STATE OF NORTH DAKOTA

CAPACITY DEVELOPMENT REPORT TO THE GOVERNOR

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REPORT PURPOSE

The North Dakota Department of Environmental Quality administers the federal Safe Drinking Water Act (SDWA) and the Drinking Water State Revolving Loan Fund (DWSRF) Program in North Dakota. Section 1420 (c)(3) of the SDWA requires that the department must report the effectiveness of its capacity development program to the governor every three years. Capacity refers to a water system's technical, managerial, and financial capability to maintain SDWA compliance. Failure by the department to provide such a report will result in a 20 percent (20%) withholding of subsequent fiscal year federal grant funds for the DWSRF Program.

INTRODUCTION

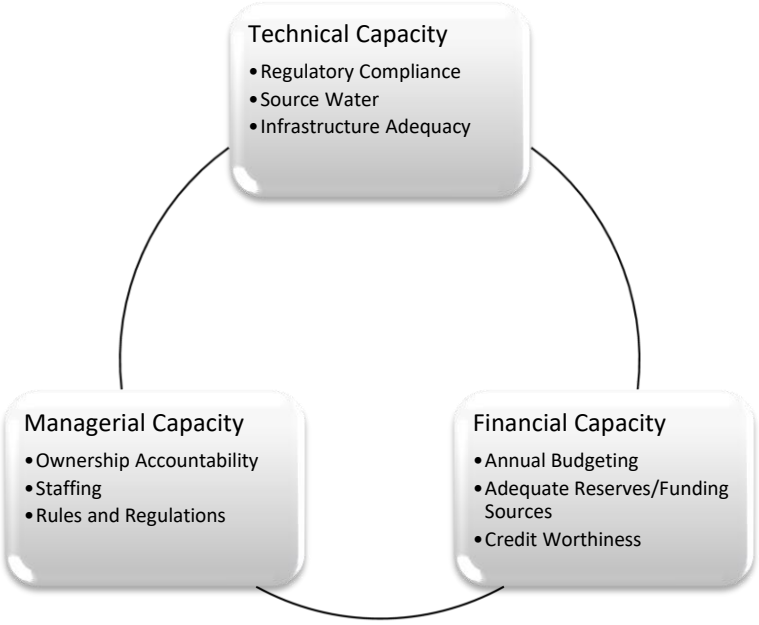
The 1996 Amendments to the SDWA acknowledged that a capable water system is better positioned to consistently comply with applicable standards and provide safe and reliable water service. Congress recognized that protection of the public's water supply requires ongoing compliance with the operation and maintenance of public water system (PWS) facilities. The term "capacity development" was used to describe capability. The fundamentals of capacity are to: (1) protect public health by ensuring consistent compliance with drinking water standards; (2) enhance performance beyond that of compliance through measures that bring about efficiency, effectiveness, and service excellence; and (3) promote continuous improvement through monitoring, assessment, and strategic planning.

Capacity has three components: technical, managerial, and financial (Figure 1). Adequate capacity in all three areas is necessary for a system to have "capacity."

Technical capacity refers to the physical infrastructure of the water system including, but not limited to, the adequacy of source water, infrastructure adequacy (source, treatment, storage, and distribution), and the ability of system personnel to implement the proper technical knowledge. *Managerial capacity* includes ownership accountability, adequate staffing and organization, and an understanding of the rules and regulations. *Financial capacity* refers to the financial resources of the water system including, but not limited to, revenue sufficiency, credit worthiness, and fiscal management and controls.

Section 1420 of the SDWA requires that states develop and implement a strategy to assist PWSs in acquiring and maintaining technical, managerial, and financial capacity.

