

CHAPTER 6:

Water Programs

The goal of the Water Programs is to protect the surface and groundwater resources in Nebraska. This chapter describes the programs administered by the Water Divisions, including: petroleum remediation programs, agriculture programs, surface water and groundwater monitoring and assessment programs, water quality planning, wastewater permitting and certification programs, and financial assistance programs.

In 2016, NDEQ underwent some restructuring. Previously, all the water programs were in the Water Quality Division, which was twice the size as both Air and Land Divisions. To facilitate better management, there are now two divisions for water programs, making all four divisions approximately the same size. The Water Permits Division has livestock, chemigation, secondary containment of ag chemicals, the State Revolving Fund loan programs, and all the NPDES and wastewater (including septic tanks) programs. The Water Quality Division has the petroleum remediation, underground injection control, groundwater and surface water monitoring, wellhead and source water protection, fish kill response, surface water quality standards and assessment, 401 certification, water quality data management, and the nonpoint source programs.

In the summer of 2017, the Drinking Water Program from Health and Human Services moved to NDEQ's Lincoln offices as a result of a Memorandum of Agreement between the two agencies and is now the Drinking Water Division. A greater opportunity for collaboration between water programs and assistance to municipalities has developed and will continue to be a benefit to facilities.



Transporting used petroleum remediation equipment for reuse.

Petroleum Remediation Program

Activities regarding the Petroleum Remediation Program involve two interrelated areas:

1. Overseeing the **investigation and cleanup** of petroleum contamination resulting from leaking above-ground and underground storage tanks (and other sources such as pipeline leaks and transportation spills); and
2. Administering a **financial assistance program** for persons responsible for investigation and cleanup costs due to petroleum releases from tanks.

Investigation and Cleanup

The first step in the Petroleum Remediation Program is the review of tank removal assessment reports or other documentation to determine whether contamination exists. After some initial indication that there may be petroleum contamination at a site, NDEQ decides whether more investigation and cleanup are required. NDEQ also determines whether parties who caused the contamination are available and financially capable of assuming responsibility. The Program also receives reports of catastrophic tank failures, contaminated drinking water wells, vapors in structures and utilities, and other serious situations that may require emergency actions.

In the event these reports indicate a threat to health, safety, or the environment, NDEQ requires a detailed study of the affected groundwater and soil to discover the severity of the contamination, direction of groundwater flow, and potential water supplies or other points of exposure that may be impacted. Program staff review these reports to determine if cleanup requirements are needed and issue a public notice of their decision. Staff review remedial actions throughout the project and determine when sufficient cleanup has been accomplished.



(Pictured left): Drilling a monitoring well on the site of an old refinery in Gordon; (right center): looking down at the reflection from free product floating on groundwater in an abandoned sewer in Lincoln's Telegraph District; (right bottom): sampling an abandoned sludge pit on the site of an old refinery in Gordon; (center): removing the floating product and contaminated groundwater from an excavation in Lincoln's Telegraph District.



The program has incorporated risk-based corrective action (RBCA) procedures into regulations and accompanying guidance. The RBCA process allows evaluation of all petroleum release sites based on the risk they pose to human health and the environment. Those that pose no significant risk are closed; those that pose significant risk are prioritized for further work. Since 1999, the program has been initiating many new investigations to collect information needed for Tier 1, the first step in the RBCA process. The plan is to continue investigating additional sites until eventually the information necessary for a RBCA Tier 1 evaluation has been collected at all sites. Sites that fail Tier 1 are activated for Tier 2, which is a more detailed investigation and the next step in the RBCA process. If sites fail Tier 2, they are normally scheduled for cleanup.

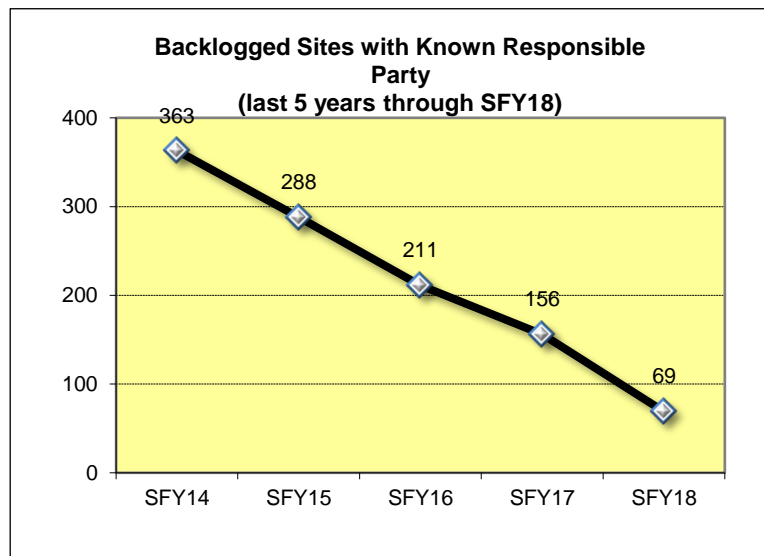
Financial Assistance – Petroleum Release Remedial Action Reimbursement Fund

When contamination has been found at a site, and the NDEQ has determined that more investigation and/or cleanup are required, NDEQ will also determine the “responsible person.” This term refers primarily to those who owned or operated the tank when the leak occurred. Those who are determined to be a responsible person may be eligible for reimbursement through the Petroleum Release Remedial Action Reimbursement Fund.

The Fund was created by the Legislature in order to help tank owners pay for the costs associated with assessing and cleaning up any petroleum releases from tanks as well as meet financial responsibility requirements established by federal law for underground storage tanks. Costs for both underground and above-ground tank releases are eligible for reimbursement. The program’s activities in this area include receiving and processing applications for reimbursement from the fund and subsequently issuing reimbursements for eligible costs. To assist applicants, the program developed guidelines entitled "Reasonable Rates Schedule and Reimbursement Guidance Manual."

Responsible Person Backlogged Sites

For the last several years, there have been hundreds of sites where the responsible person is known, but NDEQ did not require work to begin. These were lower priority sites, and there was not sufficient funding to reimburse potential costs under the Reimbursement Fund. The sites were placed on a waiting list (backlogged) until funding was available. NDEQ has worked steadily in the last several months to bring that list to zero. By the end of 2018, there will be no more responsible person sites that are waiting on NDEQ to require and approve work.



“Orphan” Sites

In situations involving "orphan" sites (sites where the responsible person that caused the contamination either cannot be identified or located or does not have the resources to pay for their share of cleanup costs), investigation and remediation costs are paid with federal and/or state funds. In SFY2018, 67 orphan sites were activated for investigation and/or cleanup using State contractors. As of September 20, 2018, there were 354 orphan sites backlogged and not yet investigated.

Equipment Reuse

As sites are undergoing cleanup, NDEQ pays for the purchase of remediation equipment. When sites are cleaned up and closed, NDEQ seeks to reuse that equipment at other sites. Since June 2005, NDEQ has reused hundreds of pieces of equipment, thus greatly reducing the need to buy new equipment. This reuse program has saved Nebraska taxpayers over \$5.3 million in new equipment costs and allowed that money to be used for cleanup of additional sites.

Program Statistics

From June 1999, through October 10, 2018, 3,228 Tier 1 site investigations have been initiated. Of the 2,973 Tier 1 field investigations completed, 1,917 (64%) were closed, and 1,056 (36%) were determined to need a more detailed Tier 2 investigation. Since April 2002, 1,011 Tier 2 investigations have been completed; 670 (66%) of these sites have been closed. Of all the sites that have completed a Tier 1 or Tier 2 investigation, approximately 353 (12%) have reported finding the contaminant methyl tert-butyl ether (MTBE) in groundwater.

Revenue going into the cleanup fund in SFY18 was about \$12.1 million. As of June 30, 2018, nearly \$229 million has been disbursed since the program began. During SFY18, NDEQ reimbursed about \$5.4 million to responsible persons (or their designees) for work done at 186 different sites.

The 43 sites listed below are all currently active sites that have received a total reimbursement of more than \$600,000 each. Once the statutory limit is reached, the responsibility of funding the remainder of cleanup necessary reverts to the responsible person. Some closed sites also reached the statutory limit but are not shown.

Responsible Person	City	Reimbursed Amount as of June 30, 2018	Has Statutory Limit Been Reached?*
Ag Valley Coop	Bartley	\$975,000	Yes
Burlington Northern & SFR	Alliance	\$975,000	Yes
Burlington Northern & SFR	McCook	\$975,000	Yes
Konecky Oil	Mead	\$975,000	Yes
Elkhorn Valley Coop	Snyder	\$974,753	Yes
Burlington Northern & SFR	Lincoln	\$974,300	Yes
Conoco Phillips	Sidney	\$973,919	Yes
Burlington Northern & SFR	Alliance	\$973,682	Yes
Burlington Northern & SFR	Alliance	\$973,303	Yes
Flying J Inc	Gretna	\$972,927	Yes

Responsible Person	City	Reimbursed Amount as of June 30, 2018	Has Statutory Limit Been Reached?*
Burlington Northern & SFR	Alliance	\$972,579	Yes
Magers Service	North Platte	\$947,670	No
Sandhill Oil	Theford	\$946,780	No
Wortman Motor Co.	Doniphan	\$910,867	No
Coastal Refining & Market	Chester	\$900,045	No
City Of Lincoln	Lincoln	\$867,059	No
IBP ATV (At The Verticals)	Dakota City	\$860,784	No
Indianola Oil Company	Indianola	\$860,177	No
Footo Oil Company	Hastings	\$805,481	No
Farmers Union Coop Co	Platte Center	\$803,378	No
Former Milder Oil	Omaha	\$785,544	No
Ag Valley Coop	Curtis	\$782,839	No
Kaneb Pipeline Company	Geneva	\$763,149	No
Sinclair Oil Corp.	Grand Island	\$726,280	No
UPRR	North Platte	\$721,113	No
Elk Oil Co	Elk Creek	\$721,052	No
Farmers Union Coop	Dannebrog	\$718,743	No
Nebr Dept Of Roads	Norfolk	\$702,881	No
Havelock Amoco	Lincoln	\$691,774	No
Crystal Oil Co.	South Sioux City	\$690,914	No
Havertys Farm & City	Nebraska City	\$687,008	No
Engles Oil Co	Auburn	\$686,744	No
Nu Star Energy, LP	Columbus	\$671,767	No
Nelson Petroleum	Geneva	\$664,508	No
Burlington Northern & SFR	Columbus	\$662,844	No
Wauneta-Palisade Pub School	Wauneta	\$655,899	No
Western Convenience Store	Hershey	\$643,028	No
Staplehurst Oil Co	Staplehurst	\$635,773	No
Shaner Chevrolet	Geneva	\$625,557	No
Flying J Travel Plaza	North Platte	\$624,375	No
IBP Inc	Dakota City	\$610,159	No
Agri Coop	Holdrege	\$609,137	No
Former Farmers Coop	Cedar Bluffs	\$607,092	No

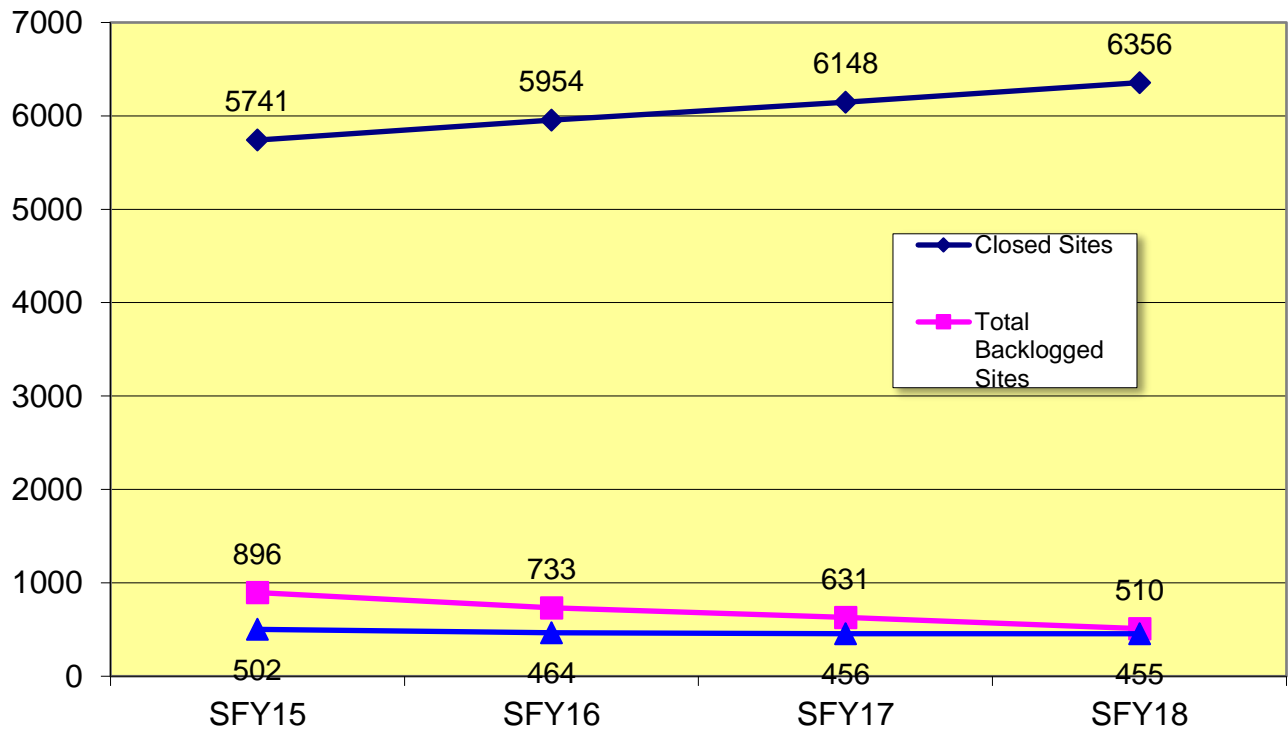
* Those with a yes indicate that the statutory limit was reached prior to June 30, 2018. The total reimbursed amount may have been reduced due to noncompliance.

Responsible persons are able to perform voluntary remedial action prior to NDEQ's approval of their plans and still be eligible for reimbursement consideration in the future. This allows sites to move forward on their own initiative. To date, 233 suspended or backlogged leaking underground storage tank sites have been closed based on voluntary submittals.

