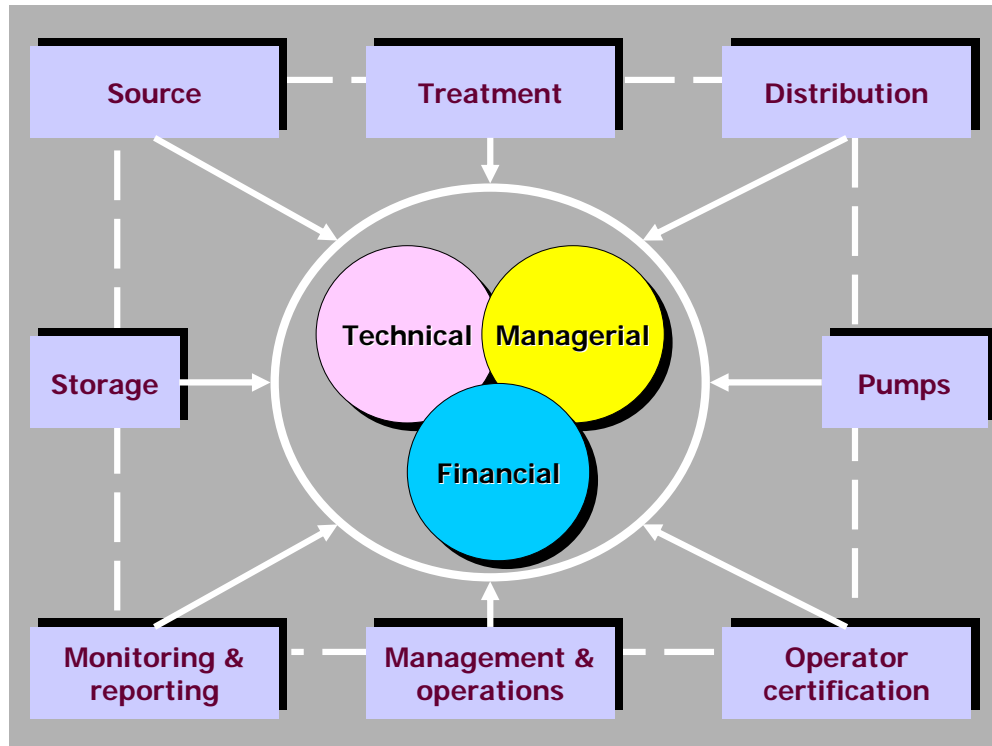


## Capacity Development Program Implementation



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# **Table of Contents**

**Executive Summary**

**Glossary of Terms**

**1. Introduction**

**2. Capacity Development Provisions in the Safe Drinking Water Act**

**2.1. New Systems Provision**

**2.1.1. New Water System Capacity Reviews**

**2.1.2. Most Recent Four Year Record**

**2.2. DWSRF Applicants Provision**

**2.3. Existing Systems Provision**

**2.3.1. Vermont Public Water Systems Demographics**

**2.3.2. Objectives**

**2.3.3. Implementation of the Existing Capacity Strategy**

**3. State's Approach in Offering or Providing Assistance**

**4. Review of Implementation of the Existing System Strategy**

**ATTACHMENT 1 - Vermont WSD Operator Certification Program Annual Report for Calendar Year 2006, dated July 1, 2007**

## 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 abilities needed to properly operate, manage and finance their systems. With the assistance of a stakeholder group of State agencies, public water suppliers, technical assistance providers, local government representatives, and environmental groups, the Vermont Water Supply Division 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 within the Drinking Water State Revolving Fund (DWSRF) program, and for existing systems. Vermont's strategy requires all new NTNC, PCWs and systems applying for DWSRF funding 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 technical, managerial, and financial 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 Safe Drinking Water Act (SDWA) as amended in 1996 brings significant improvements to the national drinking water program. Capacity development is an important component of the Act's focus on mitigating drinking water issues. The capacity development provisions offer a framework within which States and water systems can work together to ensure that systems acquire and maintain the technical, financial, and managerial 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 all new Non-Transient Non-Community water systems (NTNCs) that begin operation after October 1, 1999 to demonstrate adequate capacity. The Drinking Water State Revolving Fund provision prohibits states from providing Drinking Water State Revolving Fund assistance to public water systems that lack adequate capacity. The existing system provision is intended to provide direct assistance to existing PWSs to help them acquire and maintain the necessary capacity.

Five objectives were identified in the Capacity Development Strategy:

- (1) Identify methods or criteria that the State will use to identify and prioritize the PWSs most in need of improving capacity.
- (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 PWSs in complying with applicable laws and regulations; encourage the development of partnerships among PWSs; assist with the training and certification of water system operators; and establish methods for establishing a baseline and measuring improvements in capacity.
- (4) Identify interested stakeholders.
- (5) Utilize other available resources in the State of Vermont to assist PWSs with their technical, managerial, and financial 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 in offering or providing assistance.
- ❖ Section 4 describes the progress made assisting public water systems to improve their technical, managerial, and financial capabilities. The successes are measured through existing programs and new initiatives that assist public water systems to acquire, maintain, and build upon their technical, managerial, and financial capabilities.

## **Glossary of Terms**

**Agency of Natural Resources** (ANR) is the agency that oversees the Department of Environmental Conservation (DEC), Department of Fish and Wildlife (FWD) and Department of Forests, Parks and Recreation (FPR).

**Department Of Environmental Conservation** (DEC) is the department that administers most of the Agency's regulatory programs plus several voluntary pollution and waste reduction programs. Program areas include: air quality, environmental assistance, public facilities engineering, geology, environmental permits, solid waste, hazardous waste, surface water quality, watershed planning, stormwater management, drinking water supply and wastewater management.

**Water Supply Division** (WSD) is the division within DEC responsible for administering the public drinking water program in the State of Vermont.

