

Capacity Development Program Implementation



Prepared By
Drinking Water & Groundwater Protection Division
Department of Environmental Conservation
Agency of Natural Resources

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ATTACHMENT A - Vermont DWGWP Operator Certification Program Annual Report for Calendar Year 2012, dated July 1, 2013

Executive Summary

In the 1996 Amendments to the Federal Safe Drinking Water Act (SDWA), Congress mandated that states develop capacity development strategies to enhance the ability of public water systems to provide safe drinking water. These strategies are aimed at helping water systems acquire and/or maintain the technical, managerial and financial (TMF) abilities needed to properly operate, manage and finance their systems. With the assistance of a stakeholder group made up of State agencies, public water suppliers, technical assistance providers, local government representatives, and environmental groups, the Vermont Drinking Water & Groundwater Protection Division (DWGWPD) issued their initial Capacity Development Strategy Report on August 28, 2000.

Each State's strategy had to include provisions for new systems, for systems applying for funding from the Drinking Water State Revolving Fund (DWSRF) program, and for existing systems. Vermont's strategy requires all new community and non-transient non-community water systems, and systems applying for funding from the DWSRF to obtain a capacity determination. Existing systems not applying for funding are given direct assistance with capacity issues.

The 1996 SDWA Amendments also require that each State submit an annual report of its Capacity Development Strategy and document the progress made towards improving the TMF capabilities of its public water systems. This report satisfies the statutory requirements of the SDWA and assures that Vermont will not be penalized twenty percent of the DWSRF capitalization grant for failure to comply.

The SDWA as amended in 1996 brought significant improvements to the national drinking water program. Capacity development is an important component of the Act's focus on mitigating drinking water issues. Capacity development provisions offer a framework within which States and water systems can work together to ensure that systems acquire and maintain the TMF capacity needed to achieve the public health protection objectives of the SDWA.

The report is divided into four sections.

- ❖ Section 1 provides a general overview of the SDWA and the Capacity Development Program.
- ❖ Section 2 describes the capacity development review provisions that apply to new systems, existing systems applying for a DWSRF loan, and other existing systems. The new system provision requires all new community water systems (CWSs) and non-transient non-community water systems (NTNCs) that begin operation after October 1, 1999 demonstrate adequate capacity. The Drinking Water State Revolving Fund provision prohibits states from providing DWSRF assistance to public water systems that lack adequate capacity, unless the project for which funding is requested will ensure compliance with the SDWA. The existing system provision is intended to provide direct assistance to existing public water systems to help them acquire and maintain adequate capacity.

Five objectives that were identified in the Capacity Development Strategy:

- (1) Identify methods or criteria that the State will use to identify and prioritize the water systems most in need of capacity assistance;
- (2) Identify institutional, regulatory, financial, tax, or legal factors at the federal, State, or local level that encourage or impair capacity development;
- (3) Describe how the state will use the authorities and resources of the SDWA to: assist water systems in complying with applicable laws and regulations; encourage the development of partnerships among water systems; assist with the training and certification of water system operators; and develop methods for establishing a baseline and measuring improvements in capacity;
- (4) Identify interested stakeholders; and,
- (5) Utilize other available resources within the State of Vermont to assist water systems with their TMF capacity.

Additionally, a variety of initiatives were undertaken to address the objectives, and a summary of the status of each initiative is provided.

- ❖ Section 3 describes the state's approach to offering or providing assistance.
- ❖ Section 4 describes the progress made assisting public water systems to improve their TMF capabilities. Successes are measured through existing programs and new initiatives that assist public water systems to acquire, maintain, and build upon their TMF capabilities.

1. Introduction

The objective of the 1996 Safe Drinking Water Act (SDWA) Amendments (Amendments) was to ensure that public water systems provide safe drinking water to the public. The Amendments seek to mitigate compliance activities and associated health risks by ensuring that public water systems have the capability to produce safe drinking water now and in the future. To achieve these goals, the Amendments included provisions for several prevention programs – one of which is the capacity development program.

Water system capacity is the ability to plan for, achieve and maintain compliance with all applicable drinking water standards. There are three components to capacity: technical, managerial, and financial. Technical capacity refers to a water system's ability to operate and maintain its infrastructure. Managerial capacity refers to the expertise of the water system's personnel to administer the system's overall operations. Financial capacity refers to the financial resources and fiscal management that support the cost of operating the water system. Adequate capability, or capacity, in all three areas is necessary for the successful operation of a public water system.

Capacity development is the process through which water systems acquire, maintain, and build upon their technical, managerial, and financial (TMF) capabilities which enable them to consistently provide safe drinking water to their customers in a reliable and cost-effective manner. Vermont's capacity development program provides a framework for state agencies, local governments, stakeholder groups or organizations, water systems and the public to ensure that drinking water systems acquire and maintain the TMF capacity needed to achieve compliance with applicable State and Federal drinking water regulations.

The purpose of this report is to provide an assessment of the capacity development program in Vermont and the statewide strategy for assisting public water systems. The report highlights progress made toward improving the TMF capabilities of public water systems in Vermont as a result of the Vermont Drinking Water & Groundwater Protection Division's Capacity Development Program.

2. Capacity Development Provisions in the Safe Drinking Water Act

2.1. New Systems Provisions

There has been no change, nor is any currently planned, to Vermont's legal authority to implement the New Systems Program since it was established by state law in 1998.

Vermont's Capacity Development program utilizes a self-developed 'Capacity Review Check-list' to determine when and what a qualifying system needs to complete to demonstrate capacity. For potential CWSs and NTNCs, the checklist is a two-step process, completing items before receiving a Permit to Construct (PTC) and another set of items before receiving a Permit to Operate (PTO). Items included on the checklist include, but are not limited to, submittal of a Source Protection Plan, Long Range Plan, project As-Built plans, and required sampling plans, and retention of a Certified Operator.