The following is a chart of end-of-year totals for the past four years relating to Petroleum Remediation sites in Nebraska. The chart provides information relating to:

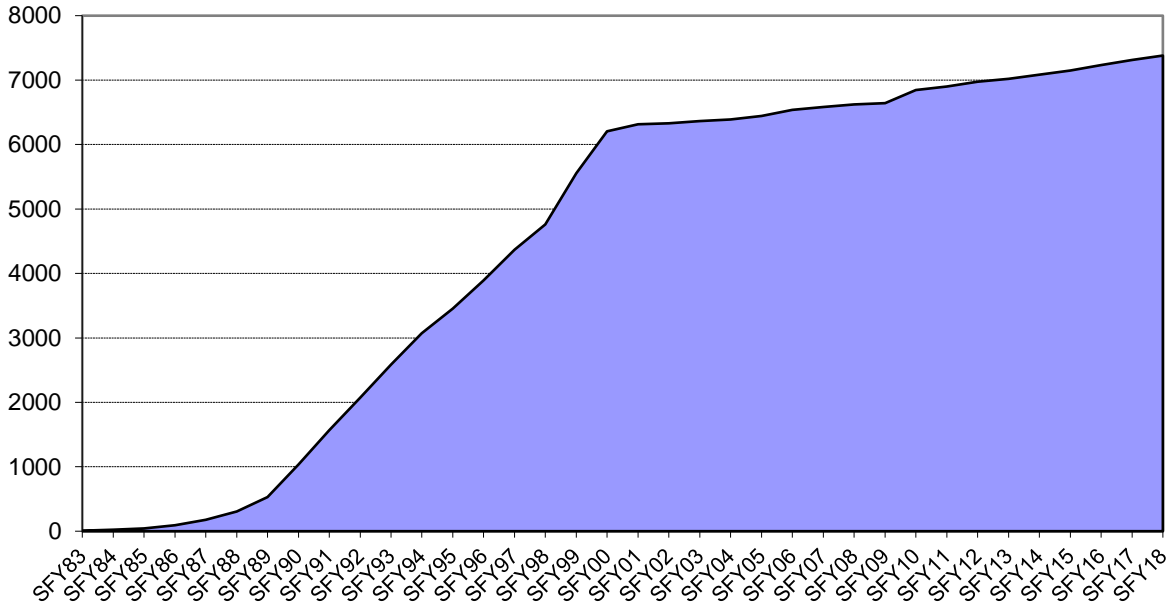
- **Closed Sites:** Sites that have been closed either because they have been cleaned up or it has been determined that no cleanup is necessary.
- **Total Backlogged Sites:** Sites (both responsible person and orphan) identified as potentially needing cleanup, but are on a waiting list for further investigation.
- **Active Sites:** Sites that are currently being actively investigated or remediated.

Petroleum Remediation trends: End-of-Year Totals, SFY15-SFY18

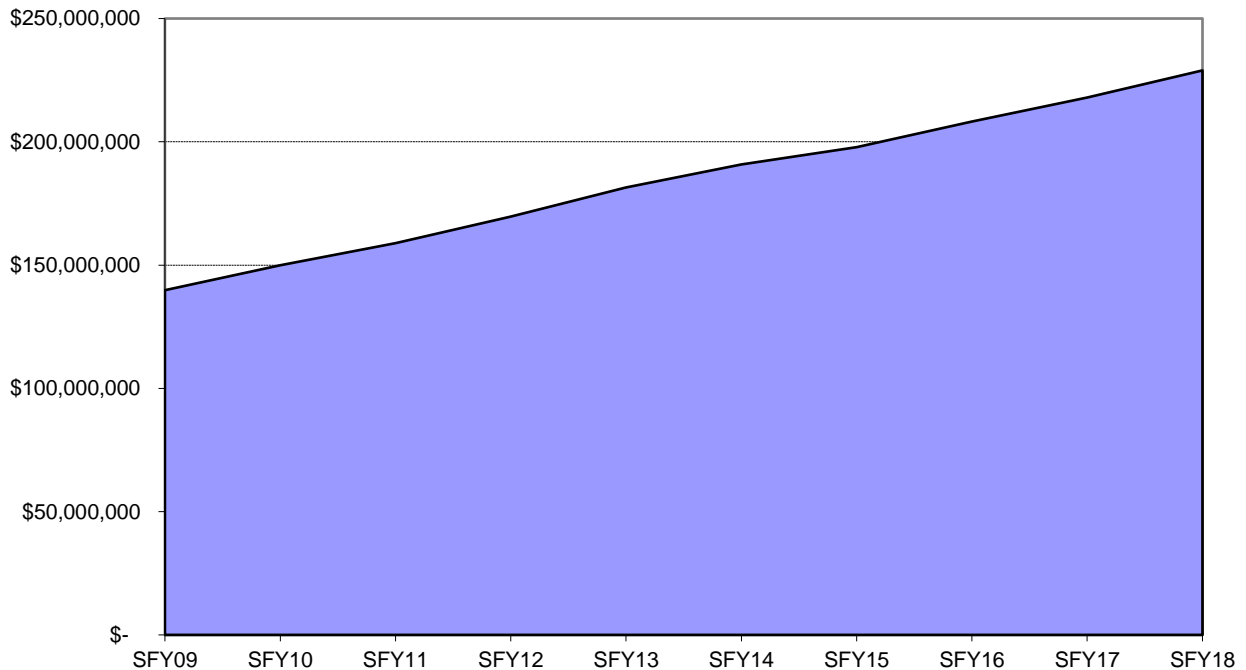


The chart below shows the cumulative number of sites that have had releases identified. The second chart shows the cumulative amount that the program has spent on investigation and cleanup in the past several years.

**Cumulative Number of LUST Releases
(Through SFY18)**



**Cumulative Title 200 Disbursements
(last 10 years through SFY18)**

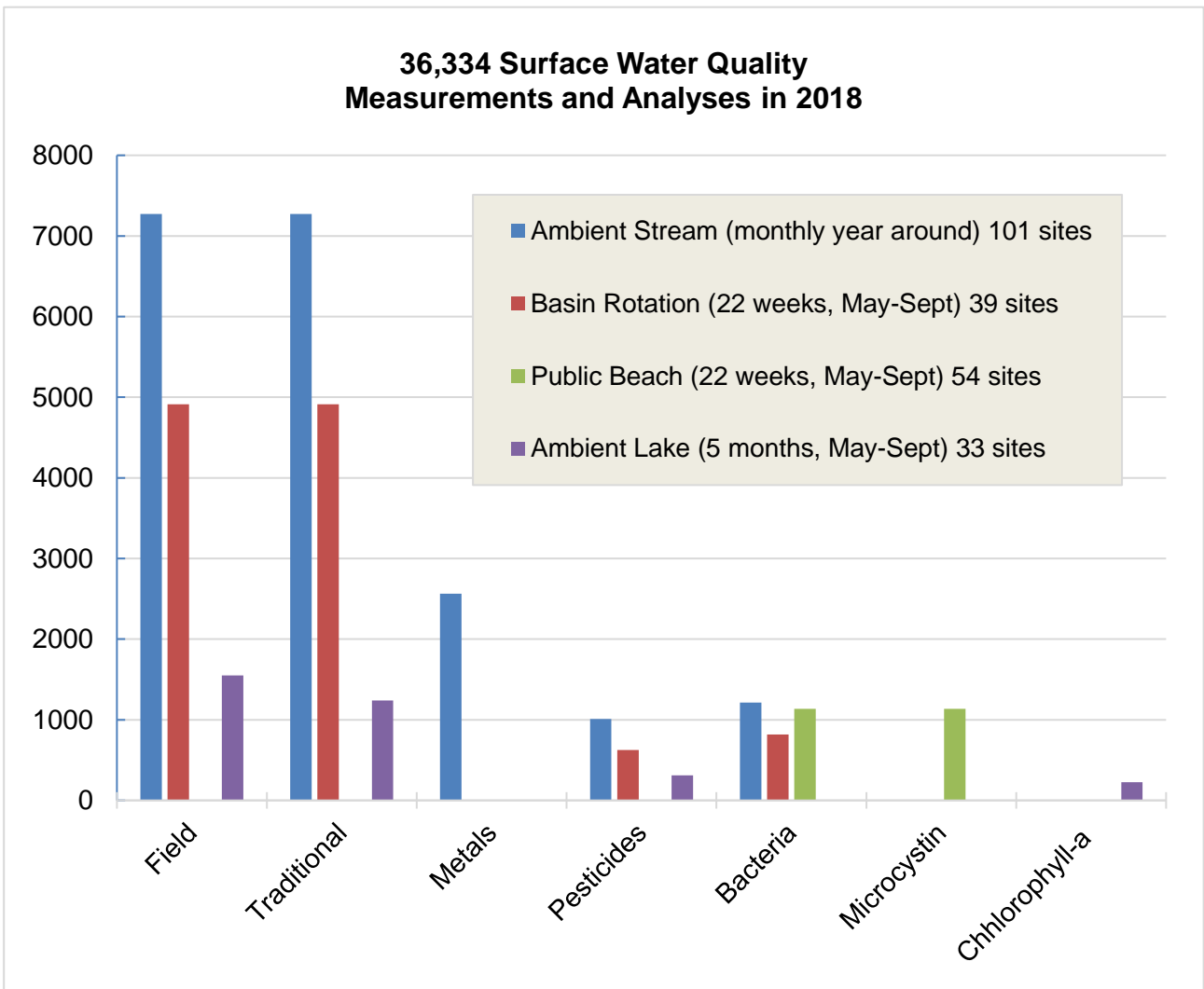


Water Quality Monitoring and Assessment Programs

Surface Water Assessment Programs

Staff working with the Surface Water Monitoring and Assessment programs collect physical, chemical, and biological water quality samples from streams and lakes, implement surface water improvement projects, and prepare surface water quality reports. Some monitoring programs collect stream and lake samples throughout the state; however, most monitoring is focused in one to three major river basins each year in conjunction with a rotating basin monitoring strategy. Monitoring data are used to document existing water quality conditions, assess the support of beneficial uses (such as aquatic life, recreation, and public drinking water supply), and prioritize water quality problems. Current monitoring partners include the Natural Resources Districts (NRDs), Nebraska Public Power District (NPPD), U.S. Army Corps of Engineers (USACE), Nebraska Game and Parks Commission (NGPC), University of Nebraska-Lincoln (UNL), Central District Health Department (CDHD), and United States Geological Survey (USGS).

Each year, surface water samples are collected at hundreds of locations across the state resulting in over 36,000 individual field measurements and laboratory analyses. The graph below



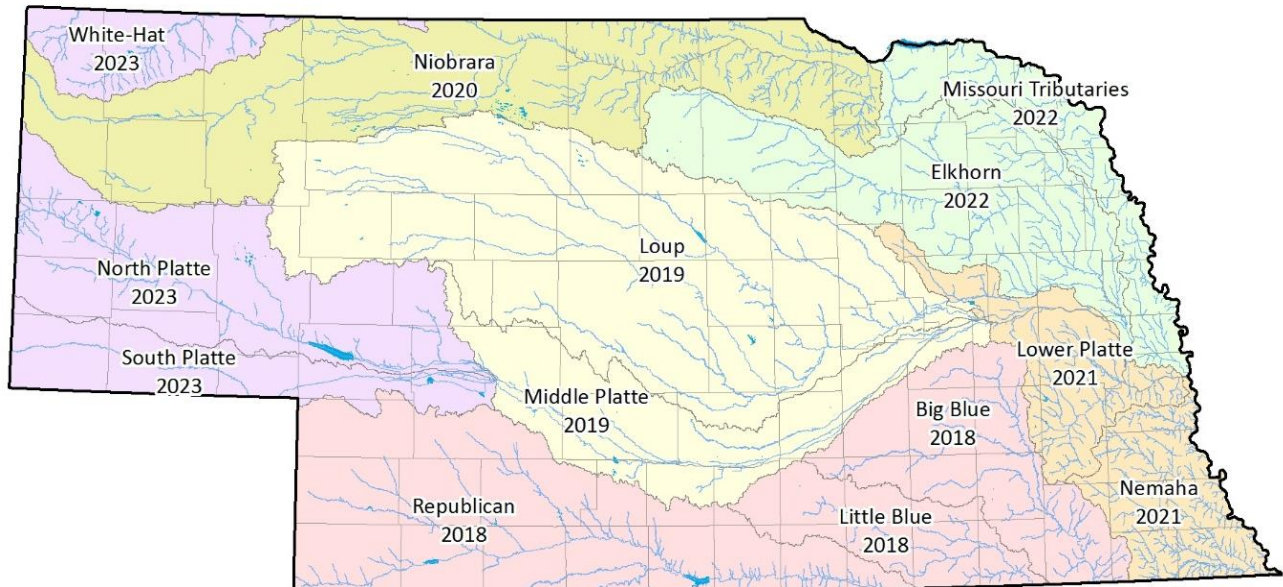
shows the expected number of field measurements made and laboratory analyses performed in 2018.

Brief descriptions of the basin monitoring strategy, as well as other water quality monitoring programs, are provided below. Additionally, a more detailed overview of the programs are provided in the Department's annual publication Water Quality Monitoring Report: <http://deq.ne.gov/publications/Pages/WAT250>

Basin Rotation Monitoring Program — The Basin Rotation Monitoring Program (BRMP) targets one to three river basins each year for intensive monitoring. Targeting resources in this manner improves NDEQ's ability to identify and remediate water quality problems and allows resources to be focused where they can produce the greatest environmental results. During a six-year cycle, all 13 major river basins in the state are intensively monitored (see map below for details).

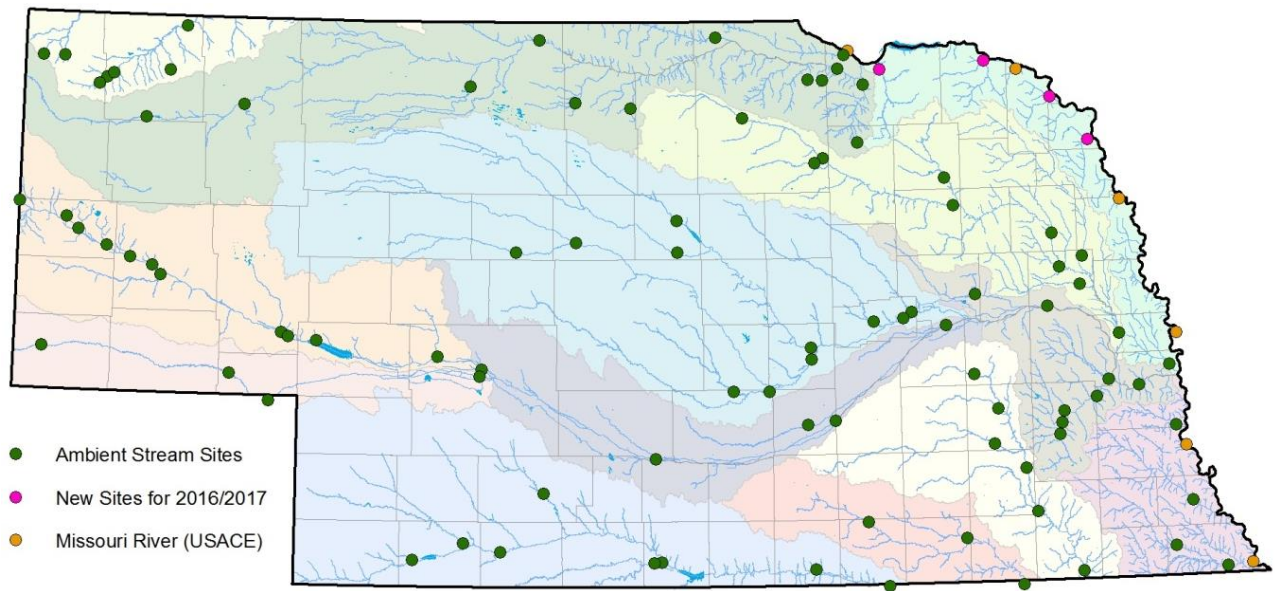
In 2018, a total of 39 stream sites in the Big Blue, Little Blue, and Republican basins were sampled weekly from May through September. A total of 819 stream samples were analyzed for the 15 parameters collected for this program.

Six-year basin rotation monitoring schedule



Ambient Stream Monitoring Program — The Ambient Stream Monitoring Program (ASMP) has a network of 101 fixed stations located on main stem and tributary streams across the state (see map on next page for locations). The primary objectives are to provide information on the status and trends of water quality in streams within each of the state's 13 major river basins and link assessments of status and trends with natural and human factors that affect water quality. During 2018, approximately 1,212 water samples will be analyzed for the 32 parameters collected monthly for this program. Monitoring assistance for this program is provided by the USACE, and the South Platte and Middle Niobrara NRDs.