**Safe Drinking Water Act** (SDWA) is the federal law passed by the U.S. Congress in 1974 and amended in 1986 and 1996, which authorizes the United States Environmental Protection Agency and the States to oversee public water systems and set standards for drinking water to protect public health.

**United States Environmental Protection Agency** (EPA) is the federal agency responsible for overseeing the state drinking water programs.

**Significant Non-Complier** (SNC) is a public water system that persistently violates drinking water standards specifically defined in EPA policy.

**Public Water System** (PWS) means any system(s) or combination of systems owned or controlled by a person or entity, that provides drinking water through pipes or other constructed conveyances to the public and that has at least fifteen (15) service connections or serves an average of at least twenty five (25) individuals daily for at least sixty (60) days out of the year.

**Public Community Water System** (PCWS) means a public water system which serves at least fifteen (15) service connections used by year-round residents or, regularly serves at least 25 year-round residents.

**Non-Transient Non-Community water system** (NTNC) is a public water system that that regularly serves at least 25 of the same persons daily for more than six months per year. Examples: schools, factories, office buildings.

**Transient Non-Community water system** (TNC) is a public water system that serves 25 or more different persons for more than 60 days of the year. Examples: restaurants, motels, campgrounds.

## ***1. Introduction***

The objective of the 1996 Safe Drinking Water Act Amendments (Amendments) is 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 include 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 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 capabilities that 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 technical, managerial and financial 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 the progress made toward improving the technical, managerial, and financial capabilities of public water systems in Vermont as a result of the Vermont Water Supply Division Capacity Development Program.

## ***2. Capacity Development Provisions in the Safe Drinking Water Act***

The Amendments included three capacity development provisions.

- 1) All new community water systems (CWS) and non-transient non-community (NTNC) water systems that begin operation after October 1, 1999 must first demonstrate that they possess adequate capacity.
- 2) States are prohibited from providing Drinking Water State Revolving Fund (DWSRF) assistance to public water systems that lack adequate capacity, unless that assistance is directly related to improving the system's technical, managerial or financial capacity.
- 3) States must develop and implement a strategy to assist existing public water systems acquire and maintain the necessary capacity.

### ***2.1. New Systems Provisions***

Section 1420(a) of the Amendments, the new systems provision, applies to all new CWSs and NTNCs that begin operations after October 1, 1999. Vermont had to demonstrate to the United States Environmental Protection Agency (EPA) that it had the legal authority to ensure that all new CWSs and NTNCs had the technical, managerial, and financial capacity to comply with all applicable State and Federal drinking water regulations. On February 26, 1999, the EPA determined that Vermont met the guidance and statutory requirements under Section 1420(a). On October 1, 1999, Vermont began implementing the new systems provision of the Amendments.

To date, the Department Of Environmental Conservation (DEC), Water Supply Division (WSD) has submitted to the EPA seven annual new systems progress reports. In those reports, the Division

documented that the evaluation of new systems is ongoing and it addresses the capacity requirements for new water systems. In recent years, the new systems progress report has been included in the overall program implementation report submittal entitled, "Vermont New Water System Capacity Review Annual Report." The WSD is now the sole governmental unit that exercises its authority to ensure the demonstration of new systems capacity. Until September 2004 when WSD assumed construction permit responsibility for NTNCs, Capacity reviews were divided between the Department's Wastewater Management Division and WSD. There have been no modifications to the WSD control points which are integrated with the WSD construction permit and operating permit programs.

**2.1.1. New Water System Capacity Reviews**

There were six new CWSs and nine new NTNCs reviewed during state fiscal year 2007. The information is summarized below in Table 1.

<b>Table 1</b> <b>Vermont Annual Capacity Program Report</b> <b>New CWSs &amp; NTNCs</b> <b>July 1, 2006 - June 30, 2007</b>				
# CWSs	Proposed New CWSs	Approved	Denied	Reason Not Approved
1	Stonehedge Village	No		Pending Review
2	Bear Creek Mountain Club	Yes		
3	Mount Snow Base Area Water	Yes		
4	West River Valley Senior Housing	Yes		
5	Cannon Project	Yes		
6	Pope Meadows	No		Pending Review-Source
# NTNCs	Proposed New NTNCs	Approved	Denied	Reason Not Approved
1	Williamstown Healthcare Co.	Yes		
2	Berlin Professional Offices	Yes		
3	Northeast Waste Services	No		Pending Review
4	Lincoln Corner	Yes		
5	North Country Career Center Land Lab	No		Pending Review
6	Granger Road Industrial Park	Yes		
7	McNeil Roan Commercial Complex	No		Pending Review
8	Welch Park Association	No		Pending Review
9	Industrial Lane Lot 12	No		Pending Review

**2.1.2. Most Recent Four-Year Record**

In any given fiscal year, the WSD receives 20-30 inquiries from developers, landowners, and other entities about creation of new public water systems. In most cases, the WSD promotes alternatives to creating a new public water system, such as consolidation with, or annexation by, existing public water systems.

Summarized in Table 2 below is the operational status of the new Vermont PWSs permitted during the past four state fiscal years and reported on in the annual new systems capacity reports. There are probably another 5-10 entities who have submitted proposals to the Division for creation of a PWS but who have not yet proceeded to engineering design or construction.