Figure 1
Water System Capacity



OBJECTIVES OF NORTH DAKOTA'S CAPACITY DEVELOPMENT STRATEGY

The capacity development strategy has two separate programs--one for new systems and one for existing systems. Even though there are two programs, the underlying objectives of both are the same. The major objectives of North Dakota's Capacity Development Strategy are:

- Prioritization of systems most in need
- Assessment of system capacity
- Developing programs to assist systems with SDWA compliance
- Encouraging partnering between systems
- Measuring success

New Systems Program

All new North Dakota community water systems (CWSs) and non-transient non-community water systems (NTNCWSs) are required to demonstrate technical, managerial, and financial capability (capacity) prior to commencing operation. CWSs are PWSs that serve year-round residents such as municipalities, rural water systems, subdivisions, and mobile home parks. NTNCWSs are PWSs that serve the same people for a minimum of six months per year (e.g., rural schools, power plants and industrial parks). New system guidelines are outlined in the *New Water System Capacity Assessment Manual.* North Dakota's new system strategy was approved by the U.S. Environmental Protection Agency (EPA) in September 1999. The

department was granted the authority to ensure new system capacity under North Dakota Century Code (NDCC) Chapter 61-28.1, Safe Drinking Water Act, by the 55th Legislative Assembly in 1997. The department provided to EPA the North Dakota Attorney General's written opinion certifying the department's authority to ensure all new CWSs/NTNCWSs commencing operation after October 1, 1999 demonstrate capacity with respect to SDWA regulations or regulations likely to be in effect on the date operation commences.

Pursuant to NDCC 61-28.1, the department adopted North Dakota Administrative Code (NDAC) Article 33.1-17, Public Water Supply Systems. These regulations, originally adopted in 1977 and last amended in 2017, provide a means to implement a capacity assurance program. Based on such authority, proposed new PWSs must provide a number of assurances as part of the plans and specification approval process.

The department requires: (1) plans and specifications be submitted for review and approval prior to construction; and (2) operation not commence until a letter of approval is issued. These primary control points allow the department to ensure the capacity of new systems prior to their development. To obtain a letter of approval, the PWS must provide:

- A new water system application
- An operation plan that includes a technical, managerial, and financial plan
- Plans and specifications
- A construction schedule
- Sample results for each water source
- A notice of completion
- An operation and maintenance manual (if deemed necessary by the department)

Existing Systems Program

The *North Dakota Existing Water System Capacity Strategy* details the steps taken to implement and maintain a capacity program. This strategy aims to help all North Dakota PWSs acquire and maintain capacity. The North Dakota strategy was originally approved by EPA and implemented prior to August 1, 2000. The SDWA required states to consider each of five programmatic elements in its capacity development. America's Water Infrastructure Act of 2018 amended these requirements to add a sixth element. North Dakota's revised strategy to incorporate the sixth element was approved by EPA on January 19, 2023. The department included all six elements in its existing water system capacity document and believes that together they constitute an effective strategy.

- Element A: Methods or criteria used to prioritize systems in need of technical, managerial and financial assistance
- Element B: Factors encouraging or impairing capacity development
- Element C: Description of how states will use the authority and resources of the SDWA
- Element D: Establishment of a baseline and measurement of improvements
- Element E: Identification of stakeholders

- Element F: Description of how states will encourage development and assist operators with implementing asset management plans

Factors encouraging and impairing capacity remain the same. Enhancements include federal funding, Division of Municipal Facilities (DMF) administration, state primacy and stakeholder involvement.

The DMF uses pertinent existing programs as a baseline to identify PWSs that lack capacity and are in danger of becoming a compliance problem. The point system developed for the existing capacity strategy utilizes SDWA compliance data, operator certification deficiencies and inspection reports, DWSRF covenants, and asset management plans. PWSs accumulating 10 points or more and having the greatest impact on public health are prioritized beginning with the highest number. PWSs with a history of significant noncompliance (SNC) automatically receive 10 points, making them candidates for immediate assistance.

ACCOMPLISHMENTS

Several tools are being utilized to implement the capacity development strategy. These tools, which are discussed below, include tracking new water systems/new operators, financial and managerial planning, technical assistance, water rate studies, funding, and operator training and certification. The number of systems that received on-site technical assistance were 76 in 2021, 85 in 2022, and 88 in 2023 for a total of 249.

Tracking New Water Systems/New Operators

The DMF tracks new water systems through individuals contacting the DMF, local/district health units, existing PWSs, financial assistance contracts, engineering firms and other state agencies. The department has determined that the present method of identifying and contacting proposed systems is effective and will continue using it.