Locations of NDEQ Ambient Stream Monitoring Program sites



Public Beach Monitoring Program — Since 2004, NDEQ has conducted sample collection at public beaches statewide, for *E. coli* bacteria and the microcystin toxin. The microcystin toxin is hepatotoxin that can be produced by blue-green algae also known as a harmful algal bloom (HAB). The risks to humans come from external exposure (prolonged contact with skin) and from swallowing the water. Symptoms from external exposure are skin rashes, lesions and blisters. Symptoms from ingestion can include headaches, nausea, muscular pains, central abdominal pain, diarrhea and vomiting. Severe cases could include seizures, liver failure and respiratory arrest. The severity of the illness is related to the amount of water ingested, and the concentrations of the toxins. Because dogs died from drinking water from lakes that were undergoing a HAB, NDEQ began monitoring public waters for the presence and concentration of microcystin.



In 2018, monitoring occurred weekly at 54 beaches on 51 different lakes from May through September. Over 1,100 samples were assessed for each parameter. NDEQ and partners collected, analyzed and reported to the public weekly before the weekend when lakes typically experience the most usage. Results are posted to the NDEQ website by Thursday afternoon with press releases on affected lakes being sent to area newspapers Friday morning.

Levels of microcystin above 20 ppb result in public health alerts being issued and signs are then posted recommending full body contact activities in the water be avoided. In 2018, health alerts were issued on seven different lakes and the amount of time the lakes were on alert ranged from 2 to 11 weeks. Results and health alerts are listed weekly during the recreational season on the NDEQ's web site.

Additionally, in 2018 NDEQ assisted Public Water Systems that obtain drinking from surface water sources by monitoring their source water for microcystin. All source water tested in 2018 was below the detectable limit for microcystin testing.

Fish Tissue Monitoring Program

— The NDEQ has been sampling and assessing toxins in fish tissue annually since 1978. In 2018, a total of 103 fish tissue samples were collected from 19 streams and 35 lakes within the Big Blue, Little Blue, and Republican basins for analysis of pollutants.

The report “Regional Ambient Fish Tissue Program – 2017 Data Assessment Report” and current list of advisory sites can be found at DEQ’s web site, <http://deq.ne.gov>. The report is located at Publications and Forms/Water Publications/Water Publications by Type/Reports. The direct URL is: <http://deq.ne.gov/publica.nsf/pages/WAT256>.

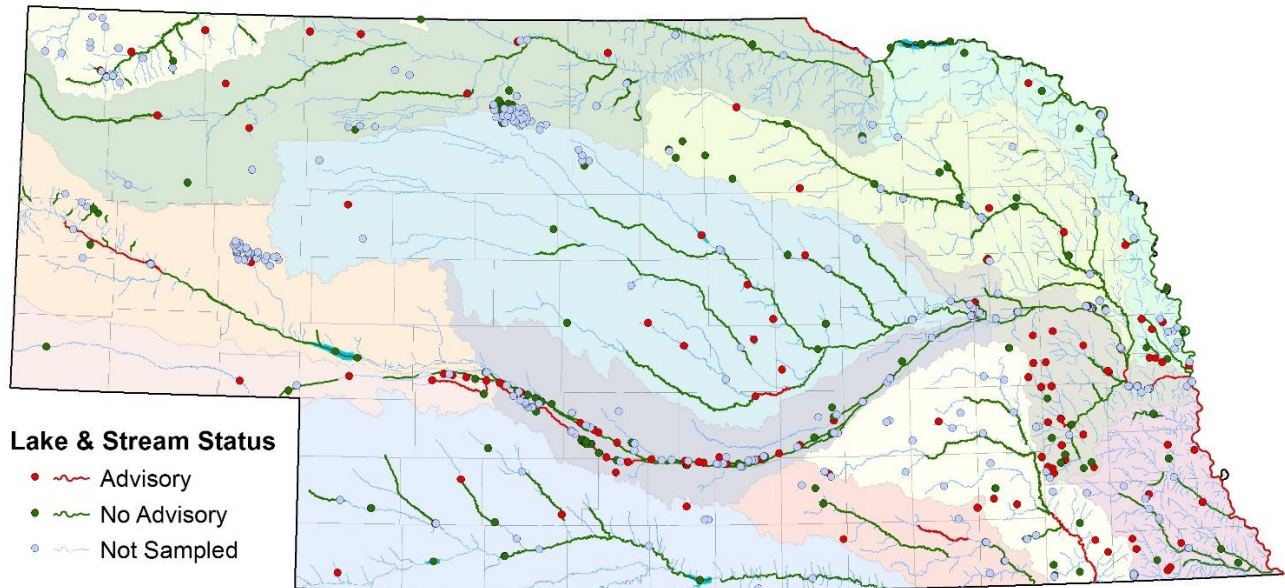


Electrofishing for the Stream Biological Monitoring Program at Leander Creek, Cherrv County

A summary of fish advisory information is easily located at DEQ’s web site by entering “fish” in the Search NDEQ Web box located on the right side of the Home page. The direct URL is: <http://deq.ne.gov/NDEQProg.nsf/OnWeb/FCA>.

Currently, Nebraska has 139 state-issued advisories. The primary contaminants of concern in fish tissue in Nebraska and most other states are mercury and polychlorinated biphenyl compounds (PCBs). See maps below for current advisory locations.

Lake and Stream Fish Consumption Advisory Locations in Nebraska Through 2017



Stream Biological Monitoring Program — This program is used to assess the health of streams by evaluating the numbers and diversity of resident aquatic macroinvertebrate and fish

communities. The probabilistic sampling design used for this program allows NDEQ to scale up from the conditions of the selected sites within a basin to an estimate of the aquatic condition of the entire basin. The Department's fish surveys have also provided information on changing abundances and ranges of fish in the state. During 2018, a total of 34 stream sites were sampled in the Big Blue, Little Blue, and Republican basins.

Ambient Lake Monitoring Program — In 2018, 33 lakes and reservoirs were sampled monthly May through September for physical /chemical parameters by NDEQ and its lake monitoring partners (USACE and Nemaha NRD). The Department monitors these resources to determine if water quality is suitable for fish and other aquatic organisms to survive and reproduce. A focus was placed on long term monitoring of 26 geographically and categorically diverse waterbodies in 2018. Additionally, the Department collected data from three basin specific lakes in the Big Blue, Little Blue, and Republican basins. This method allows NDEQ to monitor the effects of changes that occur within the lakes, watersheds, regions, and across the state. Approximately 165 samples were collected at deep water locations and assessed for 15 parameters with additional profiles collected from mid-lake locations.

Fish Kill and Citizen Complaint Investigations — The Surface Water Unit responds to reports of fish kills and other environmental concerns of citizens related to surface water. On-site investigations are conducted, as needed, to document existing water quality conditions, surface water quality standards violations and identify pollution sources and responsible parties. A total of five fish kills were reported between July 1, 2017 and June 30, 2018. Four of the reported fish kills were attributed to low dissolved oxygen levels within the waterbody and one was the result of disease.

Between July 1, 2017 and June 30, 2018 the Surface Water Unit received 42 notifications of complaints concerning surface water issues. While many of these cases were referred to other Department programs that more closely relate to the problem, sometimes the Surface Water Unit assists by providing observations or samples to help document conditions.

Stream Nutrient Assessment Pilot Study – In 2015, the department began a pilot program, based on the State of Ohio's Stream Nutrient Assessment Protocol (SNAP), to assess the impacts of nutrients on the biology of Nebraska's streams. The primary purpose of the pilot program is to determine whether it is possible to observe local degradation to Nebraska streams resulting from elevated nutrient loads. One-time determinations of nutrient concentrations do not characterize their variable nature or their impacts. Therefore, NDEQ has chosen to collect stream data that is most likely to be directly impacted by nutrients, including changes in dissolved oxygen availability, water column chlorophyll-a concentrations, and measurements of the algal communities that directly assimilate nutrients from the water. The streams chosen for the pilot study are also sampled as part of the Basin Rotation Monitoring Program (BRMP) so that NDEQ may compare high quality and high frequency nutrient sampling to the aforementioned SNAP parameters. About 8 to 10 streams sampled per year. Once a complete six year basin rotation has been completed, a full analysis will be performed to look for degradation and for specific environmental indicators. Afterwards, NDEQ will determine whether the SNAP pilot program should be expanded into a regularly performed monitoring program. In 2018, SNAP collections were made at eight BRMP sites located in the Big Blue, Little Blue, and Republican basins.

South Loup River Special Study - The SLRSS was developed in 2017 so that NDEQ can work towards the goal of assessing many of the stream segments within the South Loup River watershed, while at the same time, insuring sufficient data is collected to determine if a stream segment is impaired by pollution and it's contribution of pollutant loads to downstream segments. This monitoring program includes the recreation seasons of May through September of 2017 and

2018. In 2018, surface water samples included 3 base flow grab samples plus 5 runoff samples at seven stream/river locations. This study also included the collection of continuous water quality data to estimate bacteria concentrations and evaluate temporal changes. The USGS, Lower Loup NRD, and Nebraska Department of Natural Resources assisted NDEQ with pollutant load modelling, stream gage installation, surface water sample collections, and bacteria analyses.

National Rivers and Streams Assessment – In 2018, NDEQ received a federal grant to participate in a probability based survey of the nation’s rivers and streams. The National Rivers and Streams Assessment (NRSA) is designed to determine the extent to which rivers and streams support a healthy biological condition and extend of stressors that affect them. NRSA field season sampling is conducted every five years. NDEQ sampled 27 waterbodies throughout Nebraska in 2018 with included collections of water, fish, benthic macroinvertebrates, and observations of habitat, vegetation, and disturbance. Sampling will continue in 2019 at an additional 34 sites statewide.

Integrated Report —States are required by the federal Clean Water Act to prepare a biennial water quality report called the Integrated Report. The Integrated Report provides a comprehensive summary of the status and trends of surface water quality in Nebraska and includes a list of impaired surface waters that do not support their assigned beneficial uses. The 2016 Water Quality Integrated Report, which was approved by the EPA in April 2016, is available on NDEQ's web site <http://deq.ne.gov>. The report's direct URL is: <http://deq.ne.gov/Publications/Pages/WAT234>

Nebraska Water Monitoring Programs Report — A report summarizing the monitoring programs performed by NDEQ called the “Nebraska Water Monitoring Programs Report” was prepared in 2017. This report describes the numerous monitoring programs NDEQ is involved with, its partners, and several highlights of recent monitoring efforts. The 2017 Nebraska Water Monitoring Programs Report is available on the NDEQ's web site <http://deq.ne.gov>, by selecting Publications and Forms/Water Publications/Water Publications by Type. The direct URL is: <http://deq.ne.gov/publications/Pages/WAT250>

Groundwater Assessment Programs

Groundwater Quality Monitoring Report

Legislation passed in 2001 directed NDEQ to issue an annual report to the Legislature concerning the quality of the groundwater in Nebraska. The first of these reports was issued December 1, 2001. These reports summarize the water quality monitoring efforts of the Natural Resources Districts, NDEQ, and other state, local and federal agencies, and can be found on NDEQ's web site, <http://deq.ne.gov>. (Select Publications & Forms, then select Groundwater Program, then select Annual Reports.) The direct URL to the 2017 Groundwater Quality Monitoring Report is: <http://deq.ne.gov/publications/pages/wat248>.

Statistics and maps showing nitrate-nitrogen groundwater monitoring results as well as statistics for three of the 241 agricultural chemicals detected in the state are presented. The report uses data from the Quality-Assessed Agricultural Contaminant Database for Nebraska Groundwater, developed cooperatively by the Nebraska Department of Agriculture, University of Nebraska-Lincoln, and NDEQ. These data are accessible to the public on the Nebraska Department of Natural Resources web site, <https://dnr.nebraska.gov>.



Hydrogeologic Studies and Reviews

The Groundwater Unit is responsible for hydrogeologic review of various NDEQ projects and programs to determine possible effects on groundwater quality and to recommend possible courses of action. Programs for which this review is performed include leaking underground storage tanks, surface spills, underground injection control, wastewater treatment facilities, septic systems, NPDES permits, livestock waste control facilities, the Natural Resources Districts' Groundwater Management Plans, and others.

In addition, the Groundwater Unit performs reviews and oversees remediation if a situation does not fall under another agency program and is of environmental significance. Unit personnel continue to take responsibility under Title 118 — Groundwater Quality Standards and Use Classification for many site investigations, and have sampled and supervised site cleanups.

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Underground Injection Control (UIC)

The Underground Injection Control (UIC) program reviews and issues permits, conducts inspections, and performs compliance reviews for wells used to inject fluids into the subsurface. The program must ensure that injection activities are in compliance with state and federal regulations, and that groundwater is protected from potential contamination sources. Injection wells are classified by injection activity. There are six classes of injection wells:

- Class I injection wells are permitted by NDEQ for the injection of wastewater below the lowermost underground source of drinking water. Two Class I well permits are issued to the Crow Butte Resources uranium mine near Crawford and one to the City of McCook.
- Class II wells are associated with oil and gas production, and are regulated by the Nebraska Oil and Gas Conservation Commission.
- Class III wells are used to inject fluids for the purpose of extracting minerals and permitted by NDEQ. The only Class III wells in the state are at the Crow Butte Resources uranium facility near Crawford. Crow Butte Resources operates over 5,100 Class III wells as of October 1, 2018.

- Class IV wells are associated with the injection of hazardous waste, are illegal, and have never been allowed in Nebraska.
- Injection wells not included in the other specific classes are considered to be Class V wells. Common examples of Class V wells include: open-loop heat pump systems, large capacity septic systems, and sub-surface drip irrigation systems
- Class VI wells are associated with the injection of carbon dioxide for permanent disposal. This class of wells is currently regulated by the EPA.

Mineral Exploration Program

The Mineral Exploration program issues and reviews permits, conducts inspections, and performs compliance reviews for holes drilled, driven, bored, or dug for the purpose of mineral exploration. These permits are issued to persons exploring for potential mineral resources such as consolidated rock; sand and gravel; or material commingled, in solution, or otherwise occurring beneath the surface or in waters of the State, and are regulated under Title 135 – Rules and Regulations for Mineral Exploration Holes. This type of exploration specifically excludes oil and gas exploration, which is regulated by the Nebraska Oil and Gas Conservation Commission.

Wells that are drilled for the production of mineral resources are regulated as Class III injection wells, and are governed by Title 122 – Rules & Regulations for Underground Injection and Mineral Production Wells as previously described.

Wellhead Protection

The State Wellhead Protection program is a voluntary program, which assists communities and other public water suppliers in preventing contamination of their water supplies. State Wellhead Protection Program activities include delineating the zones of influence which may impact public supply wells, training communities on how to inventory all potential sources of pollution within these vulnerable zones, working with the local officials to identify options to manage these potential pollution sources, working on monitoring plans, and helping develop contingency plans to provide alternate water supplies and site new wells. All community public water supplies have a Wellhead Protection area map. The Nebraska Legislature passed LB 1161 in 1998 (Neb. Rev. Stat. §46-1501 - 46-1509), authorizing the Wellhead Protection Area Act. This Act sets up a process for public water supply systems to use if they choose to implement a local Wellhead Protection plan. One hundred eighteen community water supplies have approved Wellhead Protection plans as of October 1, 2018.



