# Troubled Water Systems Acquired by Lakes Region Water Co., Inc.

| System | Customers (as of 7/28/2015) | Order No. | Date | Notes |
|---|---|---|---|---|
| Wentworth Cove | 55 | 14116 | 3/10/80 | Transfer for $1. Prior owner/developer sought to discontinue service because the "water system did not produce adequate revenues to make further operations profitable." |
| Waterville Gateway aka White Mountain Resort/Gateway (Al Moulton) | 84 | 16795 | 12/7/83 | "The owner/[developer] of the water system testified that he does not wish to continue operating . . ." |
| Waterville Gateway aka White Mountain Resort/Gateway | 84 | 18549 | 1/27/87 | Purchased from Chapter 11 bankruptcy sale. |
| Deer Run | 59 | 20334 | 12/12/91 | Purchased after Commission investigation because the owner/developer resides in Florida and "Staff was concerned about his ability to operate the company." |
| Echo Lake & Woodland Grove | Echo Lake: 44 Woodland Grove: 74 | 20144 | 6/5/91 | "LRWC has better financial, managerial and technical expertise than Demers." |
| Brake Hill | 47 | 21475 | 12/22/94 | Customers, Commission had "been working with Ms. York for some time to bring the water system into compliance with applicable statutes." Ms. York was the original developer of the system. |
| Tamworth Water Works | 101 | 21943 | 12/12/95 | Lakes Region had met with NHDES and PUC Staff "to discuss the system's deficiencies" and the need to make system improvements. |
| Lake Ossipee Village | 232 | 23288 | 8/23/99 | Owner/developer David Sands sanctioned by PUC numerous occasions. See also Order No. 24,376. |
| Hidden Valley Shores, 175 Estates | HV: 119 175Estates: 44 | 23901 | 1/7/02 | Two water systems serving only 26 and 42 customers. |
| Gunstock Glen | 54 | 24104 | 12/23/02 | Gunstock Glen had been dissolved. After receiving Order Nisi, Pennichuck declined to purchase. LRWC purchased per Order No. 24,502. |

Mason Exhibit 2

# New Hampshire Water Resources Primer

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

December 2008

# Chapter 8
# Drinking Water

NEW HAMPSHIRE DEPARTMENT OF
Environmental Services

# Overview

*New Hampshire has an abundant supply of clean drinking water. There are challenges, however, for the public water systems that serve 64 percent of New Hampshire's population and for the remaining 36 percent of residents that rely on private, household drilled or dug wells (NHDES, 2008a). Drinking water from public water supplies is highly regulated to protect public health, but aging infrastructure and the cost of treating drinking water and otherwise meeting ever increasing regulatory requirements are significant issues for public water suppliers. Few public water systems in New Hampshire charge the true cost of providing water or have adequately planned to maintain and replace infrastructure that is decades old. Also, as our ability to detect and evaluate contaminants in drinking water has increased, so has the need to address more contaminants to protect public health. A recent example of this phenomenon is the presence of trace amounts of personal care products and pharmaceuticals in some water supply sources. The wisdom of treating all water to drinking water standards, water which is then used for non-drinking water purposes, is being addressed elsewhere in the country and needs to be considered in New Hampshire as well. Because of New Hampshire's rural nature, there is a large proportion of very small community public water systems, many of which are hard-pressed to meet the same requirements as larger systems, but with far fewer resources.*

*For both private well owners and public water systems that use wells, naturally occurring contaminants such as radon and arsenic are significant health concerns. Unlike public water systems, there is no requirement for private well water to be tested or treated, and many people in New Hampshire are unknowingly drinking water that exceeds health-based contaminant limits.*

*Finally, New Hampshire is a nationally recognized leader in protecting the groundwater and surface water that are the sources of drinking water. Still, landscape change has the potential to degrade our sources of drinking water by contributing contaminants and changing hydrology as described in Chapter 1 – Introduction and Overview.*

# 8.1 Description and Significance

## 8.1.1 Drinking Water Is Critical to Health and Quality of Life

Human life depends on water. The average human can live 40 days or more without food, but only three to five days without water (Kendall, 1991). Drinking water is also used for food production and preparation, sanitation, outdoor irrigation, industrial processes and for many other activities.

The importance of drinking water and its protection was recognized 400 years ago at colonial Jamestown, Va., (see sidebar) and has been an acknowledged public health priority for centuries in the U.S. Unlike in developing countries, fewer than 1 percent of U.S. residents lived without complete indoor plumbing by the year 2000 (Rural Community Assistance Partnership, n.d.). As a result, diseases caused by unclean water supplies are much rarer in the U.S. Waterborne disease

outbreaks, however, continue to occur in the U.S. and the endemic waterborne disease burden is significant. Recently, an expert panel of scientists from the Centers for Disease Control and Prevention and the U.S. Environmental Protection Agency estimated that 5.5 million to 32.8 million cases of acute gastrointestinal illness per year are attributable to community drinking water systems in the U.S. (Messner et al., 2006).

**"There shall be no man or woman dare to wash any unclean linen, wash clothes, ...nor rinse or make clean any kettle, pot or pan, or any suchlike vessel within twenty feet of the old well or new pump. Nor shall anyone aforesaid within less than a quarter mile of the fort, dare to do the necessities of nature, since by these unmanly, slothful, and loathsome immodesties, the whole fort may be choked and poisoned."**

*- Governor Gage of Virginia, 1610*

(Source: Virginia Dept. of Health, 2007)

## 8.1.2 New Hampshire Water Supply: Where Do We Get Our Drinking Water and How Is It Tested?

### *Private Wells*

An estimated 36 percent of New Hampshire residents obtain their drinking water from private wells with roughly 4,700 new wells constructed each year. There are two main types of private wells in New Hampshire: bedrock wells and shallow dug wells. The type of well used is largely dependent on local soil types and water availability on the property. An estimated 90 percent of all new wells are bedrock wells, which can be from 100 to 700 feet deep, depending on where an adequate supply or yield is reached (NHDES, 2008c).

Since 2000, private wells have had to meet statewide design criteria for construction and placement (We 100-1000), but there are no clear state requirements for minimum well water quality or quantity. The State Plumbing Code requires that only potable water sources be connected to domestic plumbing systems, but this requirement is not uniformly applied, in part due to confusion about the meaning of "potable" and the absence of specific water quality standards. When homes are sold, the owner must disclose information about both the water supply system and the wastewater disposal system, including the date of the most recent water test and whether the seller has experienced a problem such as an unsatisfactory water test (RSA 477:4-c), but there is no requirement to do a test. As a result, private wells are usually only tested when the buyer chooses to do so, when a lender requires it at the time of sale, when a homeowner has a new well drilled by a contractor who recommends a test, when problems with water quality are noticeable, or in those few towns where a private well water test is required for a certificate of occupancy or for property transfer. There are also no state standards in regards to treatment of water from private wells.

### *Public Water Systems*

A public water system is defined as "a piped water system having its own source of supply, serving 15 or more services or 25 or more people, for 60 or more days per year" (RSA 485:1-a). Public water systems must meet all the requirements of the federal and state Safe Drinking Water Acts. These requirements have increased over time.

