Michigan Department of Environment, Great Lakes, and Energy

Drinking Water and Environmental Health Division

CAPACITY DEVELOPMENT REPORT TO THE GOVERNOR 2023

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List of Acronyms

ACA	Administrative Consent Agreement
ACO	Administrative Consent Order
Act 399	Michigan Safe Drinking Water Act, 1976 PA 399, as amended
AMP	Asset Management Plan
ASDWA	Association of State Drinking Water Administrators
CY	Calendar Year
CEC	Continuing Education Credit
CDP	Capacity Development Program
CWS	Community Water Supply
DAG	Michigan Department of Attorney General
DWEHD	Drinking Water and Environmental Health Division
DWSRF	Drinking Water State Revolving Fund
EGLE	Michigan Department of Environment, Great Lakes, and Energy
EFCN	Environmental Finance Center Network
ERP	Emergency Response Plan
FY	Fiscal Year
LHD	Local Health Department
MiEHDWIS	Michigan Environmental Health and Drinking Water Information System
MRWA	Michigan Rural Water Association
NCWS	Noncommunity Water Supply
NTNCWS	Nontransient Noncommunity Water Supply
NWSU	Noncommunity Water Supplies Unit
OTCU	Operator Training and Certification Unit
PFAS	Per- and Polyfluoroalkyl Substances
PWS	Public Water Supply
RCAP	Rural Community Assistance Program
SDWA	Federal Safe Drinking Water Act
SME	Subject Matter Expert
SWIPP	Surface Water Intake Protection Program
SWPP	Source Water Protection Program
TA	Technical Assistance
TMF	Technical, Managerial, and Financial
TNCWS	Transient Noncommunity Water Supplies
USEPA	United States Environmental Protection Agency
WHPP	Wellhead Protection Program

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Executive Summary

The 1996 Amendments to the federal Safe Drinking Water Act (SDWA) added provisions for each state to develop a Capacity Development Program (CDP). The objective of the CDP is to enhance public health protection by helping water supplies develop and maintain the capacity they need to deliver a safe, reliable, and adequate supply of drinking water to all customers. Capacity has three components:

- Technical – Physical infrastructure and operational ability
- Managerial – Personnel expertise and institutional and administrative capabilities
- Financial – Monetary resources

The purpose of this document is to report to Governor Gretchen Whitmer the effectiveness of Michigan's capacity development strategy as managed by the Michigan Department of Environment, Great Lakes, and Energy (EGLE) for fiscal years (FY) 2020-2022. Michigan risks losing 20 percent of the annual Drinking Water State Revolving Fund (DWSRF) allotment if it does not submit a report to its governor by September 30 of every third year and does not make the report available to the public under Section 1420(c)(3) of the SDWA.

Many capacity development-related activities have been conducted and incorporated into Michigan's drinking water program since its inception in 1913 and later integrated into the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399). In addition to establishing health-based standards, Act 399 also includes requirements for water well isolation, system reliability, operator certification, standards of construction, system planning, and asset management. As a result, the strategy to help supplies maintain technical, managerial, and financial (TMF) capacity is a reflection of our long-standing tradition of providing technical assistance (TA).

As a result of an effective strategy, new public water supplies (PWS) are demonstrating adequate capacity before they begin serving water to the public, and existing supplies are continuing to enhance and maintain capacity. A strong emphasis on assistance has moved supplies toward enhanced capacity.

Supplies with adequate TMF capacity typically maintain high rates of compliance with health-based standards. Additionally, supplies use a multibarrier approach to provide safe water to the public. A multibarrier approach begins with securing a safe source, such as groundwater from a confined aquifer, and then protecting that source from contamination. The multibarrier approach continues with proper construction and installation of water wells, pumps, treatment plants, and distribution systems. Finally, well-trained, certified operators perform proper oversight (operation and maintenance)

and conduct routine monitoring to ensure that these multiple barriers continue to function.

Supplies are also taking advantage of state of Michigan programs to enhance their TMF capacity. These programs help supplies stay in compliance with existing requirements, prepare supplies to comply with upcoming requirements, and help operators and local officials better manage their supplies. These programs include:

- DWSRF: The 1996 amendments to the SDWA provide low-interest loans for repairs or enhancements to help water supplies comply with the SDWA. To date, the DWSRF has committed over $1.6 billion in low-interest loans for 400 projects to construct, upgrade, and replace infrastructure.

- Relationship with EGLE district staff: Water system operators maintain a relationship with district staff who are the primary contact with water supplies for capacity development. A prime objective of the district staff is to provide support from the construction permit process through regulatory oversight, and continual assessment and assistance for the duration of a supply's operation.

- Source Water Protection: Supplies are taking steps to protect their drinking water sources and are increasing their awareness of potential sources of contamination and vulnerabilities with focus on emerging contaminants.

- Operator Certification and Training: Act 399 requires a certified operator to be available at all community and nontransient noncommunity water supplies (NTNCWS). These operators must maintain their certification by earning continuing education credits (CEC). As a result, new training courses are developed based on operator feedback, EGLE's Drinking Water and Environmental Health Division (DWEHD) staff input, and in response to new regulations with which water supplies must comply.

- Asset Management: In an effort to ensure water supplies are effectively planning for long-term needs, new rules were promulgated requiring community water supplies (CWS) serving more than 1,000 people to implement an asset management plan (AMP) by January 1, 2018. Plans must include an inventory of assets, level of service goals, capital improvement plans identifying five- and 20-year needs, and other information. In addition to the requirement, asset management is promoted to all water supplies and was a frequent training topic by both EGLE staff and TA providers.

- In FY 2021 Michigan launched the MI Clean Water Plan (https://www.michigan.gov/egle/regulatory-assistance/grants-and-financing/mi-clean-water-plan), highlighting comprehensive water infrastructure investments in Michigan's water systems. Original funding of $207 million included federal and state resources for lead service line replacement in low-income communities, AMPs, lead service line identification, and contamination risk reduction.

