

**Michigan Department of Environmental Quality  
Water Bureau**

# **CAPACITY DEVELOPMENT REPORT TO THE GOVERNOR 2008**

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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 systems develop and maintain the capability, or capacity, they need to deliver a safe, reliable, and abundant 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 Jennifer M. Granholm the effectiveness of Michigan's capacity development strategy. Each state risks losing 20 percent of the annual Drinking Water Revolving Fund (DWRF) allotment if it does not submit a report to its Governor by September 30 of every third year or 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 well isolation, system reliability, operator certification, standards of construction, and system planning. As a result, the strategy to help systems maintain technical, managerial, and financial (TMF) capacity is a reflection of our long-standing tradition of technical assistance with the recent addition of a capacity assessment component.

The strategy is effective. New public water systems are demonstrating adequate capacity before they begin serving water to the public, and existing systems are continuing to enhance and maintain capacity. A strong emphasis on assistance has moved systems toward enhanced capacity.

Systems with adequate TMF capacity are able to maintain high rates of compliance with health-based standards. Additionally, systems use a multibarrier approach to providing safe water to the public, which 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 of 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.

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

- DWRF: The 1996 Amendments to the SDWA provide low-interest loans for repairs or enhancements to help water systems comply with the SDWA. To date, the DWRF has committed over \$507 million in low-interest loans for 183 projects to construct, upgrade, and replace infrastructure.

- **Relationship with Field Staff:** Water system operators maintain a relationship with field staff who are the primary contact with water systems for capacity development. A prime objective of the field staff is to provide excellent customer service, from the construction permit process through regulatory oversight, and continual assessment and assistance for the duration of a system's operation.
- **Source Water Protection:** Increasing numbers of systems are taking steps to protect their drinking water sources. Federal funding for Wellhead Protection Programs is available through the DWRP for systems using groundwater. Michigan has also completed a grant program to locate and properly plug private and public wells no longer being used that are located in a community's wellhead protection area. Currently funds are being sought to provide grants for communities to protect their surface water intake areas. Amendments to Michigan's water withdrawal legislation was passed to further assist management of water resources in response to increased water use demands, pressure to divert water out of the Great Lakes Basin, and an increase in groundwater conflicts.
- **Operator Certification and Training:** Act 399 requires a certified operator to be available at all community and nontransient noncommunity water systems. These operators must maintain their certification by earning continuing education credits. As a result, new training courses are developed based on operator feedback, field staff input, and in response to new regulations with which water systems must comply.
- Other programs available to systems include financial assessments, technical assistance provider services, security training, and electronic reporting systems.

New regulations will continue to challenge water systems. Over 400 Michigan systems were required to comply with a lowered arsenic standard effective in January 2006. Additionally, the United States Environmental Protection Agency promulgated regulations to expand requirements on systems that disinfect and on systems that use surface water as a source. Continuing to strive to maintain TMF capacity will help to meet the challenges of these new regulations.

This report is available on the Michigan Department of Environmental Quality's Web site at <http://www.michigan.gov/deq> and to the public, on request.

## List of Acronyms

Act 399	Safe Drinking Water Act, 1976 PA 399, as amended
ACO	Administrative Consent Order
ARI	Adverse Resource Impact
AWM	Abandoned Well Management
CCR	Consumer Confidence Reports
CDP	Capacity Development Program
CWS	Community Water Systems
DWRF	Drinking Water Revolving Fund
eDWR	Electronic Drinking Water Reporting
ERG	Expense Reimbursement Grant
ERP	Emergency Response Plans
FAP	Financial Action Plan
FY	Fiscal Year
GWIM	Groundwater Inventory and Mapping
LHD	Local Health Departments
MCL	Maximum Contaminant Level
MDEQ	Michigan Department of Environmental Quality
MIGWHP	Michigan Interactive Groundwater for Wellhead Protection
MOR	Monthly Operations Reports
MSU	Michigan State University
NCWS	Noncommunity Water Systems
NTNCWS	Nontransient Noncommunity Water Systems
OTCU	Operator Training and Certification Unit
RCAP	Rural Community Assistance Program
RUS	Rural Utilities Service
SDWA	Federal Safe Drinking Water Act
SME	Subject Matter Experts
SWIPP	Source Water Intake Protection Program
SWPP	Source Water Protection Program
TMF	Technical, Managerial, and Financial
TNCWS	Transient Noncommunity Water System
USDA-RD	United State Department of Agriculture Rural Development
USEPA	United States Environmental Protection Agency
ug/L	Micrograms per liter
VA	Vulnerability Assessments
WB	Water Bureau
WHPA	Wellhead Protection Area
WHPP	Wellhead Protection Program

## 1.0 Introduction

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 systems to develop and maintain the capacity they need to deliver a safe, reliable, and abundant supply of drinking water to all customers.

The purpose of this document is to report to Governor Jennifer M. Granholm the effectiveness of Michigan's capacity development strategy. Each state risks losing 20 percent of the annual Drinking Water Revolving Fund (DWRFF) allotment if it does not submit a report to its Governor by September 30 of every third year or does not make the report available to the public under Section 1420(c)(3) of the SDWA.

This report examines the effectiveness of the strategy, progress toward improving capacity, and tools used to help to improve capacity. This report will be available to the public on the Web site of the Michigan Department of Environmental Quality (MDEQ) at <http://www.michigan.gov/deq> and at the public's request.

### 1.1 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 community water systems (CWS) and noncommunity water systems (NCWS) achieve and maintain technical, managerial, and financial (TMF) capacity by adding a capacity assessment component to the Public Water System Supervision Program. The strategy is an ongoing process to:

- Assess systems' capacity or "capability."
- Prioritize systems most in need of assistance.
- Determine the best means of assistance.
- Provide assistance or refer systems to other capacity assistance or technical assistance providers.
- Measure improvements in TMF capacity during subsequent assessments.

The CDP is implemented by the Water Bureau (WB) of the MDEQ through amendments to the Safe Drinking Water Act, 1976 PA 399, as amended (Act 399), by application of capacity development polices and guidance documents and through cooperation and/or partnerships with other agencies.

