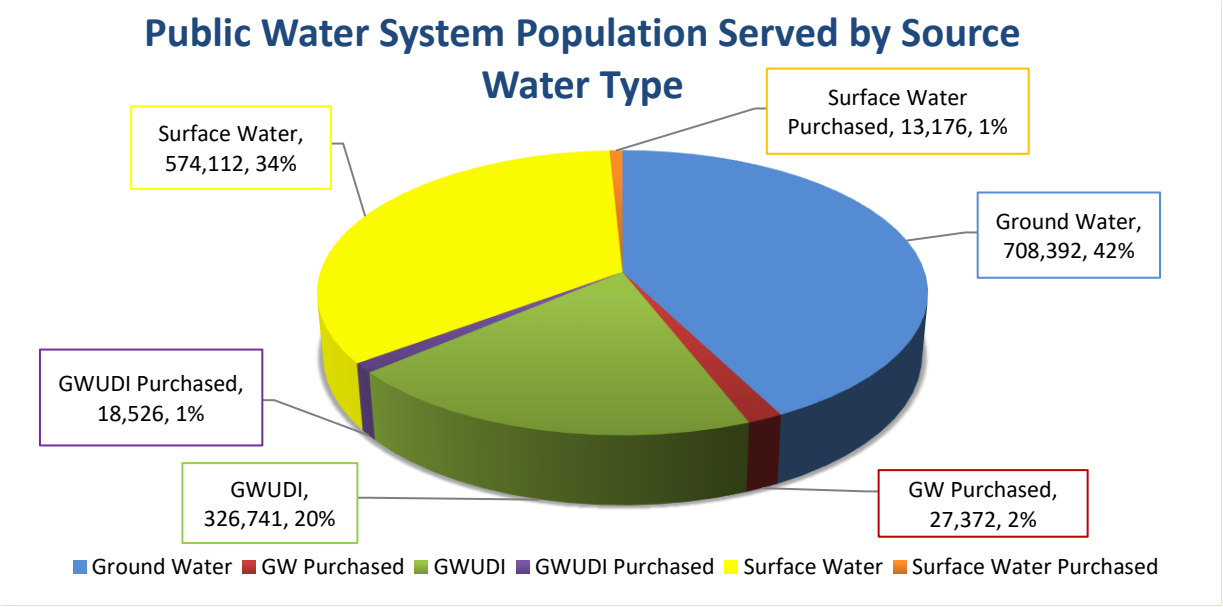
Over 60% of Nebraska's CWSs serve populations less than 500 people. Water systems with populations below 3,300 are considered to be "small systems" by the EPA. This makes Nebraska a predominantly small system state with 93.2% of all of the State's CWSs serving 3,300 or fewer people.

Public Water in Nebraska

The Drinking Water Division at the Department of Health and Human Services administers the State's regulations governing PWSs, Title 179 NAC 2 through 26, promulgated under the State's SDWA pursuant to and in accordance with the federal SDWA. State regulations must be at least as stringent as the federal regulations.

Public water systems provide water to approximately 80% of the people of Nebraska. Private domestic wells, which are not regulated under the SDWA, provide water for other 20% of Nebraskans. Most of the water Nebraskans drink is ground water and only five public water systems in the state obtain their drinking water from surface water. Another 55 systems purchase water from those five systems. In addition, 6 systems utilize ground water under the influence of surface water (GWUDI), and 25 additional systems purchase water from those six systems. The remaining 1,102 systems use ground water, and an additional 127 systems purchase their water from another ground water system.





**Percentages rounded to nearest 1%*

Nebraska's Drinking Water Division's Activities

The Drinking Water Division has 31 full time equivalent positions (FTEs). The Monitoring and Compliance Section has 9, the Engineering Section has 8, the Field Services and Training Section has 12, and 2 FTEs contribute to the administration of the program.

Drinking Water Field Services and Training Section

The Field Services and Training (FS&T) Section encompasses four separate but related areas of responsibility:

1. Field Services (inspections, operator assistance, etc.)
2. Water Operator Training
3. Capacity Development, and
4. Water System Security

FS&T staff include a supervisor, eight field representatives, a training coordinator, and a capacity development coordinator. FS&T staff conduct sanitary surveys, train public water system operators, attend and present information at continuing education programs for water operators, assist public water systems (PWSs) with Level 1 and Level 2 assessments, during emergency situations, and help public water systems to achieve or maintain adequate technical, financial, and managerial capacity. There are eight field areas located throughout the State to provide close contact and timely assistance to Nebraska's public water systems.

2020 FS&T Covid-19 Response

The Covid-19 Pandemic impacted the activities of the FS&T Section. All field and training activities were suspended in mid-March, and did not resume until mid-June. At that time, sanitary surveys, as well as other inspections, were allowed to resume under specific protocols to minimize the risk of spreading Covid-19. All DHHS staff were required to wear masks and gloves when at a PWS, and social distancing was observed whenever possible.

Operator training courses and examinations also resumed with modified procedures. Class sizes were reduced to ensure adequate social distancing, masks were worn by students and instructors at all times, and materials were prepared in advance for each student/examinee to limit the possibility of transmission. Additional courses were added to make up for the suspended courses and smaller class sizes.

Following the initial suspension of activities, the FS&T Section was able to complete all required inspections for the year and clear the backlog of those needing training for water operator licensure. As cases of Covid-19 began to rise a second time in Nebraska, activities were again suspended in November, in all counties that were designated as "red" on their local risk dial, representing a severe risk for spread. The conditions in the individual counties was monitored closely and as the risk dials began moving back out of the "red," we were able to resume activities in most counties by the end of the year.