Source Water Assessment and Protection

When Congress amended the Safe Drinking Water Act in 1996, one of the amendments created the Source Water Assessment Program (SWAP) for public drinking water protection. Every state has developed a Source Water Assessment Program with the following basic components:

- 1) Delineate the source of each public drinking water system;
- 2) Identify potential contaminants in the source area;
- 3) Determine the drinking water source's susceptibility or vulnerability to contamination; and
- 4) Make the assessments available to the public.

NDEQ is implementing their EPA-approved program in cooperation with the Nebraska Department of Health and Human Services, Nebraska Rural Water Association, Natural Resources Districts, and numerous other stakeholders. All assessments were completed and distributed by August

2003; however, delineations continue to be updated as needed upon receipt of new information about public water supply systems.

Beginning in SFY2004, funds were set aside from the Drinking Water State Revolving Fund (DWSRF) to finance source water protection projects statewide. Funds are provided to political subdivisions that operate a public water system serving a population of 10,000 or less that can show financial hardship. Eligible activities address drinking water quality, quantity, and/or education within the source water protection area. To date, Source Water Protection funds have been distributed to complete 97 separate Source Water Protection projects throughout the state. In SFY2018, Source Water Protection funds were distributed to the following public water systems: Gordon, Syracuse, and Wilber. The total amount available in SFY2018 was \$100,000.

Water Quality Planning

Surface Water Quality Standards

NDEQ develops surface water quality standards which are found in Title 117 – Nebraska Surface Water Quality Standards. The state’s waterbodies have been assigned beneficial uses in one of the following categories:

- Public water supply,
- Aquatic life,
- Agriculture,
- Industry,
- Recreation, and
- Aesthetics.

Each beneficial use has water quality criteria for pollutants and chemicals that are developed to be protective of that use. For example, criteria for nitrogen are different for waters assigned to public water supply use than those which have an industrial beneficial use. These criteria



form the basis of water quality protection for all surface water quality programs conducted by NDEQ. The federal Clean Water Act specifies that states review their water quality standards and revise where appropriate once every three years (triennial review).

Nebraska’s triennial review was formally initiated with a public hearing to take testimony from any interested party regarding changes sought for Title 117. A list of potential changes was formed and draft mark-up was prepared for Departmental and Administration consideration.

The current standards are available on NDEQ’s website. In addition to developing the standards, staff develop and implement procedures for applying the standards to surface water quality programs, such as NPDES permits.

Section 401 Water Quality Certification

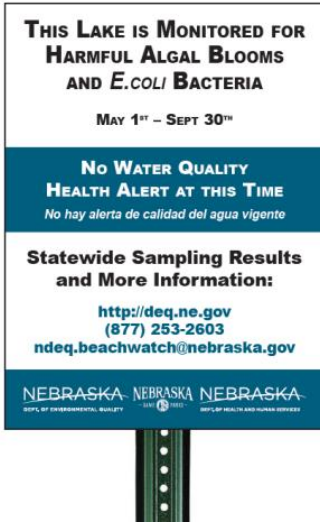
The Water Division Planning Unit administers the Water Quality Certification Program in accordance with Section 401 of the Clean Water Act. This program evaluates applications for federal permits and licenses that involve a discharge to Waters of the U.S. and determines whether the proposed activity complies with Nebraska Surface Water Quality Standards. If the activity is likely to violate the standards, conditions for complying with the standards will be issued with the certification, or certification will be denied. The U.S. Army Corps of Engineers Section 404 Dredge and Fill Permits and Federal Energy Regulatory Commission licenses are examples of federal regulatory programs that require State Water Quality Certification before federal permits or licenses can be issued. NDEQ reviewed 402 Section 404 permit applications during FFY2018.

Although NDEQ has no permitting mechanism for projects in non-federally jurisdictional waters (such as isolated wetlands, which are Waters of the State), voluntary procedures have been developed to assist project sponsors so they will meet state water quality standards. Project sponsors are encouraged to contact NDEQ before implementing their project so that the plans can be discussed in light of Title 117 - Nebraska Surface Water Quality Standards. NDEQ can then issue a Letter of Opinion which provides recommendations for implementing the project in a

manner that protects water quality in streams, lakes, wetlands, and associated important wildlife habitat.

Impaired Waters and Total Maximum Daily Loads (TMDLs)

The Federal Clean Water Act, Section 303(d), requires states to prepare a list of impaired surface waters. These are waters that do not support the assigned beneficial uses as listed in Title 117 - Nebraska Surface Water Quality Standards. From this list, states are to prepare TMDLs that include the pollution control goals and strategies necessary to improve the quality of these waters and remove the identified impairments so that these waters may meet their assigned beneficial uses. EPA and NDEQ have agreed to a new alternative to a TMDL which is designed to meet water quality standards quicker called a 5-alt. While a TMDL is still required of all waterbodies listed as impaired, this 5-alt provides a faster alternative for planners to develop proper protection activities for a watershed where a project sponsor intends to implement protection or restoration activities.



As in previous years, NDEQ has opted to combine the required CWA Section 303(d) list with the Section 305(b) report on the general status of water quality in the state. This combination is referred to as the Integrated Report. The 2018 Integrated Report is available on NDEQ's web site <http://deq.ne.gov>, by selecting Water, then selecting Water Quality Planning. Or, the report's direct URL is:

<http://deq.ne.gov/Public.nsf/Pages/WAT251>. The 2018 Integrated Report was approved by EPA in April 2018. Work on the 2020 Integrated Report is underway.

The following table summarizes NDEQ's work in this area.

TMDL Category	TMDL Name	# of Waterbodies	Pollutant	Status
4a				
	Republican River Basin	26	<i>E.coli</i>	NDEQ Developing Draft
5-alt				
	Elkhorn River Basin WMP	9	<i>E.coli</i>	LENRD Developing Draft
	Nemaha River Basin WMP	7	<i>E.coli</i>	NNRD Developing Draft
	White River Basin WMP	5	<i>E.coli</i>	UNWNRD Developing Draft
	Lewis and Clark NRD WMP	7	<i>E.coli</i>	LCNRD Developing Draft
	Lower Platte South NRD WMP	10	<i>E.coli</i>	LPSNRD Developing Draft

This table includes updated Phase II TMDLs and Protection TMDLs on waterbodies without the Recreation Use to protect downstream uses. (LENRD = Lower Elkhorn NRD; NNRD = Nemaha NRD; UNWNRD = Upper Niobrara White NRD; LPSNRD = Lower Platte South NRD; LCNRD = Lewis & Clark NRD)

Nonpoint Source Management Program

The goal of the Nebraska Nonpoint Source Management Program is to protect and improve water quality impacted by nonpoint source pollution through an integrated statewide effort. The program is of particular significance because nonpoint source pollution is the most prevalent, widespread cause of water quality degradation in Nebraska. Nonpoint source pollutants of particular concern in Nebraska include those associated with runoff and percolation from agricultural and urban areas. Initiated in 1990, the program is largely funded by the Environmental Protection Agency (EPA) through Section 319 of the federal Clean Water Act and involves key federal, state and local partners.

State nonpoint source problems and priorities are defined in the primary guidance document of the Nonpoint Source Management Program: "Strategic Plan and Guidance for Implementing the Nebraska Nonpoint Source Management Program 2015-2030," which can be found at DEQ's website at <http://deq.ne.gov/publica.nsf/pages/wat119>. The program emphasizes watershed and groundwater management area planning, targeting of 303(d)-listed impaired waters and community participation in watershed plan development. Eligible projects and activities were refined in the 2014 national Section 319 program guidance to emphasize implementation of 9-Element watershed management plans.

Major components of the Nonpoint Source Management Program include implementation of nonpoint source pollution management projects through Section 319 grant funding, nonpoint source pollution monitoring and assessment, and program administration. Nonpoint source monitoring and assessment is an integral and crucial element for the successful implementation of the program. Water quality information is needed to identify and prioritize nonpoint source problem areas, develop watershed management plans and TMDLs, and evaluate the effectiveness of measures implemented to abate nonpoint source pollution. Nonpoint source monitoring activities conducted during the past year included investigative water quality evaluations, detailed watershed assessments, and effectiveness evaluations of implemented nonpoint source management measures.

In FFY 2018, the Nonpoint Source Management Program provided and managed 30 Section 319 grants to local sponsors of eligible projects in the two categories: 1) Large Competitive Projects (generally under \$300,000) and 2) Small Project Assistance (under \$15,000). Of the 30 grants managed, 24 were large multi-year projects, with total funds of all projects equaling \$3,666,127. Six small projects were managed with total funds equaling \$90,000. A total of 251 large projects have been funded through Section 319 funds since the beginning of the program in 1990 and have addressed both surface water and ground water quality concerns. The amount of 319(h) grants funds received by NDEQ between 1990 and 2018 totals \$74,707,514.

Included in the major program highlights this year is the acceptance by EPA of three 9-Element watershed management plans or alternative plans: Little Blue NRD Water Quality Management Plan, Papio-Missouri River NRD Water Quality Management Plan, and Auburn Drinking Water Protection Management Plan. The Auburn plan was developed as an alternative to a 9-Element watershed management plan, similar to the Bazile Groundwater Management Area Plan. Other major achievements were the delisting of Shell Creek for Atrazine and Antelope Creek for E. coli.

Water Quality Data Handling and Storage

NDEQ continues adding Nebraska surface water quality information to the EPA's Water Quality Exchange (WQX) electronic storage system for water quality data. This will make Nebraska surface water quality information available to anyone who has an internet connection. The web site for this information is <https://www.epa.gov/waterdata>. During FY2018, NDEQ continued to add surface water monitoring results to the WQX database. NDEQ has developed a new internal database application which has increased the efficiency of processing surface water monitoring data resulting in significant time savings.

Agriculture Section

The Agriculture Section programs consist of the Livestock Waste Control Program, the Chemigation Program, and the Agricultural Chemical Containment Program.

LIVESTOCK WASTE CONTROL PROGRAM

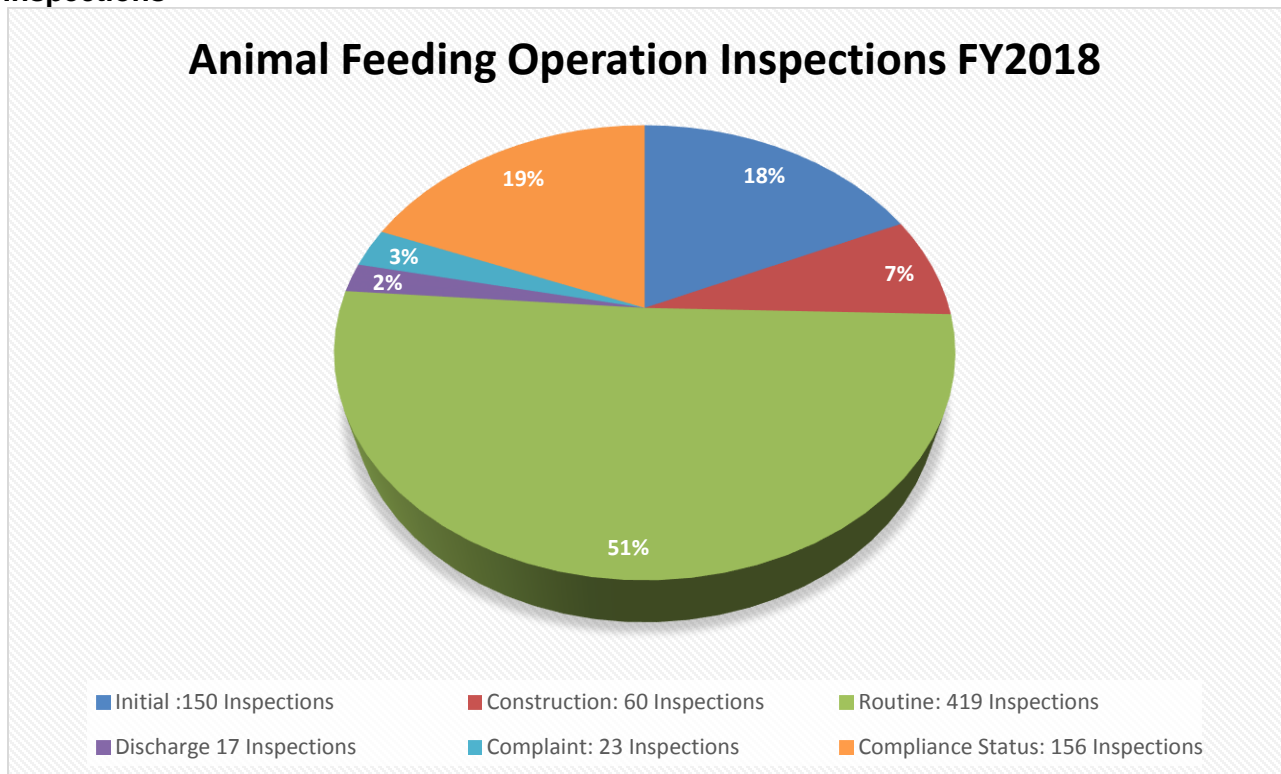
Overview

The Livestock Waste Control Program (LWC) is charged with the overall responsibility to protect Nebraska’s surface water and groundwater from discharge of livestock waste from any of the thousands of Animal Feeding Operations (AFOs) in Nebraska.

To accomplish this responsibility, the program administers *Title 130 - Livestock Waste Control Regulations*. The LWC program primarily focuses on the 1193 active large Concentrated Animal Feeding Operations (CAFOs) required to have permits, but also works with approximately 2,153 Medium AFOs. The LWC Program uses inspections, permitting, and periodic monitoring to fulfill this responsibility. The program also implements the National Pollutant Discharge Elimination System (NPDES) program for CAFOs.

Amendments to Title 130 became effective October 4, 2011 to reflect changes in the U.S. Environmental Protection Agency (EPA) CAFO Rule for NPDES permitting, which primarily involved who needs to apply for NPDES permit coverage. The changes were necessary to ensure the Department would continue to administer the NPDES permit program for EPA. As a result, only CAFOs that discharge are required to apply for NPDES permit coverage.

Inspections



The LWC Program staff conducted a total of 825 livestock waste control inspections and investigations in FY2018 (including complaint and discharge investigations). The chart above illustrates the breakdown by type of inspection or investigation. A concerted effort was made during the fiscal year to revisit many medium-sized operations to ensure that they were in compliance with Title 130 and the EPA CAFO Rule.

A short description of each type of inspection and investigation follows:

Initial Inspection: Before constructing a new operation or expanding an existing operation, all medium and large AFOs – whether or not the operation currently is permitted -- must request an initial inspection by LWC Program staff. The reason for this inspection is to determine if livestock waste control facilities (LWCF) must be constructed, expanded, or modified to prevent a discharge and to properly manage the livestock waste generated by the operation.

Post Construction Inspection: Upon completion of any required construction of a LWCF, program staff conduct a post-construction inspection to verify the waste control facility was constructed as approved by the Department.

Routine Inspections: Once a CAFO or an AFO has received a permit, and the Department has approved operation of the LWCF, program staff will conduct periodic, routine inspections to monitor operation of the livestock waste control facilities, management of the operation's livestock waste, and the records these CAFOs and AFOs are required to maintain. Routine inspections are regularly scheduled with an AFO, involving a detailed, extensive review of the operation's recordkeeping and waste management at the operation.

Discharge Investigations: Discharge investigations are conducted when livestock waste control facilities discharging are reported. Sometimes these discharges are not recorded as complaints because the AFO does self-reporting, as required by the regulations.