The CDP focuses on both new systems and existing systems. The new systems program ensures systems have sufficient capacity prior to commencing operation, and the existing systems 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.

#### 1.1.1 New Systems

*New Community Water System Capacity Guideline Document, May 1, 2000.* New systems must demonstrate TMF capacity before serving water to the public. The new systems 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 system. For CWS, the financial and managerial capacity requirements may still be pending while the system is under construction. Approval to commence operation is only granted after a final inspection when the CWS has demonstrated capacity in all three areas.

For nontransient noncommunity water systems (NTNCWS), the WB has delegated the authority to the local health departments (LHD) to review, approve, and issue construction permits. When these water systems 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 a contingency plan and designation of a certified operator.

#### 1.1.2 Existing Systems

*Capacity Development Strategy for Existing Public Water Systems, August 1, 2000.* The existing system strategy relies primarily on the capacity assistance component of the drinking water program, which the WB has traditionally referred to as technical assistance. Through routine system evaluations, also known as sanitary surveys or capacity assessments, the WB staff identify which systems need capacity assistance and prioritizes assistance subject to available resources. Based on the wishes of our stakeholders, the WB will not request a financial capacity assessment of an existing water system unless violations, deficiencies, or other factors indicate the system lacks technical or managerial capacity. For CWS, capacity assistance is provided through the WB staff or through other technical assistance providers to help communities build TMF capacity. For NCWS, the WB delegated the authority to the LHD to assess capacity and to provide assistance. If capacity assistance is not accepted or effective, Michigan practices a program of progressive or escalated enforcement.

### 1.2 Involved Parties

The CDP encompasses the efforts of water systems, the MDEQ, technical assistance providers, and other organizations and agencies that affect the capabilities of water systems including:

- MDEQ, WB District Offices
- LHD
- MDEQ, Environmental Science and Services Division
- Michigan Municipal Bond Authority
- Technical Assistance Providers such as:

- Michigan Section, American Water Works Association
  - Michigan Rural Water Association
  - Rural Community Assistance Program (RCAP)
  - United States Department of Agriculture, Rural Development (USDA-RD), Rural Utilities Service (RUS)
- Contractors
  - MDEQ, WB, Enforcement Unit

## **2.0 Effectiveness of the Capacity Development Strategy**

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 Act 399. In addition to establishing health-based standards, Act 399 also includes requirements for well isolation, system reliability, operator certification, standards of construction, and system planning. As a result, the strategy to help systems maintain TMF capacity is a reflection of our long-standing tradition of technical assistance with the recent addition of a capacity assessment component.

The strategy is effective. New public water systems are demonstrating adequate capacity before they begin serving water to the public, and existing systems are continuing to enhance and maintain capacity. A strong emphasis on capacity assistance has moved systems toward enhanced capacity.

### *2.1 New Systems*

New systems 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. When violations occur, they are usually minor monitoring violations. Field staff report that new systems that have complied with capacity development requirements are well developed from start-up and perform at a higher level than some older systems. These new systems use modern technology, competent engineering support, and acceptable management. Prior to a formalized CDP, field staff only required adequate technical capacity before a construction permit was issued.

#### *2.1.1 CWS*

Proposed CWS are primarily new residential subdivisions. Field staff interact with developers and their engineering consultant to complete the capacity assessments before approval is granted to serve water to the public. 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 system later when they expand. In addition to the traditional technical assessment, these new CWS must complete financial and managerial assessments. The financial capacity assessment requires some thought into future operations and costs. The managerial capacity assessment requires an operations plan, a certified operator, a sampling site plan, as well as other plans to ensure the system has adequate managerial oversight and organization before commencing operation.

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

- Systems that did not meet the definition of a CWS at start-up but are designed to one day meet the definition.
- Systems that are not currently a CWS, but propose to extend the water system to serve additional customers, thereby growing to become a CWS. These systems are usually privately-owned, residential subdivisions that were previously exempt from CWS requirements due to their small size.

Many times, a new developer begins to expand a subdivision or the original developer returns to complete a final phase after many years. These systems pose our greatest challenge because they often expand before fully complying with capacity development requirements and because the control point of a final inspection before commencing operation no longer exists.

### 2.1.2 NTNCWS

Due to the financial and managerial capacity requirements now placed on new NTNCWS, these systems have a qualified operator and a higher level of awareness of the responsibilities of supplying water to the public. These systems begin operation with a contingency plan already in place—a valuable tool during emergencies.

## 2.2 *Existing Systems*

Existing systems are achieving and maintaining TMF capacity as demonstrated by their high rates of compliance, as discussed in section 3.1, and their efforts to manage their systems effectively with qualified and educated staff to meet the needs of their customers. This improved compliance rate is a result of several factors, including:

- District and LHD staff interaction with systems.
- Financial assistance in the form of loans and grants.
- Financial management assistance.
- Source water protection and water system security programs.
- Operator training and certification.
- Technical assistance providers including contracts with provider organizations.
- Compliance and enforcement assistance via letters, phone calls, site visits, and administrative fines.
- Support of data systems for district staff and LHD.
- Support of Web sites for district staff, LHD, and water systems.
- Policy updates, guides, fact sheets, templates, and forms to district staff, LHD, and systems.

Many of these factors will be discussed in section 4.

### 3.0 Progress Toward Improving TMF

Systems with adequate TMF capacity are able to maintain high rates of compliance. Compliance with health-based standards, monitoring, reporting, and other capacity requirements 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 systems have sufficient TMF capacity. Through the construction permit and sanitary survey process, field staff help to ensure systems obtain a safe source and continue to provide safe drinking water.

#### 3.1 Compliance Rates

Comparing compliance data from one year to the next is difficult because of the rapidly increasing numbers and complexity of new rules and requirements each year. With the onslaught of new regulations that have had a disproportionate impact on small systems, the number of systems in compliance may not tell the true story of improved capacity. Small systems make up the majority of systems in Michigan as well as the majority of systems in noncompliance. However, the majority of the population served by CWS is supplied by larger systems that generally comply with requirements. To put compliance data into perspective, it may be useful to compare the percent of population served by CWS that are in compliance with health-based standards and monitoring and reporting requirements.