Currently, the number of new CWSs/NTNCWSs added to the North Dakota PWS inventory has been on the decrease, especially in the western part of the state, due to the large drop in oil activity. New developments (subdivisions, trailer courts, industries, etc.) generally occur adjacent to or within the service areas of existing PWSs and are typically consolidated with or provided bulk water service by the existing PWS. A total of seven requests for new water system capacity information have been received since July 1, 2017.

Financial and Managerial Planning

Financial and managerial training is a collaborative effort between the North Dakota Rural Water Systems Association (NDRWSA), Midwest Assistance Program (MAP), Environmental Finance Center, North Dakota Department of Environmental Quality, and the North Dakota Public Finance Authority (PFA). The intent of the financial and managerial training is to provide participants with a solid understanding of the key components of financial planning including the following:

- Elements of an effective budget
- Capital improvement planning and financing
- Rate structure options for the small water system
- How to calculate capacity fees
- Process for raising fees
- Asset management
- Demonstration of financial tools

Technical Assistance

Helping water systems develop and maintain capacity is the backbone of the capacity strategy. Many water systems throughout North Dakota have increased their capacity through the technical assistance program. This program provides "targeted" assistance by focusing on specific issues or problem areas. The department collaborates with the same organizations for technical assistance as with financial and managerial planning.

Asset Management

North Dakota will (1) encourage development by public water systems of asset management plans that include best practices for asset management and (2) assist, including through the provision of technical assistance, public water systems in training operators or other relevant and appropriate persons in implementing such asset management plans. The asset management description includes how the state will use the following five core questions.

1. What is the current state of the utility's assets?
2. What is the utility's required "sustainable" level-of-service?
3. Which assets are critical to sustained performance?
4. What is the utility's best "minimum life-cycle cost" capital improvement plan and operations and maintenance strategies?
5. What is the utility's best long-term financing strategy?

Many PWSs have inaccurate or incomplete records of their assets or rely on the memory of their operators for the location of assets. As a result, assets may not be maintained properly or may even be difficult to locate during an emergency. Preparing an asset inventory is the primary step to addressing this question. The Department has and will continue to offer training to PWSs on how to prepare an asset inventory. Training may be delivered by in-house staff or contracted out to technical assistance providers. Training may be held independently or in conjunction with operator certification training or conferences. The Department will also develop and maintain a webpage that will guide the user to resources available online through a variety of sources.

Water Rate Studies

Analysis of the data collected during capacity evaluation revealed many water systems are weak in financial capacity. Assistance has been provided to help water systems evaluate their

budgets and water rates. Each utility has unique needs whether they have declining populations, operating deficits, eroding infrastructure, limited funding or complex SDWA requirements. Since many small water systems are facing rate deficiencies, the technical assistance provider identifies options for rate increases or reduction of expenses or rate restructuring. The water system is provided with various methods for calculating base rate, capacity fees and connection fees. Assistance is also provided for presenting rate increase information to customers at public hearings and the governing board.

Funding

The North Dakota DWSRF provides low-interest loans to CWSs in the state to upgrade existing or construct new drinking water facilities, as was authorized by the 1996 Amendments to the SDWA. The DWSRF is jointly managed by the department and the PFA. The department receives the federal capitalization grants and is responsible for the technical and overall administrative functions of the program. The PFA, under agreement with the department, serves as the financial agent and is responsible for reviewing and issuing bonds, reviewing the financial capability of loan applicants, investing program proceeds, handling loan repayments and conducting other necessary financial functions.

The grant funds and bond proceeds are deposited into the DWSRF and made available as low-interest loans for eligible PWS projects. As systems pay back their loans, the interest and principal payments, along with available investment earnings, are used to retire the state bonds. They are a source of funds for additional projects as well. This revolving feature of the DWSRF Program will ensure that North Dakota has funds for needed projects into the future.

The present loan interest rate for eligible PWSs that qualify for tax-exempt financing is 1.5 percent. The present loan interest rate for eligible PWSs that do not qualify for tax-exempt financing is 2.5 percent. All loans are subject to a 0.5 percent administration fee. The maximum repayment period for DWSRF loans under the SDWA is 30 years.