Field Services

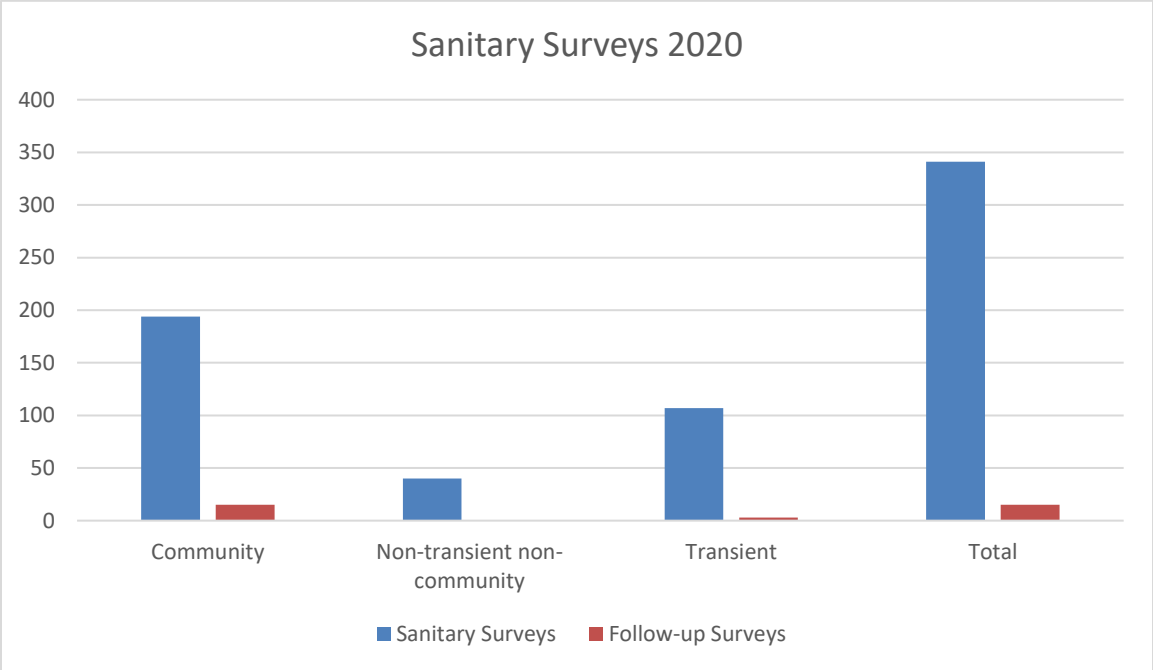
Sanitary Surveys

Routine sanitary surveys are conducted once every three years for community water systems (CWS) and non-transient non-community (NTNC) public water systems and once every five years for transient non-community (TNC) PWSs. A sanitary survey helps to ensure that a water system is operating properly by working with their licensed water operator(s) to evaluate

records, review their emergency plan and cross-connection control program, and inspect components of the water system.

Field personnel conducted 341 sanitary surveys (194 community, 40 non-transient non-community, and 107 transient public water systems) and 18 follow-up surveys (15 community and 3 transient public water systems). A total of 637 deficiencies were found in 2020. This reflects an overall deficiency rate of 1.9 deficiencies per sanitary survey in 2020. No deficiencies were found in 162 (48%) of the sanitary surveys completed in 2020. The average number of deficiencies found in Nebraska's public water systems remained stable from 2019 to 2020, highlighting the great work of water operators in our State.

Outside of sanitary surveys, field staff conduct site inspections for the location of new public wells, assist engineering services personnel in conducting construction inspections of public water system projects (such as the drilling of wells, the construction of treatment plants, and the erection of water towers). Field services staff are essential workers that respond to emergencies associated with natural disasters, water service interruption, and/or contamination of a public water system



Level 1 & Level 2 Assessments

When public water systems have a confirmed presence of coliform bacteria, the Revised Total Coliform Rule (RTCR) requires that an assessment of the system be conducted. An assessment helps to identify the likely reason for the presence of coliform bacteria in the system. Any identified defects are required to be corrected.

A Level 1 assessment is triggered by the confirmed presence of total coliform bacteria in a public water system. The public water system is responsible for completing a Level 1 assessment. Then field staff are responsible for completing a review of this assessment.

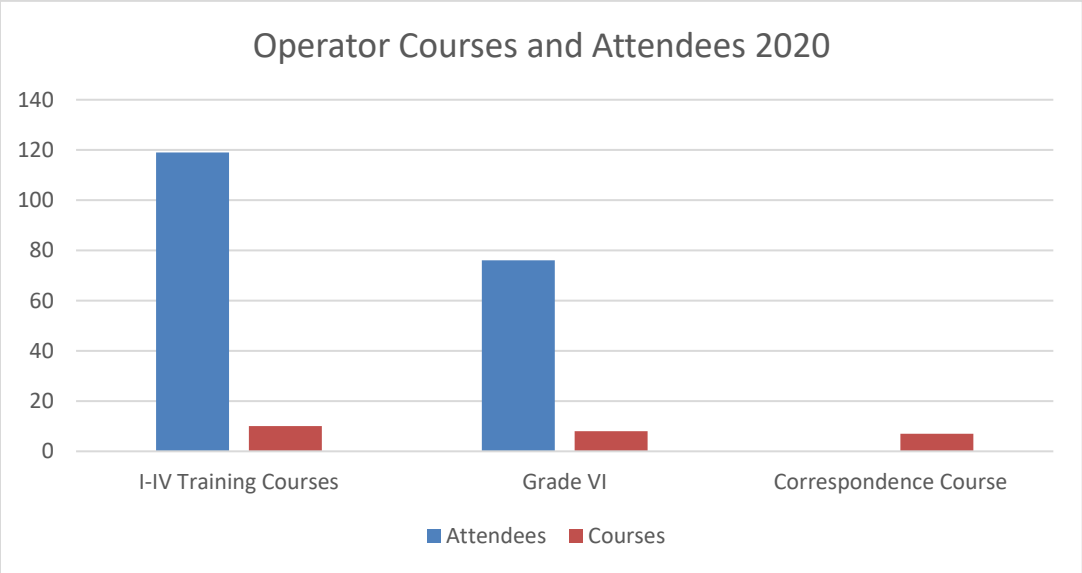
A Level 2 assessment is triggered by either multiple Level 1 assessments within a running twelve-month period, or by the confirmed presence of *E. coli* bacteria in the system. A Level 2 assessment is conducted by field staff and provides a much more detailed evaluation of the public water system.

Hypochlorinators

The Drinking Water Division maintains a number of hypochlorinators for temporary loan to public water systems when bacterial contamination is a source of concern. This equipment helps communities with temporary chlorination of their water supplies to ensure the safety of their drinking water. When a power outage or source failure is involved, program staff also help systems locate equipment and supplies which may be needed.