The following table summarizes compliance with health-based drinking water standards and monitoring and reporting requirements compared to the goals shared with the USEPA:

<b>Compliance with Health-Based Standards</b>	<i>Goal</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Percent of people served by CWS meeting new health-based standards <sup>1</sup>	90	100	97.6	99.3
Percent of CWS meeting new health-based standards <sup>1</sup>	90	99.9	92.2	93.6
Percent of NTNCWS meeting new health-based standards <sup>1</sup>	90	100	96	97.9
Percent of Transient NCWS (TNCWS) meeting all health based standards	95	97.2	96.5	96.8
<b>Compliance with Monitoring and Reporting Requirements</b>	<i>Goal</i>	<i>2005</i>	<i>2006</i>	<i>2007</i>
Percent of people served by CWS without significant violations <sup>2</sup>	95	98.1	98.3	98.9
Percent of CWS without significant violations <sup>2</sup>	90	94.1	92.6	93.2
Percent of NTNCWS without significant violations for acute health risks <sup>3</sup>	90	93.2	92	93.1

<sup>1</sup> New health-based standards refer to new regulations since January 2002 and includes the revised arsenic standard. These new regulations generally do not apply to TNCWS.

<sup>2</sup> Significant monitoring 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.

<sup>3</sup> Acute health risks means those contaminants that have serious adverse effects on human health as a result of short-term exposure.

In January 2006, the maximum contaminant level (MCL) for arsenic was reduced from 50 micrograms per liter (ug/L) to 10 ug/L. Arsenic is a naturally occurring mineral present in groundwater. Michigan has a relatively high number of public water supplies impacted by this revised standard, ranking second among all states. The dip in compliance with health-based standards in 2006 is a result of this revised standard. Nearly all of the CWS in noncompliance were under an enforceable administrative consent order (ACO) that incorporated a mutually agreed upon compliance schedule. Based on compliance monitoring conducted in 2005, 108 CWS exceeded this revised standard, almost all serving less than 3,300 residents. Many of the 164 NTNCWS that exceeded this revised MCL are serving bottled water to remove the

public health threat as they work toward compliance. As of June 2008, 56 of the CWS and 90 of the NTNCWS have returned to compliance by replacing or blending their source, consolidating with an adjacent system that meets the standard, or constructing treatment facilities. The vast majority of the remaining systems are still following a compliance schedule and periodically providing public notice to remind customers about the health threat.

Compliance with monitoring requirements is considered a measure of success. 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, as discussed in the following section. A missed sample from a properly constructed water system having a satisfactory history of safe samples is a concern, but not a direct threat to public health.

Other new regulatory requirements have been promulgated by the USEPA and compliance dates are fast approaching. To prepare for the new rules, the WB has taken advantage of USEPA sponsored Web cast training sessions. In the last two fiscal years (FY), the WB hosted 21 Web casts at multiple district offices. Some sessions were also attended by operators. Most of the topics covered new regulatory requirements while some Web casts focused on managerial and financial capacity issues such as board member training and rate setting. The WB also hosted a USEPA workshop for regulators and telecasted it to four other USEPA Region 5 states. Web casts and telecasts are excellent venues to provide quality training at little or no cost to the state or water systems. Water system operators may use these Web casts to meet certification training and continuing education requirements.

### 3.2 *Multibarrier Approach*

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

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 in municipal systems to eliminate and prevent potential pathways for contaminants to enter the water system. A system must also conduct a study of water supply requirements and update it every five years. A general plan, or layout and description of the water system and its service area, must be submitted. Finally, a contingency plan 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 field staff. Some reliability requirements are waived for very small systems.

The WB is encouraging systems, particularly new systems, to consider both short- and long-term needs and expected growth as they determine their water capacity requirements and develop their general plans and emergency response plans. This overall picture is expected to enhance their capacity to manage their assets at the lowest possible cost.

The 1996 Amendments to the SDWA required states to assess all source waters used for drinking water. All of Michigan's nearly 18,000 sources were assessed in 2003 to identify areas that supply public drinking water, assess the susceptibility of those water systems to

contamination, and inform the public of the results. After the heavy investment in the assessment process, efforts are being made to move from assessment to protection. Water systems are encouraged to protect their sources through voluntary programs discussed in section 4, below, Tools Used to Improve TMF.

Finally, oversight of the water system by qualified operators ensures all the elements of the waterworks system are functioning. Each CWS and NTNCWS and certain TNCWS must be under the responsible charge of an operator certified by the state. Certification is renewable through training approved by the state.

**4.0 Tools Used to Improve TMF**

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

*4.1 DWRF*

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

Prior to the creation of the DWRF, project financing for CWS was left largely to the local unit of government or to individuals investing in their own systems. The DWRF provides a source of infrastructure financing. Through FY 2007, the DWRF has committed over \$507 million in low-interest loans for 183 infrastructure projects. Of the 183 projects with committed funds, 119 have been completed and the loan payments are revolving back into the fund. Some systems receive commitments from the DWRF, but may not be ready to proceed with the project until they are able to assure the revenues will be generated to repay the loan. In these cases, the system remains on the priority list for next year. The following table summarizes the loan commitments for FY 2005 to FY 2007:

<b>DWRF Loan Commitments by FY</b>			
	<b>2005</b>	<b>2006</b>	<b>2007</b>
Number of Projects Committed	10	15	28
Commitments of Funds (\$M)	\$22.22	\$36.93	\$63.02

The greatest number of projects submitted for a DWRF loan in a single year was in 2007. The third largest project since the beginning of the DWRF in 1998 was committed in FY 2005 to rehabilitate portions of the Detroit Lake Huron Water Treatment Plant that serves over 1 million customers in the northern suburbs of Detroit. Other large commitments in FY 2005 to FY 2007 include expanding an existing iron removal system and building a new iron removal system for \$8.9 million in Waterford Township in Oakland County, and constructing a new water system in Sanilac Township in Sanilac County for \$9.37 million to replace private wells that tested positive for bacteria.

