

**STATE OF NORTH DAKOTA**

**CAPACITY DEVELOPMENT  
REPORT TO THE GOVERNOR**



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**TABLE OF CONTENTS**

REPORT PURPOSE ..... 1

INTRODUCTION ..... 1

Objectives of North Dakota’s Development Strategy..... 2

ACCOMPLISHMENTS ..... 3

Tracking New Water Systems/New Operators..... 3

Technical Assistance ..... 4

Financial and Managerial Planning..... 4

Water Rate Studies ..... 4

Existing Systems Program ..... 4

Funding ..... 5

Operator Training and Certification..... 5

CHALLENGES ..... 6

THE WAY FORWARD ..... 7

## **REPORT PURPOSE**

The North Dakota Department of Health (the department) administers the federal Safe Drinking Water Act (SDWA) in North Dakota. The department also administers a Drinking Water State Revolving Loan Fund (DWSRF) program, which was authorized by the 1996 Amendments to the SDWA. Through the DWSRF, low-interest loans are provided to community water systems in the state to upgrade existing or construct new drinking water facilities.

The SDWA, section 1420 (c)(3), requires that, no later than two years after the date on which a State first adopts a capacity development strategy and every three years thereafter, the department must report to the Governor on the effectiveness of its capacity development program. Capacity refers to a water system's technical, financial and managerial capability to maintain SDWA compliance. Failure by the department to provide such a report will result in a 20 percent withholding of subsequent fiscal year federal grant funds for the DWSRF program.

## **INTRODUCTION**

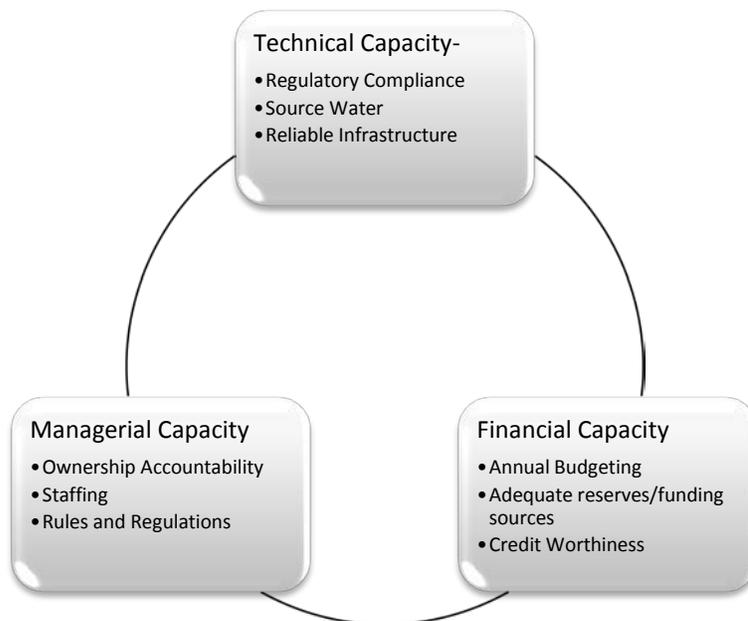
In the 1996 Amendments to the SDWA, it was conveyed that a capable water system is better positioned to consistently comply with applicable standards and provide safe and reliable water service. It was recognized by Congress that protection of the public's water supply requires ongoing compliance with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

Capacity has three components: technical, managerial and financial as shown in 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, staffing and organization, and effective external linkages. *Financial capacity* refers to the financial resources of the water system including, but not limited to, the revenue sufficiency, credit worthiness, and fiscal management and controls.

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

**Figure 1**  
**Water System Capacity**



### **Objectives of North Dakota’s Capacity Development Strategy**

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 public water systems (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* and the *New System Capacity Assurance Plan*. 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 55<sup>th</sup> Legislative Assembly in 1997. The department provided to EPA the North Dakota’s 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 33-17, Public Water Supply Systems. These regulations, originally adopted in 1977 and last amended in 2011, 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 that (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)

The major objectives of North Dakota's Capacity Development Strategy are:

1. Prioritization of systems most in need.
2. Assessment of system capacity.
3. Developing programs to assist systems with SDWA compliance.
4. Encouraging partnering between systems.
5. Measuring success.

## **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, technical assistance, existing systems program, funding and operator training.

### **Tracking New Water Systems/New Operators**

The Division of Municipal Facilities (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 works and will continue using it.

The number of new CWSs/NTNCWSs being added to the North Dakota PWS inventory has been increasing with additions mainly on the western side of the state due to the large increase 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. The department expects this new trend of increasing systems to continue. A total of 101 requests for new water system capacity information have been received since July 1, 2011.

### **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. Some of the highlights of technical assistance are described below.