- In FY 2020 Michigan promulgated new per- and polyfluoroalkyl substances (PFAS) drinking water rules for CWSs and NTNCWSs. EGLE staff offered training to CWSs and NTNCWSs on these rules to help ensure water supplies met the additional monitoring and reporting requirements and remain in compliance.

The continuing endeavors of water supplies to maintain TMF capacity will help them meet the challenges of operating a PWS. This report is available on EGLE's Web site at http://www.Michigan.gov/DrinkingWater and to the public in paper format, on request.

1.0 Introduction

This report examines the effectiveness of the strategy, progress toward improving capacity, and tools used to help improve capacity.

1.1 Capacity Development Program (CDP) Overview

Water system capacity is the ability to plan for, achieve, and maintain compliance with drinking water requirements. Capacity has three components:

- Technical – Physical infrastructure and operational ability.
- Managerial – Personnel expertise and institutional and administrative capabilities.
- Financial – Monetary resources.

Michigan's capacity development strategy is to help CWSs and NTNCWSs achieve and maintain TMF capacity by adding a capacity assessment component to the Public Water System Supervision Program. The strategy is an ongoing process to:

- Ensure all new CWSs and NTNCWSs have capacity before beginning operations.
- Assess existing supplies' capacity or "capability."
- Prioritize supplies most in need of assistance.
- Determine the best means of assistance.
- Provide assistance or refer supplies to other TA providers.
- Measure improvements in TMF capacity during subsequent site visits.

The CDP is implemented by the DWEHD, through amendments to Act 399; by application of CDP policies and guidance documents; and through cooperation and/or partnerships with other agencies.

The CDP focuses on both new supplies and existing supplies. The new supplies program ensures supplies have sufficient capacity prior to commencing operation, and the existing supplies program works to achieve, maintain, and enhance capacity. These two programs are detailed in two documents and were approved by the United States Environmental Protection Agency (USEPA) in 2000. During the FY 2020-2022 reporting period, the DWEHD updated the Capacity Development Strategy to include information on the state's Asset Management Requirement and Promotion activities, as well as make other updates to reflect the capacity development work the DWEHD is currently doing and plans on doing in the future. The revisions to the strategy were approved by the USEPA in early FY 2023 and will dictate the activities of the program beginning in

FY 2023. The activities outlined in this report were evaluated against the original Capacity Development Strategy that was approved in FY 2000.

1.1.1 New Supplies

New supplies must demonstrate TMF capacity before serving water to the public. The new supplies program relies on two control points: construction permits and final inspection. Generally, a construction permit is issued based on the technical capacity of the proposed supply. For CWSs, the financial and managerial capacity requirements may still be pending while the supply is under construction. Approval to commence operation is not granted until after an acceptable final inspection and approval of a financial plan and operations plan that address financial and managerial capacity.

For NTNCWSs, the DWEHD has delegated the authority to local health departments (LHD) to review, approve, and issue construction permits. When these water supplies begin the permit application process, the LHD helps them outline their financial and managerial capacity. Prior to receiving approval to commence operation, the NTNCWS must submit a financial plan and a managerial plan that includes an emergency response plan (ERP) and designation of a certified operator. During the past three years, eleven new CWSs and 39 NTNCWSs became active.

1.1.2 Existing Supplies

The *Capacity Development Strategy for Existing Public Water Systems*, dated August 1, 2000, lists the programs, tools, and/or activities to help supplies acquire and maintain capacity. The existing system strategy relies primarily on the capacity assistance component of the drinking water program, which the DWEHD has traditionally referred to as TA. Through routine system evaluations, including sanitary surveys and site visits, DWEHD staff identify which supplies need capacity assistance and prioritize assistance subject to available resources. The DWEHD will not request a financial capacity assessment of an existing water supply unless violations, deficiencies, or other factors indicate the supply lacks technical or managerial capacity. For CWSs, capacity assistance is provided through DWEHD staff or through other TA providers to help communities build TMF capacity. For NTNCWSs, the DWEHD delegated the authority to the LHDs to assess capacity and to provide assistance. If capacity assistance is not accepted or effective, Michigan practices a program of progressive enforcement.

1.2 Involved Parties

The CDP encompasses the efforts of water supplies, EGLE, TA providers, and other organizations and agencies that affect the capabilities of water supplies, including:

- EGLE, DWEHD:
  - Community Water Supply Section
  - Engineering Section
  - Operator Training and Certification Unit
  - Enforcement Staff
  - Noncommunity Water Supplies Unit
  - Field Operations Section
  - Source Water Unit
  - Emerging Contaminants Unit
- EGLE, Environmental Support Division
- EGLE, Finance Division, Water Infrastructure Funding and Financing Section
- LHDs
- Michigan Finance Authority
- TA Providers, such as:
  - Michigan Rural Water Association (MRWA)
  - Rural Community Assistance Program (RCAP)
  - United States Department of Agriculture - Rural Development and Rural Utilities Service
  - Environmental Finance Center Network (EFCN)

2.0 Effectiveness of the Capacity Development Strategy

2.1 New Supplies

New supplies must demonstrate TMF capacity before serving water to the public. As a result, they are better able to remain in compliance with health-based standards and monitoring requirements. Experience has shown that new supplies that have fulfilled capacity development requirements are more likely to maintain capacity and their ability to meet the requirements of the SDWA.

2.1.1 Community Water Supplies (CWS)

Proposed CWSs are primarily new residential developments, such as subdivisions, apartment complexes, and long-term care facilities. District staff interacts with developers and their engineering consultant to complete the capacity assessments before approval to serve water to the public is granted. Most developers who phase their projects understand that it is more cost-effective to install a system meeting CWS requirements at the beginning of the project instead of upgrading the water supply when they expand. In addition to the traditional technical assessment, these new CWSs must complete financial and managerial assessments. The financial capacity assessment

requires that the supply consider future operational costs. The managerial capacity assessment requires an operations plan, a certified operator, and a sampling site plan, as well as other plans, to ensure the supply has adequate managerial oversight and organization before commencing operation.