Michigan’s drinking water program relies heavily upon proper water system design and construction to prevent jeopardizing the safety of both the source and finished water. To that end, priority of DWRF projects favors those communities that are participating in a Source Water Protection Program (SWPP), which is discussed in section 4.3.

4.2 *Field Staff*

Water system operators develop a relationship with field staff who are the primary contact for capacity development. The CWS are served by WB staff in 1 of 8 district offices, and NCWS are served by staff from 1 of 44 LHD under contract with the WB. A primary objective of district staff and the LHD is to provide excellent customer service from the construction permit process for new infrastructure through the continual assessment and oversight process during operation.

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

Capacity of systems is assessed through the sanitary survey process. Field staff detail their findings and recommendations in a letter to the system, 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 technical assistance provider. Sanitary survey letters help systems understand the severity of the deficiencies and importance of acting on the recommendations. For CWS, the sanitary survey includes an overall rating of satisfactory, marginal, or deficient.

The following table summarizes evaluations, visits, and timeliness of construction permits issued for CWS:

<b>CWS Evaluations, Visits, and Construction Permits</b>			
	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>
Number of Sanitary Surveys Conducted	548	437	514
Percent Rated Satisfactory	75	79	82
Percent Rated Marginal	9	10	12
Percent Rated Deficient	3	7	4
Percent Not Rated	12	5	1
Number of Visits	1,480	1,541	1,676
Number of Construction Permits Received and Issued	1,957 / 1,923	1,753 / 1,727	1,435 / 1,408
Of Permits Issued, Percent Issued Within 10 Business Days of Receipt	70	69	69

The data reflect the following:

- Greater efforts are being made to accurately track sanitary surveys and ensure they are completed, which involves sending a letter of findings to the system within 30 days of the on-site visit.
- In FY 2005 to FY 2007 an effort was made to complete sanitary surveys of CWS that treat surface water or groundwater under the influence of surface water. By the end of the calendar year 2007, all but 4 of the 71 treatment plants were complete and 2 of those were completed shortly thereafter.
- The percent of CWS rated satisfactory has slightly increased from 75 percent to 82 percent.

- Most of the sanitary surveys that were not rated are Manufactured Housing Communities. Those sanitary surveys were performed in a separate program until early 2007.
- The number of construction permit applications received has declined significantly over the three FYs, likely due to a downturn in the state's economy.

Deficient systems receive priority for assistance. Ratings are based on compliance with health-based standards, monitoring and reporting requirements, qualified operator requirements, and requirements in Act 399 for TMF sufficiency, such as well construction, general and contingency plans, and financial requirements for privately-owned systems.

Often staff have found that a one-time capacity assistance meeting is sufficient to keep systems in compliance. In other situations, the district engineer spends more time with the system to help solve more complicated concerns or refers the system to other capacity assistance providers. At times, water system operators want to comply, but lack the financial resources or support from community leaders to make necessary changes. However, when capacity assistance is met with resistance, letters of notice are used to outline the consequences of failing to correct deficiencies. These letters may offer one more opportunity to meet with staff to arrive at a mutually agreed upon compliance schedule.

In some cases, district staff may meet with community leaders or attend municipal meetings to discuss the benefits of agreeing to a course of action with a compliance schedule that allows them time to address their problems without further enforcement or penalties. This role as a capacity assistance provider has resulted in very few department orders for noncompliance (16 enforcement cases settled in FY 2005 to FY 2007) and a high rate of compliance statewide.

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

Recently, field staff have provided other tools to help systems comply with regulations. A committee of district engineers updated the guidance document used by staff when reviewing plans and specifications for construction projects titled *Standard Practices for Waterworks Design, Construction, and Operation for Type I Public Water Supplies*. Water systems and their consulting engineers can access it on the Internet as they design improvements and prepare applications for construction permits. Another document currently in the final stage of updating is the *Cross Connection Rules Manual*, which will also be made available on the Internet. This manual is a guide for CWS to prevent backflow from contaminating their water systems.

As previously mentioned, oversight of NCWS is provided by 44 LHD under contract with the WB. The NCWS staff maintain communication with each of the 44 LHD 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 system compliance. Training of LHD staff is conducted extensively during these visits and as needed to inform, explain, and discuss new and updated program issues and procedures. The NCWS staff periodically update a handbook for LHD and distribute it to LHD staff. This handbook includes policies, procedures, guidance,

templates, and forms to implement the drinking water program. The NCWS staff also often present topics at groundwater and other environmental health conferences.

#### 4.3 *Financial Assessments*

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

##### 4.3.1 New Systems

New systems must demonstrate financial capacity before serving water to the public. In the NCWS Program, the system 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, systems submit their financial plan and supporting documents to the MDEQ for review and approval during the construction permit stage. Systems may complete their financial plan during the construction phase of the water system, but must receive approval prior to the final inspection of the system.

##### 4.3.2 Existing Systems

To help existing CWS improve financial capacity, the WB has partnered with another MDEQ division to conduct financial assessments of systems that serve a population of less than 10,000 and that could benefit from a financial assessment. As a result, several systems that are currently in compliance, but are concerned about future challenges such as meeting the new arsenic standard, are making progress toward that end by improving their financial capacity.

A financial expert in the DWRF Program conducts assessments of selected communities' existing financial health and develops Financial Action Plans (FAP). The assessment is a review of financial documents and an on-site meeting with system representatives. An FAP is a tailor-made comprehensive plan to strengthen the system's financial situation based on the assessment. Short- and long-range goals are identified in the FAP followed by a step-by-step process to reach the goals. Useful tools to help complete the steps are included with the FAP, such as a sample water use and rate ordinance and a service agreement checklist. The assessment is not designed to provide funding; however, financing options are discussed at the on-site meeting. Further information on obtaining funding is provided with the FAP, such as forms to help apply to the DWRF. The system is expected to carry out the FAP, and the WB is available to assist when requested. The FAP is intended to also be a guide for district staff. An outline of a typical assessment report is included in the Appendix. In FY 2005 to FY 2007, 21 CWS underwent financial assessments. Some of the successes from those are listed here:

- The village of Perrinton in Gratiot County received federal funding after implementing aspects of the FAP. They also separated water and wastewater funds, implemented new water rates, and are currently installing meters as suggested in the FAP.
- The village of Sand Lake in Kent County moved from a deficient to satisfactory rating on their 2007 sanitary survey after installing a replacement well that meets the revised arsenic standard and raising their water rates to cover the additional costs.