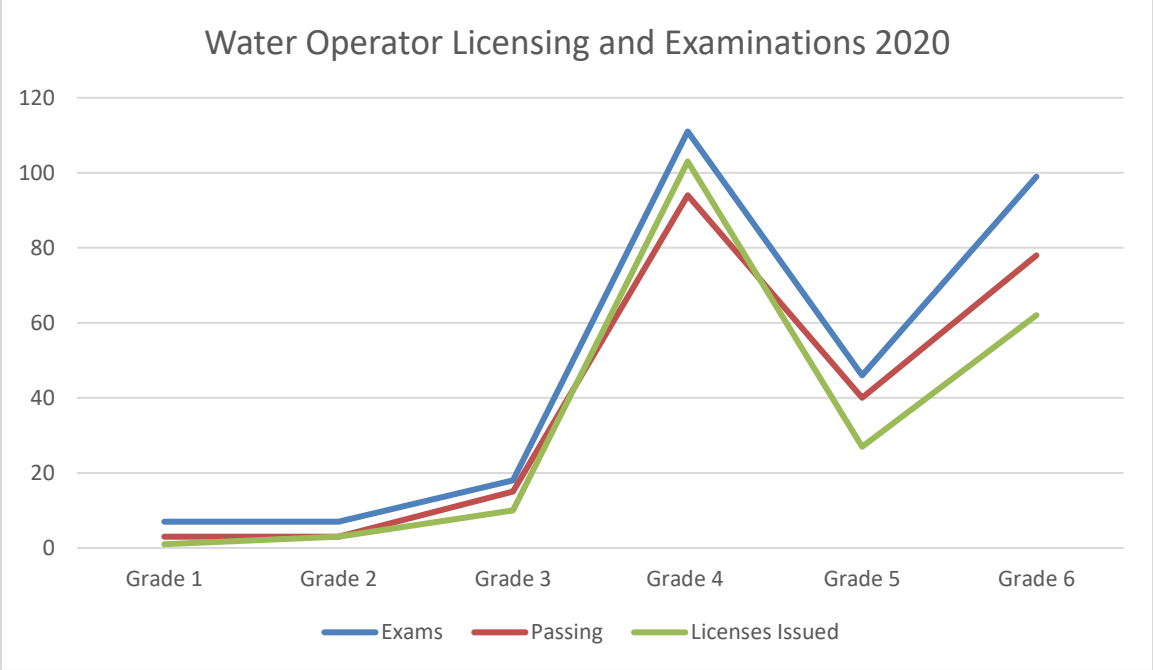
Training

FS&T program personnel conducted 10 water operator training courses, Grades I through IV, with a total of 119 attendees. An additional 7 individuals completed the correspondence course that is also offered to prepare for the Grade IV licensure examination. For Grade VI licensure (backflow preventer testing and repair), 8 courses were offered with a total of 76 attendees. For Grade V operators (transient systems only), there are no classroom courses. Training is obtained through a self-study process. Water operators are licensed only after successfully passing an exam. Examinations are offered following each training course and can also be scheduled individually.



The following table breaks down the number of initial licenses issued and examinations conducted at each grade level:

Grade	Examinations	Passing	Number of Licenses Issued
I	7	3	1
II	7	3	3
III	18	15	10
IV	111	94	103
V	46	40	27
VI	99	78	62



Although COVID-19 did slow continuing education activities in 2020, the Drinking Water Division and other training providers adapted to existing conditions both in person and virtual training formats for water operators in 2020. Coordinated by the program, a group informally known as the Water Operator Training Coalition, met to identify training needs and to assist with scheduling of training opportunities. Members include the Nebraska Rural Water Association, the League of Nebraska Municipalities, the Midwest Assistance Program, Central Community College, and the Nebraska Section of the American Water Works Association. In 2020, as in past years, the Coalition produced a calendar identifying dates and locations of continuing education opportunities for distribution to licensed water operators.

A total of 93 workshops/seminars/conferences were initially offered in Nebraska for the purpose of water operator continuing education. Of these, 33 focused primarily on backflow prevention continuing education for Grade VI operators.

Capacity Development

Capacity development is a proactive approach, through which water systems acquire and maintain adequate technical, managerial, and financial capabilities, enabling them to provide safe drinking water to Nebraskans. DHHS's activities to bolster water systems' capacity are overseen by the program's Capacity Development Coordinator.

Additional support is provided by the 2% Team, which consist of the same members as the Water Operator Training Coalition. The name comes from the 2% set-aside from the Drinking Water State Revolving Fund (DWSRF).

DWSRF 2% Set-Aside Funds

Funds from the 2% Set-Aside of the DWSRF are used to provide assistance to public water systems to develop, and maintain, technical, managerial, and financial capacity. DHHS contracts with technical assistance providers to provide on-site technical assistance, capacity assessment, and board/council trainings.

On-Site Assistance: The Department, along with the 2% Team, prioritize water systems in need of assistance. Providers then work with water systems, providing assistance with applications for funding, capacity development training, manuals, and mentorship to assist water systems. Technical assistance providers made 302 in person or phone contact visits with systems.

Capacity Assessment: Assessments of a system's managerial and financial capacity are conducted at water systems that receive loans through the DWSRF. An assessment is completed before the funded project begins, and again after it is completed, to determine the impact of the project on improving the system's capacity. Initial assessments were completed for 15 systems, and 6 systems received final assessments.

Board/Council Training: Information sessions are held to advise board/council members about the legal and fiduciary responsibilities they have as owners of a public water system, and their role in maintaining an adequate, safe supply of water for their customers. A total of 11 board/council members, representing 2 community water systems, attended sessions. This number was down considerably from 2019 due to COVID-19 restrictions.

Education and Outreach

In addition to utilizing the 2% Contractors, the Capacity Development Coordinator works with the Water Operator Training Coalition partners to provide capacity development training for water operators, owners, city clerks, and others, with a focus on each of their roles in developing and maintaining adequate capacity for their water systems. Included in this focus was emphasis on the importance of implementing an asset management plan with demonstrations of using available tools for inventory and budget, and the necessity of maintaining an up-to-date emergency response plan, and how systems should work with local emergency managers to ensure robust and resilient emergency response. Although the Capacity Development Coordinator was limited in the number of trainings provided due to the COVID-19 pandemic, trainings were given at 7 conferences and workshops.

Drinking Water Engineering Section

The Nebraska Safe Drinking Water Act and regulations adopted thereunder require that plans and specifications for all major construction related to public water systems be prepared by a registered professional engineer and be approved by the Department before construction begins. The law defines major construction as structural changes that affect the source of the water supply, treatment processes, or transmission of water to service areas, but it does not include the extension of service mains within an established service area.

Plan Reviews and Inspections

The Drinking Water Engineering Section provides engineering plan reviews; issuance of construction permits; inspection of newly constructed projects for issuance of approvals for placement into service; and, technical assistance and advice to owners/operators of PWSs, consulting engineers, state, federal and local officials, organizations, and the general public in matters relating to siting, design, construction, maintenance and operation of PWSs.

Water system plan review was incorporated into state law to increase assurance that water source development, treatment, storage, and distribution facilities would be constructed or expanded in a manner contributing to the ability of the system to deliver safe drinking water. Emphasis is placed on encouraging long-term benefits from capital investment as opposed to temporary actions designed to eliminate an emergency situation.

DHHS received 172 sets of plans and specifications for the construction of water projects for review and approval. In addition, engineering staff conducted 81 inspections of water projects constructed.

Annual Audits

On April 4, 2010, state regulations – Title 179 NAC 7, *Siting, Design and Construction of Public Water Systems* -- became effective. As a result, public water systems can enter into a 3-year agreement to construct water distribution main projects without having to submit plans and specifications to DHHS for review and approval. These systems are subject to an annual audit by the Drinking Water Engineering Section as a condition of the agreement. In 2020, 23 annual audits were completed and as of December 31, 2020, a total of 24 public water systems have entered into 3-year agreements with the DHHS.