Additionally, to ensure newly permitted water systems are able to maintain capacity, the Capacity Development Coordinator conducts quarterly check-ins with either the design engineer or the applicant to determine where in the construction process the proposed system is. Often this acts as a reminder to the applicant that their PTC will expire shortly and if they still intend to complete the project they must reapply for a new permit. This is also beneficial to systems that have finished construction and will be serving water to the public by serving as a reminder that more steps need to be completed before they have officially achieved capacity and can receive a PTO.

2.1.1. New Water System Capacity Reviews

During state fiscal year 2013, the capacity development program either began or completed a capacity review on seven potential new systems at varying steps in their approval process. As indicated above, a system will receive a capacity review up to two times; before they receive a Permit to Construct and again before receiving a Permit to Operate. Their information is summarized below in Table 1.

Table 1
Vermont Annual Capacity Program Report
New CWSs and NTNCs, State FY12
July 1, 2012 - June 30, 2013

Construction Permit Reviews	Proposed WSID	PID # (internal tracking)	Capacity Review Status	Notes
Daniels Construction	VT0021345	N-2917-12.0	Not Complete	Capacity review in progress
Operating Permit Reviews	WSID	Date Activated	Capacity Review Status	Notes
Waitsfield Water Supply	VT0020997	1/17/2013	Completed	Initial Permit to Operate issued
Lamoille Family Center	VT0021394	1/31/2013	Completed	Initial Permit to Operate issued
2178 Airport Rd	VT0020355	2/8/2013	Completed	Initial Permit to Operate issued
Border Patrol Station Swanton	VT0021340	2/28/2013	Completed	Initial Permit to Operate issued
Foundations for Success Daycare	VT0021361	5/14/2013	Completed	Initial Permit to Operate issued
Derby Border Patrol	VT0021218	6/6/2013	Completed	Initial Permit to Operate issued

2.1.2. Most Recent Three-Year Period

In any given fiscal year, the DWGWPD receives numerous inquiries from developers, landowners, and other entities about creating a new public water system. In most cases, the DWGWPD promotes alternatives to creating a new public water system, such as consolidation with, or annexation by, existing public water systems. Since the Vermont Legislature enacted Act 156 in 2008, *An Act Relating to Public Water Systems*, which authorized consecutive water systems serving less than 500 persons to qualify for an exemption from Federal and State Drinking Water Regulations, the DWGWPD has seen an increase in the number of systems applying for and receiving consecutive exempt status at the beginning of the permitting process.

Table 2 below shows the ETT status of new public water systems that were activated during the past three state fiscal years and reported on in the federal annual new system capacity reports.

Table 2
New Public Water System Activity
7/1/2010 – 6/30/2013

WSID	WS Name	PWS Type	Date Activated	On ETT list? Number?
VT0021218	DERBY BORDER PATROL	NTNC	6/6/2013	No
VT0021361	FOUNDATIONS TO SUCCESS DAYCARE	NTNC	5/14/2013	No
VT0021340	BORDER PATROL STATION SWANTON	NTNC	2/28/2013	No
VT0020355	2178 AIRPORT RD	NTNC	2/8/2013	No
VT0021394	LAMOILLE FAMILY CENTER	NTNC	1/31/2013	No
VT0020997	WAITSFIELD WATER SUPPLY	PCWS	1/17/2013	No
VT0020928	CATAMOUNT-MALONE	NTNC	12/28/2012	No
VT0006624	PUTNEY SCHOOL	PCWS	12/26/2012	No
VT0021345	ADVANCED ILLUMINATION INC	NTNC	4/20/2012	No
VT0006069	SUNNY LANE DAYCARE	NTNC	4/13/2012	Yes- 6*
VT0021079	NE WASTE SERVICES	NTNC	3/20/2012	No
VT0021127	VT MUTUAL	NTNC	12/8/2011	No
VT0021349	802 TOYOTA	NTNC	11/1/2011	Yes- 10*
VT0021348	PARKER OFFICE BUILDING	NTNC	10/25/2011	No

VT0021311	NVRH WATER SYSTEM	NTNC	6/30/2011	Yes- 2*
VT0021339	SMUGGLERS OPERATIONS CENTER	NTNC	5/16/2011	No
VT0006086	HANCOCK VILLAGE SCHOOL	NTNC	5/4/2011	No
VT0000196	CORTINA INN RESORT	NTNC	1/10/2011	Yes- 8*
VT0020453	SOUTHWORTH MILTON INC	NTNC	10/20/2010	No
VT0021303	KING ARTHUR FLOUR COMPANY	NTNC	9/8/2010	No
VT0008321	CABOT FARMERS COOP	NTNC	8/13/2010	No
VT0021302	HIGHGATE SPRINGS POE	NTNC	8/5/2010	Yes- 2*

*- action is only required on systems that exceed 11 on the ETT scale. These systems, however, will be tracked more closely.

2.2. DWSRF Applicants Provision

In February 2013, the DWSRF program was moved to the Facilities Engineering Division (FED) from the DWGWPD. This move enabled all funding programs to be housed under the same Division and enabled program managers to better communicate on loans. For projects that receive SRF funding, the DWSRF Program Development Specialist is responsible for determining whether the system has adequate capacity. A determination on system capacity based on information available in DWGWPD records, the priority list application, construction loan application and, most importantly, completion of a capacity evaluation. The capacity evaluation is an in-person meeting between the applicant, their operator, and the DWSRF Program Development Specialist; often the system's designated engineer will also attend.

Components of the capacity evaluation include discussions related to source capability, monitoring and compliance reporting, relationship with the certified operator, whether a contract with the operator exists, non-revenue water, water and energy efficiency, asset management, managerial competency, and fiscal responsibility. Discussions regarding financial capacity involve current and projected water rates, delinquent water accounts, and financial capital improvement planning. The presence of an active organization with identified responsible officials and business practices are considerations in managerial capacity determinations. If a loan applicant is determined to have a lack of capacity in an area, a list of action items will be established and considered a condition of loan approval or forgiveness, if applicable. Otherwise, the action items are recommendations and are usually not significant enough to keep the system from maintaining TMF capacity needed to protect public health and maintain the system. The FED, in consultation with the DWGWPD, continues to update the survey as needed to reflect the changing needs of the program. More emphasis is now placed on implementation of the action items with consideration being given to withholding planning loan forgiveness, where applicable, until certain capacity milestones are achieved.