In 2021, Congress passed the Infrastructure Investment and Jobs Act (IIJA). This bill provides additional funding to the DWSRF over the course of five years (2022-2026). Three separate grants are available: (1) any DWSRF-eligible project (i.e. supplemental), (2) projects that address emerging contaminants, and (3) projects to replace lead service lines. North Dakota has been awarded all three grants for 2022. All funds from the supplemental and emerging contaminants grants have been obligated to projects. Funds from the lead grant are still available.

Operator Training and Certification

The department contracts with the North Dakota State Plumbing Board, local/district health units, and technical assistance providers such as the NDRWSA and MAP. Contracts with the State Plumbing Board and health units provide continued support to the public water supply and inspection programs. Technical assistance providers offer operator certification

training. In addition, NDRWSA, MAP and the North Dakota Section of the American Water Works Association (NDAWWA) will continue to provide additional training events.

Operators have opportunities to attend annual conferences, water treatment and distribution workshops, DMF wastewater treatment and collection training sessions, field pH certification workshops, NDAWWA workshops, MAP trainings, NDRWSA training sessions and annual exposition. In 2021 564 operators attended training, 830 in 2022 and 654 in 2023. The trainings addressed operator certification, exam training, water treatment training, financial training, distribution training, operations & maintenance training, department regulatory training and GIS/GPS training.

CHALLENGES

The experience, training and background of water system managers, operators and board members are directly linked to the capacity of a water system. Water systems led by a capable, experienced manager and supported by a competent and progressive governing board tend to have high capacity in all areas.

Despite the maturing of North Dakota's Capacity Development Program, there are still some significant areas of weakness in rural and oil-impacted areas of North Dakota. These areas of weakness derive from all three aspects of capacity.

The following are the department-identified areas of capacity weakness:

1. Aging workforce. There have been several published reports regarding the aging workforce in the water industry and the lack of qualified professionals to succeed those retiring.

2. Salaries. Due to the competition in the marketplace, small water systems typically do not offer enough money to attract experienced operators and managers. They will usually find someone less qualified who will work for a lower wage.

3. Stagnant or declining pool of new professionals. Educational programs that promote the water industry and adequately prepare new professionals are limited in North Dakota. The one program that is available in the state struggles to attract students. Many operators and managers learn on the job and start at the entry level with little or no formal education or preparation. Some water systems are functioning without a certified water operator or continue to use a contract operator that provides minimal local service.

4. Board members without utility backgrounds. Some communities struggle to find enough individuals to serve on a board. Many board members lack a fundamental understanding of water system operations, finance and management.

5. PWS ownership. Increasingly, public water systems are owned and/or operated by out-of-state entities. Such entities tend to be unresponsive or slow to address capacity issues.

6. Mail and package delivery. Mail and package delivery to public water systems has been problematic. Alternate, costlier delivery services are becoming increasingly necessary to ensure that correspondence and water sampling kits can be delivered within acceptable timeframes.

7. Laboratory impacts. Changes in EPA methodology, which requires new laboratory certifications and instrumentations, have created challenges with the timely analysis of samples. Compliance has not been affected.

Funding Gap for State Drinking Water Programs

The Safe Drinking Water Act (SDWA) was passed in 1974 and subsequently amended in 1986 and 1996 to ensure that drinking water systems across the United States deliver safe water to their customers and ultimately ensure an ever-increasing level of public health protection. Forty-nine states (excluding Wyoming) and five territories plus the Navajo Nation, for a total of 55 programs, have enforcement authority for the SDWA and have established drinking water programs to provide oversight of the approximately 146,000 drinking water systems currently operating. Drinking water programs are responsible for ensuring that drinking water systems maintain compliance with the regulations. The core of states' work is upholding the principles of the SDWA, which includes important preventive work to protect public health. This preventive work ensures that drinking water systems comply with the regulations and are delivering safe drinking water to customers. The preventive measures for maintaining compliance include ensuring the systems have the appropriate technical, financial, and management skills and knowledge for the long-term, as well as being prepared for, and recovering from, emergencies.