Drinking Water State Revolving Fund

The engineering staff also participates in the common pre-application review process for federal and state agencies' loan; grant programs for water and wastewater projects; and the Drinking Water State Revolving Fund (DWSRF) program activities. Following a Kaizen Process, separate engineering review meetings that are focused on the funding of infrastructure projects, was implemented. Establishment of this monthly meeting allows for detailed focus on engineering issues.

The annual DWSRF infrastructure needs survey was sent out to all public water systems. A ranking system developed by the Department was used to prioritize and establish the funding order for infrastructure projects that could be funded by the DWSRF. The surveys indicated 394

eligible projects with just under $1 billion in infrastructure needs. The DWSRF provided 6 loans in 2020 for a total of $9,235,000 with $1,634,000 of that provided in forgiveness assistance.

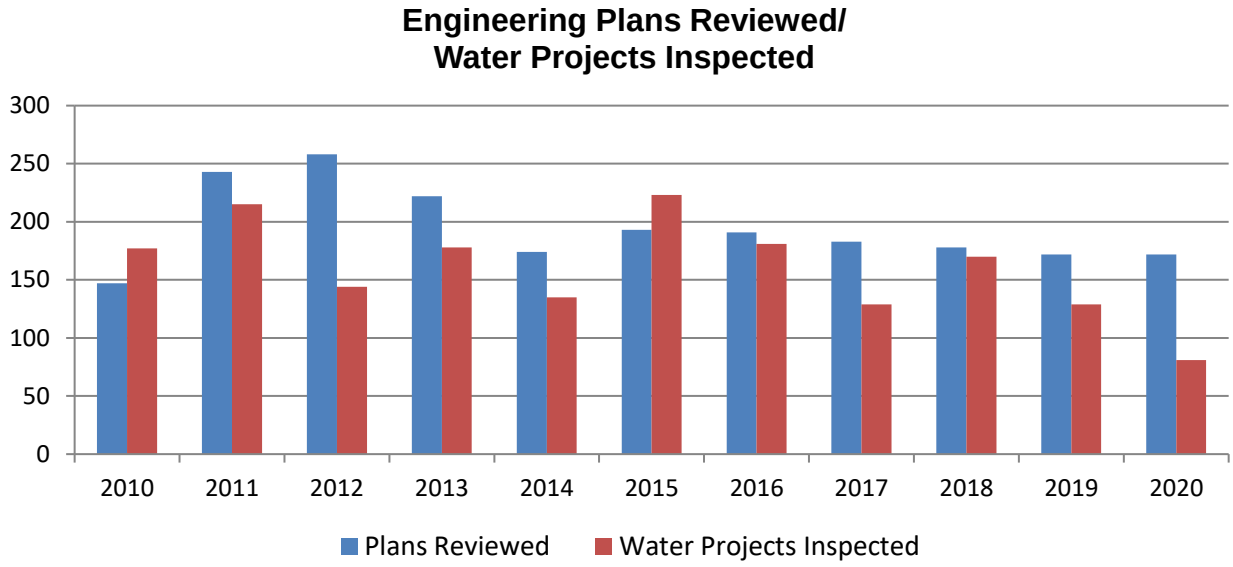
Each year the Clean Water State Revolving Fund (CWSRF), which addresses wastewater, and the DWSRF, which addresses drinking water, publish an Intended Use Plan (IUP), which explains how the SRF programs will use capitalization grants received annually from the federal government, annual state matching funds, and current program funds to meet Nebraska's community water needs. IUPs also include a priority-funding list for CWSRF and DWSRF projects, listing and prioritizing projects that are submitted by the communities to the program. Every year, IUPs undergo a public hearing and comment period that are presented to the Environmental Quality Council (EQC) for review and approval.

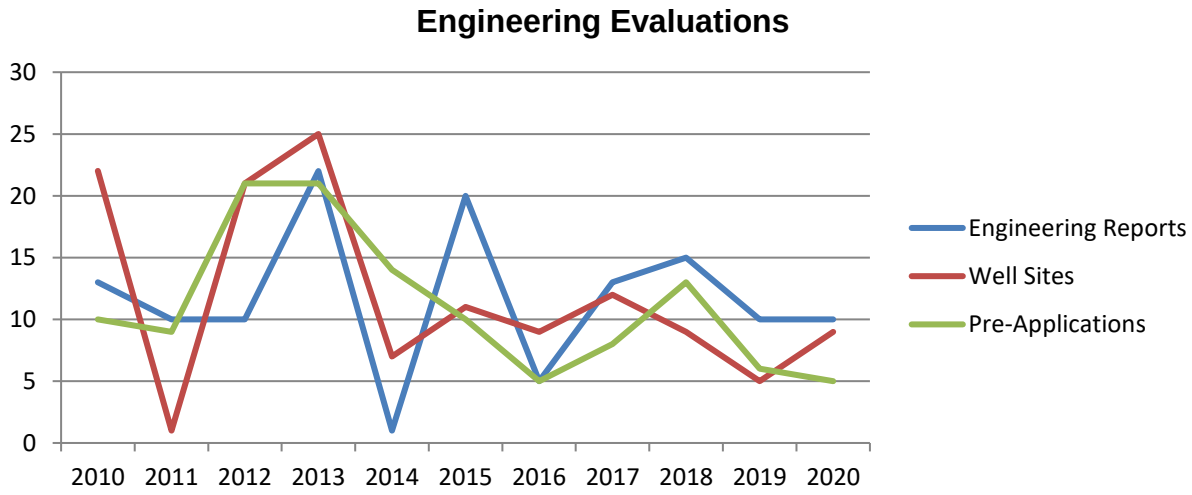
Other Engineering Activities

The Drinking Water Engineering Section staff also reviewed justifications provided by professional engineers for any new well siting that does not meet the setback distances identified in Title 179 NAC 7. A total of 9 new well site justifications were reviewed and 7 of these were approved. In addition, the engineering staff worked with NDEE and city officials to evaluate encroachment issues that may be of concern to existing public drinking water wells. Three encroachment related issues were evaluated and resolved. In addition, six operation and maintenance manuals for DWSRF projects were reviewed.

SUMMARY OF THE DRINKING WATER ENGINEERING SECTION ACTIVITIES *January 1, 2020 to December 31, 2020*

ACTIVITIES	NUMBER
Water Projects Received for Review and Approval	172
Water Projects Inspected	81
Engineering Reports for Water System Improvements Evaluated	10
New Water Well Sites Evaluated	9
Common Pre-Applications for Water/Wastewater Projects for Federal and State Financial Assistance Reviewed	5
Operation and Maintenance Manuals for Drinking Water State Revolving Loan Funded Projects Reviewed	6
Three-Year Agreements for Distribution Main Projects—Annual Audits Completed	23
Encroachment Issues	3





Monitoring and Compliance Section

The Monitoring and Compliance (M&C) Section of the Drinking Water Division establishes monitoring schedules and reviews analytical results for contaminants in drinking water. In this review of analytical results, M&C personnel determine compliance with the SDWA and issue appropriate enforcement actions, when necessary, to help a PWS return to compliance.