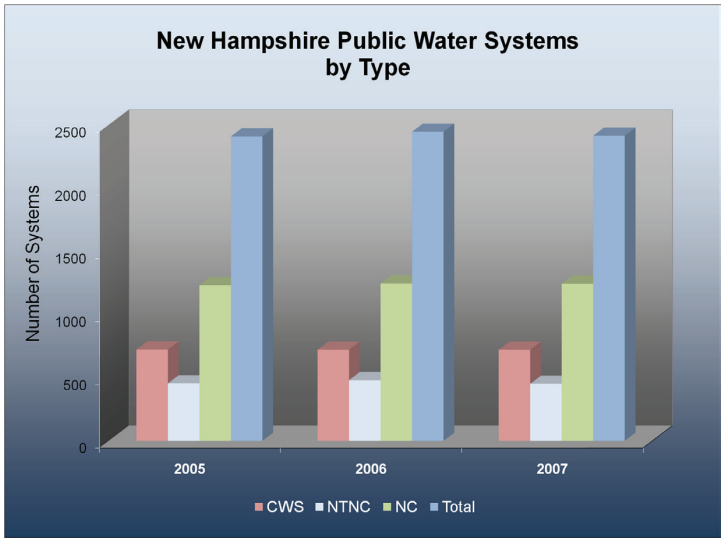


**Figure 8-1. New Hampshire public water system profile: Community water system (CWS); non-transient/non-community (NTNC); transient/non-community (NC). *Source: NHDES, 2008a.***

There are three types of public water systems: community water systems; non-transient/non-community systems; and transient systems. Depending on the type of system, the requirements vary, with more stringent requirements for larger systems and for those serving residential populations. Figure 8-1 shows the number of New Hampshire's public water systems among these categories. Each is described briefly below.

In 2007 there were 721 community water systems (CWSs) serving a combined resident population of approximately 849,905 (average size: 1,179) (NHDES, 2008a). These include municipalities, apartments and condominiums, mobile home parks, and single family home developments. Ninety-five percent of the CWSs in New Hampshire are small systems serving fewer than 3,300 residents. There are also 36 medium CWSs that each serve between 3,300 and 50,000 people, and two that are classified as large systems serving more than 50,000 each – Manchester Water Works and Pennichuck Water Works in the Nashua area (Figure 8-2) (NHDES, 2008a). The largest systems primarily use surface water for their source of supply, while the majority of small systems use groundwater.

The largest community systems are required to do the most comprehensive monitoring and treatment. Currently community systems must monitor for over 100 contaminants on a relatively frequent basis.

In 2007 there were 451 non-transient/non-community water systems (NTNCs) in New Hampshire (NHDES, 2008a). Typical NTNCs include non-residential schools, day cares, office buildings, commercial and industrial buildings, and

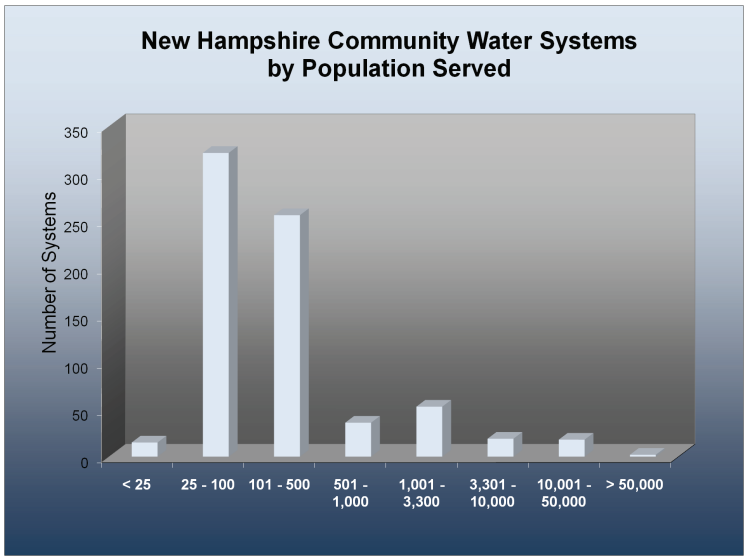


**Figure 8-2. Of community water systems, the majority (82%) serve relatively small populations that have fewer than 500 customers. *Source: NHDES, 2008a.***

businesses with permanent employees. Nineteen percent of New Hampshire's public water systems are NTNCs. This is larger than any of the other New England states and is a reflection of New Hampshire's rural nature. On average, these systems only serve about 200 people each, so there is often little economy of scale compared to community water systems.

All of New Hampshire's NTNC systems use groundwater for their source of water. The system operator is required to monitor for bacteria, lead and copper, nitrate, nitrite, inorganic contaminants (metals), volatile organic compounds or VOCs (solvents and hydrocarbons), and synthetic organic compounds or SOCs (pesticides). However, the sampling frequencies are less than for community systems and the compliance schedules for various treatment needs and monitoring are usually delayed until after community systems have complied.

In 2007 New Hampshire reported that there were 1,244 Transient/Non-Community Water Systems. Typical transient systems include restaurants, motels, hotels, ski areas, beaches and camp-grounds (NHDES, 2008a). All but one of these transient systems rely on groundwater for their source of water. Transient systems are only required to monitor for bacteria, nitrate and nitrite.

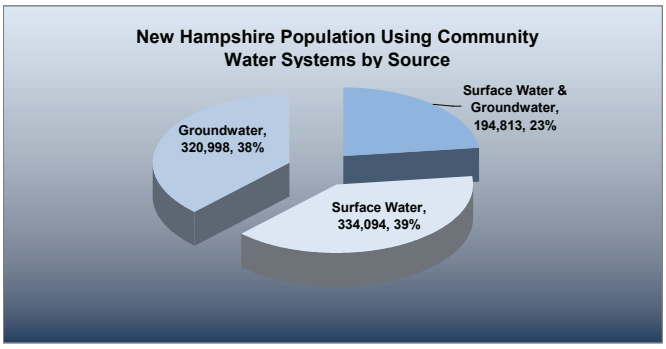


**Figure 8-3. Population served by New Hampshire's community water systems. *Source: NHDES Drinking Water and Groundwater Bureau.***

As indicated in Figure 8-3, 38 percent of the population served by CWSs is served by systems using only groundwater, 39 percent by systems using only surface water, and 23 percent by systems using both groundwater and surface water sources.

## 8.1.3 Drinking Water Uses and Statistics

Between 1950 and 2000 the U.S. population nearly doubled, but during the same period public demand for water more than tripled. Americans now use an average of 100 gallons of water each day, even though only two or three gallons might actually be consumed or used in cooking (U.S. Environmental Protection Agency [USEPA], 2008b). Indoor use varies but is typically around 70 gallons, nearly half of this for toilet flushing and clothes washers. That leaves nearly 30 gallons as outside water use for lawns, gardens and car washing (American Water Works Association, 2008). A recent study of the New Hampshire Seacoast estimated that each person uses an average of 75 gallons per day, although usage varied greatly among communities (Horn et al., 2008). A number of public water systems in New Hampshire report a doubling of customers' water use in the summer months due to irrigation. (See also Chapter 7 – Water Use and Conservation.)