A supply that solely increases the number of customers without having to alter or construct water system infrastructure is not considered a new supply. However, the following existing supplies are considered new and are subject to capacity development policies:

- Supplies that did not meet the definition of a CWS at initial start-up but are designed to one day meet the definition.
- Supplies that are not currently classified as a CWS but propose to extend their distribution system to serve additional customers, thereby meeting the definition of a CWS. These supplies are usually privately-owned, residential subdivisions that were previously exempt from CWS requirements due to their small size.

A program goal is to help identify subdivisions and similar supplies where an expansion, which would reclassify the supply as a CWS, is occurring early in the expansion process. By identifying these new supplies early in their transition, staff would be better able to assist to ensure the supply is fulfilling all capacity development requirements.

2.1.2 Nontransient Noncommunity Water Supplies (NTNCWS)

An NTNCWS is a supply that serves at least 25 of the same people for at least six months a year, but not in a residential setting. Examples include schools, daycares, or businesses with their own water supply. EGLE has delegated the authority to LHDs to review, approve, and issue construction permits for NTNCWSs. When water supplies begin the permit application process, the LHD helps them outline their TMF capacity. Prior to receiving approval to commence operation, the NTNCWS must submit a TMF plan and a contingency plan and designate a certified operator.

A Transient Noncommunity Water Supply (TNCWS) that is reclassified to either a CWS or an NTNCWS is expected to go through the capacity development process as part of their reclassification.

2.2 Existing Supplies

Existing supplies are achieving and maintaining TMF capacity as demonstrated by their compliance rate, as discussed in Section 3.1, and their efforts to manage their supplies

effectively with qualified and educated staff. Compliance rates can be attributed to several factors:

- DWEHD district and central staff interaction with supplies.
- Availability of financial assistance in the form of loans and grants.
- Source water protection and water system security programs.
- Operator training and certification.
- Compliance and enforcement interaction via letters, phone calls, site visits, and administrative fines.
- Policy updates, guides, fact sheets, templates, and forms provided to staff, LHDs, and supplies.
- Promotion and maintenance of EGLE website content and YouTube videos for owners/operators on topics such as filling out forms, sampling techniques, and rule revisions.

Many of these factors will be discussed in Section 4.

3.0 Progress Toward Improving TMF Capacity

Supplies with adequate TMF capacity typically maintain high rates of compliance with health-based standards, monitoring, reporting, and other capacity requirements, which is one measure of success of the CDP. A multibarrier approach to providing safe water is more difficult to measure, but it is an integral part of ensuring water supplies have sufficient TMF capacity. Through the construction permit and sanitary survey process, district staff helps to ensure supplies obtain a safe source and continue to provide safe drinking water.

3.1 Compliance Rates

Comparing compliance data from one year to the next can be difficult because of the rapidly increasing number and complexity of rules and requirements each year. With new regulations that have had a disproportionate impact on small supplies, the number of supplies in compliance may not tell the true story of improved capacity. Small supplies, as defined under Act 399, are those serving 10,000 or fewer people.

Although small supplies, which make up a majority of the CWS inventory in Michigan, typically have higher rates of noncompliance; larger supplies serve the majority of the population and generally have lower rates of noncompliance. This means that a large percentage of the population is generally served by a water supply that is in compliance.

Table I summarizes compliance, by percentage, in Michigan with federal health-based drinking water standards and monitoring and reporting requirements compared to the goals shared with the USEPA for calendar years (CY) 2020-2022. These USEPA-generated compliance rates do not include Michigan-specific PFAS regulations that took effect during the period covered by this report.

Table I. Heath-based and monitoring and reporting compliance rates (by percent) for CWSs and NCWSs for CY 2020 – CY 2022 for federal SDWA criteria.

	Goal	***CY 2020***	***CY 2021***	***CY 2022***
Compliance with Health-Based Standards				
Percent of people served by CWSs meeting all health-based standards	95	96.5	98.5	98
Percent of NTNCWSs meeting all health-based standards	95	98.7	99	*
Percent of TNCWSs meeting all health-based standards	95	99.7	99.4	*
Compliance with Monitoring and Reporting Requirements				
Percent of people served by CWSs without significant violations[1]	95	96.9	96.9	*
Percent of CWSs without significant violations	90	93.6	94.6	*
Percent of NTNCWSs without significant violations for acute health risks[2]	95	90.2	94.3	*
Percent of NTNCWSs without significant violations for chronic health risks	90	91.1	83.5	*

* USEPA metrics not available at time of writing.

[1] Significant violations are generally defined as any major monitoring violation. A major monitoring violation, with rare exceptions, occurs when no samples were taken or no results were reported.

[2] Acute health risks mean those contaminants that have serious adverse effects on human health as a result of short-term exposure.

Based on the available data, compliance with federal health-based standards remained high during the calendar years of the reporting period. Compliance rates for monitoring and reporting were also high for most categories. Compliance with monitoring requirements is considered a measure of a water supply's managerial capacity. However, the failure to collect a sample is not necessarily a direct public health threat

because Michigan's drinking water program does not automatically assume the absence of a sample creates a public health threat due to the multibarrier approach that is taken to protect public health.

3.2 Multibarrier Approach

The multibarrier approach to providing safe drinking water begins with securing a safe source, such as a confined aquifer, and protecting that source from contamination. It continues with proper construction of water wells, pumps, treatment plants, and distribution systems. Proper oversight and monitoring by trained personnel helps provide assurance that the multiple barriers are functioning, and the integrity of the water supply is maintained.

Act 399 provides public health protection through requirements on construction of wells, surface water intakes, treatment facilities, and distribution systems. Construction permits require an engineering review and a sound basis of design that incorporates reliability and redundancy. Some aspects of management and operations are also regulated. A cross connection control program must be developed and implemented to eliminate and prevent potential pathways for contaminants to enter the water system. A general plan, or layout and description of the water system and its service area, must be submitted. This plan requires an inventory of watermain size, material, and age and maps showing existing and future boundaries. Finally, an ERP must be developed. These long-standing requirements are key to achieving and maintaining capacity. Compliance with these requirements is part of the continual sanitary survey or evaluation process by district staff.