Safe Drinking Water Information System

The Safe Drinking Water Information System (SDWIS) is a database developed by EPA for States to report water quality data test results, violations, compliance assistance, enforcement, compliance schedules, water operator licensure, and PWS operating permits. It receives electronic data from the State of Nebraska Environmental Health Laboratory and 4 contract laboratories (Midwest Lab, Hall County, American Ag, and Enviro Services) that perform water analyses for DHHS.

DHHS is preparing for transition to cloud-based software. This transition includes staff training, implementing routine quality assurance and quality control measures, and implementing standard data entry and reporting methods.

Monitoring and MCL Violations, and Assessments

A public water system is required to monitor for the presence of 83 different contaminants. If a contaminant is present in the water, the system must verify that the contaminant does not exceed its maximum contaminant level (MCL).

In 2020, only 6 of 83 contaminants for which community public water systems monitor were found to be present above a MCL. That means 77 contaminants, for which monitoring was conducted, were not found above their respective MCL in ***any*** community water system in Nebraska.

Monitoring & Compliance enforces 9 different federal monitoring rules. Each rule contains a group of similar contaminants. Below is a list of the federal monitoring rules:

1. Revised Total Coliform Rule
2. Disinfections Byproducts
3. Groundwater
4. Lead & Copper
5. Inorganic Chemicals
6. Radionuclides
7. Synthetic Organic Chemicals
8. Surface Water Treatment
9. Volatile Organic Chemicals

A major monitoring violation occurs when a system fails to collect any samples during a required compliance period. Significant monitoring violations are defined as any major monitoring violation that has occurred during a specified reporting period, which differs for each contaminant.

There were a total of 97 violations from 58 public water systems in 2020 for exceeding an MCL or failing to properly monitor. More detailed information on each of the monitoring rules follow the summary table below.

Revised Total Coliform Rule (RTCR)

The objective of the Revised Total Coliform Rule (RTCR) is to reduce potential exposure to bacterial contamination in drinking water. Testing for coliform bacteria is a way to indicate whether potentially harmful bacteria may be present. All public water systems are required to routinely monitor for the presence of coliform bacteria and *E,coli,* a type of coliform bacteria. The RTCR establishes a MCL for *E. coli*. Assessments of the PWS and corrective actions are required if *E.coli* bacteria are found. A system is required to issue a Public Notice (PN) if they fail to monitor for coliform bacteria, if *E.coli* bacteria are found, or for failure to complete an assessment or corrective action.

A Level 1 Assessment is triggered when total coliform is found in the system. The public water system conducts the Level 1 Assessment and the Drinking Water Division then reviews it. Identified deficiencies noted in the Assessment are required to be corrected in a timely manner.

A Level 2 Assessment is triggered when a system incurs more than one Level 1 Assessment in a running 12-month period, or if a system has a confirmed *E. coli* bacteria presence within their system. The Level 2 Assessment is conducted by the Drinking Water Division with a representative of the public water system. Level 2 paperwork is completed and identified deficiencies are noted and the system is responsible for correcting deficiencies in a timely manner.

Significant deficiencies must be corrected within 120 days and minor deficiencies must be corrected within 12 months.

RTCR Assessments 2020

Type of RTCR Assessment	Number of Assessments Triggered	Number of Systems	% of Systems with Assessments
Level 1	79	79	6.0%
Level 2	70	46	3.5%
Level 2, *E. coli* MCL triggered	5	5	1.5%

RTCR Violations 2020

Type of RTCR Violation	Number of Violations Issued	Number of Systems	% of Systems with Violations
Treatment Technique, Level 1 requirements not met	0	0	0%
Treatment Technique, Level 2 requirements not met	0	0	0%
Treatment Technique, Startup Procedures	1	1	0.08%
MCL – *E. coli* +	8	8	0.6%
Monitoring, Additional Routine, Major Routine	18	18	1.4%

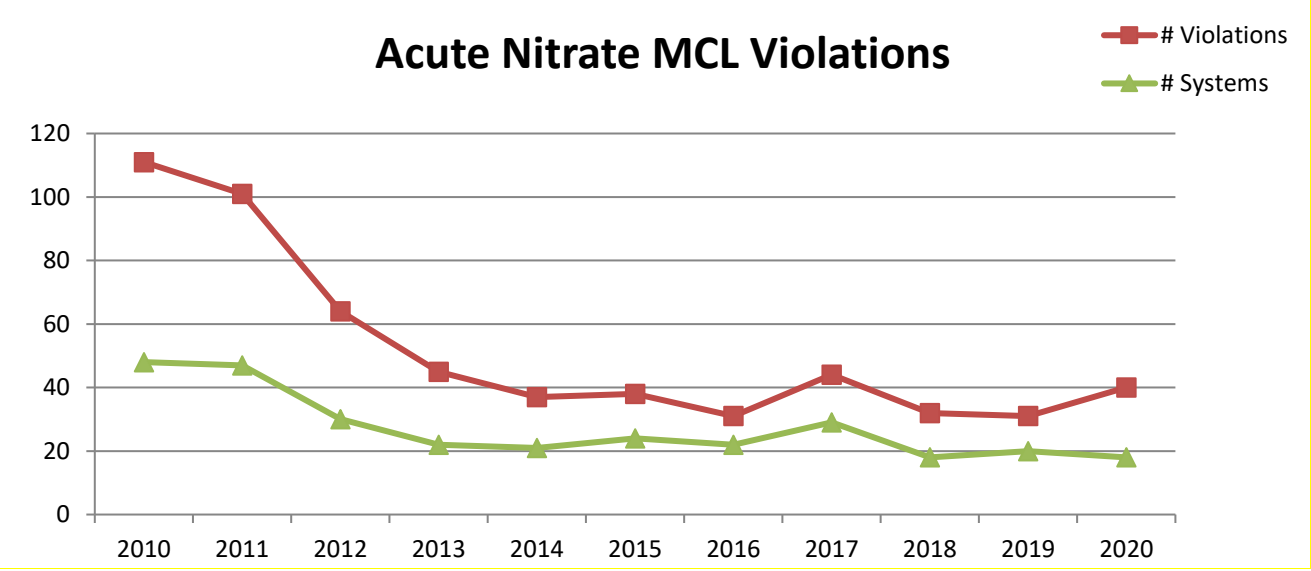
Nitrate-Nitrite Rule

All public water systems monitor for nitrate-nitrite. Adverse health effects may be experienced when pregnant women, infants under six months of age, and nursing mothers, consume high levels of nitrate or nitrite in drinking water. A system is out of compliance when it receives one monitoring or MCL violation. A system is issued an Administrative Order to correct a nitrate contamination problem if two nitrate-nitrite violations are issued within a consecutive three-quarter period.