Complaint Investigations: When a complaint is received, LWC Program staff will investigate and may conduct an on-site investigation.

Compliance Status Inspections: Generally conducted to verify the AFO's operating status or level of compliance with a specific requirement; these inspections are usually less urgent, non-emergency situations.

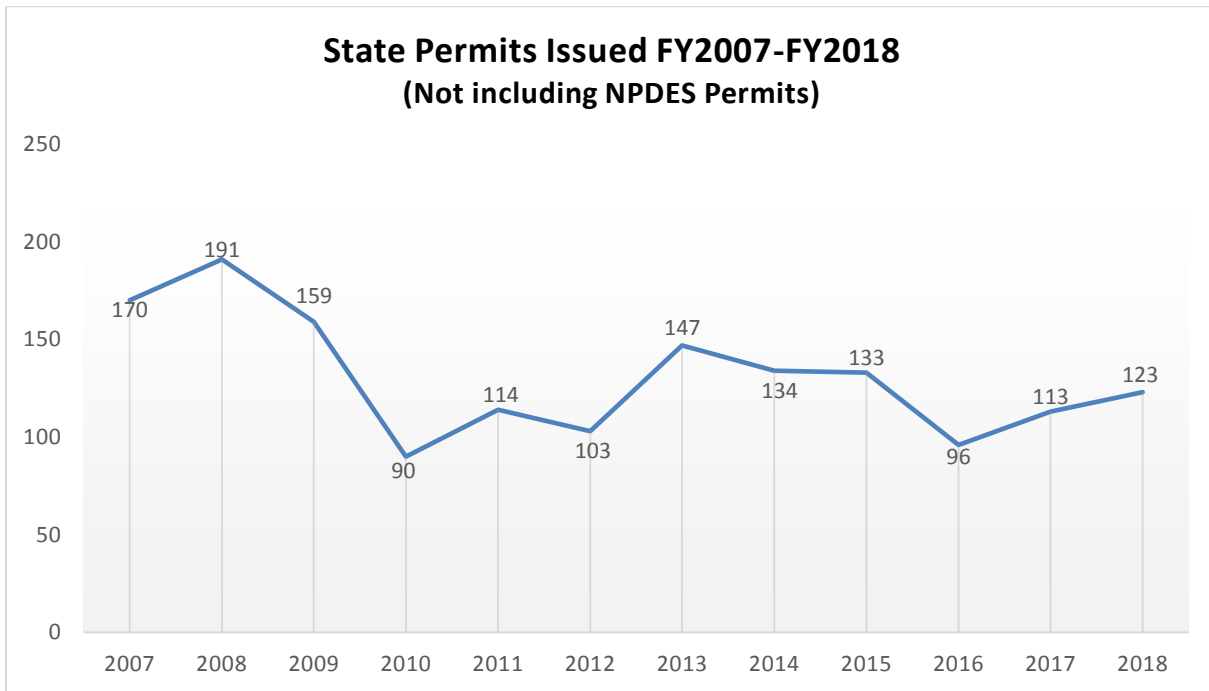
State Permitting

After conducting an initial inspection, the Department may require the AFO to submit an application for a Construction and Operating Permit – the state permitting process for livestock waste control facilities – prior to construction of livestock waste control facilities.

The Department received a total of 151 permit applications and issued 123 permits during FY2018, as shown in the table to the right.

Construction and Operating Permits – FY2018		
Type of Application or Permit	Applications Received	Permits Issued
New permits	68	42
Modified permits	56	60
Transfer permits	27	21
TOTAL	151	123

The totals do not include applications received or permits issued for any NPDES permits. The chart below shows the total number of state permits issued annually for livestock waste control facilities since FY2007. The Department updated some existing Construction Permits, Construction Approvals and Operating Permits to Construction and Operating Permits if the AFOs updated their nutrient management plans (NMP) to current Title 130 standards. The NMP updates were mainly in conjunction with NPDES Permit renewals or transferred permits.



Once a permitted AFO has completed its construction project, the Department conducts a post-construction inspection. If the post-construction inspection shows the construction was completed as approved, the Department notifies the AFO that operation of the new livestock waste control facility is approved. In FY2018, the Department gave approval to 62 AFOs for operation of their new or expanded LWC facilities.

National Pollutant Discharge Elimination System (NPDES) Permit

The LWC Program also oversees the NPDES permitting process for livestock, issuing coverage under individual NPDES permits to CAFOs, as well as coverage under an NPDES General Permit for Concentrated Animal Feeding Operations Confining Cattle. Both permits expire every five years, and permittees are required to submit a reissuance application to continue NPDES permit coverage.

The table below summarizes the number of NPDES applications received and permits issued for livestock waste control facilities in FY2018.

NPDES PERMITS – FY2018		
Type of NPDES Application/Permit	Applications Received	Permits Issued
GENERAL PERMIT FOR CAFOs CONFINING CATTLE		
New Coverage	25	8
Modified or Transferred	19	17
Reissued	93	90
SUBTOTAL GENERAL PERMIT:	137	115
INDIVIDUAL PERMITS		
New Coverage	5	4
Modified or Transferred	4	2
Reissued	7	6
SUBTOTAL INDIVIDUAL PERMIT:	16	12
NPDES TOTALS:	153	127

Fees

The annual fee is assessed on all permitted Large CAFOs and all CAFOs covered under an NPDES permit. The fee is determined based upon the number of head of livestock for which the operation has a permit. The fees provide 20% of the Department’s costs to administer the livestock waste control program, as required by statute. The Department received \$250,818 in annual permit fees. In addition, the Department received \$65,613 in initial inspection fees, \$55,781 in permit application fees, and \$14,447 in late payment fees, for a total of \$386,629 in fees.

General information about the Livestock Waste Control Program, including applications, fact sheets, forms, guidance documents, copies of the NPDES General Permit and the four general permits, Title 130 regulations, and public notices of permit issuance or denial, can all be found on the Department’s website at: <http://deg.ne.gov>.

Online Applications

In February 2017, the Agriculture Section held a team building event intended to identify areas where additional effort would improve overall operations. A key outcome of the event is the online submittal of permit applications. Section personnel have been working with information technology

professionals designing an online portal for the submittal of construction and operating permit applications. The program is convinced that a more streamlined processing of applications for businesses will still be protective of water quality. The new system is still under development and is expected to be in production in 2019.

COSTCO

The livestock program began receiving new chicken barn applications from producers under contract with Costco in FY2018. These chicken producers are not required to obtain permits because their waste product is considered dry manure. However, Costco is requiring their contract chicken producers to apply and obtain the same permit that cattle or hog producers apply for. More Costco chicken barn applications are expected in the next year.

CHEMIGATION PROGRAM

The Chemigation program, which functions in cooperation with Nebraska's 23 Natural Resources Districts (NRDs), works to ensure that users of irrigation systems applying fertilizers and pesticides do not contaminate the sources of irrigation water. These regulations are contained in *Title 195 – Chemigation Regulations*.

Since 1987, the NRDs have inspected irrigation systems used for chemigation for functioning safety equipment and issued site permits. Chemigation permits are issued annually, and are reported to the Department on a calendar year basis. The 26,835 chemigation permits issued in 2018 constituted a two percent increase in permits issued compared to the previous year (26,274 permits issued in 2017).

A chemigation applicator must be certified by the Department every four years. To receive certification, an applicator must complete training and testing, which is provided under contract with the University of Nebraska Cooperative Extension. Applicator certifications also are reported on a calendar-year basis.

In calendar year 2018, 1,052 applicators have been trained, tested and certified, bringing the current number of certified chemigation applicators to 5,633 applicators. Information about chemigation applicator training dates and certified applicators is available after January 1 of each year on the Department's web site, <http://deq.ne.gov>.

AGRICULTURAL CHEMICAL CONTAINMENT PROGRAM

The Agricultural Chemical Containment program regulates the construction and use of commercial and private facilities for the storage, loading, and rinsing activities of bulk liquid fertilizers and bulk liquid and dry pesticides. These regulations are contained in *Title 198 - Rules and Regulations Pertaining to Agricultural Chemical Containment*.

The regulations administered by this program provide specific requirements for design by a Nebraska Registered Professional Engineer, construction materials, containment capacities and maintenance. Although no permit or registration is required, the operation must have a construction plan for the facility and a management program.

The Department and the Nebraska Department of Agriculture have a cooperative agreement that outlines the procedure for coordinating inspection activities between the two agencies. The agreement enhances the communication between the agencies and provides specific protocols to be followed when investigating Agricultural Chemical Containment complaints.

Wastewater Permitting and Certification Programs

There are a number of certification and permitting programs relating to wastewater treatment facilities, ranging from certification of those who work on septic systems to the permitting of large municipal facilities. These programs include:

- **Onsite Wastewater Treatment Facilities Program** – This program administers system design, professional certification and system registration requirements that affect mostly smaller wastewater treatment or storage systems, such as septic systems, household lagoons, and holding tanks, and anyone doing work on these types of facilities.
- **Wastewater Treatment Facility Operator Certification Program** – This program administers the certification program for wastewater treatment facility operators to ensure proper operation and maintenance of these facilities.
- **Wastewater Construction Permit Program** – The construction permit program establishes design standards for commercial, industrial, and municipal wastewater facilities that are planned for construction. The program also maintains regulations for the operation and maintenance of wastewater facilities and for the proper abandonment of facilities when they are removed from service.
- **The National Pollutant Discharge Elimination System (NPDES) Program** – This program is responsible for regulating discharges of pollutants to Waters of the State to maintain and protect the water quality of Nebraska's streams, lakes, rivers, and groundwater. Other NPDES-related programs include:
 - **Combined Sewer Overflows** -- to address municipalities that have combined storm water and wastewater sewer systems.
 - **Wastewater Treatment Sludge and Biosolids Disposal** -- requirements for treatment and disposal of municipal and industrial wastewater sludges and biosolids, and
 - **Storm Water Permit Program** -- involves: 1) Construction sites of a specific size; and 2) the Municipal Separate Storm Sewer System permits for medium and large municipalities.
- **The Nebraska Pretreatment Program** -- This program functions to protect municipal wastewater collection and treatment systems from damage or overloading by industries.

NDEQ initiated the **Assessing Wastewater Infrastructure Needs (AWIN)** project to assist Nebraska communities with environmental compliance with existing or upcoming regulations. The project is based in NDEQ's Wastewater Division, but it can involve other NDEQ programs, as well as other state and local agencies.

Many communities in the Upper Great Plains States and other regions of the country have population declines, aging populations, declining median household income, and limited or no job availability, all of which lead to limited resources to operate their utilities. AWIN uses data from the latest census and other available data sources to generate a rating for communities using modeling tools. NDEQ uses this information, the communities' input, their consultants' input, and NDEQ observations to make adjustments in standard procedures and design conditions. A few examples of changes include better interest rates on loans, longer compliance schedules, and designs that take into account future declining population.

Onsite Wastewater Treatment Facilities Program

The requirements administered by the Onsite Wastewater Program cover septic systems, wastewater holding tanks, individual household wastewater lagoons, and other decentralized wastewater treatment systems not connected to municipal wastewater treatment systems. The majority of onsite systems are for single households. However, there are onsite or decentralized systems that provide wastewater treatment for multiple houses (these systems are sometimes called cluster systems), mobile home parks, churches, recreational facilities, camper trailer parks, a variety of businesses with high strength wastes (such as restaurants, butcher shops, and wineries), equipment maintenance buildings, and other commercial or industrial facilities. The U.S. EPA estimates that nearly one in four households depend on onsite systems for wastewater treatment.

The *Private Onsite Wastewater Treatment System Contractors Certification and System Registration Act (Act)* passed in 2003 required that anyone doing work associated with onsite wastewater systems be certified by the State of Nebraska. The Act provided for the registration of all onsite wastewater systems constructed, reconstructed, altered, or modified. The law also provided for certification and system registration fees to support the program.

The Act was amended in 2007 by LB333, which provided for application fees for permits and subdivision approvals and established a fee waiver provision for government inspectors. Nebraska Administrative Code *Title 124 – Rules and Regulations for the Design, Operation and Maintenance of Onsite Wastewater Treatment Systems* was last amended, effective August 11, 2012.

Certification of onsite professionals covers design, installation, inspection, maintenance, and pumping of onsite systems. Subdivision review and approval requirements apply when onsite systems will be used on any proposed development lots that will have less than three acres suitable for building. Program staff work to make sure that the design, installation, modification, repair, and maintenance of onsite wastewater systems is performed by certified professionals who understand Title 124 and the proper practices of their trade.

The Onsite Program is focused on the protection of surface and groundwater in the area of proposed onsite systems through the use of standardized design requirements, the certification of onsite professionals, review and approval of plans for subdivision development, and review of plans and issuance of permits for large onsite systems.

A certification by examination is required for professionals to obtain initial certification. Currently, 512 people hold onsite wastewater certificates. Some professionals obtain certification in multiple categories. The categories of certification are: Installer (Master and Journeyman), Pumper (Master and Journeyman), Inspector, and Soil Evaluator. Current certificates expire December 31, 2019, and may be renewed via continuing education requirements or re-examination. Certificates must be renewed every two years.

The registration requirement for onsite wastewater systems provides a statewide inventory of new or modified onsite systems. Since registrations began in 2004, over 22,000 systems have been registered, with 1,486 systems registered in FY18.

NDEQ has cooperative agreements with other governmental agencies (state and local) to help implement and coordinate the program. There are currently 23 certified inspectors from local governments. NDEQ also works cooperatively with Nebraska Department of Health and Human Services personnel to resolve health-related onsite wastewater handling issues.

There were 228 new onsite-related complaints in FY18 and program staff resolved a total of 183 complaints, which includes both old and new complaints. Notices of Violation were issued to 12 entities. Typical types of complaints that are investigated include: failed systems that have a surface discharge, and which may pose a threat to public health or the environment, and installation or performance of work on onsite wastewater systems by individuals who are not certified by NDEQ. In addition, the Section fields approximately 4000 calls annually seeking compliance assistance.

The regulations set minimum design standards for all onsite wastewater treatment systems and include an “Authorization by Rule” provision which allows for the installation of typical onsite systems by a certified professional and subsequent operation by the owner without a site-specific construction or operating permit. These standard conforming systems constitute the vast majority of all new and replacement onsite systems.

Department engineers review construction/operating permit applications for systems that do not meet requirements for Authorization by Rule. Title 124 also provides for Department approval prior to construction of any subdivision with any lot less than three acres where onsite wastewater treatment is proposed. In the past year, the program received 45 applications for construction/operating permits and eight applications for subdivision review and approval.