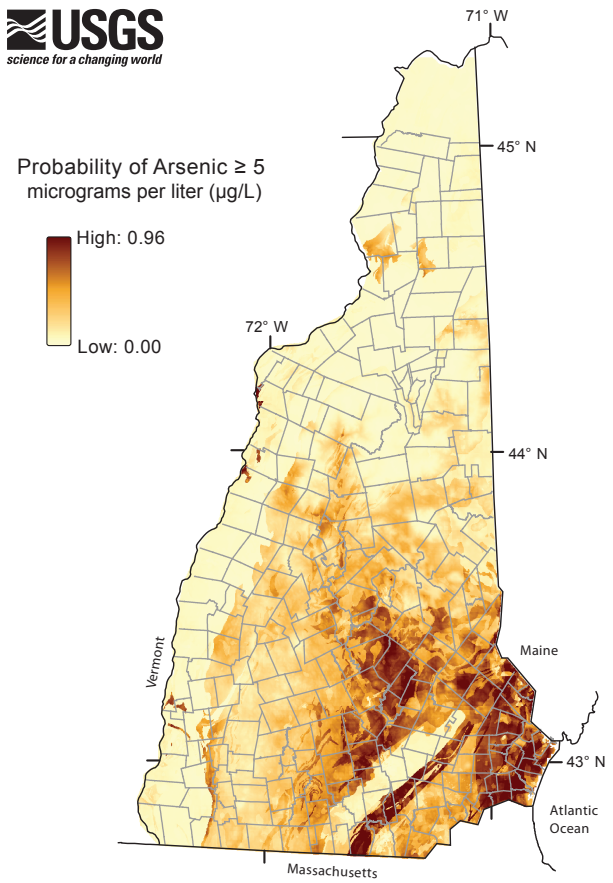


**Figure 8-4. Probability that wells in each area of New Hampshire are likely to have water with arsenic concentrations exceeding 5 micrograms per liter (µg/L). *Source: Ayotte et al., 2006b.***

## 8.1.4 Estimates of Naturally Occurring Contaminants in New Hampshire Well Water

New Hampshire's geology lends itself to certain common, naturally occurring contaminants, the most predominant being arsenic and radon. There are also iron and manganese deposits that can create common aesthetic concerns such as unpleasant taste and odor and unwanted staining. Our understanding of naturally occurring contaminants in well water is largely derived from the testing required at public water systems, the voluntary testing of private wells, and a number of scientific studies by USGS and others. It should be noted that many private wells are never tested.

Arsenic in well water is fairly widespread in New Hampshire (Figure 8-4). It is estimated that 20 percent of the state's private wells exceed the recently revised standard of 10 parts per billion of arsenic, which public systems must not exceed (Moore, 2004; Ayotte et al., 2006a). Although most of the arsenic in groundwater is likely of geologic origin, some of it may also be from historic pesticide use on apple orchards and other crops or from ash disposal (Robinson & Ayotte, 2006). Arsenic is a known carcinogen.

Radon gas is a byproduct of the radioactive decay of radium in certain rocks such as granite, so it is naturally common in the Granite State (Figure 8-5). Radon is a carcinogen. The major pathways to people are via migration of the gas through the soil and into homes where it may be inhaled, through groundwater entering the home as drinking water and then released as a gas, such as when showering or running water, and through ingestion of drinking water. The greatest exposure is through the first pathway.

Drinking water standards for radon have been quite controversial, with an initial proposal from U.S. Environmental Protection Agency of 300 picocuries per liter (pci/L), a limit that would have been exceeded by an estimated 95 percent of all New Hampshire wells. That standard was never finalized and it is unclear when a federal standard will emerge. Some New England states have set standards ranging from 4,000 – 10,000 pci/L and DES recommends that treatment be considered if the levels in well water exceed 2,000 pci/L. Nearly 40 percent of New Hampshire's wells

are estimated to exceed 4,000 pci/L (NHDES, 2005). Other, less predominant naturally occurring contaminants found in some areas of the state include other radionuclides, fluoride and beryllium. Manganese at very high levels has also emerged as a health concern.

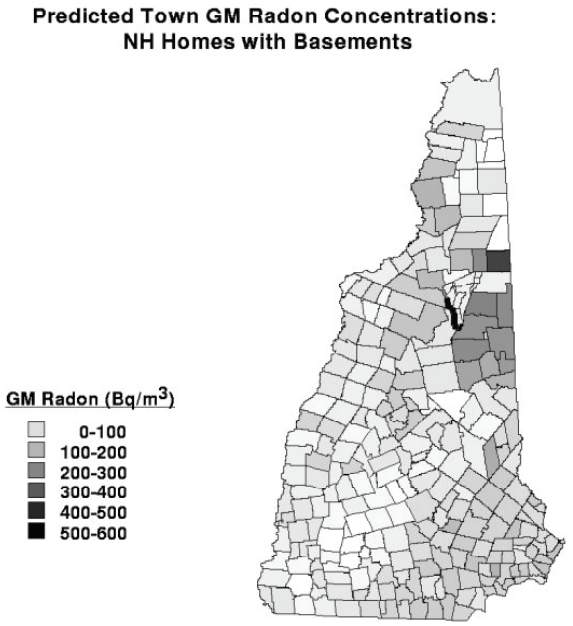


**Figure 8-5. Predicted geometric mean (GM) concentrations of radon in homes with basements, by Town. *Source: Apte et al., 1999.***

## 8.1.5 Water Supply System Components and Costs

Infrastructure in private water supply systems is minimal, consisting typically of a well, a pump, piping to the home, and a pressure tank. If there are water quality problems, the homeowner may have a point-of-entry device that treats all of the water entering the home, such as for radon. Alternatively, some homeowners are able to use point-of-use devices under the sink that treat only the drinking water coming from the tap, such as for arsenic. Older plumbing within the home may contain lead solder and fixtures that can leach lead and copper into the water. As previously noted, there is no uniform set of private well testing requirements or standards for treatment in New Hampshire, leaving it up to the homeowner to test their water and deal with the quality issues.

Almost all private and small community water sources are wells, either dug or bedrock as previously described. As the number of customers increases, it can become difficult to meet demands through wells. As a result, larger systems most often rely on surface water sources or a combination of surface and groundwater.

The infrastructure for public water systems includes additional components such as treatment, storage, pumping and distribution. Typically, the larger the system, the more complex the system components, with surface water systems generally requiring significantly more treatment than groundwater based systems. For many of New Hampshire's municipal systems, the infrastructure is decades if not centuries old. Therefore, routine and long-term maintenance of treatment and water distribution systems are important.

The sophistication of system monitoring and management also varies greatly. Generally, the larger systems can afford to have computerized monitoring and control systems and multi-level staffing, while smaller systems often struggle to cover the costs of basic treatment, monitoring and maintenance.

## 8.1.6 Multiple Barrier Approach to Safe Drinking Water

As regulations under the Safe Drinking Water Act have become more and more inclusive and stringent in response to new information about contaminants and their health impacts, water systems that once needed only basic treatment have had to implement more complex processes. Treatment,

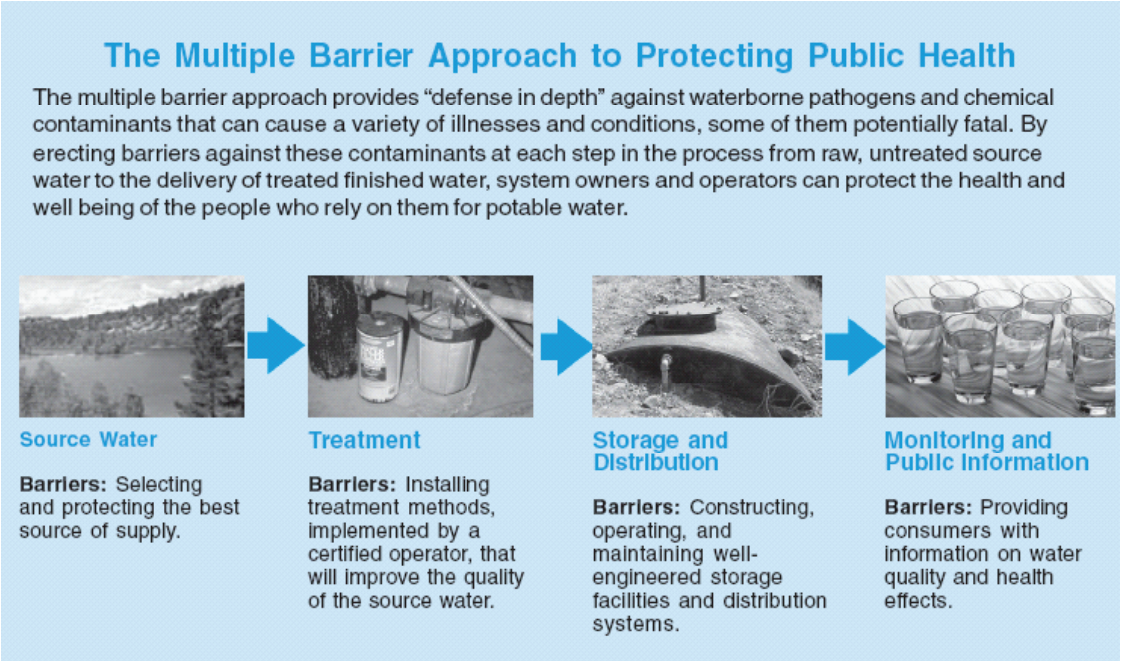


**Figure 8-6. Multiple-barrier approach to safe drinking water.** ***Source: USEPA, 2003.***

however, is only one element of an overall approach to ensuring safe drinking water that has been adopted over time by both the EPA and the water supply industry. The multiple barrier approach is now firmly established as the preferred way to ensure safe drinking water, although many water systems have employed the elements of this approach for many decades.