Many capacity evaluations have resulted in further work with systems on budgeting, user rates and asset management. Additionally, many of our school water systems have had, for the first time, a written contract with their operator. Most of these school-operator relationships evolved over many years and a frequent change in personnel at the school has resulted in lack of communication of who is responsible for what, causing the system unnecessary NOAVs. Another benefit for many water systems is the 'Exit Budget Review' the Capacity Development Coordinator or DSWRF Project Development Specialist conducts along with the Capacity Evaluation for systems seeking planning and/or construction loan forgiveness. The Exit Budget Review consists of filling out a simple spreadsheet where major system assets are listed with their current age and expected useful life, current cost to replace, projected cost to replace at the end of its useful life, and a projected annual contribution to a capital reserve fund. This exercise is often the first time very small systems put the proverbial pen to paper to determine what the system components may cost to replace. This is a useful starting place when having discussions with school boards, for example, for annual contribution to a capital reserve fund.

2.3. Existing Systems Provision

More than ten years have passed since Vermont's Capacity Development Strategy was established and the water system landscape has changed significantly since that time. The Strategy should also reflect this change. At the end of State FY11, the Capacity Development Coordinator, along with stakeholders, began an update of the Strategy, discussing emerging water system managerial and financial issues.

The summary of those meetings were outlined in the FY2012 CapDev Report. Since those initial meetings, however, work has stalled as other activities took priority. It was reported in the FY2012 report that there was a merging of two Divisions; as a result, the CapDev Coordinator took on the task of overhauling the website to combine and update it to better represent the newly merged Division. This task took many months, and with the use of a contractor, went live in mid-February. The newly organized website not only combines two Divisions, it cleaned-up outdated material and streamlined information into the most frequently used categories. Also, beginning in June 2012, the CapDev program embarked on an asset management pilot project with the Village of Waterbury in an effort to link CUPSS with GIS. That project wrapped up in spring 2013; the result of the project will be summarized in more detail in a later section. Lastly, in May 2013, the long-time CapDev Coordinator took a position with the DWSRF program. Recruitment for the new coordinator began in August 2013, and the new coordinator will be Jim Siriano, who comes from the TNC program within the DWGWPDP.

2.3.1. Vermont Public Water Systems Demographics

There are 1352 public water systems in Vermont that fall into three different categories.

Public Community water systems regularly serve at least 25 year round-residents or have 15 or more connections serving year-round residents. There are 423 systems serving an estimated aggregate population of 446,967. About half of these Community systems are privately owned home-owners associations or mobile home parks; approximately 13 are private-for-profit water systems that are regulated by the Public Service Board and the Department of Public Service.

Non-Transient Non-Community water systems serve at least 25 of the same persons daily for more than six months per year. Schools, factories, and office buildings meet these criteria. There are 246 systems in this category serving an aggregate population of 44,673. More than half of these systems are small rural schools, the remainder are mostly privately owned businesses.

Transient Non-Community water systems serve more than 25 persons a day for at least 60 days during the year. Restaurants, motels, and campgrounds are examples. Approximately 663 systems are classified as transient non-community water systems. Nearly all of the transient systems are privately owned, for-profit businesses.

Additionally, there are approximately 6 water bottling companies whose sources are in Vermont and are regulated by the Drinking Water & Groundwater Protection Division. Also new to our regulated community and unique to Vermont is the large groundwater withdrawal for industrial and/or commercial entities of which there are currently 14. A large groundwater withdrawal is defined as a non-potable water supply source where the withdrawal will be more than 57,600 gallons per day; agricultural uses are exempted.

Regulatory requirements vary for the different types of systems and the major focus of the strategy is on CWSs and NTNCs. Factors weighing on strategy development and implementation are system size and ownership type. Given the small size of most of Vermont's water systems, operation, maintenance, and capital planning costs have a major impact on the ability of small volunteer or part-time system operators to maintain their system's compliance with the ever increasing and more complex Federal and State regulatory requirements. Our capacity program is focused primarily, although not exclusively, on those most in need of assistance-- the very small community system and small rural school system. A significant number of these systems would not be able to comply with regulatory requirements and protect public health without the technical and financial assistance provided through this program. This strategy has proved successful and we are now working to focus more on small municipalities and systems on the verge of enforcement action with onsite managerial and financial assistance.

Additionally, the capacity program has become increasingly involved in assisting public community water systems regulated by the Department of Public Service and Public Service Board as a utility restructure into a more equitable, user-owned system by means of forming a fire district. Vermont Statutes allow for the formation of a fire district- a municipal entity with taxing authority established for a variety of reasons (maintain sidewalks, street lights, provide fire protection, water, etc.). A fire district is given authority to organize and operate by the Selectboard of the town(s) or by the State legislature. Once formed, the fire district is a sovereign entity in or among town boundaries and establishes a prudential committee, by-laws, collection practices, etc. A town may have an unlimited number of fire districts and are numbered in the order they are formed (1, 2, 3, etc.). A benefit to being a fire district is the potential

for more favorable financing terms from the DWSRF program, including access to SRF set-aside programs and the ability to adequately charge for water service without having to obtain Public Service Board approval.

2.3.2. Implementation of the Existing Capacity Strategy

Vermont has a long history of providing both financial and technical assistance to water systems. The 1996 Amendments to the SDWA provided an opportunity to use federal and state dollars to improve and expand this program to more nearly meet the need. Based on public input, the Vermont Existing Public Water System Capacity Strategy was developed and submitted to EPA in July of 2000. Reference should be made to prior reports for a detailed summary of achievements for each initiative. New initiatives or capacity undertakings are included in detail below. Major components of any capacity program are technical and financial assistance, and training opportunities, but the Division is currently focusing on providing managerial assistance as the backbone for overall Capacity Development. We believe emphasis on each of these components will be most successful in assuring Vermont water systems are able to comply with regulatory requirements and protect public health.