<b>Table 2 New Public Water System Activity 7/1/2002 – 6/30/2007</b>			
<b>PWS Number</b>	<b>PWS Name</b>	<b>PWS Type</b>	<b>SNC List Ever?</b>
20874	Northern Power Systems	NTNC	No
20893	Sharon Academy	NTNC	No
20908	Addison County Home & Health Hospices, Inc.	NTNC	No
21015	Champlain Valley Co-housing	CWS	No, under construction
20917	Jackson Gore-Okemo	CWS	No
20904	Oak Hill Child Care	NTNC	No
20907	Lake Champlain Waldorf School	NTNC	No
20944	Townhomes @ The Vale	CWS	No, under construction
20986	Vernon Senior Housing	CWS	No, under construction
21026	Dorset Community Housing	CWS	No, under construction
20934	Town of Putney	CWS	No
20463	Butterfield Common Housing	CWS	No, under construction
21064	Brookside PRD Water System	CWS	No, under construction
21020	Eastfield Condo. Water System	CWS	No, under construction
20995	Rocking Stone Farm, LLC	CWS	No, under construction
21003	Groton Revitalization Project Water System	NTNC	No, under construction
5563	Bear Creek Mountain Club	CWS	No, under construction
836	Mount Snow Base Area Water	CWS	No, under construction
21029	West River Valley Senior Housing	CWS	No, under construction
21035	Cannon Project	CWS	No, under construction
20271	Williamstown Healthcare Co.	NTNC	No, under construction
21021	Berlin Professional Offices	NTNC	No, under construction
21083	Lincoln Corner	NTNC	No, under construction
21094	Granger Road Industrial Park	NTNC	No, under construction

## **2.2. DWSRF Applicants Provision**

Section 1452(a)(3) of the Amendments applies to those public water systems that seek assistance from the DWSRF. Under this provision, states are prohibited from providing DWSRF assistance to a public water system that lacks the technical, managerial, and financial capability or that is in significant noncompliance with applicable State and Federal drinking water regulations. However, states are allowed to provide DWSRF assistance to such a public water system if the use of the assistance will assure compliance, or if the owner or operator of the system agrees to undertake feasible and appropriate changes to acquire and maintain the system's technical, managerial, and financial capabilities over the long term.

Vermont's capacity development review criteria for DWSRF applicants are described in each year's Intended Use Plan. A loan fund may not provide any type of assistance to a system that lacks the technical, managerial or financial capability to maintain SDWA compliance, unless the owner or operator of the system agrees to undertake feasible and appropriate changes in operation or if the use of the financial assistance will ensure capacity over the long-term. The WSD will make a determination on system capacity based on information available in WSD records, the priority list application, completion of the capacity evaluation form at the pre-application meeting, and the loan application. Some considerations include current compliance status with requirements for an operation and maintenance manual, operator certification, water quality monitoring, source protection



plan, payment of fees, groundwater under the influence determination, sanitary survey recommendations, and long range planning. The financial capacity determination will also consider current and projected water rates, delinquent water accounts, and financial planning. The existence of an active organization with identified responsible officials and business practices are considerations in managerial capability determinations. If a loan applicant is determined to have a lack of capacity in some areas, generally, a corrective action plan will be established and included as a loan condition. The WSD with VRWA recently updated the questionnaire to reflect the changing needs of the program. More emphasis is now placed on implementation of the Capacity Improvement Plan with consideration being given to withholding construction funding through the DWSRF until certain capacity milestones have been achieved.

### ***2.3. Existing Systems Provision***

Section 1420(c)(2) of the Amendments requires that Vermont develop and implement a capacity development strategy to assist public water systems acquire and maintain technical, managerial, and financial capacity. With the assistance of a stakeholders group formed in 2000 consisting of federal, state, and local government, water districts, fire districts, homeowners associations, mobile home parks, school districts, daycare centers, camps, and consulting engineers, the Division developed a comprehensive capacity development implementation strategy to assist public water systems. The strategy considered many factors that encourage or impair Capacity and worked to develop initiatives to address them. The initial set of initiatives is summarized below, in addition to newly introduced ones. The Vermont Water Supply Division submitted a Capacity Development Program Strategy Report: "Improving the Technical, Managerial and Financial Capabilities of Public Water Systems in Vermont," in August 2000. In September 2000, EPA determined that the Vermont Capacity Development Strategy met the statutory requirements under Section 1420(c) of the Amendments.

On October 1, 2000, the Division began implementing the existing systems provisions of the Capacity Development Strategy. To date, the Division has submitted to the EPA six annual "State Of Vermont Capacity Development Program Strategy Implementation" reports. The report documented that the WSD is implementing a fully functioning existing water system plan according to the capacity development strategy.

#### ***2.3.1. Vermont Public Water Systems Demographics***

There are 1371 public water systems in Vermont separated into three different types.

Community public water systems regularly serve at least 25 year round residents. There are 447 systems serving an estimated aggregate population of 453,142.

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 43,002.

Transient Non-Community water systems serve more than 25 persons for at least 60 days during the year. Restaurants, motels, and campgrounds are examples. Approximately 669 systems are classified as transient non-community water systems.

Also, there are approximately 9 domestic water bottling companies regulated by the Water Supply Division.

<b>Vermont Public Water System Profile</b>		
<b><i>Population Range</i></b>	<b><i>Community</i></b>	<b><i>Non-Transient Non-Community</i></b>
25 - 100	146	120
101 - 200	94	65
201 - 300	37	31
301 - 400	26	10
401 - 500	22	7
501 - 1000	43	10
1001 - 3300	48	3
3301 >	31	0
<b>Total</b>	<b>447</b>	<b>246</b>

Approximately 200 of the community systems are privately owned. Most of these serve small rural homeowners associations or mobile home parks; approximately 20 are for-profit systems regulated by the Public Service Board.

Approximately 152 of the 246 NTNCs serve small rural schools. Most of the remaining systems are privately owned.

Nearly all of the transient systems are privately owned businesses.

Regulatory requirements vary for the different types of systems and the major focus of the Strategy is on CWSs and NTNCs. Factors in strategy development and implementation are system size and ownership type. Economies of scale are dramatic for water system operation and maintenance costs and have a major impact on the ability of small volunteer or part-time system operators to maintain their systems in compliance with the ever increasing and more complex EPA and State regulatory requirements. Our Capacity Improvement 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 assistance.