The multiple barrier approach may be slightly different for each type of system, but in general it includes steps that go all the way from the source of the drinking water to the tap. For example, a typical surface water multiple barrier approach includes watershed protection focusing on managing land uses and water-based activities, possibly optimization of the intake(s) to draw water from the location where water quality is optimal, a series of chemical and physical treatment steps including filtration and disinfection, protected storage of the treated water, monitoring steps, distribution system operations and maintenance, ongoing operator training, and additional tap water monitoring. Each of these provides a partial barrier to pathogens and chemical contamination, and together, public health is well-protected. Figure 8-6 shows the multiple-barrier approach graphically.

The multiple barrier approach can also be used for private wells. The steps are simpler but no less important, and may include using a reputable contractor to construct the well, locating it properly to avoid exposure to sanitary waste or other contaminants, keeping harmful materials away from the well, avoiding the use of nitrate fertilizers and pesticides nearby, disinfection of the piping to the house, testing of the well before use and every three years thereafter, installation and maintenance of appropriate treatment if indicated, and the use of backflow prevention devices wherever irrigation connections occur.

New Hampshire has embraced this approach and has promoted protection of the sources of our drinking water as an important tool in ensuring safe drinking water. The state supports local land use planning consistent with protecting both the quantity and quality of drinking water and many municipalities have adopted ordinances to protect their drinking water.

## 8.2 Issues

### 8.2.1 Private Well Users at Risk

Although about 36 percent of New Hampshire residents use private wells for their drinking water supply, the water quality of many of these wells is unknown. Currently there are no statewide monitoring or treatment requirements for private wells. Private wells are not covered by the Safe Drinking Water Act and are rarely regulated in towns or other states. New Hampshire has required a well construction report for private wells since the year 2000; however, there may be no records for wells constructed before then. Further, while New Hampshire encourages private well testing, it is unclear how effective the educational efforts have been.

As previously described, estimates suggest that a significant proportion of New Hampshire's private bedrock wells are contaminated with arsenic and/or radon, two naturally occurring contaminants. Recent studies have also increased concern about the health risks of elevated manganese and fluoride in some areas (Rocha-Amador et al., 2007). Dug wells are often at risk for pathogen entry if they are improperly maintained or constructed, or if wells are located where contaminants might enter due to flooding, nearby animal pens, manure piles, etc. In addition, there are other less common contaminants such as radionuclides other than radon, fluoride or beryllium, which can occur at unsafe levels in particular geographic areas. Salt from roads or salt piles is also a common problem in many areas of the state.

### 8.2.2 New Hampshire Has a High Proportion of Struggling Small Community Systems

Even large community water systems find the Safe Drinking Water Act regulations difficult and costly to meet, so it is no surprise that it is much more difficult for small water systems. Figure 8-7 depicts the many challenges that small water systems may encounter as they provide safe drinking water. New Hampshire has a large proportion of small systems which are widely distributed and often impossible to interconnect. Per customer costs may be dramatically different than those associated with large systems. These small stand-alone systems require fairly sophisticated operations, yet they cannot afford to hire full-time staff that specialize in drinking water. Some small municipal water systems may have to share one part-time staff member with the highway department, the fire department and others.

Conversely, larger systems benefit from economies of scale and can afford to hire highly educated, specialized staff teams with in-depth knowledge of treatment, distribution, and other aspects of drinking water provisions. As a result, customers of the smallest systems often pay the most for

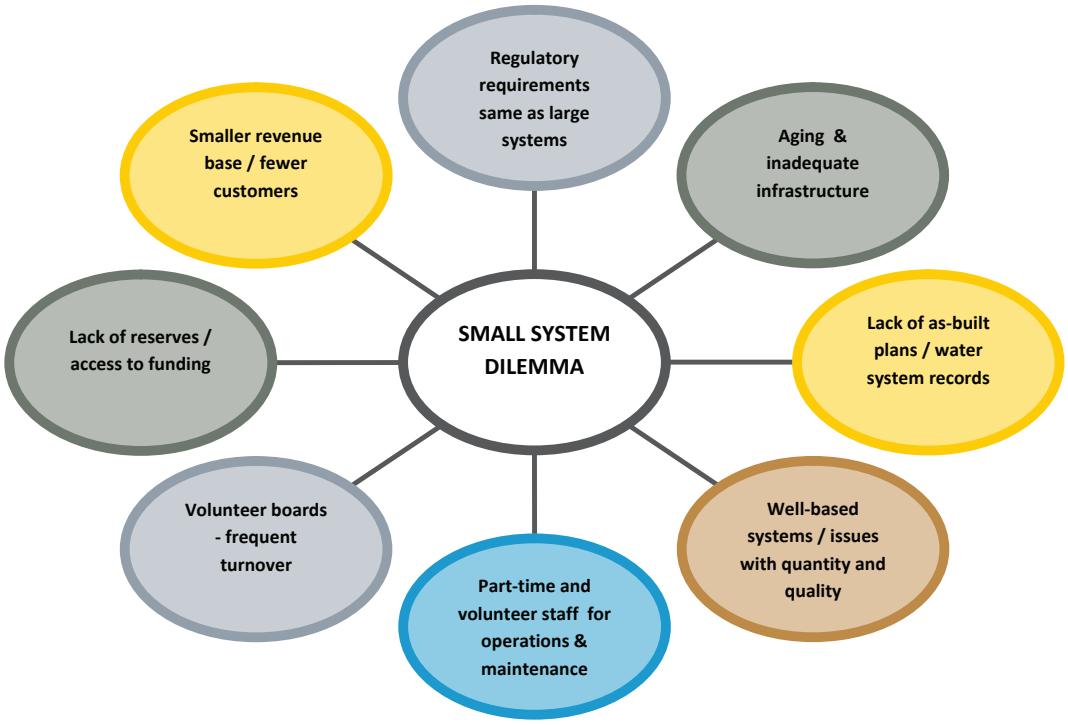


**Figure 8-7. Challenges for small community water systems in New Hampshire.**

the least in services. It is also important to note that providing water supply is a highly capital intensive mission where even the largest systems struggle to maintain and replace their aging infrastructure.

### 8.2.3 Aging Water Supply Infrastructure Is Widespread: Funding Insufficient

Much of the drinking water infrastructure in New Hampshire's cities and towns is 50 to100 years old. The infrastructure can include some or all of the following: dams for reservoirs, intakes, wells, pumps, transmission lines that take the water supply to treatment facilities, treatment facilities, water storage tanks, distribution networks, pump stations, meters, and electronic monitoring systems. Nearly all of these are costly to maintain or replace. Without regular capital improvements, more water leakage can occur and drinking water can become more difficult and costly to meet community needs.