The DWEHD is encouraging supplies, particularly new supplies, to consider both short- and long-term needs and expected growth as they determine their water capacity requirements and develop their general plans and ERPs. Two changes have been made to the general plan requirements to encourage long-term planning and asset management. Beginning in January 2016, all municipal supplies, and on January 1, 2018, all privately-owned supplies, were required to complete five- and 20-year capital improvement plans. Also beginning on January 1, 2018, all CWSs that serve greater than 1,000 people were required to submit and maintain an AMP. Over 97 percent of the water supplies required to submit an AMP have done so, and district engineers are working with those supplies who have yet to submit an AMP or need to make revisions to their existing plan. Due to competing priorities, DWEHD staff are limited in the amount of time they can spend helping water supplies with their AMPs, including encouraging those who are not required to develop a plan to do so. Additional program staff would allow EGLE staff more time to review AMPs and work with smaller water supplies to develop AMPs, which are known to be beneficial to water supplies.

Although not all PWSs are required to have an AMP, EGLE has actively promoted AMPs for all supplies through training, the ability to use DWSRF loans to complete AMPs, advertisement of resources on our website, and partnerships with TA providers. This asset management approach is expected to enhance their capacity to manage their assets at the lowest possible cost.

Finally, oversight of the water supply by qualified operators helps to ensure all the elements of the waterworks system are functioning properly. All CWSs and NTNCWSs, and certain TNCWSs, must be under the responsible charge of an operator certified by EGLE. Larger supplies are also required to designate a certified backup operator. Certification is renewable by completing CECs. Training that provides CECs to drinking water operators must be approved by EGLE. EGLE provides targeted training to drinking water operators to help with TMF capacity.

4.0 Tools Used to Improve TMF Capacity

This section discusses some of the tools used to enhance system TMF capacity, achieve and maintain compliance with requirements, prepare for new regulations, and better manage water supplies.

4.1 Drinking Water State Revolving Fund (DWSRF)

The 1996 amendments to the federal SDWA authorized the creation of a revolving fund to provide low-interest loans for repairs or enhancements to help water supplies comply with the SDWA. This fund is similar to the Clean Water State Revolving Fund created to assist water pollution control projects. Many of the capacity development provisions of the SDWA are funded through the DWSRF federal allotment.

Prior to the creation of the DWSRF, project financing for CWSs was left largely to the local unit of government or to individuals investing in their own supplies. The DWSRF provides a source of infrastructure financing. Through FY 2022, the DWSRF has committed $1.662 billion in low-interest loans for 400 infrastructure projects.

There was almost a 50 percent increase in the amount of money, and three times the number of projects awarded in DWSRF loans in FY 2022 compared to FY 2020. This was due to the transfer of funds under the federal Water Infrastructure Transfer Act.

Figure 1 (below) summarizes the loan commitments for FY 2020 to FY 2022:

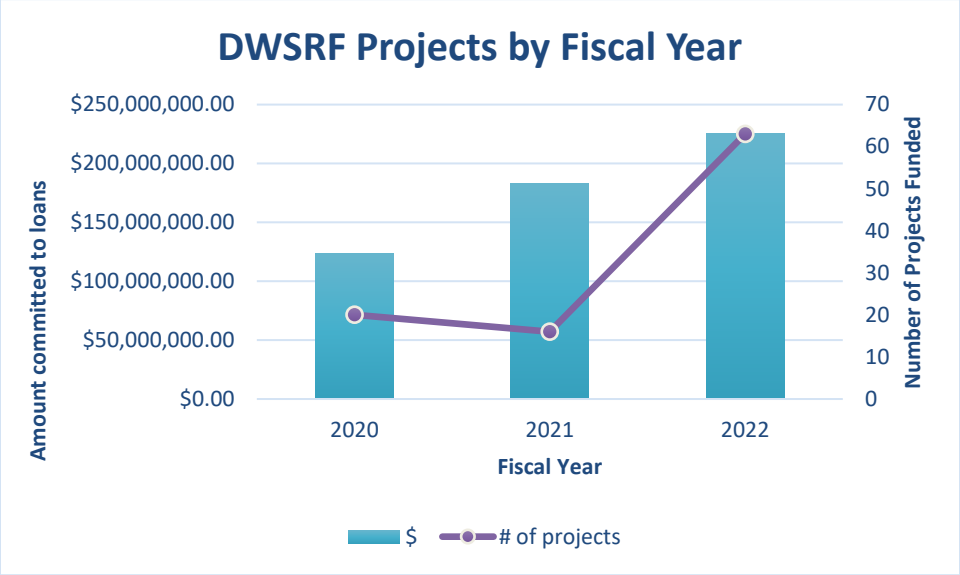

Figure 1. DWSRF commitments and number of projects FY 2020 – FY 2022

Examples of projects funded in FY 2020 – FY 2022 included:

- $21,095,000 was awarded to the city of Kalamazoo for watermain construction to connect homes with private wells threatened by PFAS contamination, as well as proper abandonment of the wells. This project also included 153 lead service line replacements in the city of Kalamazoo.
- $10,000,000 was awarded to the city of Ferndale for the replacement of approximately 1,200 lead service lines with copper material. $400,000 was awarded as principal loan forgiveness.

Michigan's drinking water program relies heavily on proper water system design and construction to prevent jeopardizing the safety of both the source and finished water. To that end, the priority of DWSRF projects favors improvements that are proposed to address drinking water quality and public health.

4.2 Assistance by District and LHD Staff

CWSs are served by DWEHD staff from either a district or central office, and noncommunity water supplies (NCWS) are served by staff from one of 44 LHDs under contract with the DWEHD, along with support from NCWS staff. Therefore, water

supply operators associated with a CWS work most closely with their respective district office and NCWS operators work similarly with their LHD.