### **2.3.2. Objectives**

In the Capacity Development Program Existing Strategy Report, the Water Supply Division identified and indicated it would undertake the following activities:

- Identify methods or criteria that the State will use to identify and prioritize the water systems most in need of improving capacity;
- Identify institutional, regulatory, financial, tax, or legal factors at the federal, State, or local level that encourage or impair capacity development;
- 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
  - Develop methods for establishing a baseline and measuring improvements in capacity

- Identify interested stakeholders; and
- Utilize other available resources in the State of Vermont to assist water systems with their technical, managerial, and/or financial capacity.

### 2.3.3. *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 Safe Drinking Water Act provided an opportunity to use federal and state dollars to improve and expand this program to more nearly meet the need. A series of meetings with owners, operators, representatives of state and federal organizations, consulting engineering firms and others were held in the spring of 2000 to identify needs, and obtain suggestions for new and revised programs. Based on public input, the Vermont Existing Public Water System Capacity Strategy was developed and submitted to EPA in July of 2000. A copy of the strategy is attached. The strategy addressed existing program usefulness, and maintained, expanded, or added new ones. 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. Brief descriptions of our Strategy Initiatives are summarized below.

#### Financial Assistance

- 1) Reduced Interest Loans for Water System Improvements
- 2) Zero Interest Loans for Planning & Final Design
- 3) Reduced Interest Loans for Land Purchase and Conservation Easements for Source Water Protection
- 4) Negative Interest Construction Loans to Low Income Communities with High Water Rates
- 5) Planning and Final Design Loan Forgiveness for Small Municipalities
- 6) Up to \$25,000 Construction Loan Forgiveness for Municipal School System Improvement Projects.

#### Technical and Managerial Assistance

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 introduced since then.

#### Initial set of Capacity initiatives

1. Monitoring Cost Study (one-time activity and completed): The original intent of this initiative was to evaluate options, advantages, disadvantages, and impediments to providing water systems with financial assistance for compliance monitoring activities. The report was to include cost estimates, funding sources, and implementation recommendations for NTNCs, TNCs, and small CWSs. A 2002 report identified the costs of quarterly compliance sampling for TNCs. Based on the report, the state developed a program for conducting quarterly water quality bacteriological sampling and provided technical support to TNCs. Work was completed in 2004 – 2005 by contracts with private consulting firms and use of the DEC laboratory, at no charge to the water systems. Costs were paid for with state surplus funds. Technical assistance was provided by two private engineering firms at no cost to the water systems. The initiative was very successful, but expansion to include CWSs and NTNCs is on hold to address other priorities.

2. DWSRF Program Changes (ongoing activity which has been well integrated the other WSD programs): Numerous program changes have been identified and implemented since the inception of the Vermont DWSRF, which are highlighted in each year's DWSRF IUP. It is expected that the program will undergo continual change to meet emerging internal and external needs. Some of the more recent changes include: modifying the definition of disadvantaged community system, adjustment of the priority point system to give credit for water system security improvements, and modifying project ranking by commingling new projects with the most significant system facility deficiencies with continuing projects.
3. Training and Assistance (ongoing activity): WSD personnel teamed with Vermont Rural Water Association (a technical assistance provider) to conduct group and individual training and technical assistance for water system operators and owners. Training and assistance topics include development of an O&M manual and long-range plan, water system financial management, and how to perform a capacity self-assessment. This initiative was combined with other WSD operator certification activities to create an integrated capacity development, operator certification training, and regulatory compliance program. The WSD tracks training contact hours credited to system operators for both the group and individual trainings that are delivered. Classes and attendance is summarized in Appendix A. The WSD Management Team evaluated this initiative and determined that the scope should be expanded to include more WSR compliance related training and assistance and increased direct financial and managerial training to water systems.
4. Legal Assistance (ongoing activity): This initiative began with a contract with a law firm for \$10,000 to provide legal service for DWSRF loan applicants. The services under the initial contract were provided and fully billed and have since been reauthorized as subcontracted services through the DWSRF loan assistance contract with VRWA. These legal services are provided to privately-owned water systems and consist of: preparation and submission of documentation to the Vermont Economic Development Authority for loan closings. Work includes title search, uniform commercial code examination, modifications to home-owner organization by-laws, and other similar needs. It is the WSD intent to continue this assistance as part of the DWSRF Technical Assistance contract.
5. Engineering Technical Assistance (ongoing activity): This assistance is provided through contracts with private engineering firms and includes: troubleshooting O&M problems; helping systems to complete DWSRF loan applications; preparation and review of RFPs for more in-depth engineering services such as preliminary engineering and final design work; and review and comment on technical work products. So far, we have awarded four contracts to perform these services. Work under those contracts has been completed and we are considering advertising for the next another round of contracts later this year to offer the same engineering services.
6. Small System Templates and Self-Assessment (one-time activity that is now completed): Templates for a small system O&M manual and long range plan, and a capacity assessment form were completed in April 2001. In 2006, a more comprehensive O & M manual template was developed and in 2007 the capacity assessment forms were updated. Since then, these forms have been integrated into their respective programs with a high degree of success. These documents form the basis for some of the individual on-site and group-training sessions provided under Initiative #3. Capacity assessments are completed as a prerequisite for both planning and construction loan eligibility. The assessments are used as a tool for developing capacity improvement plans. The Division intends to continue this initiative, encouraging updates on an as needed basis.