The Private Onsite Wastewater Treatment System Advisory Committee advises NDEQ on administration of the Act and proposed rules and regulations. Program staff have worked and continue to work with many organizations to educate the public about the importance of proper installation and maintenance of onsite wastewater treatment systems and to improve the knowledge and skills of the various practitioners who install and maintain onsite systems. These groups include: local health offices, county and city planning and zoning, the Nebraska Onsite Wastewater Association, the Nebraska Onsite Wastewater Task Force, UNL Cooperative Extension, Nebraska Realtors, Nebraska Association of County Officials, and the Groundwater Foundation,

Wastewater Treatment Facility Operator Certification Program

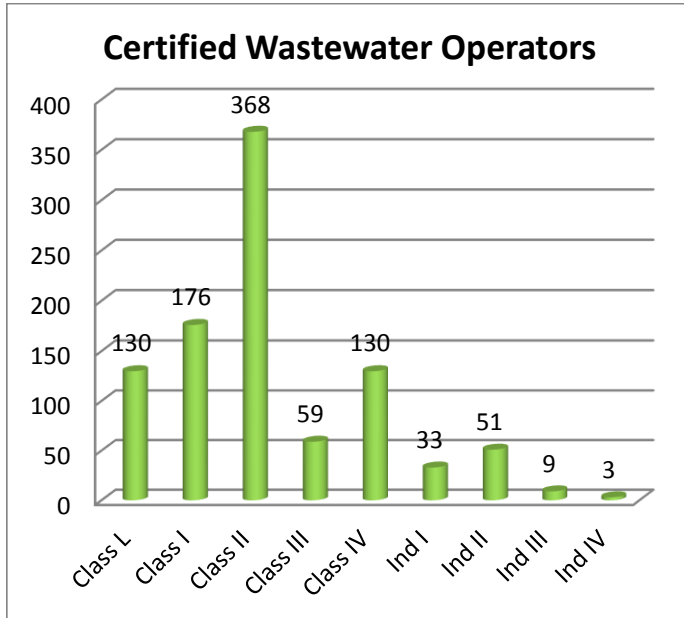
Competent and qualified operators are a critical component to ensure that wastewater treatment plants are well run and protect the environment. The life span of treatment facilities can be prolonged and proper operation and maintenance programs can protect the owner’s substantial financial infrastructure investment. The Wastewater Treatment Facility Operator Certification Program was established to help accomplish this. The program administers the operator certification program, which includes administering certification exams, issuing certificates, evaluating continuing education programs, tracking certificate compliance, processing certificate renewals, and conducting facility ratings to determine operator needs, in addition to continuing to evaluate ways to help wastewater treatment facility operators obtain continuing education to maintain their certification and help them do their jobs.

This program administers nationally accredited certification exams to new wastewater operators, or to operators wishing to advance their credentials, and issues certification renewals for operators who have obtained the necessary Department-approved continuing education as provided for in *Title 197 – Rules and Regulations for the Certification of Wastewater Treatment Operators in Nebraska*. Staff will continue to monitor those facilities that are required to have certified operators and work with them to help them comply with the regulations.

Municipal, commercial, compatible industrial facilities, and non-compatible industrial facilities are required to employ certified operators based on the point rating assigned to each facility by

NDEQ. The point rating for each facility is based on the design flow, type of treatment, instrumentation and control systems, and laboratory analysis requirements at each location. Certified Operators for municipal, commercial, and compatible industrial facilities are classified under the following categories: Class L (lagoons), Class I, Class II, Class III, and Class IV, according to the type of facility and its point rating. Certified operators for non-compatible industrial facilities are classified under the following categories: Industrial I, Industrial II, Industrial III, and Industrial IV, according to the type of facility and its point rating.

The Wastewater Operator Certification Program currently has 863 operators with



municipal/compatible certificates. In addition, there are currently 96 certified operators with industrial certificates (see chart at left for a breakdown of certified wastewater operators by category).

NDEQ also reviews applications and issues operator certification exemptions for towns and other entities that have full-retention non-discharging lagoon wastewater treatment facilities that may not require qualified operators due to very limited maintenance and operational needs. The exemption is for a fixed four-year period and the period under current review will end at the end of 2020. NDEQ has contacted approximately 300 facilities potentially eligible for the exemption and, of these, issued four-year operator exemptions to 216 facilities.

Wastewater Construction Permit Program

The Wastewater Section administers Nebraska's construction permit program for wastewater facilities built in the state. Industries, commercial facilities, and municipal utilities are required to submit the plans and specifications for their projects to NDEQ for review and approval. The construction documents are reviewed to make sure that the collection systems and treatment facilities will function properly and protect the public and the environment from adverse effects.

In FY2018, DEQ reviewed and approved designs for a wide range of projects, including livestock truck washes, Omaha Combined Sewer Overflow projects, municipal disinfection systems, and a variety of commercial upgrades. For FY2018, a total of 270 wastewater projects were reviewed and approved by NDEQ.

Nebraska's design standards for wastewater facilities are found in NDEQ *Title 123 -- Rules and Regulations for the Design, Operation and Maintenance of Wastewater Works*. These standards are updated periodically to keep Nebraska in agreement with regional standards. The state's design standards are written to encourage the use of proven technologies, but have also allowed the use of innovative designs where they are appropriate.

Title 123 also contains basic rules for the operation and maintenance of collection systems and treatment facilities. One chapter has rules for the proper abandonment of wastewater facilities which have been removed from service. The abandonment rules are intended to protect the public from unsafe site conditions and allow the property to be redeveloped for other uses.

A considerable amount of time every year is spent working with communities that need to upgrade their facilities. Section engineers met regularly with municipal officials, funding agencies, and consulting engineers to develop affordable projects for Nebraska's communities. Assessing Wastewater Infrastructure Needs (AWIN) principals were used to evaluate projects for small communities. The section also met with State Parks, manufacturing facilities, mobile home parks, livestock truck washes, and with small agricultural businesses to plan for their wastewater treatment needs.

The Agency continues to have quarterly meetings with the City of Omaha to discuss their combined sewer separation project. The meetings have provided an excellent forum for reviewing regulatory and engineering issues.

National Pollution Elimination System (NPDES) and Related Programs

The Wastewater Section administers permitting programs that regulate point source dischargers of water pollutants, including:

- **The National Pollutant Discharge Elimination System (NPDES) Program**, which is responsible for regulating discharges of pollutants to Waters of the State in order to maintain and protect the water quality of Nebraska's streams, lakes, rivers, and groundwater. NPDES programs also include:
 - **Combined Sewer Overflows**, which addresses those municipalities that have combined storm water and wastewater sewer systems.
 - **Wastewater Treatment Sludge and Biosolids Disposal**, which are requirements for treatment and disposal of municipal and industrial wastewater sludges and biosolids,
 - **Storm Water Permit Program** – This permit programs involves: 1) Construction sites of a specific size; 2) the Municipal Separate Storm Sewer System permits for medium and large municipalities; 3) Industrial facilities.
 - **The Nebraska Pretreatment Program**, which functions to protect municipal wastewater collection and treatment systems from damage or overloading by industries.

Activities include issuing permits to monitor and limit pollutants in wastewater discharges and evaluate compliance with the permits and other applicable regulatory requirements of the programs.

NPDES Permits

Anyone who directly discharges pollutants to Waters of the State is required to obtain a permit. NPDES permits control pollutant discharges by establishing wastewater limitations for pollutants and/or requiring permittees to maintain certain operational standards or procedures. Permittees are required to verify compliance with permit requirements by monitoring their wastewater, maintaining records, and/or filing periodic reports.

NDEQ is responsible for developing and issuing NPDES permits, and for ensuring that permitted facilities comply with permit requirements. The regulatory basis for this program is through an Environmental Protection Agency (EPA) delegation agreement with the Department and NDEQ *Title 119 - Rules and Regulations Pertaining to the Issuance of Permits Under the National Pollutant Discharge Elimination System*. The Nebraska NPDES program encompasses a number of different types of discharges including: municipal, commercial and industrial wastewater discharges; livestock waste control; industrial discharges to public wastewater treatment systems (also known as the Nebraska Pretreatment Program); municipal combined sanitary and storm sewer overflows; and industrial and municipal storm water discharges. Graphs on the next page show distribution of permits issued to various types of NPDES dischargers, except Livestock. Information regarding Livestock NPDES permits is found on page 92 of this report.

Most NPDES permits limit the discharge of pollutants by establishing effluent limitations for specific pollutants such as carbonaceous biochemical oxygen demand, total suspended solids, and ammonia among others. The permittee is then responsible for testing their wastewater discharge to ensure that the limits are not exceeded. Permits may also limit toxicity in effluents and permittees may be required to demonstrate that their wastewater is not toxic to aquatic organisms (e.g., daphnia or fathead minnows). The permit may also require development of Best Management Practices Plans to reduce or control pollutant discharges.

The permit development process involves identifying the pollutants of concern, and then developing permit limits based upon the more stringent of either technology-based standards or water quality based standards. Technology-based standards reflect effluent quality that can be achieved using treatment technology that is available to the permittee. NDEQ Title 119 sets forth technology-based standards for municipal facilities and many types of industrial facilities. Technology-based standards can also be developed on a case-by-case basis when necessary.

Water quality based limits are the limits necessary to meet the in-stream water quality standards established in NDEQ *Title 117 - Nebraska Surface Water Quality Standards*. In some instances, where a surface water/groundwater interconnection may be of concern, NPDES permit limits may be based upon NDEQ *Title 118 - Groundwater Quality Standards and Use Classification*.

Permits may be developed and issued on an individual site-specific basis, or they may be developed and issued to apply to facilities with similar activities or effluent characteristics. These two types of permits are respectively referred to as individual permits and general permits. To date, the department has developed and issued general permits for the following activity categories: hydrostatic testing, dewatering, land application of concrete grooving/grinding slurry, pesticides applications to, over, and near Waters of the State, gasoline contaminated groundwater remediation projects, petroleum product contaminated groundwater remediation projects, construction site storm water, and industrial site storm water. Municipal Separate Storm Sewer System (MS4) permits have been issued to entities, including metropolitan areas and counties that meet the criteria of the NPDES Storm Water Program. There currently are 27 storm sewer systems in Nebraska that have received MS4 authorizations that include municipalities, counties, the Nebraska Department of Transportation, and the University of Nebraska. The Construction Storm Water General Permit was reissued November 2016. The Industrial Storm Water General Permit was reissued July 2016. During FY2017, online application processes were utilized for these general permits which streamlined the issuance of coverage to applicants. Determinations for coverage can now be made within a couple of days for qualified applicants.

There are 613 facilities with discharge authorizations under individual permits (municipal, industrial and pretreatment), and 27 municipal storm water permits (MS4). There are 2,180 active facilities authorized to discharge under other general permits. The general permits include 1,264

active authorizations under the construction general storm water permit, 68 dewatering including Omaha, 13 hydrostatic testing, 775 industrial storm water, 14 pesticide, and 46 Treated Ground Water Remediation Discharge sites.

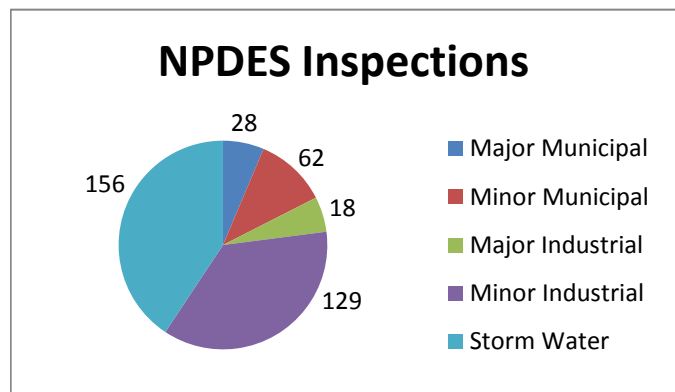
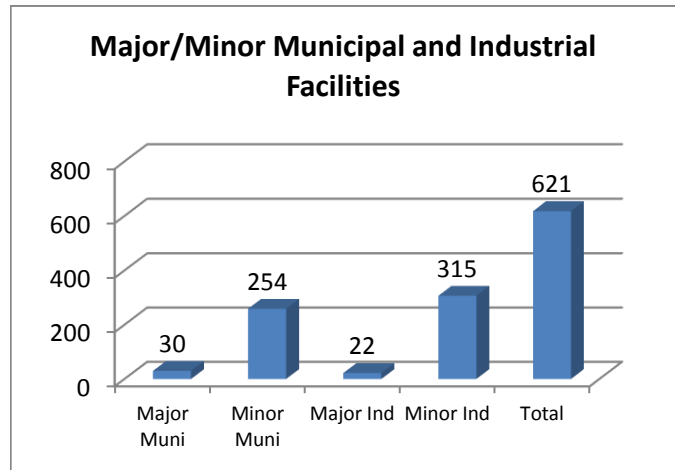
Municipal and Industrial Facilities

Industrial and municipal facilities are both grouped as major or minor facilities based upon their size and/or their potential to impact the receiving stream. The chart titled "Major/Minor Municipal and Industrial Facilities" provides a numeric break down of these types of facilities.

Municipal and industrial facilities are required to verify compliance with numeric permit limits by monitoring their effluents (i.e., self-monitoring). Monitoring frequency can vary from daily to annually depending upon the pollution and impact potential of the facility. The facility must report monitoring results to the Department; typically this is done on a quarterly basis. However, monitoring results that indicate non-compliance with permit requirements must be reported verbally within 24 hours. Records of all monitoring activities must be kept for a period of three years.

The Section verifies compliance through a variety of activities including reviewing discharge monitoring reports, following up on complaints and incident reports, conducting on-site inspections, and performing effluent monitoring inspections.

During on-site inspections, section personnel walk through the facility and review operational procedures and records. Major industrial and municipal facilities receive annual on-site inspections. The priority of minor facilities inspections is based on discharge compliance histories, incident reports and complaints. Inspectors performed 394 NPDES inspections in Fiscal Year 2018. A breakdown of those inspections is provided in the chart at right. The minor industrial inspections include 112 pretreatment inspections. During selected effluent monitoring inspections, effluent samples are collected and analyzed by the Department to compare with self-monitoring results. Facilities selected for effluent monitoring inspections are chosen based upon pollution potential, past compliance or incident report histories, complaints, and/or Basin Management Approach priorities. In addition an MS4 inspection was conducted in North Platte.



Data generated by facility monitoring and Department on-site and effluent monitoring inspections are reviewed and entered into the federal Integrated Compliance Information System (ICIS) computer database. This database is used to generate facility reports and review facility compliance history.

Combined Sewer Overflow Program

The Combined Sewer Overflow (CSO) program addresses Omaha's combined storm water and wastewater sewer systems. Omaha's systems were built prior to the existence of secondary sanitary wastewater disposal standards. When storm or snow melt runoff is occurring, these systems may become hydraulically overloaded and excess water flows bypass the treatment system. Untreated wastewater is discharged into the receiving stream when bypasses occur.

The City of Omaha has combined sewers that are subject to storm-induced bypasses of untreated waste. The City submitted a substantively complete long-term control plan on October 1, 2007 in compliance with an Administrative Consent Order between the City and NDEQ. On September 25, 2009, the City submitted their Final Long Term Control Plan, also in compliance with the Administrative Consent Order. This order initially required Omaha to complete the long-term control plan projects by 2024. In 2012 the order was modified to add an additional three years due to the 2011 Missouri River flood. The projects included in the plan span 18 years and are estimated to cost over \$2 billion. The goal of the projects is to reduce or eliminate combined sewer overflows and comply with State and Federal regulations. The order was amended in January 2018 to allow for evaluation of existing and future CSO improvements. The evaluation will help determine what efforts have been the most or least effective meeting permit requirements, provide socio-economic value to neighborhoods, improve the bid process, and improve value engineering for projects.

The City of Omaha's CSO NPDES permit has been re-issued effective October 1, 2015 and includes a schedule for project implementation. This schedule utilizes the first five years of project implementation as defined by the Long Term Control Plan. The City of Omaha and NDEQ continue to work cooperatively on evaluating and implementing long term solutions to protect water quality, comply with the CSO requirements of the Clean Water Act, and minimize the financial impacts to the most vulnerable citizens in the community.