Assistance or consultation during site visits has been the preferred method to maintain system compliance. DWEHD district and central staff, along with LHDs, serve as both capacity assistance providers as well as regulators. When assistance is not accepted or effective, staff initiate enforcement actions.

Capacity of supplies is assessed through the sanitary survey process. District and LHD staff detail their findings and recommendations in a letter to the supply, which may include a list of items to address and deadlines to meet. Options for capacity assistance may also be offered, such as contacting a TA provider. Sanitary survey letters help supplies understand the severity of the deficiencies and importance of acting on the recommendations. For CWSs, the sanitary survey includes an overall evaluation to indicate that no deficiencies, minor deficiencies, or significant deficiencies exist.

Table II summarizes sanitary surveys, visits, and construction permits issued for CWSs.

Table II. Number of CWS Sanitary Surveys, Visits, and Construction Permits for FY 2020-FY2022

CWS Sanitary Surveys, Visits, and Construction Permits			
	FY 2020	**FY 2021**	**FY 2022**
Number of Sanitary Surveys Conducted	371	448	349
Number of Significant Deficiencies	35 at 30 supplies	49 at 39 supplies	48 at 32 supplies
Number of Minor Deficiencies	522	668	567
Number of Visits*	1,540	1,428	1,355
Number of Construction Permits Issued	916	1,048	967

*Includes sanitary surveys

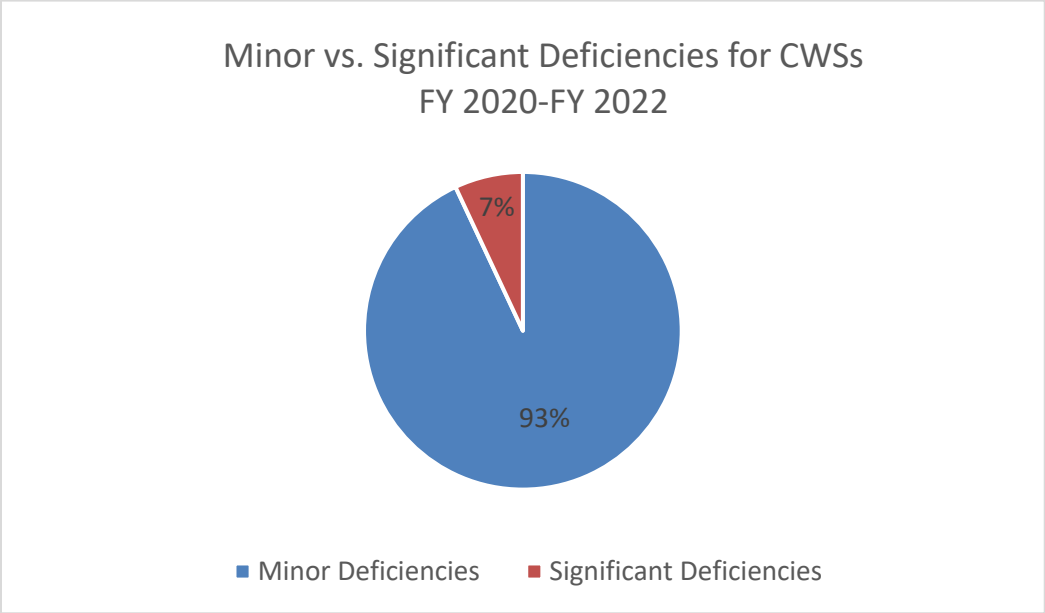

Figure 2. Percentage of Minor vs. Significant Deficiencies Cited During Sanitary Surveys for CWSs for FY 2020 – FY 2022.

The number of minor deficiencies remained relatively stable in FY 2020 – FY 2022. Minor deficiencies were slightly lower in FY 2020, which is likely reflective of the pause in sanitary surveys due to the COVID-19 pandemic and lockdown; however, that number increased by over 100 in FY 2021, which follows the increase in the number of sanitary surveys. This was likely due to some of the catch-up that was being done after the lockdown ended. The number of significant deficiencies was also fairly stable during this time period.

The number of visits decreased in FY 2021 and FY 2022 compared to FY 2020. COVID-19 policies contributed to this decrease due to restrictions put in place to reduce exposure to COVID-19. For much of 2021, staff were encouraged to limit in-person work to only critical tasks, which limited the number of routine visits. However, the number of sanitary surveys increased in FY 2021 versus FY 2020 due to a prioritization of sanitary surveys to help reduce the backlog. The number of visits and sanitary surveys in FY 2022 decreased compared to both FY 2020 and FY 2021. This was due to a combination of staffing constraints, an increase in complex enforcement cases and responses to drinking water concerns, a large number of complex construction permits, and other priority projects within the DWEHD. In addition, a large number of positions were filled in FY 2022, resulting in a significant amount of staff time to train new staff.

Although a significant number of positions were filled, the total number of staff actually decreased in FY 2022 compared to FY 2021 due to positions being filled with internal candidates, retirements, or staff leaving for opportunities outside the DWEHD.

Systems with an increasing number of deficiencies may receive priority for assistance. Prioritization is also based on compliance with health-based standards, monitoring/reporting, certified operator, and other applicable requirements in Act 399 for TMF sufficiency, such as well construction, general plans and ERPs, and financial requirements for privately-owned supplies.

In addition to sanitary surveys, DWEHD staff perform routine visits to CWSs at a variety of prescribed intervals based on the type of supply. The purpose of these visits is to continue to build relationships between EGLE and the CWSs, as well as to ensure that supplies are maintaining their TMF capacity between sanitary survey visits. District staff are available to meet, as needed, with community leaders or attend municipal meetings to discuss the benefits of building TMF capacity.

For CWSs, sanitary surveys are conducted every three years by DWEHD field staff. This frequency coincides with the requirements of the series of Surface Water Treatment Rules and the Ground Water Rule. Each of the eight required sanitary survey components is rated individually and entered into the Safe Drinking Water Information System (SDWIS).