The Capacity Development Strategy discussion below includes ongoing work related to the original initiatives detailed in the Vermont Existing Public Water System Capacity Strategy of July 28, 2000, as well as initiatives and major activities introduced since then.

Table 3 Existing Capacity Development Strategy Initiatives 2000- Current			
Capacity Initiative	Status	Target Audience	Notes
Monitoring Cost Study	Completed	TNCs	This consisted of a study completed in 2002 that identified the cost of quarterly compliance sampling for TNCs. Based on the study's findings; the state developed a budget for conducting the water quality (WQ) samples, which included providing technical support to TNCs. The work was accomplished in 2004 – 2005 through contracts with private engineering firms and use of the DEC laboratory, at no charge to the water systems.
DWSRF Program Changes	Ongoing	Potential DWSRF loan recipients	The Program has undergone occasional changes, mostly (but not exclusively) in response to new federal or state requirements, such as the recent requirement to use 20% of the federal capitalization grant for Green Project Reserve projects, and greater loan subsidy. All major changes are identified in each year's DWSRF Intended Use Plan.
Training and Assistance	Ongoing	Water System owners and operators	VRWA (a technical assistance provider), under contract, conducts group and individual training and technical assistance for water system operators and owners. A summary of these sessions are included in the Appendix.
Legal Assistance	Ongoing	CWS, NTNCs, loan recipients	Pays for legal services associated with DWSRF loan closings. Additionally, will assist with legal reviews for systems acquiring/merging/purchasing another system or land.
Engineering Technical Assistance	Completed	CWS, NTNC	DWGWPD had several engineering firms under contract to provide operational troubleshooting assistance to small public water systems.
Small System Templates and Self-Assessment	Completed	CWS, NTNC	Templates for O&M manual and long range plan, and a capacity assessment form was developed. These documents form the basis for some of the individual

			on-site and group-training sessions provided. Capacity assessments are completed for all loan applicants and are a prerequisite for both planning and construction loan eligibility. Additionally, a customer complaint policy and form and <i>How to Form a Fire District</i> were developed.
User Rate Reviews and Budgeting/Assisting in the Development of Financial Capacity	Ongoing	CWS	Systems have contacted the Capacity Coordinator for assistance in establishing an equitable user rate structure. To date, twelve systems are in varying stages of the process.
Public Service Board (PSB) Technical Assistance	Completed	Private, for-profit CWS (regulated utilities)	Beginning in early summer of 2009, DWGWPD met with representatives from the PSB and DPS to discuss better coordination between the three entities. The aim is to help the very smallest of regulated public water systems with rate review, tariffs, and reporting. This coordination is still in its early stages, but just starting the conversation is a significant milestone. Additionally, a guidance manual was developed to assist small systems in the rate approval process.
Board Member Owner Manual	Developed; updating & printing needed	All PWSs	The manual outlines the responsibilities and liabilities for PWS board members and includes information on relevant laws, regulations, and policies, and a list of resources.
Small System Design Guidance Manual	Ongoing	All PWSs	Consists of the development of a design criteria guidance manual for small water systems to address system modification and replacement requirements and new regulatory requirements.
Consolidation Study	Completed	CWS	Consolidation Study was replaced with a Facilitation and Mediation contract beginning in June 2008.
Drinking Water & Groundwater Protection Division Newsletter- <i>Waterline</i>	Ongoing	All PWSs, Consultants, interested organizations	This is an effective means for communicating to a broad audience interested in hearing from the state on issues affecting public water systems. We have received feedback from readers that is highly supportive of the newsletter.
Communication Workgroup	Completed		A workgroup was formed to evaluate and develop recommendations on mass mailing procedures, newsletters, use of the Electronic Bulletin Board, electronic communication with water systems, and general publicity issues. A number of those recommendations were implemented.
Development of a Cross Connection Guidance Manual	Dropped		Numerous guidance manuals exist; a decision was made that Vermont did not need to develop one of its own.
Reservoir Water Quality Study	Completed	Surface water CWS	The study collected and analyzed data on changes in source water characterization during the year for two small surface water bodies used by public community water systems in Vermont. Field data collection occurred between April 2002 and May 2003 for the Town of Brattleboro and City of St. Albans Water Systems. Data was analyzed and results evaluated and communicated to the participating water systems.
Comprehensive Performance Evaluation Program	Completed	CWS	Evaluations were completed for 3 surface water systems and additional CPEs may be performed in the future on a voluntary basis
Operation & Maintenance Manual Template for Small Surface Water Systems	Dropped	CWS	The need no longer exists.

Small System Engineering Evaluations	Completed	CWS, NTNC	An extremely successful initiative and may resume in the future for those systems that did not already receive an evaluation
Regulation of Consecutive Water Systems and New Water Line Extensions	Completed	CWS	Successful passage of H806 to Act 156 <i>An Act Relating to Public Water Systems</i>
Asset Management Pilot	Ongoing	CWS	In summer 2011, DWGWPD approached the Village of Waterbury regarding the pilot. The Village was excited to participate; unfortunately, the Village was devastated by flooding from Tropical Storm Irene. However, the Village is still interested in moving forward and work will be restarting work in early winter 2011. The MOU with the Village was signed in spring 2012, we hired a temp in June 2012 and she began asset identification shortly thereafter. We anticipate the pilot to continue through the end of 2012 with Waterbury taking a more active role as we get closer to the end of the year. Summary of the pilot is provided in more detail below.
Determination of non-profit status	Completed	Loan Applicants	After exhaustive research, the DWGWPD was given the authority to determine if a water system was not-for-profit without being a tax-exempt (through the IRS) entity. This distinction is beneficial in it reduces a potentially significant time and money delay in the DWSRF loan process
WaterSense Pilot	Ongoing	CWS, NTNC	The initial candidate was not eligible as it was clear that the water system needed to improve internal practices and repair infrastructure to address water shortage needs as opposed to there being an actual need to reduce source demand or increase production. Since then the DWGWPD has worked with two other entities on water conservation as an alternative to capital improvement. Harwood Union High School was considered a potential candidate; however, it was clear that the school had already taken significant steps to achieve water conservation/efficiency and the next step to address water demand is outside the scope of this project. The current water system to be considered for efficiency gains in order to avoid capital expenditures is Orange Center School. DWGWPD is still in the information collection stage, but this may turn out to be our first documented case where a system has saved on capital expenditures through efficiency improvements. In June of 2012, a grant was offered to the Orange Center School to purchase new WaterSense labeled toilets and faucet aerators, and a new dishwasher. The fixtures were installed summer of 2012. Reporting on the outcome of the project will be in the next Capacity report. More on this project is below.