### **Financial and Managerial Planning**

Financial and managerial training is a collaborative effort between North Dakota Rural Water Systems Association (NDRWSA), University of North Carolina Environmental Finance Center, North Dakota Department of Health and 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

### **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 in presenting the information supporting a rate increase to customers at public hearings and the governing board.

### **Existing Systems Program**

The *North Dakota Existing Water System Capacity Strategy* details the steps taken to implement and maintain a capacity program aimed at helping all North Dakota PWSs acquire and maintain capacity. The North Dakota strategy was 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. The department included all five 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: The factors encouraging or impairing capacity development.
- Element C: Description of how states will use the authority and resources of the SDWA.
- Element D: Establish a baseline and measure improvements.
- Element E: Identify stakeholders.

Factors encouraging and impairing capacity remain the same. Enhancements include federal funding, 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, inspection reports, DWSRF financial audits and laboratory past-due accounts to evaluate capacity. 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.

### **Funding**

The North Dakota 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 the preparation and issuance of bonds, reviewing the financial capability of loan applicants, investing program proceeds, handling loan repayments and 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 2.0 percent. The present loan interest rate for eligible PWSs that do not qualify for tax-exempt financing is 3.0 percent. All loans are subject to a 0.5 percent administration fee. The maximum repayment period for DWSRF loans under the SDWA is 20 years.

### **Operator Training and Certification**

The Department continues to contract with the North Dakota State Plumbing Board, local/district health units, and technical assistance providers such as the NDRWSA and Midwest Assistance Program (MAP). Contracts with the State Plumbing Board and health units provide continued support to the public water supply and inspection programs. Contracts with technical assistance providers provide financial management reports, renewed projects for capacity development, sanitary survey follow-up visits, operator certification and compliance monitoring. In addition, the NDRWSA and 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, wastewater treatment and collection training sessions, field pH certification workshops, American Water Works Association (AWWA) workshops, and NDRWSA training sessions and annual Expo. In 2014, 557 operators attended the NDRWSA sessions which

addressed: operator certification, exam training, water treatment training, financial training, distribution training, hydrants and valves, control valves, water loss, pressure management and the Rural Water Expo.

## **CHALLENGES**

The experience, training and background of water system managers, operators and board members are directly linked to the capacity of a water system and are likely to be the greatest single factor. 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 that will work for a lower wage.
3. **Declining Pool of New Professionals.** Educational programs that promote the water industry and adequately prepare new professionals seem to be lacking in North Dakota. 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 are fortunate to find enough individuals to serve on a board. Many board members lack a fundamental understanding of water system operations, finance and management.
5. **Public Water System Ownership.** Increasingly, public water systems are owned and/or operated by out-of-state entities. Such entities are unresponsive to or slow to address capacity issues.
6. **Mail and Package Delivery in Oil- Impacted Areas.** Mail and package delivery to public water systems in oil impacted areas 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. The number of public water systems in North Dakota has significantly increased since 2010. Correspondingly, there has been a significant increase in the number of drinking water sample submitted for analysis to the department's Division of Laboratory Services. This impacts the division's ability to provide timely testing results.
8. Information Management Systems. Information management systems used to track and assess capacity information are aged, lack desired functionality, and, in some cases, may no longer be supported. This impacts the department's ability to efficiently respond to capacity issues and needs.

## **THE WAY FORWARD**

As the program grows and evolves, there have been many lessons learned which 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, the vast majority of water systems in North Dakota still need assistance with all aspects of capacity. Full cost pricing is required in order 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 critical. Although the concept of managing assets is relatively simple, many water utilities don't 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 reliably and cost-effectively. Future technical assistance efforts will include asset management training and assistance.

The department will continue to measure capacity improvements by using the *Quarterly Violations* and *SNC Summary*, the operator certification compliance report, PWS inspection reports and by monitoring new system activity. 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, the NDAWWA, the North American Stormwater and Erosion Control Association and the North Dakota Chapter of the American Public Works Association. The NDRWSA 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 anticipates follow-up contracts for these assistance programs to ensure the safety of North Dakota's drinking water.

To further promote stakeholder involvement, a copy of this report and the FY14 Capacity Development Program Report will be published in the *Official Bulletin*, the official publication of the NDWPCC. The Governor's Report, along with the *New Water System Capacity Assessment Manual* and the *North Dakota Existing Water System Capacity Strategy*, are available on the department web site at: <http://www.ndhealth.gov/MF/>.

All reporting requirements have been met for fiscal years 2011-2014. Contracts for technical assistance have been renewed, and a proposal for follow-up assistance in FY15 is anticipated.

The department will continue to monitor existing systems, while providing consultation, training and financial recommendations. Implementation of new SDWA regulations that affect capacity will be evaluated as needed. Any modifications resulting from these regulations will be detailed in future reports.

*"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."*