A 2019 Analysis of State Drinking Water Programs' Resource Needs (2020 report using 2019 data) on the necessary resources for states and territories to run their drinking water programs and protect public health was recently published by the Association of State Drinking Water Administrators. This report updates the previous 2011 analysis, and the updated analysis found the funding gap for 2020 to be $375 million, increasing to $469 million in 2029. The funding gap has increased by $197 million since the previous analysis in 2011 due to increasing demands on state programs to address unregulated contaminants such as per- and polyfluoroalkyl substances (PFAS) and harmful algal blooms (HABs), and to respond to the COVID-19 pandemic. The federal share of program funding has decreased by 8% since the previous analysis in 2011. The report also has a short summary of the estimated/predicted impacts of the COVID-19 pandemic on state revenues on page 42, as changes in state revenues will become a bigger issue.

https://www.asdwa.org/wp-content/uploads/2020/07/2019-Analysis-of-State-Drinking-Water-Programs-Resources-and-Needs.pdf

THE WAY FORWARD

As the program grows and evolves, there have been many lessons learned. These lessons have resulted in a program that continues to improve and better serve the needs of North Dakota's water systems.

While all systems are unique, most water systems in North Dakota still need assistance with some aspects of capacity. Full-cost pricing is required for a water system to fully function as it should. Operation and maintenance activities, such as valve exercising and routine flushing, are also important to extending the life of the infrastructure.

Proper management of infrastructure assets is one of the critical concepts for a sustainable and resilient water system. Although the concept of managing assets is relatively simple, many water utilities do not understand how to design and implement an effective asset management program. Managing a utility effectively requires a proactive approach to managing infrastructure assets. The primary objective of asset management is to manage system assets in a way that meets long-term service requirements, reliability, and cost-effectiveness. Future technical assistance efforts will continue to include asset management training and assistance.

The department will continue to measure capacity improvements by monitoring new system activity and by using operator certification compliance reports, PWS inspection reports and the Enforcement Tracking Tool (ETT), which tracks each system's compliance with all SDWA rules. The department encourages a collaborative effort with stakeholders to promote safe drinking water, public health, and quality of life.

Stakeholder involvement continues to be a key element in program success. DMF staff and the North Dakota Water and Pollution Control Conference (NDWPCC) offer annual operator training sessions to help PWSs achieve and maintain capacity. The NDWPCC also jointly sponsors an annual conference with the North Dakota Water Environment Association, NDAWWA, the North American Storm Water and Erosion Control Association, and the North Dakota Chapter of the American Public Works Association. The NDRWSA, MAP, and the North Dakota Environmental Health Association also provide annual training sessions, conferences, and expositions.

The department continues to contract with the North Dakota State Plumbing Board, local/district health units, and technical assistance providers such as MAP and NDRWSA. These contracts provide support to the public water supply, facility inspections, sanitary survey follow-up visits, capacity development and operator certification programs. The department will continue to grant follow-up contracts for these assistance programs to ensure the safety of North Dakota's drinking water.

To further promote stakeholder involvement, the *Capacity Development Report to the Governor* and the *FY2023 Capacity Development Program Report* will be published in the *Official Bulletin*, the official publication of the NDWPCC. The *Capacity Development Report to the Governor*, *New Water System Capacity Assessment Manual* and *North Dakota Existing Water System Capacity Strategy* are available on the department website at: https://deq.nd.gov/MF/.

All reporting requirements have been met for the fiscal years 2020-2023. Contracts for technical assistance have been renewed, and a proposal for follow-up assistance in 2024 is anticipated.

The department will continue to monitor existing systems, while providing consultation, training, and financial recommendations. Implementation of new SDWA regulations affecting capacity will be evaluated as needed. Any modifications resulting from these regulations will be detailed in future reports. Currently, 99.6 percent of all PWSs meet all health-based drinking water standards by utilizing treatment and source water protection. This is above the EPA goal of 90 percent. In addition, 100 percent of all PWSs have undergone a sanitary survey in the past three years, well above the 75 percent target.

"Water system capacity is the ability to plan for, achieve and maintain compliance with applicable drinking water standards. Capacity has three components: technical, managerial, and financial. Adequate capacity in all three areas is necessary for a system to have capacity."