- Minden City and Brown City of Sanilac County and the city of Mayville in Tuscola County all installed arsenic removal treatment and adjusted their rates to cover the additional costs.

Applying for a DWRF loan can be a daunting task for small cities and villages. However, district staff report that some of their communities that underwent a financial assessment became motivated to apply for a loan through the DWRF or the RUS of the USDA-RD. The financial assessment helped the following communities put into perspective the need to move forward and gather the information needed to apply for a loan:

- The city of Reading in Hillsdale County exceeded the revised arsenic standard in 2006. The city used the 2004 financial assessment tool in completing requirements of a rate study to obtain funding through RUS to resolve their elevated arsenic issues. In the meantime, the city entered into an ACO with the MDEQ and is currently finishing construction of its arsenic treatment system.
- The village of Ubyly in Huron County underwent a financial assessment in 2004, which helped them to apply for a DWRF loan in FY 2007 to address the high arsenic issues. The FAP recommended establishing a rate methodology for both the metered and unmetered portions of the water system and entering into formal service agreements with nonvillage customers. The village is using the \$500,000 DWRF loan to install meters and a new well, and has established a separate rate for nonvillage customers.
- Ford River Township in Delta County submitted a project plan in FY 2007 to increase system reliability by constructing a second river crossing that will allow a well that exceeds the radium MCL to be abandoned. They also need to install meters in the entire system. This loan has not yet received committed funds from the DWRF.
- The city of Deerfield in Lenawee County submitted a project plan in FY 2007 to install a nanofiltration system to address nitrate MCLs and reduce disinfection byproducts, install ultraviolet disinfection system to comply with the Long Term 2 Enhanced Surface Water Treatment Rule, upgrade and relocate equipment to protect against flooding, and install a treatment plant security system. The municipality had been nominated in 2003 by district staff to undergo a financial assessment. However, instead of preparing for the on-site visit of the financial assessment, the city prepared a DWRF project plan, which requires much of the same information. The DWRF has not yet committed funds to this project.
- The village of Fowler in Clinton County underwent a financial assessment in 2005 that led to a DWRF project plan in 2006. The project called for a new arsenic treatment plant, a redundant connection to the distribution system, and looping of distribution lines. Funds were committed in FY 2007 and the \$805,000 project was completed in FY 2008.

Often, consolidation and regionalization issues are being addressed in these financial assessments. One unique financial assessment conducted in 2006 at the former K.I. Sawyer Air Force Base brought three governmental entities together to discuss issues to develop a working relationship, such as creating an authority. The FAP also helped K.I. Sawyer to prepare for further rate adjustments. In another instance, the city of Ironwood in Gogebic County underwent an assessment in 2007 that may lead to managerial or financial consolidation through formation of an authority.

Another tool to help systems with financial and managerial capacity through asset management is the *Check Up Program for Small Systems*. This no-cost software program released by the USEPA can help small systems to develop an asset management plan. A WB staff member received a USEPA trainer certification and is available to help small water systems learn the program and begin managing their assets at the lowest possible cost.

#### 4.4 Source Protection

Systems are continuing to take steps to protect their drinking water sources. The SDWA established and funded source water assessment activities, including Wellhead Protection Programs (WHPP) through the DWRP. However, the SDWA did not provide funding specifically for implementation of SWPPs for surface water sources. Currently authority is being sought to provide grants for communities to protect their surface water intake areas.

Amendments to water withdrawal legislation were enacted to further help manage the water resources of the state. Michigan completed a grant program to protect aquifers from contamination by locating and properly plugging wells no longer being used that are located in a community's wellhead protection area (WHPA). These efforts are discussed below.

##### 4.4.1 Source Water Assessments to Protection

The SDWA required that all of Michigan's 18,000 CWS and NCWS 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 WB, local, state, and national agencies. A procedure is being drafted to update the 2003 assessments as staff conduct periodic sanitary surveys.

The Natural Resources and Environmental Protection Act, 1994 PA 451, was amended recently in response to increased water use demands, pressure to divert water outside the Great Lakes Basin, and an increase in groundwater use conflicts. The legislative amendments are intended to help manage water resources and ensure withdrawals do not cause an adverse resource impact (ARI) to the waters of the state. In preparation to comply with provisions that require a permit for withdrawals above a minimum threshold, the WB established baseline capacities for each CWS. Earlier mandates of the legislation were fulfilled by the WB partnering with the United States Geological Survey and Michigan State University (MSU) on the Groundwater Inventory and Mapping (GWIM) project to compile a groundwater inventory and make it available to the public. The GWIM data is available on the Internet and can be used in a myriad of ways. For example, CWS can target protection efforts by simultaneously viewing their WHPA and sites of environmental contamination in the GWIM databases. The WB is continuing to work with MSU to further develop the GWIM site and provide greater interactive capabilities. These capabilities will include integration of the GWIM databases with the Michigan Interactive Groundwater for Wellhead Protection (MIGWHP) software, which will allow users to scientifically map the recharge area of a well instead of relying upon an arbitrary circle. This benefits small systems by providing delineations at virtually no cost for WHPP. An assessment tool is also being developed to help water systems locate potential well sites in areas that are likely not to cause an ARI to the waters of the state.

A pilot program using MIGWHP software began in FY 2007 to target source protection in small CWS and NCWS. During the first workshop, WB and LHD staff provided well delineations generated from MIGWHP to about 30 select water systems located in Eaton County. Participants used the MIGWHP output and their source water assessment data to complete a self assessment of their source protection practices. The self assessment tool is intended to

help the operators identify activities that may increase the risk of a contamination incident and identify actions to reduce the risk. A second workshop was conducted in 2008 with about 50 attending and another 2 workshops will be held to round out the pilot program.