A few of the largest systems are able to develop and implement long-term capital improvement plans, making infrastructure improvements over time. But for the most part, typical municipal systems are unable to keep up with the capital improvements that are needed to keep their systems up to date and operating efficiently, since they lack larger systems' economies of scale. Most water systems do not charge enough to cover all of the costs associated with providing water.

In 1996 a Drinking Water State Revolving Fund was established by Congress to, in part, help public water systems address aging infrastructure. New Hampshire receives approximately $8 million each year to loan out at reduced interest rates to our public water systems. In 2005 the 20-year projected demand for this funding in New Hampshire was $595.6 million (USEPA, 2005). Each year projects are prioritized based on severity of public health threat but demand consistently far exceeds supply. Because of the extensive process involved in receiving these loans, needy small public water systems rarely apply.

### 8.2.4 Population Pressures and the Purity Paradox

Treatment standards under the Safe Drinking Water Act are geared solely for the cost-effective protection of public health. Yet these stringent and costly standards are used to treat the entire water supply even though only a very small proportion of that water supply is actually used for drinking water. A considerable amount of water supply treated to drinking water standards is used to do laundry, flush toilets, irrigate lawns, put out fires, and clean streets.

Water systems expand to meet the peak demand of all uses, whether for drinking, lawn watering, or sanitary uses. Wells are drilled and re-drilled, surface water sources are expanded, and treatment capacity is increased to accommodate demand. Yet only a small portion of the total water used really needs to be of such high quality. There is a potential for both water and energy savings if non-drinking water uses could be satisfied by sources that are not treated to drinking water standards. Water from sinks and clothes washing (grey water) could be used for toilet flushing. Stormwater could be used to irrigate lawns with only minimal treatment in most cases. Until water costs much more, however, the savings associated with recycling grey water and stormwater will not outweigh the cost of separate conveyance systems.

This issue is likely to become more important in the future as population growth strains available supply and the cost of treatment continues to climb. As noted in Chapter 4 – Groundwater, continued growth and development also severely limits the ability to develop new municipal wells in many areas. Emerging contaminants that could drive the increase in treatment costs include pathogenic viruses, toxic algae, and pharmaceuticals and personal care products, e.g., prescription and over the counter therapeutic drugs, veterinary drugs, fragrances, cosmetics, sunscreen products, diagnostic agents and vitamins.

### 8.2.5 Climate Change May Have Implications for Public Health and Infrastructure

Some researchers are concerned that the rise of extreme precipitation events linked to climate change (see Chapter 1 – Introduction and Overview) will worsen U.S. waterborne disease outbreaks in the future. A 2001 article in the Journal of Public Health reported evidence that 68 percent of the waterborne disease outbreaks in the U.S. from 1948-1994 were preceded by the largest precipitation events (Curriero et al., 2001). It has not been determined whether this association holds true in New Hampshire. However, the predicted increase in frequency and intensity of storm events is a concern in terms of flooding at public water systems.

### 8.2.6 Water Supply Policies May Help or Hinder Smart Growth

Generally, land use patterns that concentrate growth in or near existing population centers and that involve compact development in newly developed areas are more protective of water resources and other aspects of environmental quality (air quality, energy use, consumption of other resources). There are several ways in which water supply policies on both the local and state levels may promote or hinder such "smart growth" land use patterns. First, as noted in section 8.2.4 and in Chapter 4 – Groundwater, attention should be given to the protection of future community well sites to enable growth of municipal systems in or near their existing service areas. Without this attention, these well sites will continue to be choked out by nearby development. Second, policies that address the expansion of service areas can either promote or hinder smart growth objectives, depending on the extent to which they encourage infill or compact development. Finally, the regulatory and financial demands on small community water systems may present an obstacle to compact development (as an alternative to large-lot development) outside existing service areas.

## 8.3 Current Management and Protection

### 8.3.1 Public Drinking Water Program

The New Hampshire Public Drinking Water Program implements the New Hampshire Safe Drinking Water Act (SDWA), which includes the requirements of the federal SDWA, which have expanded over the years (Figure 8-8). The federal SDWA was reauthorized in August 1996. New Hampshire has received "Primacy," the official designation by EPA for a state to implement the provisions of the federal SDWA. Approximately 90 percent of the funding for New Hampshire's Public Drinking Water Program comes from EPA, the remaining 10 percent comes from fees paid by water systems. Consequently, much of the work of DES's Drinking Water and Groundwater Bureau is dictated by the federal SDWA, including maximum contaminant levels (MCLs), monitoring schedules, and water system inspections. These requirements are designed to protect public health and were created at the national level in response to concerns expressed to the U.S. Congress regarding the need for

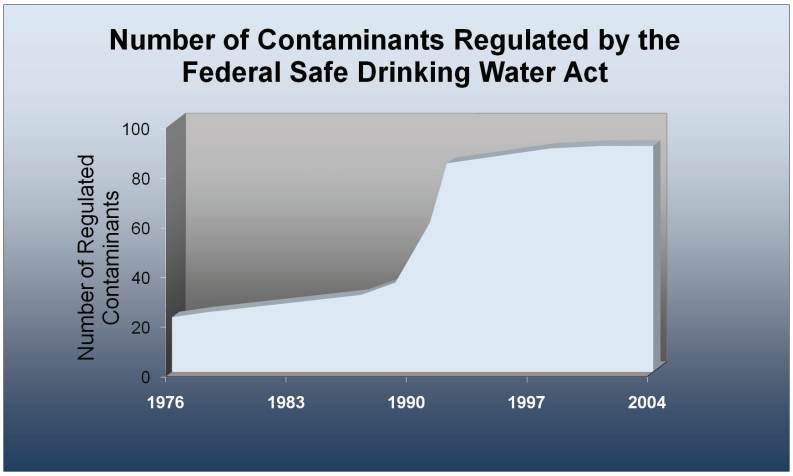


**Figure 8-8. The number of contaminants regulated by the federal Safe Drinking Water Act has increased substantially over the past three decades. While compliance with the drinking water standards for so many contaminants proves to be difficult, this Figure does not account for regulatory standards that have changed to further limit a specific contaminant. *Source: USEPA, 2008a.***

strict standards in the drinking water industry. Overall, New Hampshire's drinking water program includes design, operation, and monitoring requirements for public water systems as well as protection of the sources of drinking water. In addition to DES, two public water system member groups have active roles in safe drinking water issues and provide significant training for public water system operators: New Hampshire Water Works Association and Granite State Rural Water Association. Finally, the Rural Community Assistance Program also provides assistance to public water systems in rural areas of the state.

### 8.3.2 Private Well Initiative

In 2000 DES and EPA launched a private well testing initiative, encouraging users of private wells to test their water more often and for a broader range of contaminants than before. DES enlisted the help of local health officers to blanket the state with posters and flyers urging homeowners to "Protect Your Family – Test Your Well's Water Quality Today." Health officers were asked to display the flyers in high-traffic locations in their municipalities. Public service announcements were produced and distributed to radio stations. A web site was developed containing pertinent fact sheets about contaminants of concern, lists of licensed well drillers and accredited laboratories, wellhead protection information, checklists, and other information for private well owners (NHDES, 2008e). Outreach to realtors and homeowners continue on a limited basis due to funding constraints.

### 8.3.3 Water Well Construction and Driller Licensing

Water well contractors and pump installers are licensed under RSA 482-B, which also establishes a Water Well Board to oversee licensing and the filing of well completion reports. The Water Well Board also adopts and enforces standards for the construction of wells and the installation of pumps. The board maintains records of over 112,000 wells constructed throughout the state since 1984 (NHDES, 2008d). The information is available for easy access through the internet, and is used frequently by homeowners, professionals such as hydrogeologists, and other interested parties.