A summary of the 2020 nitrate-nitrite violations is presented below along with historic data. Nitrate MCL violations have decreased significantly in Nebraska since 2010.

Nitrate-Nitrate Violations 2020

Violation	Number of Violations	Number of Systems	% of Systems with Violations
MCL – 10 mg/l	40	18	1.4%
Monitoring	6	4	0.3%



Public Notification Rule 2020

Public Notification is required if a PWS receives a MCL, Monitoring, or acute violation. There were no systems in violation of the PN Rule.

Rule	Number of Violations	Number of Systems
Public Notification Rule	1	1

Consumer Confidence Rule 2020

The CCR Rule requires all community water systems to prepare and distribute a brief annual water quality report summarizing information regarding source water, detected contaminants, compliance, and educational information. There were no systems in violation of the CCR Rule.

Rule	Number of Violations	Number of Systems
Consumer Confidence Rule	0	0

MCL Violations for Chronic Contaminant Exposure

Ingestion of bacteria and nitrate-nitrite in drinking water are typically associated with acute (i.e., sudden) adverse health effects. Exposure to other drinking water contaminants are considered to be associated with chronic health effects (i.e., the adverse health effect is evident only after repeated exposure or ingestion over a long period of time. Depending on the contaminant, routine monitoring occurs every year, every three years, or every six years (per EPA). If a contaminant is detected, monitoring is increased to quarterly.

If the level decreases below the MCL, the monitoring frequency may be reduced. A public water system is issued an AO after 3 quarterly MCL violations are issued in a rolling 12-month period. An AO is issued immediately if the contaminant is found at a level that may pose a health risk.

Below are a list of tables that outline the type of contaminants and the number of violations issued for each.

Volatile Organic Chemical (VOC) Violations 2020

(Per the SDWA, only community and non-transient, non-community systems monitor for VOCs.)

VOC Contaminant	Number of MCL Violations	Number of Monitoring Violations	Number of Systems	% of Systems with Violations
Aldrin	0	0	0	0.0%
Benzene	0	0	0	0.0%
Carbon tetrachloride	0	0	0	0.0%
cis-1,2-Dichloroethylene	0	0	0	0.0%
Dicamba	0	0	0	0.0%
1,1-Dichloroethylene	0	0	0	0.0%
Dichloromethane	0	0	0	0.0%
1,2-Dichloropropane	0	0	0	0.0%
Metribuzin	0	0	0	0.0%
Monochlorobenzene	0	0	0	0.0%
o-Dichlorobenzene	0	0	0	0.0%
para-Dichlorobenzene	0	0	0	0.0%
Styrene	0	0	0	0.0%

Tetrachloro-ethylene	0	0	0	0.0%
Toluene	0	0	0	0.0%
trans-1,2-Dichloroethylene	0	0	0	0.0%
1,2,4-Trichlorobenzene	0	0	0	0.0%
Trichloroethylene	0	0	0	0.0%
1,1,1-Trichloroethane	0	0	0	0.0%
1,1,2-Trichloroethane	0	0	0	0.0%
Vinyl chloride	0	0	0	0.0%
Xylenes (total)	0	0	0	0.0%

Inorganic Chemical Contaminant (IOC) Violations 2020

(Per the SDWA, only Community and Non-transient, non-community systems monitor for IOCs.)

Contaminant	Number of MCL Violations	Number of Monitoring Violations	Number of Systems	% Systems with MCL Violations
Antimony	0	0	0	0%
Asbestos	0	0	0	0%
Arsenic	3	3	4	0.15%
Barium	0	0	0	0%
Beryllium	0	0	0	0%
Cadmium	0	0	0	0%
Chromium total	0	0	0	0%
Cyanide (as free cyanide)	0	0	0	0%
Fluoride	0	0	0	0%
Mercury	0	0	0	0%
Nickel	0	0	0	0%
Selenium	3	0	3	0.2%
Sodium	0	0	0	0%
Thallium	0	0	0	0%

Non-Volatile Synthetic Organic Chemical (SOC) Contaminants 2020

(Per the SDWA, only community and non-transient, non-community systems monitor for SOCs.)

Contaminant	Number of MCL Violations	Number of Monitoring Violations	Number of Systems	Systems with Violations
Alachlor (Lasso)	0	0	0	0%
Atrazine	0	0	0	0%
Benzo[a]pyrene	0	0	0	0%
Butachlor	0	0	0	0%
Carbaryl	0	0	0	0%
Carbofuran	0	0	0	0%
2,4-D	0	0	0	0%
2,3,7,8-TCDD (Dioxin)	0	0	0	0%
2,4,5-TP	0	0	0	0%
Chlordane	0	0	0	0%
Dalapon	0	0	0	0%
Di(2-ethylhexyl)adipate	0	0	0	0%
Di(2-ethylhexyl)phthalate	0	0	0	0%
Dibromochloropropane	0	0	0	0%
Dieldrin	0	0	0	0%
Dinoseb	0	0	0	0%
Diquat	0	0	0	0%
Endothall	0	0	0	0%
Endrin	0	0	0	0%
Ethylene dibromide	0	0	0	0%
Glyphosate	0	0	0	0%
Heptachlor	0	0	0	0%
Heptachlor epoxide	0	0	0	0%
Hexachlorobenzene	0	0	0	0%
Hexachlorocyclopentadiene	0	0	0	0%
Lindane	0	0	0	0%
Methomyl	0	0	0	0%
Methoxychlor	0	0	0	0%
Oxamyl (Vydate)	0	0	0	0%
Pentachlorophenol	0	0	0	0%

Contaminant	Number of MCL Violations	Number of Monitoring Violations	Number of Systems	Systems with Violations
Picloram	0	0	0	0%
Polychlorinated biphenyls	0	0	0	0%
Propachlor	0	0	0	0%
Simazine	0	0	0	0%
Toxaphene	0	0	0	0%

Radionuclide Violations 2020

(Per the SDWA, only Community water systems monitor for Radionuclides.)

Contaminant	Number of MCL Violations	Number of Monitoring Violations	Number of Systems	Systems with Violations
Combined Radium (Radium -226 and Radium -228)	0	0	0	0%
Gross Alpha Including Radon and Uranium	0	0	0	0%
Uranium Mass Combined Uranium	7	0	2	0.15%

Disinfection Byproduct Violations 2020

(Only water systems that disinfect their water, monitor for Disinfection Byproducts and Disinfectant Residuals.)