7. User Rate Reviews and Budgeting/Assisting in the Development of Financial Capacity (ongoing activity): This initiative is focused on helping water systems improve their financial capacity, which is achieved in part through technical assistance provided by WSD and VRWA staff. Assistance is provided to help water systems to develop or modify their operating budget and user rate structure to reflect the true cost of supplying water and generate sufficient revenue to plan for future water system needs. Most of this assistance is provided through the review of long-range plans and evaluating the capacity assessment forms. Non-profit water systems that receive funding through the loan program receive budget and rate review assistance through a small systems technical assistance contract currently with Vermont Rural Water Association (VRWA).
8. Public Service Board (PSB) Technical Assistance (one-time activity that is now completed): WSD awarded a contract to a technical assistance provider in January 2001 to help small water systems with PSB rate change procedures. The initiative consisted of a one-year pilot program to provide direct technical assistance to systems, and the development of a guidance manual. The 2001 contract was awarded to a law firm and the manual was subsequently completed in 2002 and distributed to systems regulated by the PSB. Direct assistance was limited to two water systems that applied. Following termination of the contract and pilot program, WSD opted to not continue with additional contracted services and instead offer help through ongoing coordination with Public Service Department staff and use of the guidance manual. The Division intends to update the manual as needed and make it available on the WSD website. The manual was also sent to the Public Service Department for inclusion on their website.
9. Board Member-Owner Manual (one-time activity that is still in development): A PWS board member manual is in development. The manual will outline the responsibilities and liabilities for PWS board members and include information on relevant laws, regulations, and policies, and a list of resources. Vermont is using New Hampshire's manual as a model and is targeting completion by December 2007. Once the manual is done, it will be placed on the WSD's website and hard copies will be printed and made available for distribution to water systems.
10. Small System Design Guidance Manual (ongoing until the manual or series of manuals is/are completed): This initiative 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. The manual will target consultants, system owners and operators. Although a comprehensive design manual has not yet been developed, work was completed on UV design, installation, and operational guidelines for TNCs and NTNCs. The Division is discussing where to best take this initiative to fully address and aid water systems in need.
11. Consolidation Study (one-time initiative replaced with other ongoing activities and one new initiative): This initiative was established with the intention of awarding a contract to a consultant to identify opportunities for physical or operational consolidation of water systems in the State. Small CWSs and school water systems were intended to be the focus of potential consolidation. This initiative has not been undertaken as originally intended and instead is being addressed through various means, such as through the small systems engineering evaluation initiative and WSD's general outreach efforts. Additionally, the WSD is developing an RFP to contract for mediation/facilitation services. The goal of this contract is to help water systems with inter-local agreements, setting user rates, operation and maintenance schedules and responsibilities associated with consolidation. The FFY2006 DWSRF IUP identifies use of up to \$25,000 from the Local Assistance Set-Aside for this contract and we expect to award the contract by December 2007

12. Water Supply Divisional Newsletter (ongoing): This initiative began in October 2000 and has continued uninterrupted since that time, with a total of fifteen issues through the summer 2007. The purpose is to improve communications between the WSD and public water systems by providing timely information to those systems, the consulting community, and other interested stakeholders. In addition to several thousand hard copies that are mailed distributed to stakeholders, the newsletter is posted on the Divisional Web page. WSD has received many positive comments about the newsletter and expects to continue this initiative.
13. Communication Workgroup (one-time initiative that is now completed): A workgroup was formed by WSD 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 workgroup was formed in December 2002 and last met in late spring 2003. A number of recommendations were developed have since been implemented. This initiative is considered complete.

#### Modifications to the Capacity Strategy

The following initiatives were added since the original set was developed in 2000, representing modifications to the Capacity Development Strategy for Existing Systems. Funding for these additional initiatives is provided from DWSRF set-asides.

14. Development of a Cross-Connection Guidance Manual (one-time initiative not started that is being reevaluated): This initiative was added in 2001, with \$10,000 reserved has not been undertaken. WSD will explore this further before deciding if creating a Vermont-specific manual is warranted. The intent is to provide guidance to small water systems with development of a cross connection control program. If we find that a manual already exists that provides the desired information, this initiative will be modified or dropped altogether.
15. Reservoir Water Quality Study (one-time initiative that is nearing completion): This study was funded by an amendment to the August 2001 Program Management set-aside work plan. The intent is to provide detailed data on changes in source water characterization during the year for two small surface water bodies used by public community water systems in Vermont. The results and recommendations will be provided to other systems operating under similar conditions. The original target date for completion was December 2003. All of the field data has been collected and analyzed and a draft report has been prepared. Field data collection was conducted from April 2002 through May 2003 for the Town of Brattleboro and City of St. Albans Water Systems. The WSD has completed research and presented the results to the respective water systems.
16. Comprehensive Performance Evaluation Program (one-time initiative that is now completed): This initiative involved facility-specific technical assessment of surface water treatment plant design and operation by WSD staff. The purpose was to identify areas of improvement through low cost solutions to optimize finished water quality. The FFY 2002 IUP provided \$20,000 to support this program that was initiated in the spring of 2002. The funds were used to purchase two Hach 1720D turbidimeters, two Hach PCX 2200 particle counters and related equipment. Comprehensive Performance Evaluations (CPEs) were conducted for Proctor and Bennington Water Departments in March and July of 2002, respectively. Final reports were prepared for the systems, identifying performance-limiting factors to optimization. A 3<sup>rd</sup> CPE was conducted in December 2003 for the Fair Haven Water System, which also served as the 3<sup>rd</sup> in a series of CPE training sessions run by

Cadmus Group. Staff training to perform this work has been completed, the equipment necessary to conduct future CPEs has been procured, and the CPE program is now considered integrated into the WSD's overall technical assistance activities.

17. Operation & Maintenance Manual Template for Small Surface Water Systems (one-time initiative not started that is being reevaluated): The FFY 2002 IUP identified use of up to \$50,000 to finance development of an O&M manual template for small surface water treatment plants. The plan was to develop a template and field test it on at least one system. The original target date for completion was October 2003; however, this initiative has not yet been undertaken and may be modified, or dropped if the need no longer exists.
  