### 8.3.4 Local Source Water Protection and Private Well Testing Ordinances

While a significant number of New Hampshire municipalities have taken steps to protect their important groundwater resources from contamination by human activities, very few have adopted regulations to protect private well users through mandatory testing. Seventy-five municipalities have adopted ordinances to protect aquifers, public wells, or other groundwater resources. Seventy of those ordinances rely on land use restrictions, while 27 incorporate a requirement for potential contamination sources to use best management practices. Twenty-one municipalities have adopted ordinances similar to the model groundwater protection ordinance developed by DES and the New Hampshire Office of Energy and Planning (NHDES, 2006), incorporating both land use restrictions and BMP requirements.

In contrast, only five municipalities have adopted ordinances that require testing of private wells for a prescribed list of contaminants, either in connection with real estate transfers or certificates of occupancy. An additional 44 municipalities report that they have a private well testing require-

ment, apparently in reference to the state plumbing code, which requires that water supplies connected to domestic plumbing systems supply potable water. However, the code does not define "potable" in terms of specific contaminants, so there is no assurance that the water is tested for common contaminants such as arsenic and radon.

## 8.4 Stakeholder Recommendations

### 8.4.1 Increase Private Well Protection

In spite of the major efforts towards protecting private wells by licensing contractors and drillers and requiring standards for well construction, there are no clear water quality or testing standards for private wells. There are also no mandatory state standards for vendors installing treatment for private wells. Since a large percentage of private wells produce water that exceeds health-based contaminant limits, additional steps are needed to improve the effectiveness of programs to inform and protect private well users.

### 8.4.2 Improve Capacity of Small Systems

New Hampshire has many small drinking water systems that are often unable to provide the same level of public health and safety protection as larger systems due to a lack of economy of scale and the difficulty in finding certified operators to assist them. Their capacity for financial management is critical, including training of water commissioners and understanding how to charge the true cost of water to customers. They also need technical assistance and managerial capacity to help deal with complex Safe Drinking Water Act regulations and critical drinking water operations. Where possible, regionalization is one option to assist small communities in meeting their obligations. Another option is to assist them through funding and technical assistance to develop better technical, financial, and management capabilities. Drinking Water State Revolving Funds should be made more accessible for small systems.

### 8.4.3 Maintain and Upgrade Drinking Water Infrastructure

As treatment facilities, water tanks, pumps, and water mains age, their tendency to fail increases, sometimes dramatically. However, few water systems, even the largest, can afford to pay for all of the capital improvements required to get their systems up-to-date. A significantly greater funding level is needed to protect public health and safety; the long-term economic and public health costs of not upgrading the infrastructure are too great.

### 8.4.4 Improve Local Protection Efforts

Although the state provides siting criteria for certain potential contamination sources, such as above ground and underground storage tanks and landfills, local planning and zoning boards have a much greater role in restricting the siting of activities that present a risk of contamination. Municipal governments need to improve their capacity to protect their own water supplies from the negative impacts that can result from development (see description of landscape change in Chapter 1 – Introduction and Overview). In addition to water wise local ordinances, more permanent pro-

tection of critical water supply lands through conservation is needed. Finally, in lieu of a statewide approach to ensure private wells are tested, municipalities should be encouraged to adopt ordinances to ensure that well testing and disclosure is occurring.

### 8.4.5 Track Emerging Contaminants

Although the provision of drinking water is already highly regulated, new contaminants and po-tential contaminants are identified every day. For example, using MTBE (Methyl tertiary-Butyl Ether) in gasoline to improve air quality turned out to be a mistake from the standpoint of groundwater protection, and this highly soluble contaminant has been found in many areas of New Hampshire (Ayotte et al., 2008). Although MTBE is no longer used in New Hampshire, other contaminants may threaten our drinking water quality in the future. For example, pharmaceuticals and personal care products are now being found at trace levels in groundwater and surface water in many parts of the country. Whether these will be found in New Hampshire, whether they will have human health effects, and the extent of their ecological effects, remain to be seen, but New Hampshire must continue to track research and health assessments to make sure that appropriate water quality health standards are developed when needed.

### 8.4.6 Water System Security and Interconnection

The water sector continues to be a concern as a target for terrorism. Preparedness for natural disasters is also necessary. DES and EPA have provided funding to help harden public water systems and to promote emergency interconnections between municipal systems. The state also encourages public water systems to join New Hampshire's Public Works Mutual Aid Program so that water systems can assist one another in the event of an emergency by enabling a prompt and effective response. Although emergency plans are required for community water systems, more emphasis in emergency preparedness is necessary including improved communications and coordination with local first responders and funding for backup power.

### 8.4.7 Prepare for Climate Change

Water systems need to understand climate change (see Chapter 1 – Introduction and Overview) and prepare adaptation strategies. The state should assist with identifying the anticipated impact of future climate change for the state's large, municipal water systems. The Drinking Water State Revolving Loan Fund program should take this information into consideration when making infrastructure investment decisions. It should also address drinking water impacts overall in future versions of the New Hampshire Climate Change Action Plan (NHDES, 2008b).

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Mason Exhibit 3

The State of New Hampshire
***Department of Environmental Services***

**Thomas S. Burack, Commissioner**

October 7, 2011 *Via email*

Mr. Jeffrey Butensky
Drinking Water Quality and Protection Unit
USEPA - New England
One Congress Street, Suite 1100 (CDW)
Boston, MA 02114
butensky.jeff@epa.gov

Re: **NH Capacity Development FY 2011 and Governor's Report FY 2009 – 2011**

Dear Jeff:

In accordance with Section 1420 (c) of the 1996 Amendments to the Safe Drinking Water Act, we are hereby submitting New Hampshire's Annual Capacity Development report to EPA, and our Triennial Report to the Governor. These are available on our "**Small Public Water System Help Center**" web page at www.des.nh.gov, A to Z List.

These reports include EPA's required information regarding activities and control points for capacity assurance for new and existing systems in our state. Some key messages from this period are:

- New Hampshire's principal capacity development need (Section II) is to reduce Total Coliform violations at very small systems serving <250 people;
- New Hampshire is committed to continuing access to DWSRF funding to address the infrastructure needs at the very small, privately-owned systems; and
- For the next reporting period, we are implementing basic asset management planning and the requirement to submit a simple capital improvements plan for small systems applying for funding assistance through the DWSRF.

Please contact our Capacity Development Program Coordinator at Cynthia.Klevens@des.nh.gov (603) 271-3108, for any additional information or questions on these reports.

Sincerely,

Sarah A. Pillsbury, PG
Administrator
Drinking Water and Groundwater Bureau

Encl.

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Telephone: (603) 271-3139 • Fax: (603) 271-5171 • TDD Access: Relay NH 1-800-735-2964
DES Web site: **www.des.nh.gov**

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Mason Exhibit 3

R-WD-11-23

**NEW HAMPSHIRE DEPARTMENT OF ENVIRONMENTAL SERVICES**

# TRIENNIAL REPORT TO THE GOVERNOR AND USEPA WITH HIGHLIGHTS FOR FY 2011 ON NEW HAMPSHIRE'S CAPACITY DEVELOPMENT PROGRAM FOR PUBLIC WATER SYSTEMS FY 2009 TO FY 2011

July 2009 to June 2011


Prepared by Cynthia Klevens, P.E.