The required components of a sanitary survey include the source, treatment, distribution system, finished water storage, pumps and controls, monitoring and reporting, system management and operation, and operator compliance. Each component may be rated as a significant deficiency, minor deficiency, recommendations made, or no deficiencies/recommendations.

DWEHD staff detail their findings and recommendations in a letter to the supply. These letters may include a list of milestones with dates by which the items are expected to be addressed. Options for capacity assistance may also be offered, such as recommending a financial assessment or contacting available TA providers for specific assistance. These evaluation letters help supplies understand the severity of the deficiencies and prioritize response activities.

System operators and managers have many other opportunities to interact with DWEHD district and central staff outside of the capacity assessment arena. District and central staff attend, participate, and present at periodic regional operator meetings to discuss upcoming regulations and regional issues and to network with operators and managers. District and central staff also serve as instructors at operator training workshops, serve as subject matter experts (SME) for operator certification examinations, and present training at professional meetings. When a supply begins to develop a project plan to apply for a DWSRF loan, district staff consult with the supply and work with its consulting engineer to ensure the project plan addresses system priorities.

For NCWSs, sanitary surveys are conducted every five years by LHDs. Surveillance visits are required by policy annually for any supply with regulated treatment. Annual visits are required under the rules for a supply that is on a reduced (annual) total coliform sampling schedule.

Table III. Frequency of NTNCWS surveillance visits.

Type of NTNCWS	Site Visit Frequency	Sanitary Survey Frequency
Supply with regulated treatment	Once per year	Every five years
Supply with annual total coliform sampling requirement	Once per year	Every five years
Supply without regulated treatment and on quarterly total coliform monitoring	No visit beyond sanitary survey	Every five years

Table IV. Data about NTNCWS sanitary surveys and routine visits FY 2020 – FY 2022

NTNCWS Evaluations and Visits			
	FY 2020	FY 2021	FY 2022
Number of sanitary surveys conducted	258	288	284
Number of visits for supplies with annual total coliform sampling	175	177	175
Number of annual treatment surveillance site visits	161	171	188
Significant Deficiencies	2 at 1 supply	1 at 1 supply	2 at 1 supply

As previously mentioned, oversight of NCWSs is provided by 44 LHDs under contract with the DWEHD. The Noncommunity Water Supplies Unit (NWSU) staff maintains communication with each of the 44 LHDs during the year. This communication occurs during the formal quarterly reviews and annual evaluations of each of the 44 LHD's work in achieving and maintaining water supply compliance. Training of LHD staff is conducted extensively during these visits to inform, explain, and discuss new and updated program issues and procedures. The NWSU staff maintains a reference manual for LHDs with current policies, procedures, guidance, templates, and forms needed to implement the drinking water program. The NWSU staff also presents sessions in conferences and webinars on source water and environmental and public health protection.

4.3 Financial Assessments

Both new and existing supplies have opportunities to achieve and maintain financial capacity. Financial capacity assessments are not required of existing supplies unless serious deficiencies in technical or managerial capacity exist. However, voluntary participation in financial assessments continued.

4.3.1 New Supplies

New supplies must demonstrate financial capacity before serving water to the public. In the NCWS Program, the supply may receive help from the LHD during the permit application process to develop a financial plan. They must submit a financial plan, including a budget, to the LHD in order to receive approval to commence operation. In the CWS Program, supplies submit their financial plan and supporting documents to EGLE for review and approval during the construction permit stage. Supplies may complete their financial plan during the construction phase of the water supply but must receive approval prior to the final inspection to commence operation of the water supply.

Privately-owned new CWSs are subject to additional requirements to ensure they are able to provide an adequate supply of drinking water. Proposed supplies must stipulate to certain conditions such as: obtaining a local government's refusal to accept ownership of the supply, establishing an escrow account available to the DWEHD for immediate repair or maintenance of the supply, providing contact information of operation personnel, and agreeing to seek EGLE approval before transferring ownership. This stipulation ensures private owners understand their responsibilities prior to establishing the water supply.

4.3.2 Existing Supplies

EGLE's Finance Division offered water supply financial assessments through FY 2019. However, no financial assessments were conducted between FY 2020 and FY 2022 due to lack of staff expertise and capacity. The DWEHD recognizes the value in this program and would support the re-establishment of EGLE resources to provide this service to water supplies.

4.4 Source Protection

Supplies are continuing to take steps to protect their drinking water sources. The SDWA established rules for funding Wellhead Protection Programs (WHPP) and Surface Water Intake Protection Programs (SWIPP) through the DWSRF. Michigan is providing competitive grants for communities for wellhead protection and to protect their surface water intake areas through the DWSRF Local Assistance Wellhead Protection

Set Aside funds, which is described in Section 4.4.2. A total of $754,851 was committed to 68 projects in FY 2020 and FY 2022. No awards were made in FY 2021 as a result of the COVID-19 pandemic and while the program underwent a Lean Process Improvement project.

4.4.1 Source Water Assessments to Protection

The SDWA required that all of Michigan's 18,000 CWSs and NCWSs drinking water sources be assessed in 2003. Potential sources of contamination were inventoried, and susceptibility to contamination was determined by the combined efforts of the DWEHD and local, state, and national agencies. During FY 2020 – FY 2022, resources continued to be allocated to LHDs to aid in updating source water assessments of existing and new NTNCWSs. A total of 332 source water assessments were conducted by LHDs at NTNCWSs during this time.