A comprehensive overhaul of the Capacity Development Strategy began in June 2012. The new CapDev Coordinator will be instrumental in its development and implementation.

Three major CapDev projects were undertaken and/or completed during the FY2012 cycle. The Asset Management Pilot, the Water Efficiency Pilot and the overhaul of the website were major milestones in the CapDev and DWSRF programs.

The website overhaul was long-time in coming, but when the Water Supply Division and parts of the Wastewater Management Division merged in 2012, a need to merge and revise the websites became apparent. With the help of a contractor and a few DWGWPD staff, the CapDev Coordinator re-organized, re-examined and re-launched a more useful site. Of course, however, a month later it was announced that the DWSRF program be moving to the Facilities Engineering Division (FED).

As indicated above, the WaterSense Pilot was a project that initially started a number of years ago, but the right project failed to materialize. However, finally in summer 2012, a grant was awarded to the Orange Center School. The pilot was to address seasonal water shortages where the school was under a permit timeline to drill and permit a new water source. However, instead of spending money on source exploration in an area with declining well yields, the DWGWPD proposed reducing the use of water through efficiency in an effort to address their seasonal water shortages. School dishwasher and toilets were replaced with the most efficient products on the market. The fixtures were installed in fall 2012; water consumption has declined since. The school has not had to haul water as the result of water use (they did have to haul due to a waterline break) to date. Another component of the water project was water education. Three representatives from the DWGWPD traveled to the Orange Center School to do hands-on drinking water related educational activities designed for elementary school children.

The DWGWPD and Village of Waterbury, a small drinking water system, collaborated on an asset management pilot project. The goal of the pilot was to populate CUPSS, the EPA-developed asset management program, using ArcGIS for a more efficient way to enter many hundreds to thousands of assets. The use of GIS to spatially locate and attribute assets for use in CUPSS has never been done successfully. The effort was successful, but not without challenges; the project wrapped up in spring 2013. Results of this pilot have been very popular among other states, and the EPA. Additionally, this project was chosen to be highlighted during the 2013 New England Water Works Association regional conference and is slated as a presentation at the 2014 American Water Works Association national conference; it was also presented at the 2013 Green Mountain Water Environment Association state conference. The following is the Executive Summary from the report.

In June 2012, the Vermont Agency of Natural Resources and the Village of Waterbury collaborated on an asset management pilot project. A great deal was gained from implementing an asset management (AM) program at a medium-sized Vermont drinking water system, though small by national standards. Throughout this process, the asset management team, consisting of state employees, water system operator, public works director, town manager, and others, had to overcome a number of hurdles from data collection to software programs to communication in order to ultimately reach the goal of implementing an asset management program for the Village. Lessons learned from this project will help inform the future direction of an AM program for water and wastewater systems in Vermont.

Using a combination of resources, including the 10-step process combined with the 5 core questions of AM, we worked with the Village of Waterbury drinking water system to create an AM program. We modified this process for our own purposes, breaking it into 6 phases. After the Village agreed to the MOU and a temp employee was hired to lead this project, the first phase was to meet with system managers and operators to create an AM team and discuss the feasibility of the project. The data acquisition and entry phase was the most time consuming and daunting part of the process. Within this phase, there were several steps including: obtaining and digitizing record drawings of water assets; manual collection of assets within the treatment plant; GPS verification of digitized assets; assessing the value and condition of assets; and, finally, uploading the data to the CUPSS program. Next it took approximately two months to assess the value and condition of the assets and fill in any missing information in the database. Concurrent with the data collection, verification and valuation step, was to discuss Waterbury's level of service (LOS) agreement. Another significant phase of the project was, after the majority of assets were entered into CUPSS, TeAM met to discuss asset risk ranking. One of the benefits of an AM program is the generation of a risk rating table, ranking assets from most critical to least. The next phase involved collecting and inputting financial information into the CUPSS program. In the final phase of the project, we met with the entire TeAM to transfer the final database over to the system and train them to use the CUPSS program.

In the end, the result is a database of over 2700 assets and their associated condition, location, and cost. This is a huge advantage to the Village of Waterbury both from a maintenance standpoint and from a financial standpoint. We also included the GIS data which will allow their Town Planner to produce maps and utilize the spatial data.

One of the main outcomes of this project was that we learned a great deal about what it is like to implement an asset management program at a small community water system in Vermont. While we felt this project was successful, there are some lessons learned that will inform the direction of an AM program in Vermont. The main lesson learned from this project concerned the difficulties associated with creating a link between ArcGIS and CUPSS. Linking GIS and CUPSS has never been done or even, to our knowledge, tried, so we were attempting something many people nationally, including EPA, are very interested in. Additionally, significant thought should go into determining which asset management system is best for the utility prior to starting an AM program. Along with determining the appropriate asset management program, there is a need to determine exactly which assets the utility would like to manage. The information should be useful, but at the same time it should be manageable. Another important lesson learned through this process was that the more involvement and ownership the utility has, the better the process will work and the more vested they will be using the program. One final lesson learned from doing this project was to start small. It is very easy to become overwhelmed with the detailed upfront data collection phase.

A change in the way water and wastewater utilities in Vermont think about their financial management is desperately needed. There is a necessity to help these systems become more financially independent, establish better funding strategies, and more efficiently use their limited resources. We, as a state agency can act as a catalyst in moving this effort forward. There is significant interest in asset management systems throughout the country as evidenced by the thousands of CUPSS users throughout the nation and the interest expressed by numerous local, regional and national organizations that have asked us to speak about our experience with this project.