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**September 30, 2011**

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# I. INTRODUCTION

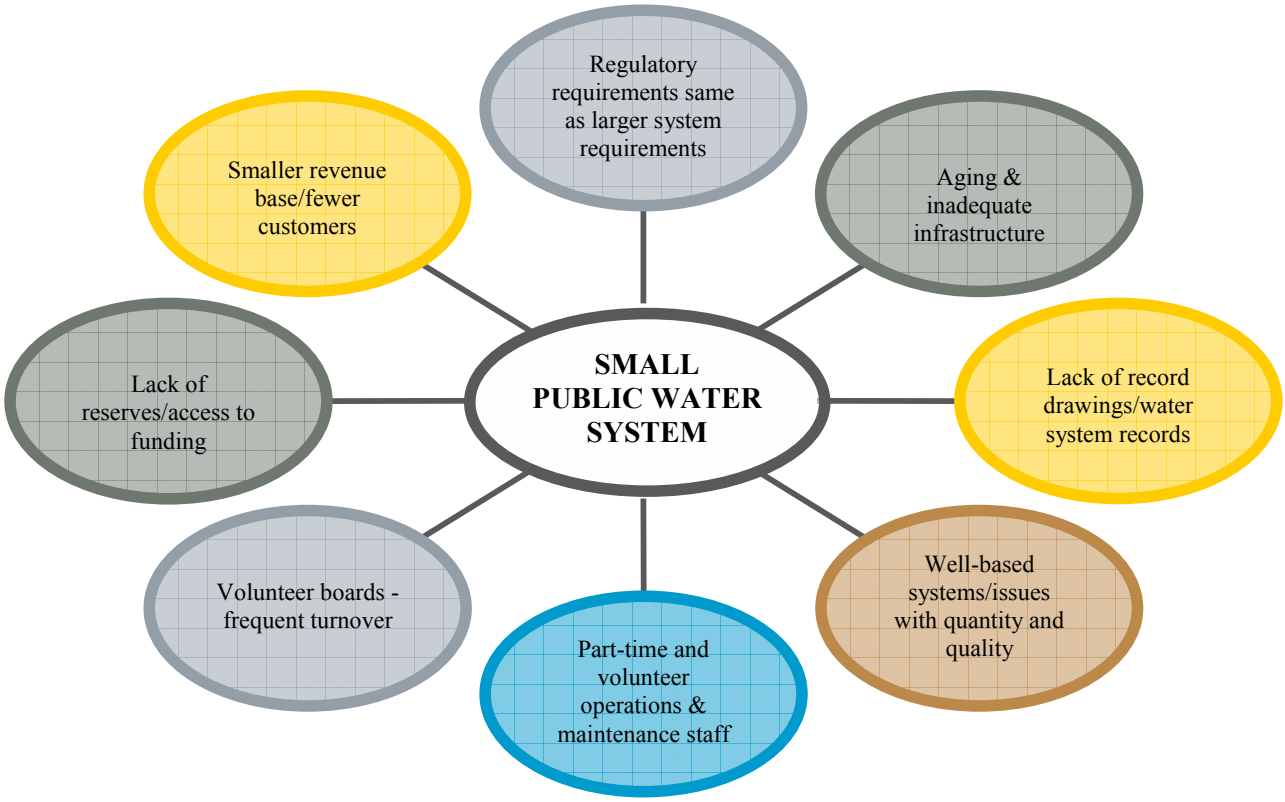
## 1. BACKGROUND

Under the 1996 Amendments to the Safe Drinking Water Act (SDWA), Section 1420(c), states must develop, implement, measure, and report on their *capacity assurance* efforts to ensure that all new and existing public water systems (PWS) have adequate technical, managerial and financial means to provide clean, safe and reliable water. States failing to comply with these requirements are subject to withholding of up to 20 percent of their Drinking Water State Revolving Loan Fund allotment.

This report is structured in accordance with reporting criteria developed by EPA, to provide more consistent state reporting. Activities for this reporting period are organized into those provided for ***new*** PWS (Section B) and those for ***existing*** PWS (Section C).

The overall goal of capacity assurance is to improve the rate of compliance and long-term sustainability of community (CWS) and non-transient non-community (NTNC) public water systems. New Hampshire's program is administered through the Department of Environmental Services Drinking Water and Groundwater Bureau (DWGB). Based on the non-compliance trends from the past few years, we have focused more technical assistance efforts on the very small water systems (<250 service population), and on specific contaminants such as bacteria, arsenic, uranium, lead and copper. Figure 1 depicts some of the reasons that the very small systems require continued assistance and enforcement to maintain compliance with the SDWA.

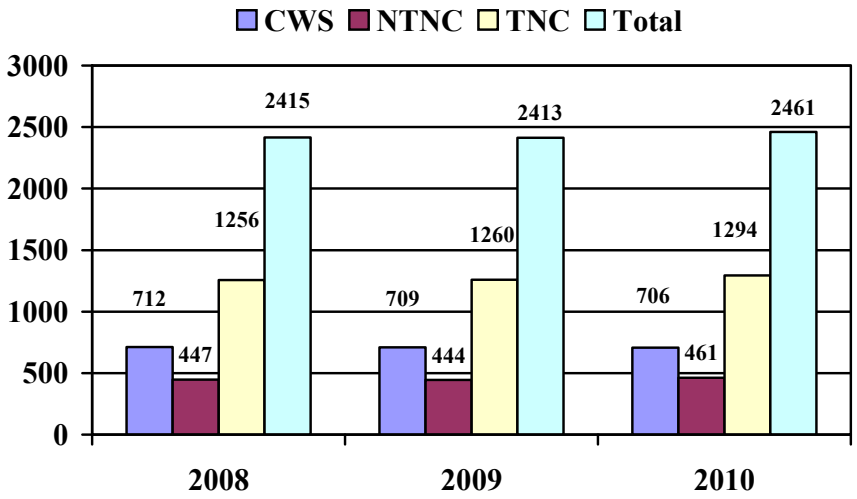
**Figure 1 – Small Water System Challenges**



## 2. Profile of New Hampshire Public Water Systems

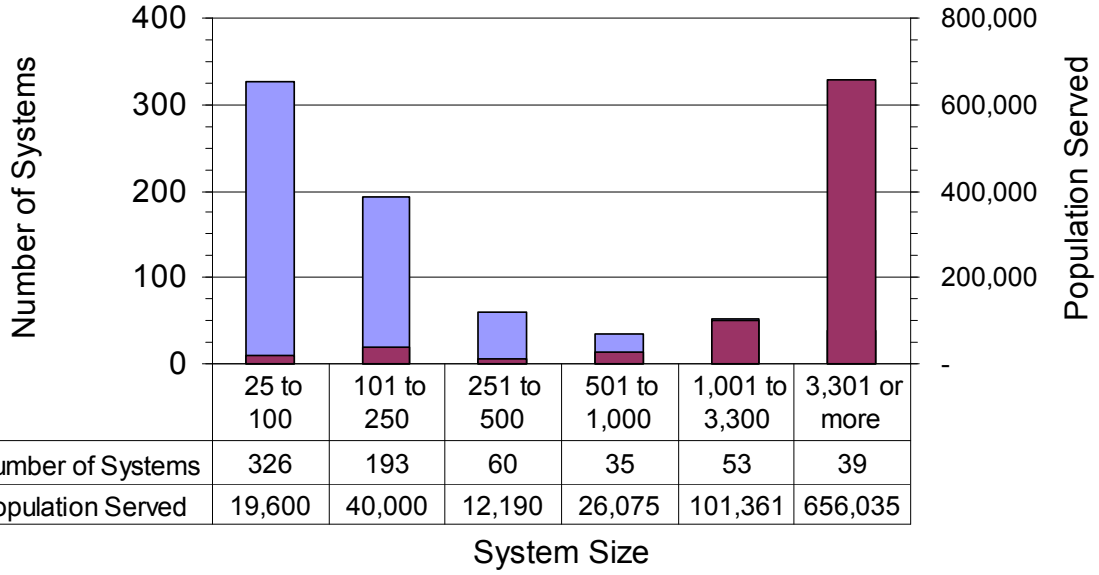
The capacity assurance program applies to *non-transient* water systems only, which comprise about half (47%) of the **2,461** water systems regulated by the state under the federal and state SDWA (Figure 2). About **60 percent** of the state's residential population is served by public water systems. The remaining 40 percent is served by private wells.