#### 4.4.2 SWPP

The WHPP assists communities in protecting their groundwater sources. A WHPP minimizes the potential for contamination by identifying and protecting the area that contributes to municipal water supply wells and avoids costly groundwater cleanups. Of the 434 municipal systems in Michigan using groundwater as their water supply, 239 are involved in some aspect of wellhead protection, such as performing a delineation, inventorying the potential sources of contamination, and planning for emergencies. Of those 239 systems, 180 have completed all the steps and have an approved WHPP. As a result, 84.7 percent of the population of the state served by municipal systems using groundwater is in communities taking action to protect their groundwater sources or purchase water from communities involved in protecting 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. Due to a budget deficit, all grant programs were suspended in 2007, including the federally funded WHPP. As a result, no new municipalities initiated a WHPP during 2007. However, during FY 2008, WHPP grants, although delayed, were again awarded.

The Surface Water Intake Protection Program (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. The three communities that have completed a SWIPP serve relatively small populations. A matching grant program equivalent to that used in the WHPP is being considered when funds become available, which may stimulate activities in a SWIPP by larger municipalities.

To further protect surface water intakes, the WB 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 Detroit River. Thirteen drinking water treatment facilities will be equipped with a range of analytical devices. The monitoring system includes data transmission, data visualization, automated notification/alarm service, data archiving, and a publicly accessible Web site 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 because of the rapid rate of flow and corresponding changes in water quality compared to groundwater rates.

#### 4.4.3 Abandoned Well Management (AWM) Program

The AWM Program is a comprehensive program to coordinate statewide abandoned well location and plugging activities. No one knows exactly how many unplugged and improperly abandoned wells exist in Michigan, though it is estimated at over a million, quite likely more than in any other state. The program includes the following efforts:

- Sixty-five communities participated in AWM Grant awards to locate and plug over 1,800 abandoned wells inside their WHPAs. This grant program was completed in 2007 when the funding source was exhausted. An alternate funding source is necessary if this program is to continue.
- The basic environmental health services contract with LHD includes an abandoned well management component. The LHD often include, as a condition of a new well

construction permit, a requirement to plug existing, abandoned wells. Since its inception in 2000, over 70,000 abandoned wells have been plugged. Presently, the WB is trying to formulate a plugging strategy for wells that are taken out of service at the time homes, businesses, or other structures are connected to municipal water service.

- Both the WHPP and the AWM Program provide public education and training opportunities for CWS, well drilling contractors, other state agencies, and the public. The goal is to raise public awareness of the health and environmental hazards posed by unplugged abandoned wells.
- The Farm-A-Syst Cost-Share Grants Program has paid to plug over 6,000 abandoned wells on farms and on properties zoned "agricultural" through the Michigan Department of Agriculture as administered by the county conservation district offices.

The WB staff is currently assessing Michigan's SWPP. Recently, surveys were conducted to gather data on source protection needs of groundwater and surface water systems. Another survey was conducted to learn more about other states' protection programs. Analysis of this survey information will help WB staff to focus on proven source water protection program efforts and prompt participating systems to start or continue implementing their protection programs.

#### *4.5 Operator Training and Certification*

Due to amendments to Act 399, a properly certified operator must be available at all CWS, all NTNCWS, and certain TNCWS. 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)*

The OTCU of the MDEQ, Environmental Science and Services Division, provides over 30 training courses each year and administers the Expense Reimbursement Grant (ERG) Program to cover training expenses of operators employed by small systems. The OTCU certifies nearly 80 other organizations and training providers that offer other opportunities for continuing education including online courses. Operators certified in distribution systems must be available at over 1,400 CWS and approximately 1,500 NTNCWS. Operators certified in treatment systems must be available at CWS and NCWS that employ treatment.

The occasional CWS without a certified operator are usually due to operator turnover, retirements, and the like. Field staff work with each of these water systems to pursue an interim certified operator while also pursuing a permanent replacement. There is continual turnover of certified operators in NCWS and the effort to retain certified operators at these small systems is an ongoing process. Major program activities during FY 2005 to FY 2007 include:

- Continuation of the ERG Program for approved training.
- Streamlined the ERG registration reimbursement process by implementing the computer program for training providers to submit attendee rosters electronically to the OTCU.
- Streamlined the operator certification renewal process.
- Utilized Subject Matter Experts (SME) to validate new questions for licensing examinations. The SME include water system operators holding licenses of the highest level in their category.

- Created an Internet site for certified operators to view pertinent information regarding their certifications. Water system supervisors can better manage their employees by having access to this information.

#### 4.5.2 Small System Training

For the past several years, WB staff have conducted training specifically for small CWS and awarded continuing education credits to operators that participated. Many attendees are operators employed by more than one system or may also work at NTNCWS, so this targeted training is improving the operation and maintenance of many more systems than the number of operators attending. The training is slightly different each year to keep the operators interested. General topics covered new regulatory requirements, monitoring and reporting, communicating with the public, construction permit preparation, and operational issues. Special topics change each year and have included methamphetamine laboratories and contamination, disaster preparedness after hurricane Katrina in 2005, and source water protection. In 2005 and 2006, 186 and 163 individuals, respectively, attended at 1 of 5 sites. In 2007, 78 individuals attended one of two sites in western Michigan. The ERG covered registration for about half of the 78 participants.

Also in 2007, the Cadillac District Office of the WB partnered with the cities of Mackinaw, Gaylord, and Cadillac in the northern Lower Peninsula to host training sessions. A county director of public works and the WB field staff served as instructors. Training focused on routine monitoring and reporting requirements and communicating with the public. Attendance increased from 56 operators in 2007 to 86 in 2008. The Cadillac District Office field staff intend to continue the training in the coming years.

Other small system training starts with "train the trainer" sessions conducted by the NCWS staff for LHD staff who then train NCWS operators. Topics range from current requirements and practices to discussions of new requirements and regulations.

Surveillance visits and sanitary surveys are additional opportunities for the LHD staff to provide training for NCWS operators.