18. Small System Engineering Evaluations (on-going initiative nearing completion): The Water System Engineering Evaluation Initiative, also referred to at its inception as the Facility Improvement Plan Program in the FFY1999 IUP, was established to help small water systems develop technical capacity. This ongoing initiative consists of system-specific engineering evaluations performed by private consulting engineering firms under contract with the WSD. Following the system's evaluation, a report is prepared and submitted to the water system and the WSD. The reports include, at a minimum, a replacement schedule with cost estimates for major system components, an assessment of consolidation potential with other PWSs, and an evaluation of potential compliance issues. To date, \$835,000 has been allocated for this work with FFY1999–FFY2004 set-aside money, and 8 contracts totaling \$775,000 have been awarded. The following is a summary of the three sets of contracts.

Year of Contract Award	Funds Awarded to Contracts	Contract Status	No. of Contracts Awarded	No. of Reports Completed
2000	\$150,000	Closed	3	79
2001	\$250,000	Closed	2	81
2004	\$375,000	Open	3	*180
Total	\$775,000	-	8	340

\*These are not final numbers, but Green Mountain Engineering is scheduled to provide \$114,761 worth of services out of a possible \$125,000, Weston & Sampson Engineering, Inc. \$117,974, and Otter Creek Engineering, Inc. \$91,712.

This has been an extremely successful program in assisting Vermont water systems determine their future water system needs. The program has also served as a reliable stepping stone for DWSRF Planning and Construction Loans. The current round of contracts expired in August 2007, and we are considering as a next step providing asset management services for systems serving populations between 1,000 and 3,300.

19. Regulation of Consecutive Water Systems and New Waterline Extensions (on-going initiative): In 2007, the WSD engaged the regulated community in a discussion on a better way to regulate consecutive water systems. The goal of the discussion was to come to an agreement on how existing consecutive water systems would be handled by this Division and their wholesaler, and how to eliminate any new ones. A number of public meetings were held which led to two work groups, one for existing water systems and one for new waterline extensions. The work groups produced recommendations for the Secretary of the Agency of Natural Resources. The recommendations may require Statue change and will soon be released to the regulated community at large for their review. The Division sees this initiative as critical for the ability to help water systems meet future Federal and State regulations.

### 3. State's Approach In Offering Or Providing Assistance

As indicated in the original strategy, prioritization of systems for technical assistance and training is not required because assistance is available to meet all requests. Established Drinking Water State Revolving Fund (DWSRF) procedures are used to prioritize systems requesting loans, including planning and source water protection loans. We have given priority for water system evaluations to community systems serving populations of less than 1000 and schools. Sanitary surveys play an important role in prioritization of directing capacity assistance to water systems. An enforcement committee establishes enforcement priorities and an operator certification committee identifies and prioritizes training needs. Systems selected for enforcement are frequently contacted to determine if assistance through the capacity program would be helpful. The priority system for DWSRF loans was changed in 2001 and again in 2007 to provide higher priority than previously for small systems. This change has had the intended effect of increasing the number of small systems receiving loans.

In the future, if the need for technical assistance exceeds WSD staff or contract assistance resources, WSD will prioritize systems using the following factors:

1. DWSRF priority list status
2. System ownership (municipal, private non-profit, private profit)
3. System type (CWS, NTNC, TNC)
4. System size (design population)
5. Permanent residents

Currently, the Division is actively providing ongoing Capacity assistance to:

- Cady's Falls Water Coop
- Country Estates Water Corporation/Asuctney FD #1
- Irasburg Water Coop/Irasburg FD #1
- Whiting Water Corporation
- Kids in the Country Day Care
- Waterville FD #1

### 4. Review of Implementation of the Existing System Strategy

Although the WSD does not conduct regularly scheduled reviews of the implementation of its Capacity Development Program, it did conduct a comprehensive review of the first 18 initiatives described above. The WSD Management team examined the status of each of those 18 initiatives last year and identified those it would like to continue, postpone, or terminate. The 19<sup>th</sup> initiative has been developing over the last several years and gained substantial momentum this past year, enough so to recognize it as a capacity initiative. There is a great deal of flexibility in program administration and implementation and it evolves in response to water system owner and operator feedback.

#### Availability of the Report to the Public

The WSD posts its annual Capacity Development Program Report to EPA on its web site at: <http://www.vermontdrinkingwater.org>.

Prepared by: \_\_\_\_\_

Date: \_\_\_\_\_

Ashley J. Lucht  
Vermont Capacity Development Coordinator



## ATTACHMENT 1

# Vermont Water Supply Division Operator Certification Program Annual Report for Calendar Year 2006

July 1, 2007

This Annual Report documents Vermont's program compliance with the EPA Operator Certification Guidelines for the calendar year ending December 31, 2006. The US Environmental Protection Agency published guidelines for the "Certification and Recertification of the Operators of Community and Non-transient Non-community Public Water Systems" in February 5, 1999. Vermont adopted the revised rules in the Vermont Water Supply Rule on December 29, 2000 to comply with the EPA guidelines. EPA approved the State of Vermont Operator Certification Program on February 14, 2001 and awarded the Operator Certification Expense Reimbursement Grant (ERG) January 2002.

### Program overview and Enforcement efforts

A new Division Certification Officer, Matthew Guerino was hired in April 2006, when Bryan Redmond moved to the Drinking Water State Revolving Fund program.

The total number of certified operators for Community, Non-Transient Non-Community, and Transient Non-Community systems is 1659 (937 are C and NTNC and 722 are TNC).

Vermont has not grandparented operators since 1992 when we adopted the initial operator certification rules. The goal was to assist those operators already operating public water systems to become certified. All grandparented operators are required to maintain their renewal credits for their class each renewal cycle. We currently have one hundred and forty grandparented operators in our computer inventory.