Now that the project is complete, we have a much better idea of the process and the work it takes to implement an asset management program at a small Vermont drinking water utility. Although projects in the future may not have as much direct state involvement, it will be much easier for us to offer technical assistance to municipalities who wish to implement an asset management program.

3. State's Approach In Offering or Providing Assistance

As indicated in the original strategy, the DWGWPD continues to identify systems in need of capacity development assistance, however because assistance is available to meet all requests, prioritization of systems is not necessary. In the future, if the need for *technical assistance* exceeds DWGWPD staff availability, DWGWPD will prioritize systems using a number of factors including, but not limited to:

- ◆ DWSRF priority list status
- ◆ System ownership (municipal, private non-profit, private profit)
- ◆ System type (CWS, NTNC, TNC)
- ◆ System population- the smaller the population, the higher the priority
- ◆ Permanent residents
- ◆ System willingness

Specific forms of *technical capacity assistance* include:

- ◆ Sanitary surveys every 3-5 years
- ◆ On-site or phone consultation of system troubleshooting
- ◆ Chemistry, disinfection by-product (DBP), lead and copper, and treatment expertise
- ◆ Publish *Waterline*, and contribute articles to other publications
- ◆ Conduct operator training on new rules
- ◆ Conduct informational meetings on new rules
- ◆ Conduct source water assessments

Specific forms of *financial capacity assistance* include:

- ◆ Low-interest loans for water system improvements
- ◆ Zero-interest loans for planning & final design
- ◆ Low-interest loans for land purchase and conservation easements for source water protection
- ◆ Negative-interest construction loans to low-income communities with high water rates relative to Median Household Income (MHI)

- ◆ Planning and final design loan forgiveness for small municipalities
- ◆ Construction loan forgiveness for municipal school system improvement projects
- ◆ Budgeting and user rate reviews

Specific forms of *managerial capacity assistance* include:

- ◆ Review of fire district, coop, homeowners association by-laws
- ◆ Review of water ordinances, interlocal agreements, consecutive exempt agreements
- ◆ Formation of fire districts or other management structure
- ◆ Reorganization/restructuring assistance
- ◆ Resource for voting, elections, due process
- ◆ Legal assistance
- ◆ Moral support

4. Review of Implementation of the Existing System Strategy

There is a great deal of flexibility in program administration and implementation as it relates to providing capacity assistance. This has been instrumental in making the capacity program work for those systems that need it most. The DWGWPD does not conduct regularly scheduled reviews of the implementation of its Capacity Development Program; however, there is significant interest in re-visiting the efficacy of the initial Capacity Initiatives and how they relate to program goals. The objective of re-visiting would be to re-establish, re-write and/or develop new initiatives given the program is past the 10-year mark and significant experience was gained during that time. In reviewing the existing strategy, it is apparent that much of the initial 18 initiatives were heavily focused on technical capacity. The focus of the program is shifting increasingly to managerial and financial capacity. Additionally, there is a push from within the program to re-work initiatives and incorporate the principles of Sustainable Water Infrastructure (Sustainable Infrastructure, Sustainable Systems and Sustainable Communities).

Availability of the Report to the Public

The DWGWPD posts its annual Capacity Development Program Report to EPA on its web site at:
<http://www.drinkingwater.vt.gov>

Prepared by: 

Date: ____9/30/2013

Ashley J. Lucht
 Vermont Capacity Development Coordinator

Vermont Drinking Water & Groundwater Protection Division

Operator Certification Program

Annual Report for Calendar Year 2012

This Annual Report documents Vermont's program compliance with the EPA Operator Certification Guidelines for the calendar year ending December 31, 2012.

Program overview and Enforcement efforts

The total number of certified operators for Community, Non-Transient Non-Community, and Transient Non-Community systems is 1,238.

Vermont offers Operator-in-Training and Provisional Certification to help new water systems and operators become fully certified. Our database currently lists 6 operators with Provisional Certification and 17 with Operator-in-Training Certification.

The number of systems without certified operators as of June 3rd, 2013 is listed in the table below.

System type	Number of systems	Number of systems with no certified operator
Community	424	1
Non-Transient Non-Community	243	1
Transient Non-Community*	669	65

* TNC certification is not mandated by EPA.

Our Certification Office and TCR Coordinator who held the position for 6 years took another position within the division in March 2012. The new Certification Officer started working in the division on May 14, 2012 only to leave within 6 months to take another position in the department. A second individual was hired on November 19, 2013. The Compliance and Certification Section Manager managed the work through the transition and trained the new employees.

The Division Certification Officer continues to work closely with new and delinquent community and non-transient non-community water systems to help them obtain a certified operator. The Certification Officer runs a report monthly to identify community and non-transient non-community systems without a certified operator. The Certification Officer will call these systems and follow up with an initial warning letter, if necessary. The water system has thirty days to notify the Drinking Water and Groundwater Protection Division in writing of their certified operator. If the system does not obtain a certified operator, we will issue a Notice of Alleged Violation (NOAV) shortly after the thirty-day period. At this stage, most water systems comply with the NOAV. For the few remaining, the Division attorney may contact the water system and warn the system of a potential enforcement action. If the system still does not obtain a certified operator, we will refer the system to the Agency of Natural Resources Compliance and Enforcement Division for further action.

Most community and non-transient non-community water systems find themselves without certified operators because their operator(s) fail to renew their certification on time. In calendar year 2012 no NOAVs were issued to water systems for failure to have a certified operator.

The Agency of Natural Resources has the authority to revoke or suspend an operator's certificate. Failure to comply with the regulations may require revocation or suspension. In calendar year 2012 no operators' certification was revoked or suspended.

Training and exams

The operator training program is coordinated with the Vermont Rural Water Association (VRWA). Communication between the VRWA Coordinator and Drinking Water and Groundwater Protection Division and Compliance & Certification staff occurred frequently throughout the year. Additional courses have been coordinated with the Green Mountain Water Environment Association (GMWEA) and the New England Water Works Association (NEWWA).