The NCWS staff recently completed a comprehensive study guide for individuals pursuing certification to operate an NCWS. It may also be useful for operators of other small CWS. 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 *Technical Assistance Contract*

Funds from the DWRP have been set aside for technical assistance to CWS and NCWS serving 10,000 or fewer people. A contract to perform technical assistance activities to assess and reduce critical contaminants was awarded in 2006 and completed in December 2007. Tasks included on-site visits to systems with elevated arsenic levels, pilot projects at selected systems to develop arsenic reduction strategies and tools, and development of a guidebook or toolkit of options that NCWS can use to reduce arsenic. In addition to those tasks, samples for critical chemical contaminants were collected and analyzed to meet requirements of a monitoring waiver agreement with the USEPA. Field staff helped to identify which supplies should be monitored in areas of the state most likely to detect the contaminants for which waivers were sought. Results of this sampling will be evaluated to determine if routine monitoring for those contaminants should continue to be waived. Finally, the contract also included training sessions for LHD, NCWS, and others, using existing state operator training modules on monitoring,

treatment, evaluations, source water assessments, cross connections, contingency planning, and groundwater wells.

#### 4.7 Security

The USEPA water security grants are funding the following multiyear contracts to improve water system security and emergency response:

- Under the Bioterrorism Act of 2002, water systems serving populations greater than 3,300 developed Emergency Response Plans (ERP). The first contract is intended to provide training for water systems to develop and implement successful ERP incorporating malevolent acts of terrorism into local responsiveness planning and training. Under the Bioterrorism Act, departments of public works are considered part of a community first responders' network. The contract consists of two elements to train network participants:
  - Conduct tabletop exercises. Twenty-five tabletop exercises have been held of the 30 scheduled by December 31, 2008. Participants believe these exercises are useful and should be conducted more frequently.
  - Conduct train-the-trainer conferences to prepare municipalities to conduct their own tabletop exercises. To date, 9 of 10 conferences have been held with a total of 109 participants.

Some WB field staff and LHD personnel have participated in both tabletop exercises and train-the-trainer conferences to fulfill their role as primary contact for water systems during an emergency.

- The second contract involves on-site reviews of Vulnerability Assessments (VA) at systems serving populations greater than 3,300. This work includes a review of capital improvements projects, Reliability Studies, Master Plans, and the like, to determine if the security needs identified in the VA are being implemented or incorporated into future plans. The contract terminates December 31, 2008.
- The intent of the final contract, completed March 31, 2008, was to encourage CWS and NCWS to switch from gas chlorine to a safer alternative disinfectant by providing information, cost-benefit analyses, contacts, support, and documentation. While gas chlorine currently meets the disinfection needs of water systems, it is more dangerous. The majority of the participating utilities now understand the need for changing from gas chlorine to a safer alternative inasmuch as the paradigm has changed from a cost-benefit analysis to a risk-benefit analysis.

Field staff will continue to be involved in safety and security enhancements through the construction permit process and the operation of new systems.

#### 4.8 Technical Assistance Providers

The efforts of other organizations to enhance system capacity is an integral aspect of the CDP. An index of technical assistance providers was developed and describes the services of each technical assistance provider agency. The index is a "yellow pages" that is periodically published in the Michigan *Water Works News* of water systems, community leaders, and MDEQ

staff. Some of the other provider organizations deserve highlighting due to their efforts to enhance capacity:

- The RCAP provides free technical assistance to rural communities with low to moderate median household incomes serving fewer than 10,000 people, with priority to those serving fewer than 3,300, to develop, manage, and operate water and wastewater systems affordably. RCAP staff work on-site with local community officials, community leaders, and system operators to assess capacity needs, review funding options, provide public education, prepare and facilitate public communication, help select consultants, and help apply for funding for capacity projects. Local officials are taking advantage of RCAP services to achieve financial solvency through rate studies as well as help with project selection, compliance with existing and upcoming rule requirements, capital improvements planning, financing options, and vulnerability assessments and emergency response planning. Since FY 2002, the RCAP has leveraged over \$40 million through low-interest loans, grants, and local funds. Communities with which the RCAP worked to achieve compliance with the new arsenic standard include the village of Bancroft in Shiawassee County, the village of Mayville in Tuscola County, the village of Minden City in Sanilac County, the city of Reading in Hillsdale County, the city of Rose City in Ogemaw County, and the village of Sand Lake in Kent County. The RCAP also helped several communities prepare and distribute their Consumer Confidence Report (CCR). Leadership training was provided to the village of Camden and the village of Waldron, both in Hillsdale County. In summary, the RCAP provided assistance to over 70 different municipalities and NCWS to increase their capacity between FY 2005-2007.
- The RUS through the USDA-RD provides loans, grants, and loan guarantees to construct, extend, or rehabilitate water, sewer, solid waste, and storm sewer systems in rural communities serving 10,000 or fewer people. Priority is given to low income communities, those with MDEQ violations, systems with leverage from other funding sources, extending existing systems, and entities working together. Loans are monitored until they are paid in full. Small communities serving populations under 5,000 took advantage of RUS funding in the past three FYs: For FY 2007, 16 drinking water projects totaling \$30,517,000; for FY 2006, 17 projects totaling \$18,444,000; and for FY 2005, 10 projects totaling \$19,529,000.

In the RUS, the ratio of grants to loans is weighted more heavily on loans and less on grants. The goal of the USDA-RD remains to help the most needy, low income communities, targeting those at 60 percent of the state median household income, \$27,461 or less. However, with minimal grant funding, communities are paying more for water services. To ensure funding goes to communities that protect their source and manage their water system, applicants must have a wellhead protection plan, install water meters, and fund short-lived asset and replacement accounts. System security is receiving continued focus and applicants must complete VA and ERP before closing on loans, including systems serving fewer than 3,300 people that were not required to do so under the Bioterrorism Act.

The USDA-RD also administers the Technical Assistance and Training Grant Program that funds tax exempt private nonprofit organizations that have the proven ability, background, experience, legal authority, and capacity to provide technical assistance or training on a regional basis. Successful applicants are typically multijurisdictional

groups, such as the National Drinking Water Clearinghouse, National Rural Water Association, and RCAP.