4.4.2 Source Water Protection Program (SWPP)

A WHPP is an SWPP for water supplies that rely on water wells, and it assists communities in protecting their groundwater sources. A goal of a WHPP is to minimize the potential for contamination by identifying and protecting the area that contributes to water supply wells and avoids costly groundwater cleanups. Of the 395 municipal supplies in Michigan using groundwater as their water source, 70 percent are involved in some aspect of wellhead protection, such as performing a delineation, inventorying potential sources of contamination, and planning for emergencies. Of those 70 percent of supplies involved in some aspect of wellhead protection, 34 percent of the supplies have completed all the steps and have an approved WHPP or have met the substantial implementation standard. An additional 129 groundwater supplies have attained substantial implementation by completion of a source water assessment with no issues identified. As a result, approximately 60 percent of the population that obtains drinking water from groundwater is in communities taking action to protect their sources. Municipalities are encouraged to apply for a WHPP grant using a 50 percent local and 50 percent state match to fund activities involved in protecting their wellheads and updating their approved programs.

The SWIPP is the surface water counterpart to the WHPP. Under this program, communities develop partnerships with surrounding communities to identify and take action to protect the area around the intake and the watershed that impacts it. Fourteen communities have completed an SWIPP. Approximately $100,000 annually is made available to surface water systems as part of a matching grant program.

Monitoring of surface water sources can alert utility personnel to changes in water quality in time to respond quickly and avoid public exposure to contamination. To

achieve this quick response at CWSs in the connecting channels between Lakes Huron and Erie, beginning in 2008, the DWEHD worked with federal and local governmental agencies to install a continuous, real-time water quality monitoring network in the St. Clair River, Lake St. Clair, and the Detroit River. In FY 2018 the Real Time Monitoring Network was reestablished. The monitoring system includes data transmission, data visualization, automated notification/alarm service, data archiving, and a publicly accessible website for data retrieval. In addition, rapid toxicity test equipment is being used to monitor water distribution systems in southeast Michigan served by these surface water intakes. Nearly instantaneous communication is key to protecting surface water intakes in the Lake Huron to Lake Erie corridor because of the rapid rate of flow, periodic chemical spills, and corresponding changes in water quality.

During the reporting period, raw and finished water was sampled either biweekly or weekly at PWSs with historical detections of cyanotoxins, with analysis for microcystins, nodularin, cylindrospermopsin, and anatoxin-a. Raw and finished water at other surface water supplies was sampled on a biweekly basis, with analysis for microcystins and nodularin only. This approach provides consistent and meaningful occurrence data and information regarding PWS susceptibilities to cyanotoxins.

In another area of source water protection, a DWEHD staff person coordinates the notification to district staff about proposed aquatic nuisance permits to surface waters that may impact drinking water sources. Some permits have been streamlined by previous applications when it has been known to not impact a drinking water source. Other permit applications may present a concern and require further communication between district staff and a CWS to resolve the issue. A DWEHD staff person also began coordinating with EGLE's Water Resources Division to identify water bodies with cyanotoxin and perfluorinated compound (PFC) detections that may initiate additional monitoring where drinking water intakes may be impacted.

4.5 Operator Training and Certification

Per Act 399, a properly certified operator must be available at all CWSs, all NTNCWSs, and certain TNCWSs. As defined in Act 399, water supplies are classified on complexity and/or population served. Michigan has three classification categories, and five levels within each category (level 1 is the highest, level 5 is the lowest). Water supplies must be under the supervision of a drinking water operator certified in the appropriate system classification. These operators maintain their certification by meeting continuing education requirements through training offered in a variety of venues.

4.5.1 Operator Training and Certification Unit (OTCU)

During FY 2020 – FY 2022, the DWEHD, OTCU, provided over 115 training courses. The OTCU certifies over 80 organizations and training providers that offer other opportunities for continuing education, including online courses. A properly certified operator must be designated for each of the approximately 1,380 CWSs, 1,325 NTNCWSs, and 86 TNCWSs that employ treatment for either public health purposes or where a chemical is added to the water. Operators certified in treatment systems must provide oversight at CWSs and NCWSs that employ treatment.

A CWS occasionally finds itself without a certified operator, usually due to unanticipated operator turnover or retirements. District staff work with each of these water supplies to pursue an interim certified operator while also pursuing a permanent replacement. There is more frequent turnover of certified operators in NCWSs, and the effort to retain certified operators at these small supplies is an ongoing challenge.

Major OTCU activities from FY 2020 to FY 2022 include:

- Training opportunities available for small community and nontransient noncommunity operators to meet renewal requirements for their certifications.
- SME validation of new questions for licensing examinations. The SMEs include water system operators holding licenses of the highest level in their category.
- Maintenance of a web-based application allowing certified operators to view pertinent information regarding their certifications, such as certificate renewal status, list of courses completed, and other information.
- Maintenance of a database allowing DWEHD staff to readily confirm a certified operator’s status.
- Provided DWEHD staff with a list of expired and about-to-expire operators quarterly to make them aware of potential operator certification issues at the water supplies they oversee.
- Provided certified operators with critical EGLE Drinking Water Laboratory information to help maintain compliance with sampling requirements.
- Developed and administered certification examinations twice annually. This included FY 2021 when additional sites and rooms, test dates, health screening, masks, and social distancing were used to reduce the risk of COVID-19.
- Worked with course providers to transition in-person training to online format during the COVID-19 pandemic. The number of online courses approved for CECs increased approximately 25 percent from the end of FY 2020 to FY 2022, with more than 240 courses available for operators. This provides additional opportunities for operators to earn CECs and gain knowledge, skills, and abilities in their field.

- Worked with TA providers RCAP, EFCN, and MRWA to provide additional training to operators and supplies across the state.

4.5.2 Small System Training

DWEHD staff continued to conduct training specifically for small CWSs (serving fewer than 3,300 customers) and awarded CECs to operators who participated. Many attendees are operators employed by more than one supply or may also work at NTNCWSs, improving the operation and maintenance of many more supplies than the number of operators attending. General topics included new regulatory requirements, monitoring and reporting, and operational issues. Due to the COVID-19 pandemic, the small systems training was shifted to be an online series held in the summer. This model was so successful in both FY 2020 and FY 2021 that it continued to be held online in FY 2022 even though COVID-19 restrictions had been lifted. In FY 2020, 240 operators attended, and 104 operators attended in both FY 2021 and FY 2022, which represents many more supplies as several of the attendees are “circuit rider” operators who operate more than one water supply.