Wastewater Treatment Sludge and Biosolids Disposal

Disposal requirements for municipal and industrial wastewater treatment sludges or biosolids can be incorporated into NPDES permits. These sludge disposal requirements assure that sludges or biosolids are treated and disposed in a manner that is environmentally sound and protective of human health. Beneficial use, such as land application of biosolids, is strongly encouraged.

On Feb. 19, 1993, the EPA published the federal sludge regulations. Under these regulations, an estimated 330 municipal facilities in the state have additional sludge monitoring requirements. These additional requirements include increased metal and nutrient content analyses; improved records for tracking the amount of sludge and metals applied to each disposal site, and cumulative disposal limits. The Department has not sought delegation of this program from the EPA. The program is managed out of the EPA Region 7 office in Lenexa, KS. NDEQ can provide guidance for municipalities and provides permit language to assist with biosolids program compliance.

Storm Water Program

In compliance with federal regulations, the NPDES Storm Water Phase I and Phase II Programs regulate the discharge of pollutants in storm water from certain construction sites, industrial facilities and municipal storm sewer outfalls. Storm Water Phase II federal regulations lowered the threshold for coverage of construction sites from five acres or more to one acre or

more. And, sites that are less than one acre can also be regulated in Phase II, if they are part of a common plan of development or sale. The industrial facilities are defined to include a number of different types of facilities in addition to typical process industries (e.g., landfills, wastewater treatment sites, recycling centers, scrap yards, mining operations, transportation facilities, and hazardous waste facilities). These regulations also increase the number of municipalities and urban areas that are subject to the NPDES program for storm water discharges.

The cities of Omaha and Lincoln were subject to the Municipal Separate Storm Sewer System (also known as the MS4) Program with the implementation of Phase I. Lincoln was initially issued an MS4 Permit on September 1, 2002. This permit will be reissued November 2018. The Omaha MS4 Permit was initially issued on October 1, 2003 and was reissued in March 2018. Phase II has expanded the areas requiring coverage under an NPDES MS4 Permit to include the urbanized areas in Douglas, Sarpy, Lancaster, Washington and Dakota Counties. An NPDES permit for Douglas, Sarpy and Washington Counties was initially issued August 2004. The Dakota County MS4 permit was initially issued effective December 2004.

In 2002, NDEQ initially determined the communities of Beatrice, Columbus, Fremont, Grand Island, Hastings, Kearney, Lexington, Norfolk, North Platte and Scottsbluff were exempt. However, newly approved Total Maximum Daily Loads and a review of the criteria for each municipality, included these communities under Phase II regulations for MS4 permits. A statewide general permit was initially issued January 2006. The Storm Water Management Plans (SWMPs) for these cities were received, public noticed and each of these communities was authorized under this general permit. These permittees have entered into a cooperative agreement to form the Phase II Storm Water Cooperative. Their Storm Water Management Plans are coordinated so that development work and implementation plans can be shared between them. The NDEQ works closely with this group.

The re-issuance of the statewide general and Douglas, Sarpy County permits for small MS4s were issued July 2017. These permits also provide coverage to Gretna and the non-traditional MS4s operated by UNL, UNO, and Offutt Air Force Base. Dakota County, South Sioux City, and Dakota City are now covered under the state-wide permit. NDEQ reviewed the status of Washington County determining the criteria requiring coverage was no longer met.

Two general permits have been issued to provide coverage for industrial facilities and construction sites. Both of these general permits require the permittee to develop Storm Water Pollution Prevention Plans to control and reduce the discharge of pollutants. The NPDES General Permit for Storm Water Discharges from Construction Sites, NER160000 was issued November 2016. The NPDES General Permit for Storm Water Discharges from Industrial Activity, NER910000, was issued July 2016. The new permit continues benchmark monitoring for certain industrial activities.

Nebraska Pretreatment Program Permits

The Nebraska Pretreatment Program functions to protect municipal wastewater collection and treatment systems from damage or overloading by industrial dischargers. The pretreatment regulations are found in Title 119. The rules and regulations set forth prohibited discharge standards that apply to all industrial users of publicly owned wastewater treatment facilities and require permits for significant industrial users. The significant industrial users are determined by one of several means: 1) the existence of an industrial category for which pretreatment discharge standards are established in NDEQ Title 119; 2) the volume or strength of the wastewater discharged from the facility; or 3) the potential of the industrial user to adversely affect the wastewater collection or treatment facilities.

The authority for establishing the Pretreatment Program is derived from the NPDES program requirements set forth in Section 402 of the Federal Clean Water Act. The issuance procedures and general format of Pretreatment Program and NPDES permits are very similar. Permittees are required to carry out self-monitoring activities, maintain records and submit periodic reports. Compliance activities include report reviews, on-site inspections and compliance monitoring inspections. Compliance data are entered into the national database, ICIS, to facilitate compliance review activities.

Although the Pretreatment Program is really a subprogram of the NPDES program, administration of this program requires more coordination and cooperation with local municipal officials. To accomplish this, the Department has entered into Memorandums of Agreement (MOAs) with 11 communities describing respective city and state responsibilities. The agreements vary in nature depending on the size and capabilities of the community. Omaha and Lincoln are the most active municipal partners, accepting responsibility for a large variety of activities including facility sampling, inspections, complaint investigations, permit reviews, and industrial user technical assistance. Other communities rely more heavily upon the State for compliance inspections and technical reviews. However, all cities with agreements conduct initial complaint or incident investigations, report significant incidents to the Department and assist in permit development by reviewing draft permits. The Department is working with communities throughout the state to get them more involved in the pretreatment program and to improve cooperative efforts in this program.

State Revolving Loan Fund Programs

The Water Quality Division's Financial Assistance Section administers distribution of state and federal assistance for the Clean Water State Revolving Loan Fund and the Drinking Water State Revolving Loan Fund.

Clean Water State Revolving Loan Fund

The Nebraska Clean Water State Revolving Loan Fund (CWSRF) program provides low-interest loans and small community matching grants to municipalities for construction of wastewater treatment facilities and sanitary sewer collection systems to alleviate public health and environmental problems. The loan principal repayments go into new loans, and interest earnings on the Fund are used to pay off the state match bond issues and to make new loans.

The CWSRF program receives an annual federal EPA capitalization grant. A 20% state match, required to obtain the federal grant, is provided through Nebraska Investment Finance Authority (NIFA) bond issues. After 30 years of activity, the Fund's Net Assets have reached \$310.2 million. Since its inception, the CWSRF has provided loans for 301 projects with a cumulative loan award amount of \$569.6 million.

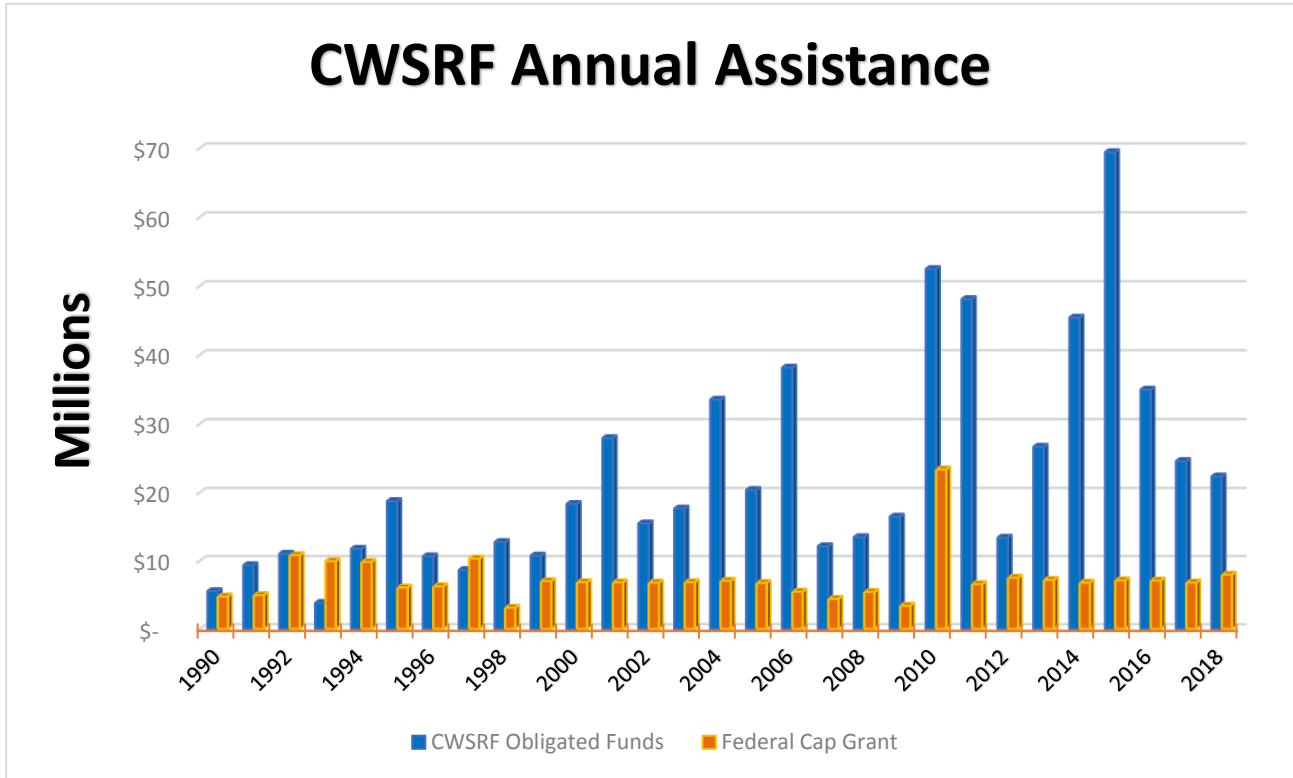
In State Fiscal Year (SFY) 2018, the CWSRF funded projects totaling \$21,217,975 in loans and \$1,149,775 in loan forgiveness and grant funds.

The EPA awarded the 2017 capitalization grant, in the amount of \$6,750,000, in August of 2017. \$1,360,000 was used as match for this federal grant through bonds and cash.

Municipalities Receiving CWSRF Loans in SFY 2018

Municipality	Loan Date	Loan Amount	Principal Forgiveness Amount	Small Town Grant Amount	Total
Gilead Amd #2	9/11/17	\$16,900		\$16,900	\$33,800
Grand Island	9/11/17	\$6,473,500			\$6,473,500
Hastings	9/11/17	\$7,000,000			\$7,000,000
Lynch	12/21/17	\$472,700	\$100,000		\$572,700
Wauneta	10/23/17	\$150,000	\$100,000		\$250,000
Deweese	1/9/18	\$120,000	\$100,000	\$20,000	\$240,000
Gothenburg	2/14/18	\$625,000			\$625,000
Marquette	2/13/18	\$210,000	\$100,000	\$44,200	\$354,200
Sutherland	3/13/18	\$365,000			\$365,000
Cairo	4/13/18	\$870,000			\$870,000
Comstock	5/16/18	\$121,100	\$100,000		\$221,100
Haigler	6/29/18	\$318,675	\$100,000	\$218,675	\$637,350
Kearney	5/2/18	\$4,075,100			\$4,075,100
Benkelman	6/1/18			\$250,000	\$250,000
Randolph	4/13/18	\$400,000			\$400,000
TOTAL		\$21,217,975	\$600,000	\$549,775	\$22,367,750

The graph reflects the cumulative loan assistance of CWSRF.



Small Town Grants

In addition to and concurrent with loans, the CWSRF provides small community matching grants to financially distressed municipalities with a population of 10,000 or less. The Small Town Grant (STG) program has provided \$9.49 million in grant funding for 80 projects concurrent with a CWSRF loan since the start of the program. Many small municipalities find that needed projects are too costly without the additional grant subsidy provided concurrent with the CWSRF loan. The department intends to provide increased funding to as many qualifying projects as possible; therefore, for SFY2018, up to \$550,268 was available for small community grants, and any one community could receive a maximum of \$250,000. The program provided a total of \$549,775 in grant funds to the communities of Gilead, Deweese, Marquette, Benkelman and Haigler.

In SFY 2018, planning grants for a total of \$60,000 from the Administrative Cash Fund were awarded to small communities. These communities identified wastewater treatment facility project needs. They were listed on the Project Priority List, have not received a planning grant in the previous five years, and have a population of 10,000 or less.

Drinking Water State Revolving Loan Fund

The Nebraska Drinking Water State Revolving Loan Fund (DWSRF) program provides low-interest loans and loan forgiveness to owners of public water systems. The loan principal repayments go into new loans, and interest earnings on the Fund are used to pay off the state match bond issues and to make new loans. An agreement between the NDEQ and the Nebraska Department of Health and Human Services, Division of Public Health (NDHHS-DPH), effective on October 30, 1997, defined the authority of the two agencies in administering the DWSRF program.

The DWSRF is similar to the Clean Water State Revolving Fund in that both obtain the required 20% state match through Cash Funds or revenue bonds, give low interest loans, and will be self-sustaining. The DWSRF is unique in that loans may be awarded to privately owned public water supplies. Other program differences include set-asides for program administration, technical assistance, wellhead protection, capacity development, and operator certification. After 21 years of activity, the Fund's Net Assets have reached \$196.7 million.

DWSRF Set-Aside Funds and Administration Cash Fund

Administrative costs are being paid out of the Administrative Cash Fund and may include program operating costs for both NDEQ and NDHHS-DPH, including day-to-day DWSRF program management activities for both agencies. Also included are other costs associated with debt issuance, financial management, consulting, and support services necessary to provide a complete program.

The Small System Technical Assistance set-aside (2%) provides technical assistance to Public Water Systems (PWS) serving a population of 10,000 or less. This is accomplished through contracts with organizations with expertise in dealing with small systems and is coordinated by the NDHHS-DPH.

In FY2018, under the Local Assistance and Other State Programs set-aside (15%), six agreements for preliminary engineering reports totaling \$90,000 were awarded to high priority ranked communities to address public health issues associated with public water supplies. In addition, there were three source water protection project for the communities of Gordon, Syracuse, and Wilber totaling \$100,000. The NDEQ administers these programs.

The State may use up to a total of 10 percent of the Capitalization Grant for the PWS Program Administration set-aside. NDHHS-DPH used \$1,234,500 from the FFY 2017 Capitalization Grant to administer Nebraska's Public Water Supply Program during SFY 2018. That amount included \$403,300 of authority that had been previously reserved from past capitalization grants.