Vermont offers Operator-in-Training and Provisional Certification to help new water systems and operators become fully certified. Our computer inventory currently lists 13 operators with Provisional Certification and 95 with Operator-in-Training Certification.

The number of systems without certified operators as of 12/31/06 is listed in the table below.

System type	Number of systems	Number of systems with no certified operator
Community	448	4
Non-Transient Non-Community	245	2
Transient Non-Community*	675	143

\* TNC certification requires registration only unless operating a surface water supply. TNC certification is not mandated by EPA.

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 Water Supply 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 calls them and warns them of potential enforcement actions. If the system still does not obtain a certified operator, we will refer the system to the Agency of Natural Resources Enforcement Division for further action.

Most community and non-transient non-community water systems without certified operators have this status due to operators failing to renew in a timely way. All of these systems have received warning letters, NOAVs, and several systems have returned to compliance. One of the water systems without an operator is new to the VT Water Supply Division. The five remaining water systems will have NOAVs issues shortly. Three of these water systems are in enforcement.

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 2006 we requested no operators to surrender his or her certificate, nor were revocation or suspension actions taken.

### **Training and exams**

The operator training program is coordinated with the Vermont Rural Water Association (VRWA). Communication between the VRWA Coordinator and Water Supply 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). The GMWEA utilized funds allocated from the EPA Expense Reimbursement Grant (ERG) to subsidize these courses to reduce the course fees.

We continue to hold courses in various locations throughout the state to reach small water systems. Our courses were publicized on our web site, listed in our newsletter, and mailed to operators before a renewal period. In calendar year 2006, we provided approximately 455 hours of training credit hours. There have been 604 water professionals that were trained using ERG funds (see the attached list of courses which were offered through the ERG grant). The attendance for each class ranges from 10-20 participants (depending on location). Several water system operators took advantage of the Water System Rule Update/Sampling course and qualified for \$500 reimbursement toward water quality testing for their systems. We offered 4 of these classes in 2006. To date, 350 water systems have taken advantage of this training.

Exams were again administered in the spring and fall, on the same day (typically the first Friday in May and November), at two different locations in the state (Rutland, Waterbury). There were 88 individuals took the exams, while 98 exams were proctored.

### **Stakeholder Involvement**

The Vermont Operator Certification Advisory Committee met 4 times in 2006. The following major topics were reviewed and discussed: core curriculum, owner responsibilities, operator duties and responsibilities, aging operator community, hiring new water system operators, and committee organization. Exam review was also initiated for Class II, and will continue through 2007. The new Class II Exam will be used in the year of 2007.

### **ERG expenditures**

Operator reimbursement and use of the Operator Certification Expense Reimbursement Grant continues. The Division has received favorable response regarding reimbursement for expenses and \$500

voucher towards compliance testing per water system. As of December 31, 2006, the Division has allocated approximately \$848,000 of the ERG funds.

**Training provided/coordinated January 1, 2006 – December 31, 2006**

Month 2006	Courses	Training Credit Hours	# of attendees	Training Contact Hrs
<b>Vermont Rural Water Association (VRWA) Courses</b>				
Jan-06	VT long course session 1	3.5	20	70
(05 Contract)	Cross Connection Control Seminar	3	10	30
	Basics of Motors, Drives and Energy Efficiency	6	16	96
	VT long course session 2	3.5	20	70
	Basics of Motors, Drives and Energy Efficiency	6	8	48
	VT long course session 3	3.5	18	63
	Safety Basics for Water Operators	3	19	57
	VT long course session 4	3.5	17	59.5
	Capacity On-site Training	10	7	10
February	VT Long Course Session 5	3.5	19	66.5
	VT Long Course Session 6	3.5	20	70
	VT Long Course Session 7	3.5	17	59.5
	VT Long Course Session 8	3.5	16	56
	Cross Connection Control Seminar	3	14	42
	INFLO On-site training UV Disinfection	2	5	10
	How to Prepare for a Sanitary Survey	3	16	48
	UV Disinfection / Disinfection Alternatives	3	16	48
	Capacity On-site Training by E. Walker	3	6	3
March	VT Long Course Session 9	3.5	18	63
	Confined Space onsite training Randolph, VT	2.5	3	7.5
	How to Prepare for a Sanitary Survey	3	12	36
	VT Long Course Session 10	3.5	16	56
	Campground Water System Operations and Maintenance	3	20	60
	Introduction to Excel Computer Seminar	5	19	95
	Intermediate Excel	5	14	70
	Water Works Math Session 1 of 3	4	18	72
	VT Long Course Session 11	3.5	16	56
	Water Works Math Session 2 of 3	4	24	96
	VT Long Course Session 12	3.5	19	66.5
	Water Works Math Session 3 of 3	4	18	72
	Water Works Math Session 3 of 3 (one attendee left early)	3	1	3
	Capacity On-site Training	6	1	6
April	Campground Water System Operations and Maintenance, Waterbury	3	2	6
	Small Systems Certification Course session 1 of 3, St. Johnsbury	3.3	11	36.3
	Small Systems Certification Course session 1 of 3, Rutland	3.3	18	59.4