Ongoing training coordination occurred throughout the year between the Drinking Water and Groundwater Protection Division, VRWA, and GMWEA. We continued to hold courses in various locations throughout the state to reach small water systems. The attendance for each class ranged from 10-20 participants (depending on location).

Our courses were publicized on our web site, listed in our newsletter, and mailed to operators before a renewal period. In calendar year 2012 approximately 4495 training contact hours were awarded to 1190 water professionals.

Reviewing and approving training courses: The Vermont Rural Water Association (VRWA), [Green Mountain Water Environment Association](#) and New England Water Works Association have "blanket approval". All other courses must be pre-approved using a pre-approval form taking into account our pre-approval guidelines. Courses must be relevant to operations or management of water systems. We accept a wide spectrum of topic areas from basics to advanced topics. Training topic areas include a range of technical training including safety, capacity, equipment mechanics, and drinking water rules. We also provide training classes for new operators of small systems, systems with advanced treatment and distribution only. We contract with Vermont Rural Water and Green Mountain Water Environment Association to provide training in Vermont. New England Water Works provides advanced training at multiple sites in Vermont. At this time only IACET certified online courses can be pre-approved.

Exams were again administered in the spring and fall (May 3rd and November 9th, 2012) at two different locations (Burlington and Rutland, VT) on the same day. There were 24 and 26 individuals who took the exam in May and November, respectively.

Training Contracts - The state advertised a request for proposal for operator training in the state and awarded the contract in early 2012 to the Vermont Rural Water Association. GMWEA utilized all funds in their grant which expired on December 31, 2012. Both documents are attached.

Stakeholder Involvement and Program Review

The Vermont Operator Certification Advisory Committee only met one time in calendar year 2012 because of the turnover in the Operator Certification position. No changes have been made to the Vermont Water Supply Rule as of yet. A major rule revision is slated to begin mid 2013 with a final adoption date by December 31, 2014. During this process the division will review Section 21-12 and the process will allow for an internal and external review during the rule rewrite.

The exam for Class D operators was reviewed internally and updated about 4 years ago. We plan to complete an internal review and update of the Class 2 exam in 2013. In addition, Class 3 and Class 4 exams are due for an update because the last review was done over 6 years ago. We plan to conduct a review of the Class 3 and 4 exams in 2014-15 as our goal is to review and update the exams on a 5 year cycle.

Expenditures

The Division continues to use DWSRF money to fund operator training provided by the Vermont Rural Water Association and Green Mountain Water environment Association. The VRWA contract is funded by Technical Assistance Set-Aside Funds and the GMWEA grant is funded by Program Management Set-Aside Funds.

Month	Course Title Training provided January 1, 2012 – December 31, 2012	TCH	# of attendees	TCHs Awarded
Jan				
	Corrosion Control Technology-Morrisville-PJ	4	14	56
	Corrosion Control Technology-Brattleboro-PJ	4	17	68
	Mixing Potable Water: Eliminating issues in Your Storage-Waterbury-	3.5	15	52.5
	Water System Microbes and Chlorine Chemistry-White River Jct.-PJ	7	10	70
	VOSHA Trenching and Excavation Safety Training-Middlebury-PA	3.5	11	38.5
	Water System Microbes and Chlorine Chemistry-Lyndonville-PJ	7	11	77
	VOSHA Personal Protective Equipment Safety Training-Brattleboro-PA	3.5	12	42
	Traffic Control Flagger Certification-Montpelier-PA	4	9	36
	On-site Training-Confined Space Entry/Trenching Safety-Windsor-PJ	6	4	24
Feb				
	Water System Conservation-Essex Jct.-PJ	3	9	27
	Water System Conservation-Lyndonville-PJ	3	6	18
	Deciphering the CCR for Your Customers-Waterbury-	3	10	30
	Water System Conservation-Springfield-PJ	3	9	27
Mar				
	VOSHA Electrical Safety-Springfield-PA	3.5	22	77
	Water and Wastewater Rates and Budgets-White River Jct.-SF	4	21	84
	Small Systems Class 2 Certification-Montpelier-Session 1-PA	4	8	32
	Small Systems Class 2 Certification-Montpelier-Session 2-PA	4	8	32
	Small Systems Class 2 Certification-Montpelier-Session 3-PA	4	8	32
	Small Systems Class 2 Certification-Montpelier-Session 4 PA	4	8	32
	Water System Hydraulics and Cross-Connection Control-Essex Jct.-PJ	4	5	20
	Advance Operator Certification Class 3/4-Montpelier-Session-1-PA	5	8	32
	Advance Operator Certification Class 3/4-Montpelier-Session-2-PA	5	8	32
	Advance Operator Certification Class 3/4-Montpelier-Session-3-PA	5	8	30
	Advance Operator Certification Class 3/4-Montpelier-Session-4-PA	5	8	32
	VOSHA Confined Space and Lockout/Tagout-Barre-PA	4	11	42
	Water System Hydraulics and Cross-Connection Control-White River Jct.-PJ	4	9	36
	Water System Hydraulics and Cross-Connection Control-Morrisville.-PJ	4	8	32
	Distribution Certification Class D-Montpelier-Session 1-PA	5	4	20
	Distribution Certification Class D-Montpelier-Session 2-PA	5	4	20
	On-site Training--SPP 7 Emergency Planning-Williston Fire District #1	1	4	4
	On-site Training-Emergency Response for W & WW-Windsor	3	3	9
Apr				
	Advanced Operator Certification-Montpelier-Session-5-PA	5	8	40
	Advanced Operator Certification-Montpelier-Session-6-PA	5	8	40
	Advanced Operator Certification-Montpelier-Session-7-PA	5	8	40
	Advanced Operator Certification-Montpelier-Session-8-PA	5	8	40
	Advanced Operator Certification-Montpelier-Session-9-PA	5	7	35
	Distribution Certification-Montpelier-Session-3-PA	5	4	20
	Distribution Certification-Montpelier-Session-4-PA	5	4	18
	Distribution Certification-Montpelier-Session-5-PA	5	4	20
	Distribution Certification-Montpelier-Session-6-PA	5	4	20
	Class 3 Water Certification Review-Essex Jct.-SF	7	5	35
	Pipe Tapping, Cutting, Air Release Valves, Thrust Restraints, -Rutland-PA	7	23	161
	Pipe Tapping, Cutting, Air Release Valves, Thrust Restraints,	7	16	112