4.9 *Enforcement*

Evaluations and compliance information becomes the basis for enforcement. When systems fail to return to compliance, escalated enforcement, including ACOs and MDEQ orders, can be initiated.

Before escalated enforcement is used, many systems are encouraged to return to compliance when they are assessed fines for violations. Michigan's administrative fines policy for monitoring and reporting violations was updated in 2001 to add timely submittals of monthly operation reports (MOR) for systems that employ treatment and timely submittals of the CCR. As a result, 12 fines for late MOR were initiated in FY 2002, but systems that quickly returned to compliance have since submitted MOR on time. An increase in late CCR submittals in FY 2005 was noted and may be due to staff transitions in two of the eight district offices during the months that water systems were drafting their reports and preparing to deliver them to customers.

	FY 2002	FY 2003	FY 2004	FY 2005	FY 2006	FY 2007
Number of Fines Initiated	67	67	39	82	96	71
Number of Fines Initiated for Failure to Deliver a CCR	10	8	12	45	16	26
Number of Fines Initiated for Failure to Submit an MOR	12	2	2	3	4	2

When a fine is not applicable or does not prevent further violations, the WB moves to a Notice of Violation and ACO. However, field staff prefer technical assistance over enforcement to bring systems back into compliance or prepare to meet upcoming requirements, especially when options are particularly expensive or when acceptable alternatives are not readily available. As a result, only 16 cases needed further enforcement action in FY 2005 through FY 2007. The cases include construction without a permit, failure to provide adequate water supply capacity, and failure to take appropriate measures after losing pressure in the distribution system. One case in an NCWS was so serious, the water system was ordered to close. The systems with the violations are primarily small, privately-owned systems and very small, municipally-owned systems, none of which have been "new" systems.

Meeting the revised arsenic standard has been particularly difficult for small water systems that do not treat their water and have raised insufficient funds to install treatment to remove arsenic. Instead of levying fines on systems that are striving to comply, the field staff are working with these systems to bring them into compliance as quickly as possible under an ACO with a mutually agreed schedule to meet the standard. Several of these CWS have applied for DWRF or RUS loans to help finance their arsenic remediation. Others have undergone rate studies and raised water rates in order to pay for changes to meet the arsenic standard. Many of the NTNCWS are serving bottled water to remove the public health threat under an agreement with the WB.

Privately-owned new CWS are subject to additional requirements to ensure they are able to provide an adequate supply of drinking water. Proposed systems must stipulate in an ACO to certain requirements; obtain a local government's refusal to accept ownership of the system, establish an escrow account available to the WB for immediate repair or maintenance of the system, and agree to seek MDEQ approval before transferring ownership. The order ensures private owners understand their responsibilities prior to establishing the water system. The WB

is considering increasing the minimum required escrow amount, which has been unchanged since 1979, while also streamlining the ACO process.

#### *4.10 Electronic Reporting*

The WB is working to develop electronic reporting systems to provide more convenience to water systems and more accurate and complete assessment of capacity.

The successful implementation of the Internet-based reporting system for discharge monitoring reports prompted Michigan to expand the project to include electronic Drinking Water Reporting (eDWR.) The eDWR system will provide for online submittal of drinking water laboratory results and treatment plant operational data. Participation will be voluntary, and a water system may choose at any time to no longer participate. The collection of data will allow the WB to query certain parameters to assess capacity on a systemwide and statewide basis. Although the pilot was originally planned for FY 2006, competing priorities have delayed implementation. Future plans include providing other required reports online.

### **5.0 Summary**

Every three years the WB 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 and with monitoring and reporting requirements. An even more critical measure of the effectiveness of Michigan's CDP is the absence of any major waterborne disease outbreaks like those that have occurred in neighboring states and provinces.

Public water systems 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 that the multibarriers are indeed functioning.

Field staff periodically assesses the capacity of water systems through sanitary surveys and serves as a primary resource as the system addresses capacity issues. Programs available to systems include the DWRF, SWPP, operator training, financial assessments, and technical assistance provider services.

New regulations will continue to challenge the water systems. Continuing to strive to maintain TMF capacity will help to meet the challenges of these new regulations.

This report is available on the MDEQ Web site at <http://www.michigan.gov/deq> and to the public, on request.

## **Appendix: Outline of a Typical Financial Assessment and Financial Action Plan (FAP)**

### ***Financial Assessment***

Introduction: Population, location, transportation routes, and community characteristics; description of the water system and major projects or concerns such as expansion, securing loans, and meeting new drinking water standards; and major financial shortfall such as the need for a rate methodology.

Requested Information: Budget, last two years of audited records, water use and water rate ordinances, latest rate ordinance or resolution, recent rate or feasibility study, and contract or service agreements with outside customers.

Submitted Information: Supply usually does not provide all the information requested.

Analysis: Summary or highlights of each of the documents provided by the supply.

On-site Meeting: Date and attendees; and list of items discussed, such as the financial concerns, the billing method, and major recent projects.

### ***FAP***

*Goal One: Develop the financial capability to fund present and future needs.*

Task 1: Develop a capital improvement projects plan.

- Step 1: List anticipated water projects.
- Step 2: Estimate the cost of each project to be funded.
- Step 3: Project the anticipated date the project is to begin.
- Step 4: Calculate the dollar amount necessary to be set aside annually.
- Step 5: Establish a line item in the budget for capital improvement expenditures.

Task 2: Develop and implement a rate setting methodology.

- Step 1: Identify water system expenses.
- Step 2: Identify replacement expenses and fund the replacement account.

*Goal Two: Establish the legal and managerial capability to protect the water system.*

Task 1: Develop a penalties section in the water ordinance.

Task 2: Adopt the amendment to the ordinance.

### ***Tools Included With FAP***

Sample resolution, sample water use and rate ordinance, service agreement checklist, DWRF informational brochure, DWRF project plan preparation guide, securing a DWRF loan fact sheet, and a fixed variable allocation spreadsheet to prepare the budget and determine water rates.