Municipalities Receiving DWSRF Loans in SFY 2018

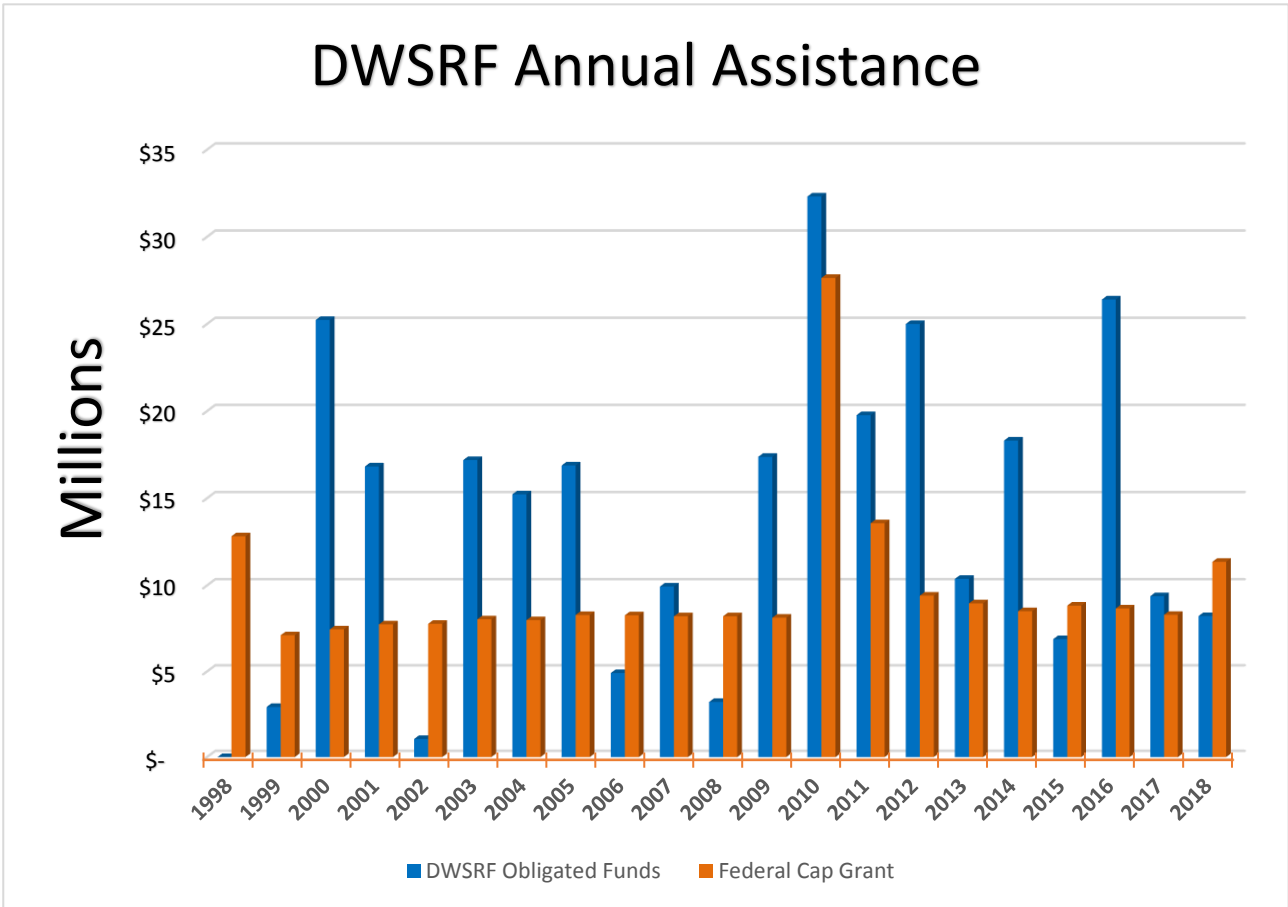
Municipality	Loan Date	Loan Amount	Principal Forgiveness	Total
York	6/6/2018	\$3,635,000	\$665,000	\$4,300,000
Blair	5/10/2018	\$1,190,000	\$210,000	\$1,400,000
Milford	1/26/2018	\$1,153,041	\$288,260	\$1,441,301
Utica Amd #2	1/11/2018	\$120,000	\$30,000	\$150,000
Osmond Amd #1	12/5/2017	\$227,500	\$122,500	\$350,000
Grant Amd #1	12/5/2017	\$480,000	\$120,000	\$600,000
TOTAL		\$6,805,541	\$1,435,760	\$8,241,301

The 2017 DWSRF capitalization grant allocation totaled \$8,242,000. In SFY 2018, the DWSRF entered into three binding commitments to communities, including three amendments to already existing loans, to provide financial assistance to PWS projects totaling \$8,241,301, of which disadvantaged communities received \$1,435,760 in forgiveness funding. The Federal Fiscal Year

(FFY) 2017 capitalization grant required that a minimum of 20% of the grant be reserved for additional subsidization (e.g., principal forgiveness).

In addition, from the FFY 2017 capitalization grant \$2,150,740 was allocated to the 2% (\$166,240), 10% (\$1,234,500), and 15% (\$750,000) set-asides. More details on the programs associated with these set-asides can be found in the Drinking Water State Revolving Fund Annual Report for SFY 2018 on our website at <http://deg.ne.gov/>.

The graph reflects the cumulative loan assistance of DWSRF.

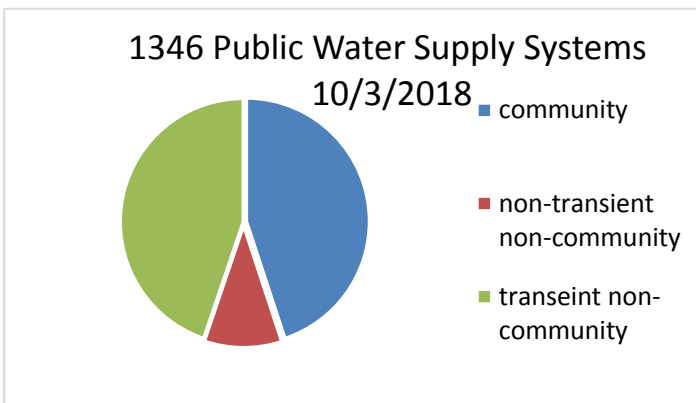


Co-location of Drinking Water Program

On July 6, 2017, NDEQ and the Nebraska Department of Health and Human Services (DHHS) announced a Memorandum of Agreement to improve coordination of Safe Drinking Water Act and Clean Water Act programs. Through the agreement, 25 DHHS staff have moved to shared office space with NDEQ wastewater staff, and eight DHHS field staff will begin working with NDEQ field staff. The goal is to have the programs integrate into a team to better serve the communities and citizens of the state.

The Drinking Water staff moved into NDEQ’s Lincoln office space at the Atrium in the first week of August, 2017. They are now located by NDEQ’s Water staff, to promote interaction and integration between the programs. Locating staff together will better serve Nebraska communities in addressing their water infrastructure needs by enhancing state agency coordination. The agencies have cross-trained staff to ensure complete and timely review of applications and coordinated site assistance.

The new Drinking Water Division is composed of Engineering, Field Services and Monitoring and Compliance sections working to provide safe drinking water to 134 Systems.



The 1,346 Public Water Supply Systems in Nebraska are comprised of: 605 Community Water Systems (residential), 136 Non-Transient Non-Community Water Systems (Businesses, rural schools, etc.), and 602 Transient Non-Community Water Systems (rest stops, service stations along the interstate, etc.).

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	Community Water Systems	Non-transient, Non-community	Transient, Non-community	Total Systems	Percentage*
<100	103	73	510	686	51.1%
101-500	273	45	88	406	30.3%
501-1000	101	8	4	113	8.4%
1001-3300	85	8	0	93	7.0%
3301-10,000	28	2	0	30	2.2%
10,001-50,000	11	0	0	11	0.8%
>50,000	3	0	0	3	0.2%
TOTAL	604	136	602	1342	100%

*Based on approximate population

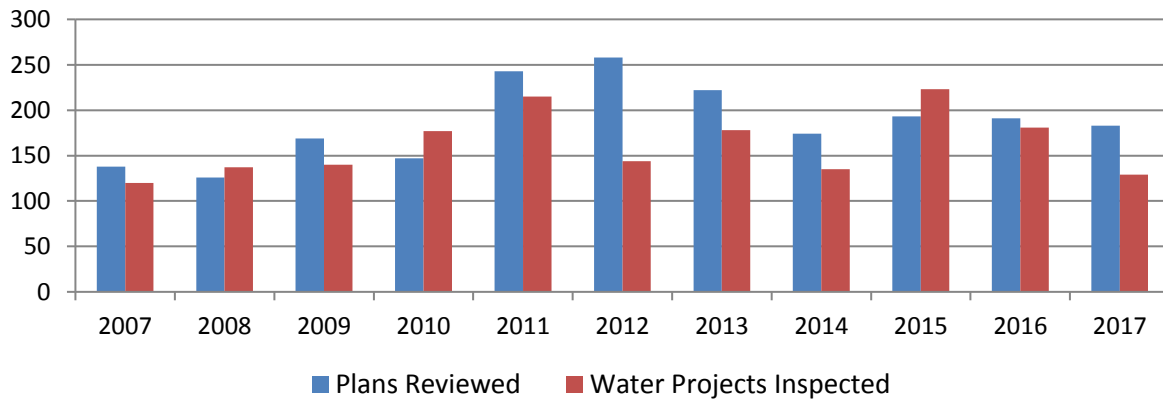
Engineering is responsible for review and approval of Plans and Specifications dealing with water sources and treatment. In 2017, the Department received 183 sets of plans and specifications for the construction of water projects for review and approval. In addition, engineering staff conducted 129 inspections of constructed water projects.

**SUMMARY REPORT FOR DRINKING WATER ENGINEERING SECTION
REVIEW AND INSPECTION ACTIVITIES**

January 1, 2017 to December 31, 2017

Activites	Number
Water Projects Received for Review and Approval	183
Water Projects Inspected	129
Major Engineering Reports for Water System Improvements Evaluated	13
Special Reports/Pilot Studies reviewed	2
New Water Well Sites Evaluated	12
Common Pre-Applications for Water/Wastewater Projects for Federal and State Financial Assistance Reviewed	8
Operation and Maintenance Manuals for Drinking Water State Revolving Loan Funded Projects Reviewed	12
Three-Year Agreements for Distribution Main Projects—Annual Audits Completed	21
Encroachment Issues	2

**Engineering Plans Reviewed/
Water Projects Inspected**



Monitoring and Compliance is primarily responsible for assuring water quality samples are collected when required and interpreting water quality data to assure water standards are met. The following is an example of the Nitrate-Nitrite Violations. Additional contaminants are listed in the 2017 Public Water System report available at http://dhhs.ne.gov/publichealth/Pages/enh_pwsindex.aspx.

Nitrate-Nitrite Violations

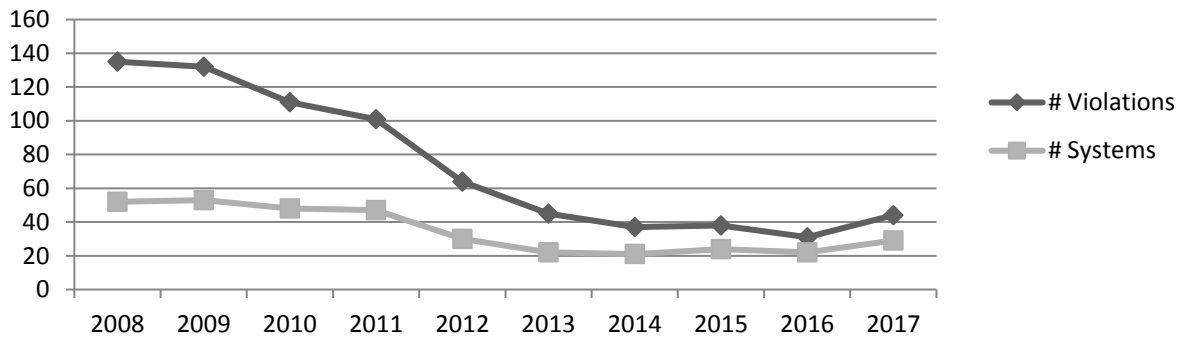
This listing is separate from other Inorganic Contaminants because only Community and Non-transient, non-community systems monitor for other inorganic contaminants, while ALL public water systems monitor for Nitrate-Nitrite.

The number of nitrate-nitrite Maximum Contaminant Level (MCL) violations increased by one and the number of monitoring violations decreased from the previous year.

Violation	Number of Violations	Number of Systems	% of Systems with Violations
MCL – 10 mg/l	44	29	2.2%
Monitoring	13	12	0.9%

Nitrate-nitrite violations are considered acute violations. Immediate adverse health effects can be experienced when nitrate is consumed by the vulnerable population of pregnant women, infants under six months of age, and nursing mothers. The system is significantly out of compliance when it receives one violation. A system is issued an Administrative Order to correct a nitrate contamination problem if two acute nitrate-nitrite violations are issued within a consecutive three quarter period.

Acute Nitrate MCL Violations



Administrative Orders Issued

The Public Water System Program issues an administrative order 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 administrative order is issued, MCL violations continue to be issued, but no other formal enforcement is initiated while the administrative order for violating that particular maximum contaminant level is in effect. Failure to comply with the terms of an administrative order can result in action by the Department to revoke the system’s permit to operate.

	Total Coliform Monitoring	Nitrate	Arsenic	DBP
Number of Orders	1	7	2	1
Population Affected	35	642	724	2494

Field Services and Training (FS&T) Section encompasses four separate but related areas of responsibility: 1) field services (inspections, operator assistance, etc.), 2) training, 3) capacity development, and 4) water system security. FS&T staff include a supervisor, eight field representatives, a training coordinator, a capacity development coordinator, and a staff assistant. 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 during emergency situations and help public water systems to achieve or maintain adequate technical, financial, and managerial capacity. There are eight field areas with locations in North Platte, Grand Island, Norfolk, Blair, Nelson, Chadron and Lincoln to provide close contact and timely assistance to Nebraska's public water systems. The Norfolk office serves two field areas. Both agencies' field offices will remain at their current locations, but under the agreement, both agencies' field office staff who are involved with wastewater and drinking water programs will be coordinating their programs.

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) public water systems. A sanitary survey is an on-site review of the water source, facilities, equipment, operation and maintenance of a public water system for the purpose of evaluating the system's adequacy and ability to reliably produce and distribute safe drinking water within the confines of regulatory requirements. A few of the items for which field personnel check are the presence of a properly licensed water operator in responsible charge, an emergency plan, and a cross-connection control program. When deficiencies are found, the system is notified of the needed improvements.

When public water systems have a confirmed presence of coliform bacteria, the Revised Total Coliform Rule requires that either a Level 1 or Level 2 assessment of the system be conducted. An assessment is an evaluation to identify the possible presence of sanitary defects, defects in coliform monitoring practices, and (when possible) 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 only total coliform in the public water system. The public water system is responsible for completing the Level 1 assessment, and submitting its findings to the Department for review. Field staff are responsible for completing the review of Level 1 assessments.

Level 2 assessments are triggered by either multiple Level 1 triggers within a running 12 month period, or by the confirmed presence of *E. coli* in the system. The Level 2 assessment provides a much more detailed evaluation of the public water system. Similar in many aspects to a sanitary survey, Level 2 assessments are conducted by Field Staff.

There are no new or pending assessments as of October 1, 2018.

The Department received 31 emergency calls in 2017. The circumstances prompting these calls included positive coliform samples and pressure losses due to main breaks. Other emergency calls not related to public water include swimming pool accidents, fuel spills, fertilizer spills, wastewater releases, etc.

In 2017, FS&T program personnel conducted 11 water operator training courses, Grades I through IV, with a total of 185 attendees. An additional 14 persons 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), 9 courses were offered with a total of 90 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 licenses issued following examination at each grade level during 2017:

Grade	Examinations	Passing	Number of Licenses Issued
I	3	3	2
II	29	17	11
III	41	27	23
IV	171	141	118
V	51	49	41
VI	102	91	64

Numerous training events with partners have been held to train public boards and water operators. Please refer to the 2017 Public Water Supply annual report at: http://dhhs.ne.gov/publichealth/Pages/enh_pwsindex.aspx.

In July 2018, DHHS staff responsible for well water contractors and well construction standards also were moved to the NDEQ offices under a new Memorandum of Understanding. Three field staff are working throughout the state and two Lincoln positions are in the Groundwater Section of the Water Quality Division. This program ensures that water wells are installed properly and that well standards maintained.