	Waterbury-PA			
	Traffic Control Flagger Certification-Bradford-PA	4	28	112
May				
	Vermont Rural Water Association Conference-Fairlee			
	<i>Leak Detection Can be Profitable, and Should Be</i>	1	56	56
	<i>FEMA and Disaster Preparedness</i>	1	33	33
	<i>Lessons Learned from Irene</i>	1	71	71
	<i>Regulatory Roundup</i>	1.5	63	94.5
	Is Your System Ready to Reduce Costs Using Solar or Hydro-Middlebury	3	7	21
	VOSHA Hazardous Communication-Enosburgh	3.5	20	70
	TNC Recertification-St. Albans	3	5	15
	Traffic Control Flagger Certification-Springfield	4	5	20
June				
	VOSHA Trenching and Excavation Safety-Barre (On-site)	3	9	27
	TNC 1B Recertification-Waterbury	3	12	36
	Traffic Control Flagger Certification-Derby Line (On-site)	4	12	48
	Is Your System Ready to Reduce Energy Costs with Solar or Hydro-Brattleboro	3	13	39
	TNC 1B Recertification-Bennington	3	3	9
	Understanding the Total Coliform Rule-Morrisville	3	14	42
July	VOSHA Workplace Violence Safety Training-Colchester	3	3	9
	Water and Wastewater Budgets and Rates-Manchester	3.5	15	52.5
	Water and Wastewater Budgets and Rates-Enosburgh	3.5	6	21
	VOSHA Workplace Violence Safety Training-Colchester	3	3	9
	Water and Wastewater Budgets and Rates-Manchester	3.5	15	52.5
	Water and Wastewater Budgets and Rates-Enosburgh	3.5	6	21
	VOSHA Workplace Violence Safety Training-Colchester	3	3	9
	Water and Wastewater Budgets and Rates-Manchester	3.5	15	52.5
	Water and Wastewater Budgets and Rates-Enosburgh	3.5	6	21
Aug	Water and Wastewater Budgets and Rates-Island Pond	3.5	12	42
	Strategies and Tools for Increasing Productivity-Essex Jct.	3.5	6	21
	Water and Wastewater Budgets and Rates-Middlebury	3.5	3	10.5
	Distribution System Repairs-St. Johnsbury	3.5	5	17.5
	Strategies and Tools for Increasing Productivity-Barton	3.5	5	17.5
	Distribution System Repairs-Springfield	3.5	9	31.5
Sept	Advanced Water Operator Certification Class 3&4-Rutland-Session-1	5	7	35
	Advanced Water Operator Certification Class 3&4-Rutland-Session-2	5	7	35
	Advanced Water Operator Certification Class 3&4-Rutland-Session-3	5	7	35
	Advanced Water Operator Certification Class 3&4-Rutland-Session-4	5	7	35
	Advanced Water Operator Certification Class 3&4-Rutland-Session-5	5	6	30
	Advanced Water Operator Certification Class 3&4-Rutland-Session-6	5	7	35
	Advanced Water Operator Certification Class 3&4-Rutland-Session-7	5	7	35
	Advanced Water Operator Certification Class 3&4-Rutland-Session-8	5	7	35
	Water System Math Review-West Rutland	6	5	30
	Water System Math Review-Barton	6	5	30
Oct	Small Systems Class 2 Operator Certification-West Rutland-Session 1	4	4	16
	Small Systems Class 2 Operator Certification-West Rutland-Session 2	4	4	16
	Small Systems Class 2 Operator Certification-West Rutland-Session 3	4	5	20

	Small Systems Class 2 Operator Certification-West Rutland-Session 4	4	5	20
	Advanced Water Operator Certification Class 3 & 4-Rutland-Session 9	5	7	35
	Chasing "Thermal Demons" in Water and Wastewater-Lyndonville	5	5	25
	Selling vs. Marketing; There is a Difference-Springfield	5	7	35
	Chasing "Thermal Demons" in Water and Wastewater-Brattleboro	5	7	35
	Introduction to Excel-Essex Jct.	6	8	48
	Small Systems Class 2 Operator Certification-Montpelier-Session 1	4	4	16
	Small Systems Class 2 Operator Certification-Montpelier-Session 2	4	4	16
	Small Systems Class 2 Operator Certification-Montpelier-Session 3	4	4	16
	Small Systems Class 2 Operator Certification-Montpelier-Session 4	4	4	16
	Corrosion Control for Water Systems and Much More-Middlebury	3.5	10	35
	Corrosion Control for Water Systems and Much More-Springfield	3.5	16	56
	Water Operator Exam Prep-Essex Jct.	3	5	15
	Introduction to Excel-Berlin	6	9	54
Nov	Affordable Control/Telemetry Systems-Waterbury	4	7	28
	Introduction to Excel-St. Johnsbury	6	6	36
	Asset Management-Essex Jct.	6	9	54
	Asset Management-Brandon	6	5	30
	Hands-on Chemical Feed Pump Repair-Waterbury	4.5	31	139.5
Dec	Let's Seal Those Pumps Properly-Waterbury	4	18	72
	Let's Seal Those Pumps Properly-Rutland	4	10	40
	Asset Management-Brattleboro	6	6	34.5
	Introduction to Excel-Essex Jct.	6	9	54
	Introduction to Excel-Berlin	6	7	42
	GMMWEA training Sessions calendar year 2012			
	Electricity, Emergency Generators and Motors	6	22	132
	Effective Project Management	6	7	42
	Introduction to Cross Connection Control Surveying	6	15	90
	Cross Connection Control Surveyor Training	6	11	66
	Totals	489	1190	4495