4.5.3 NTNCWS Training – LHD and Level 5 Operators

Trainings for LHD staff are conducted to increase technical skills used in sanitary surveys and to discuss new and updated program issues and procedures. This training occurs in many ways, including accompanying newer LHD staff on sanitary surveys and other site visits, giving presentations at formal educational events, and providing guidance on regulatory procedures and requirements during the program evaluation processes. EGLE hosts a two-day in-person training conference for LHDs annually. Webinars are used to train LHD staff to use a new data system and associated electronic inspection tool.

The NWSU staff maintains a comprehensive study guide for individuals pursuing certification to operate an NCWS. It may also be useful for operators of other small CWSs. Topics range from regulatory authority through source protection and system construction to monitoring and operation oversight. The guide is available on the Internet.

4.6 Security

EGLE is responsive to various federal programs and the security and emergency response needs of the PWSs. Planning, training, and coordinating are all part of the effort to emphasize emergency management for all natural and man-made incidents. DWEHD staff participate on the steering committee for the Michigan Water/Wastewater Agency Response Network (MiWARN), a group that encourages mutual aid between

utilities during emergencies, as well as the Association of State Drinking Water Administrators' (ASDWA) Security and Resiliency Committee.

EGLE sends cybersecurity and supply chain emergencies and alerts via the ASDWA's Security and Resiliency Committee to the owners and operators of Michigan's water systems.

District staff will continue to be involved in safety and security enhancements through the construction permit process and the operation of new supplies as well as during inspections.

4.7 Enforcement

Evaluations and compliance information become the basis for enforcement. When supplies fail to return to compliance, escalated enforcement, including Administrative Consent Orders (ACO) or Administrative Consent Agreements (ACA) and EGLE orders, can be initiated. Program staff first attempt targeted TA to return supplies to compliance or prepare them for upcoming requirements, especially when options are particularly expensive or when acceptable alternatives are not readily available.

Before escalated enforcement is used, many supplies are encouraged and provided with the opportunity to return to compliance. Michigan's administrative fines policy for monitoring and reporting violations helps enforce timely contaminant monitoring and submittal of results, monthly operation reports (MOR) for supplies that employ treatment, and issuance and submittal of the Consumer Confidence Report.

When a fine is not applicable or does not prevent further violations, the DWEHD may pursue escalated enforcement, which may include an ACO or ACA. As a result, 43 drinking water cases received further enforcement action from FY 2020 through FY 2022. This includes 43 ACOs and one referral to the Michigan Department of Attorney General (DAG). A majority of cases were referred for escalation based on system inadequacies, such as lack of sufficient capacity, water treatment plant deficiencies, or violations of active ACOs.

In addition, three water supplies -- the cities of Flint, Benton Harbor, and Kalamazoo -- were required to conduct TMF studies in FY 2021 – FY 2022 to demonstrate that they had adequate TMF capacity and to identify gaps in their capacity. These studies were used to help identify other assistance the water supplies needed to ensure they can meet the requirements of the SDWA. The cities of Kalamazoo and Flint completed their studies in FY 2022, and the city of Benton Harbor submitted their TMF study to EGLE in March of FY 2023.

Table V. Enforcement actions, including fines, ACOs, and DAG referrals/EGLE orders for CWSs and NTNCWSs for FY 2020 – FY 2022

	FY 2020	FY 2021	FY 2022
CWS			
Fines	36	28	37
ACOs	10	18	8
Referrals to DAG/EGLE Order	1	0	0
NTNCWS			
Fines	1	0	3
ACOs	1	1	2
Referrals to DAG/EGLE Order	0	0	0

4.8 Electronic Reporting and Data Management

During the reporting period, the DWEHD launched the Michigan Environmental Health and Drinking Water Information System (MiEHDWIS) for both internal staff and operators of CWSs. MiEHDWIS is the product of a multi-year project to modernize many of the DWEHD's existing permitting, licensing, and compliance information systems into one web-based application. The goal of MiEHDWIS is to provide increased efficiency, transparency, and communication between EGLE's staff and its customers. Many of our CWSs are now utilizing MiEHDWIS to submit their reports and permit applications.

4.9 Summary

Every three years the DWEHD must report to the Governor on the effectiveness of the CDP. This program is effective as evidenced by the high rates of compliance with drinking water standards.

PWSs use a multibarrier approach to provide safe water. This approach begins with securing a safe source and continues with constructing quality infrastructure using a sound basis of design. This multibarrier approach is maintained by qualified personnel properly operating the system and routinely monitoring to confirm the multiple barriers are, indeed, functioning and the integrity of the water system is maintained on a continuous basis.

Program staff periodically assess the capacity of water supplies through sanitary surveys and serves as a primary resource as supplies address capacity issues.

Programs available to supplies include the DWSRF, SWPP, operator training, and TA provider services.

Program staff are seen as a valuable resource to water supplies but are limited in the amount of time they can spend providing assistance due, in part, to competing priorities. As a result of Executive Directive 2021-9, a resource review was undertaken to determine resources the DWEHD needs to ensure the safety of the water delivered by PWSs. The results of this resource review were finalized in FY 2023. The outcome demonstrates a need for more resources within the DWEHD. Additional staff would allow for additional TMF capacity support and initiatives to help water supplies build and maintain TMF capacity and safeguard the public's health.

Water supplies will continue to be challenged by aging infrastructure, new regulations, emerging contaminants, and climate change. Maintaining and increasing TMF capacity will help them to meet these challenges.

Recent high-profile water supply events in Michigan and around the country serve to highlight the importance of effective capacity development. Ensuring PWSs maintain robust TMF capability is an essential component of public health protection.

Government, water supply owners and operators, and citizens alike must continue to invest in activities and programs that help water supplies succeed in providing safe and reliable drinking water to their customers.

This report is available to the public, on request, or on the EGLE website at www.Michigan.gov/CommunityWater.