Contaminant	Number of MCL Violations	Number of Monitoring Violations	Number of Systems
Total Haloacetic Acids	0	0	0
Total Trihalomethanes	5	0	2

Disinfection Byproducts Stage 1 Monitoring

Violation	# Violations	# Systems
Qualified Operator Failure	0	0

Disinfection Byproducts Monitoring

	# Violations	# Systems
Monitoring	0	0

Disinfectant Residual Contamination Violations

MRDL	Treatment Technique # Violations	Treatment Technique # Systems	Monitoring # Violations	Monitoring # Systems
0	0	0	0	0

Lead and Copper Rule Violations

(Per the SWDA, only Community and Non-transient, non-community water systems monitor for Lead and Copper.)

Contaminant	Number of Monitoring Violations	Number of Systems	Systems with Violations
Lead and Copper	0	0	0%

Surface Water Treatment Rule Violations 2020

Type of Violation	Number of Violations	Number of Systems
Monitoring	0	0
Record Keeping	0	0
Treatment Technique	0	0

Ground Water Rule 2020

Type of Violation	Number of Violations	Number of Systems
Monitoring/Reporting/Recordkeeping	0	0
Sanitary Survey – Failure to Address Deficiency	0	0
Sanitary Survey – Failure to Consult	0	0
Treatment Technique	0	0

Administrative Orders 2020

The Drinking Water Division issues an Administrative Order (AO) when a public water system is significantly out of compliance. (Each contaminant has different parameters that indicate what constitutes "significantly out of compliance.") Once an AO is issued, MCL violations continue to be issued until the System returns to compliance. Failure to comply with the terms of an AO can result in administrative action or revoking the system's permit to operate.

	Total Coliform Monitoring	Nitrate	Arsenic	DBP
Number of Orders	0	1	0	0
Population Affected	0	397	0	0

Variances and Exemptions

No variances or exemptions were issued in 2020.

MCL Violations other than Total Coliform/RTCR and Nitrate

Population Affected by Various Contaminants

Contaminant	Number of MCL Violations	Number of Systems	Population Affected
Arsenic	3	2	727
Selenium	3	3	7612
Uranium Mass	7	2	603

Nebraska Public Health Environmental Laboratory (NPHEL)

The Nebraska Public Health Environmental Laboratory (NPHEL) employs 16 permanent and 2 temporary staff members who help ensure Nebraskans are provided accurate and timely water results.

NPHEL analyzed approximately 62,400 water samples. This represents about a 1% increase in tests from the previous year. Approximately 64% of the laboratory's tests are for public water systems across the state and roughly 23% of the lab's testing was performed for the Nebraska Department of Environment and Energy. Private customers accounted for roughly 11% of the samples analyzed. There was a 3% increase in the metals total as a result analysis conducted to support a manganese grant project for public water systems and the start of the Federal WIIN grant which covers the cost of lead testing in schools and daycares. Total coliform analysis accounted for 35.6% of the laboratory tests which was a drop of 4% from the previous year. Total coliform sample analysis has a very short holding time of 30 hours from collection to incubation. USPS delays continue to cause a struggle for clients to get their samples to the lab on time. Of all the Colilert and Colilert Quantitray samples received, approximately 2% of them were rejected and could not be analyzed due to shipping delays, which reflects an increase of 0.5% from 2019.

Number of Laboratory Water Samples Analyzed

Test Type	2020	2019	2018	2017	2016
Arsenic	667	775	1089	1,414	1,454
Blood Alcohol	795	709	827	692	1,373
Chloride	2,252	2,381	2439	2,558	3,001
Lead	3,471	3,072	2,307	2,452	2,932
Lead/Copper	6,912	6,055	4536	4,809	5,753
Nitrate	7,684	8,033	7824	8,069	8,070
Pesticides	513	745	713	498	761
Total Coliform/E.coli	22,015	24,088	22,579	24,109	25,000
Total Suspended Solids	2,356	2560	2446	2,725	3,095
Uranium (mass)	559	506	646	566	553
VOCs (Volatile Organic Compounds)	988	968	977	1,079	1,091

Number of Tests by Analytical Area

Lab Section	% of Total
Air	0.5
Alcohols	1.3
Bacteriological	35.6
Contract lab analysis	1.6
Inorganics	34.2
Metals/Minerals	21.1
Organics and Radon	5.8

Lab fees remained unchanged. Paying lab invoices by credit card, debit card and electronic check continues to be popular with clients.

The Drinking Water Laboratory Certification Office currently certifies five labs for coliform and two labs for nitrate testing.

For more information call NPHEL at (402) 471-2122.

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ATTACHMENT A

Definition of a Public Water System in the Safe Drinking Water Act:

Public water system means a system for providing the public with water for human consumption through pipes, or after August 5, 1998, other constructed conveyances, if such system has at least fifteen service connections or regularly serves an average of at least twenty-five individuals daily at least sixty days per year.

Public water system includes:

> Any collection, treatment, storage, and distribution facilities under the control of the operator of such system and used primarily in connection with such system and any collection or pretreatment storage facilities not under such control which are used primarily in connection with such system. Public water system does not include a special irrigation district. A public water system is either a community water system or a non-community water system.

Service connection does not include a connection to a system that delivers water by a constructed conveyance other than a pipe if:

a) The water is used exclusively for purposes other than residential uses, consisting of drinking, bathing, cooking, and other similar uses,
b) The DHHS determines that alternative water to achieve the equivalent level of public health protection provided by the Nebraska Safe Drinking Water Act and rules and regulations under the act is provided for residential or similar uses for drinking and cooking, or
c) The DHHS determines that the water provided for residential or similar uses for drinking, cooking and bathing is centrally treated or treated at the point of entry by the provider, a pass-through entity, or the user to achieve the equivalent level of protection provided by the Nebraska Safe Drinking Water Act and the rules and regulations under the Act.

Special irrigation district means an irrigation district in existence prior to May 18, 1994, that provides primarily agricultural service through a piped water system with only incidental residential or similar users if the system or the residential or similar users of the system comply with exclusion provisions of subdivision (b) or (c) of this subdivision.

ATTACHMENT B

Safe Drinking Water Standards

The purpose of setting drinking water standards is to limit the level of contaminants in potable water. Contaminants that might be found in drinking water are grouped into three categories:

1. Natural pathogens: These are disease-causing microorganisms that can occur in source water or in the distribution system. They can be bacteria, protozoans, or viruses. Humans or animals can transmit these organisms. Exposure to them in even small amounts in drinking water can cause acute illness. Examples include c*ryptosporidium* and *giardia lambia*.

2. Organic, inorganic, and radioactive chemicals: These can be man-made, or they may occur naturally. Examples include carbon tetrachloride (organic and man-made), arsenic (inorganic and naturally-occurring or man-made), and radon (radioactive and naturally-occurring). Health effects from most of these substances occur after frequent, long-term exposure to low concentrations.