	Confined Space Entry Refresher, onsite training	2.5	15	37.5
	Water and Wastewater Analytical Techniques, Colchester	6.5	20	130
	Process Instrument Verification, Colchester	6	23	138
	Small Systems Certification Course session 2 of 3, Rutland	3.3	17	56.1
	Small Systems Certification Course session 2 of 3, St. Johnsbury	3.3	8	26.4
	Water and Wastewater Analytical Techniques, Rutland	6.5	10	65
	Hoist and Overhead Crane Training	3	8	24
	Small Systems Certification Course session 3 of 3, Rutland	3.3	17	56.1
	Confined Space Refresher, Stratton	2	8	16
	Waterworks Math Review, Rutland	3	12	36
	Small Systems Certification Course session 3 of 3, St. Johnsbury	3.3	9	29.7
	Cost Savings Through Electrical Energy Efficiency, Enosburg	3	17	51
	Confined Space Entry Refresher, Waterbury	3	12	36
	Waterworks Math Review, St. Johnsbury	3	2	6
	Confined Space Entry Refresher, Rutland	3	9	27
	Water Operator Exam Preparation, Waterbury	3	23	69
	Capacity on-site training	1	2	2
May	Reducing Energy Cost Through Energy Efficiency (VRWA Conference)	1	31	36
	Regulatory Roundtable for Water Systems (VRWA Conference)	1.5	56	27
	Trench Safety for Operators (VRWA Conference)	1	36	0
	Bypass Pump Demonstration (VRWA Conference)	1	36	1
	Cross Connection Control Seminar	3	9	0
	Capacity On-site Training by E. Walker	1	1	1
June	Chlorination Disinfection Science	6	24	144
	Verifying Water and Wastewater Treatment Processes	3	3	9
	Determining Proper Chemical Dosage: Simulating Your Treatment Process	3	10	30
	UV Disinfection / Disinfection Alternatives	3	11	33
	Vermont Rule Update and Sampling Seminar	5	11	55
	Campground Water System Operations & Maintenance	3	5	15
	Operation and Maintenance of School Water Systems	3	7	21
	Capacity On-site Training by E. Walker	2	1	1
July	Safety Basics for Water Operators	3	9	27
	Hands-On Distribution Training for Water Operators	3	6	18
	How to Prepare for a Sanitary Survey	3	11	33

	Hands-On Distribution Training for Water Operators	3	15	45
	School Water System Operations and Maintenance Seminar	3	9	27
	Affordable Control/Telemetry for Water and Wastewater	3	7	21
	Capacity On-site Training by E. Walker	2	1	2
August	Confined Space Entry Refresher	3	13	51
	How to Prepare for a Sanitary Survey	3	5	21
	Water System Audits and Leak Detection Methods	3	17	0
	Informational Network for Local Operators (INFLO) Enosburg, VT	3	7	0
September	Water Treatment Course, Session 1 **			
	Water Treatment Course, Session 2 **			
	Water Treatment Course, Session 3 **			
	Water Treatment Course, Session 4 **			
	Water Treatment Course, Session 5 **			
	Basics of Rate Setting	3	8	24
	Safety Basics for Water Operators	3	5	15
	Water System Audits and Leak Detection Methods for Operators	3	22	66
	Chlorine Testing for Small Systems	3	14	42
	Basics of Rate Setting	3	8	24
October	Water Treatment Course, Session 6 **	0		0
	Water Treatment Course, Session 7 **	0		0
	Water Treatment Course, Session 8 **	0		0
	Water Treatment Course, Session 9 **	0		0
	Trench Safety for Water/Distribution System Operators	3	23	69
	Small Systems Certification Course Hyde Park Session 1	3.3	7	23.3
	Small Systems Certification Course White River Jct. Session 1	3.3	12	40
	Small Systems Certification Course Hyde Park Session 2	3.3	9	30
	Small Systems Certification Course White River Jct. Session 2	3.3	9	30
	Small Systems Certification Course White River Jct. Session 3	3.3	10	33.3
	Introduction to Excel	5	21	105
	Waterworks Math Review Hyde Park	3	6	18
	Intermediate Excel	5	19	95
	Small Systems Certification Course Hyde Park Session 3	3.3	8	26.7
	Waterworks Math Review White River Junction	3	5	15
	Onsite Training - Confined Space and Trench Safety	5	6	30

November	Preventive Maintenance and Standard Operating Procedures for Water Systems	3	18	54
	Preventive Maintenance and Standard Operating Procedures for Water Systems	3	12	36
	Planning for a Pandemic: How to Prepare Your System	3	15	42
	How to Prepare a Sanitary Survey	3	18	54
	Practical Strategies for Compliance with Stage 2 Rule Changes	3	9	27
	Vermont Source Water Workshop	6	53	318
	Two on-site capacity trainings conducted	2	2	4
	Advance Course			
	Water Treatment Course, Session 1 **	0		0
	Water Treatment Course, Session 2 **	0		0
	Water Treatment Course, Session 3 **	0		0
	Water Treatment Course, Session 4 **	0		0
	Water Treatment Course, Session 5 **	0		0
	** A total of 45 TCH to be issued to each attendee at the completion of this course in December '06			
December	Chlorination Disinfection Science-Enosburg Falls, VT	6	24	144
	Corrosion Management in Potable Waters-Waterbury, VT	6	6	36
	Planning for a Pandemic-Rutland, VT	4	18	72
	Low Cost System Distribution Monitoring-Springfield, VT	3	6	18
	How Improvements can Impact your Electricity Bill	3	7	21
	Vermont Rule Update and Sampling-Rutland, VT	5	6	30
	Practical Strategies for Compliance with Stage 2 Rule Changes	3	7	21
	Vermont Rule Update and Sampling-Waterbury, VT	5	12	57
	On-Site Capacity Training	1	2	2
	Water Treatment Course- New Hampshire Community Technical College Held at Vermont Technical College (VTC)	45	13	585
	<b>Green Mountain Water Environment Association Courses</b>			
January	Hands on Bench Top lab skills	6	13	98
March	Water Systems Hydraulics Overview	6	11	66
April	Hand-On Valve Operation and Maintenance	6	11	66
May	GMWEA Spring and Annual Meeting	2	29	58
June	Hands on Disinfection with Chlorine	6	10	60
October	Water Utility Ratemaking	3	13	39
November	How to Provide Front Line Customer Service	1	6	6
	GMWEA Fall Meeting	2	44	88

		455.1	1604	5879.3
	** A total of 45 TCH to be issued to each attendee at the completion of this NHCTC course in December '06			