3. Treatment Process Chemicals and Byproducts: Disinfectants and coagulants are chemicals used in treatment plants to purify drinking water. Some of the chemicals have health effects themselves and must be used carefully. With other substances, the treatment, such as chlorine, may produce chemical byproducts, such as trihalomethanes, which may be harmful to health.

Between 1975 and 1980, EPA established standards for 23 different contaminants. With the passage of the Safe Drinking Water Act in 1974, EPA specified a maximum contaminant level (MCL) and a monitoring or sampling frequency for each contaminant. Minimum treatment requirements were established for contaminants that could not be monitored in a practical way.

In the 1980s, reports of drinking water contamination by substances such as industrial solvents and pathogenic organisms aroused concern about the adequacy of the program. The 1986 Amendments to the Safe Drinking Water Act required EPA to address 87 new contaminants within three years, to be followed by regulation of 25 more contaminants every three years thereafter. To date, all but seven of the 1986 regulations have been finalized. Public water systems must test for the following contaminants.

Inorganic Chemicals

All the following maximum contaminant levels (MCLs) for inorganic chemical contaminants apply to community water systems. All the following MCLs for inorganic chemicals, except the MCL for fluoride, apply to Non-transient, non-community water systems. Only the MCLs for nitrate, nitrite, and total nitrate and nitrite apply to transient, non-community systems, per the SDWA.

Inorganic Contaminants	MCL (mg/l)
Antimony	0.006
Asbestos (fibers >10 µm)	7 million fibers/liter
Arsenic	0.05
Barium	2
Beryllium	0.004
Cadmium	0.005
Chromium total	0.10
Cyanide (as free cyanide)	0.2
Fluoride*	4.0
Mercury	0.002
Nickel	0.1
Nitrate (as Nitrogen)	10
Nitrite (as Nitrogen)	1
Total Nitrate and Nitrite (as Nitrogen)	10
Selenium	0.05
Sodium	500.0
Thallium	0.002

*Community water systems experiencing fluoride levels above 2.0 milligrams per liter must notify the public.

Synthetic Organic Chemicals

The following maximum contaminant levels for organic chemical contaminants apply to community and non-transient, non-community water systems.

Volatile Organic Chemical Contaminants	MCL (mg/l)
Benzene	0.005
Carbon tetrachloride	0.005
cis-1,2-Dichloroethylene	0.07
1,2-Dichloroethane	0.005
1,1-Dichloroethylene	0.007
Dichloromethane	0.005
1,2-Dichloropropane	0.005
Ethylbenzene	0.7
Monochlorobenzene	0.1
o-Dichlorobenzene	0.6
para-Dichlorobenzene	0.075
Styrene	0.1
Tetrachloroethylene	0.005
Toluene	1
trans-1,2-Dichloroethylene	0.1
1,2,4-Trichlorobenzene	0.07
1,1,1-Trichloroethane	0.2
1,1,2-Trichloroethane	0.005
Trichloroethylene	0.005
Vinyl chloride	0.002
Xylenes (total)	10

Non-Volatile Synthetic Organic Chemical Contaminants	MCL (mg/l)
Alachlor	0.002
Atrazine	0.003
Benzo[a]pyrene	0.0002
Carbofuran	0.04
Chlordane	0.002
2,4-D	0.07
Dalapon	0.2
Di(2-ethylhexyl)adipate	0.4(22)
Di(2-ethylhexyl)phthalate	0.006
Dibromochloropropane	0.0002
Dinoseb	0.007
Diquat	0.02
Endothall	0.1
Endrin	0.002
Ethylene dibromide	0.00005
Glyphosate	0.7
Heptachlor	0.0004
Heptachlor epoxide	0.0002
Hexachlorobenzene	0.001
Hexachlorocyclopentadiene	0.05
Lindane	0.0002
Methoxychlor	0.04
Oxamyl (Vydate)	0.2
Pentachlorophenol	0.001
Picloram	0.5
Polychlorinated biphenyls	0.0005
Simazine	0.004
2,3,7,8-TCDD (Dioxin)	3×10^{-8}
Toxaphene	0.003
2,4,5-TP	0.05

Microbiological

The MCL for coliform bacteria, applicable to all public water systems, is zero, based on the presence or absence of total coliforms and/or *E. coli* in a sample.

Radionuclides

The MCL for combined radium-226 and radium-228 is 5 picocuries per liter.

The MCL for gross alpha particle activity including radium-226 but excluding radon and uranium is 15 picocuries per liter.

Uranium – 30 µg/l

Disinfection Byproducts

Byproduct	MCL (mg/l)
Bromate	0.010
Chlorite	1.0
Haloacetic acids (five) HAA5	0.060
Total Trihalomethanes (TTHMs)	0.080

Maximum Residual Disinfectant Levels (MRDLs)

DISINFECTANT RESIDUAL	MRDL (mg/l)
Chlorine	4.0 (as Cl_2)
Chloramines	4.0 (as Cl_2)
Chlorine dioxide	0.8 (as ClO_2)

Lead and Copper

Before and after a PWS evaluates corrosion control treatment, it must test for:

Alkalinity
Calcium
Conductivity
Orthophosphate (when an inhibitor containing an orthophosphate compound is used)
pH
Silicate (when an inhibitor containing a silicate compound is used)
Water temperature

There are several contaminants that public water systems test for but are not regulated. These include:

Inorganic Chemical

Sulfate

Volatile Organic Chemicals

1,1,1,2-Tetrachloroethane
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane
1,1-Dichloroethane
1,1-Dichloropropene
1,2,3-Trichloropropane
1,3-Dichloropropane
1,3-Dichloropropene
2,2-Dichloropropane
Bromobenzene
Bromomethane
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloromethane
m-Dichlorobenzene
m-Dichlorobenzene
o-Chlorotoluene
p-Chlorotoluene

Pesticides and Other Synthetic Organic Chemicals

Aldrin
Butachlor
Carbaryl
Dicamba
Dieldrin
3-Hydroxycarbofuran
Methomyl
Metolachlor
Metribuzin
Propachlor

ATTACHMENT C

Advisory Council on Public Water Supply

Members as of December 31, 2020.

Marvin Schultes (engineer), Hastings
Vacant (physician)
Vacant, (consumer)
Vacant, (consumer)
Vacant, (licensed operator of system serving 5,000 or fewer persons)
Christopher Fox (licensed operator of a system serving over 5,000 persons), Omaha
Vacant (member of a governing board of a public water system)

Members of the Advisory Council are appointed by the Governor for three-year terms. They can be reappointed until they have served three consecutive three-year terms. In 2020, the Council did not meet due to the pandemic.