**Figure 2 - NH Active Public Water Systems**




It is important to note that the majority (74%) of New Hampshire's CWS serve fewer than 250 people (Figure 3), and thus face significant financial, managerial and technical challenges to maintain compliance with the SDWA requirements.

**Figure 3 NH Community Water Systems by Population Served**



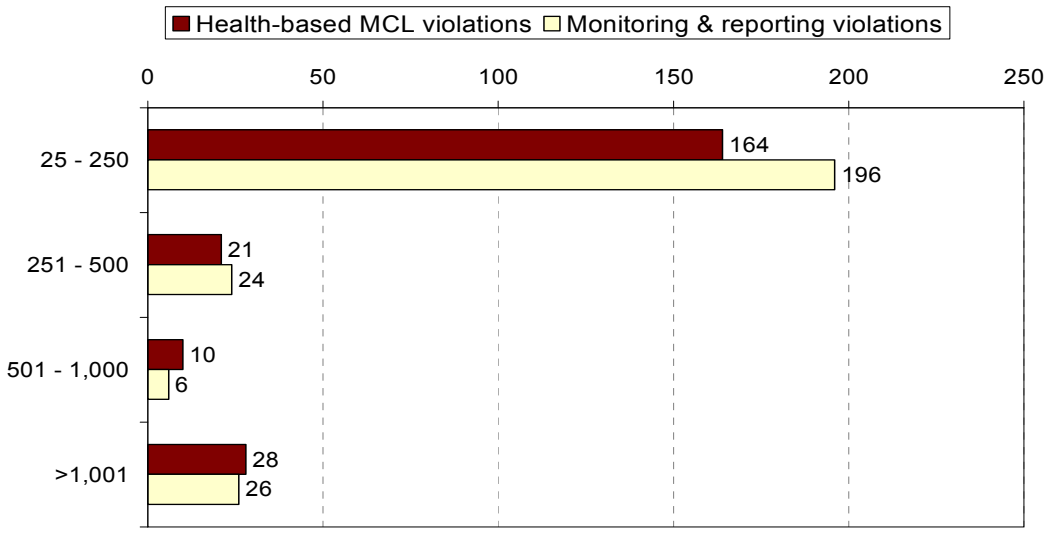

| | 25 to 100 | 101 to 250 | 251 to 500 | 501 to 1,000 | 1,001 to 3,300 | 3,301 or more |
|---|---|---|---|---|---|---|
| Number of Systems | 326 | 193 | 60 | 35 | 53 | 39 |
| Population Served | 19,600 | 40,000 | 12,190 | 26,075 | 101,361 | 656,035 |

# II. STATEWIDE CAPACITY NEEDS IDENTIFIED THIS PERIOD

## 1. VIOLATIONS BY SYSTEM SIZE

Review of the number of violations in the past fiscal year (Fig 4) reveals that the highest number of violations, both for health-based standards as well as for monitoring and reporting (failure to sample or provide public notice), are incurred by the very small systems (<250 people).

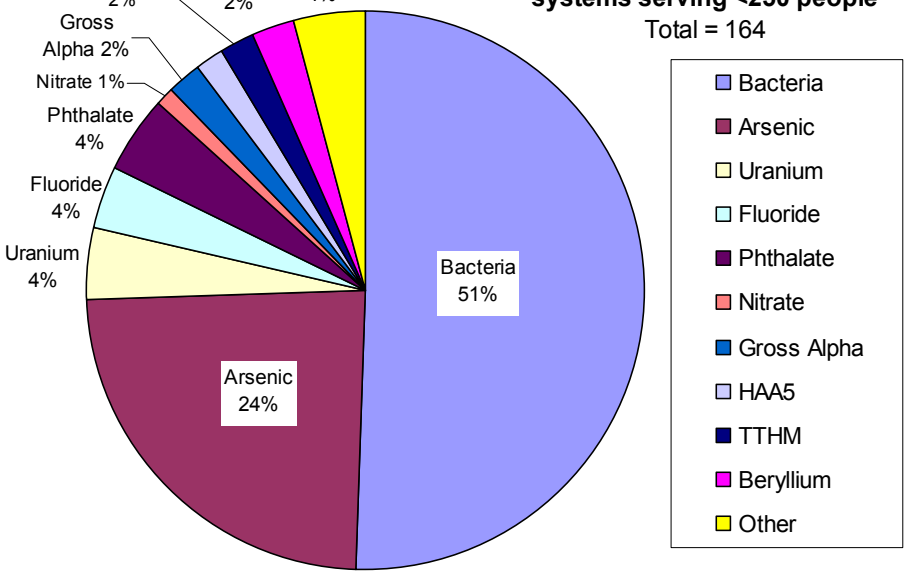
**Figure 4 - Number of Violations by System Size**
(July 2010 to June 2011)




## 2. VIOLATIONS BY CONTAMINANT

More detailed review of the health-based maximum contaminant level (MCL) violations at the very small systems (Figure 5), shows that the most important issues are total coliform bacteria (51% of violations) and arsenic (24%).

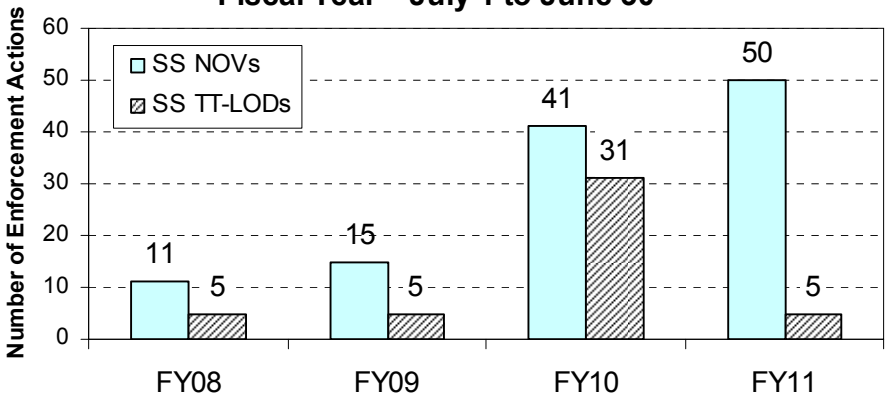
**Figure 5 - Type of MCL violations at systems serving <250 people**
Total = 164



## 3. Sanitary Survey Deficiencies

In FY2010 and in conjunction with state implementation of the new Groundwater Rule, New Hampshire reinforced its sanitary survey enforcement and outreach to address outstanding deficiencies that could impact system reliability and operations. Figure 6 shows the results of these efforts as depicted by the number of state-level Notices of Violation (NOV) and subsequent Treatment Technique/Letters of Deficiency (TT-LOD). NOVs are issued if the deficiency is not corrected or does not have a state-approved Corrective Action Plan (CAP) **by 30 days** of the survey visit. TT-LODs are issued if the deficiency is still outstanding or does not have an approved CAP **by 120 days** of the survey citation. Technical assistance on possible corrective options is provided at the time of the Sanitary Survey, as well as follow-up email/phone correspondence to address any questions or problems *prior* to the TT-LOD enforcement.

**Figure 6 - Sanitary Survey Enforcement**
**Fiscal Year = July 1 to June 30**

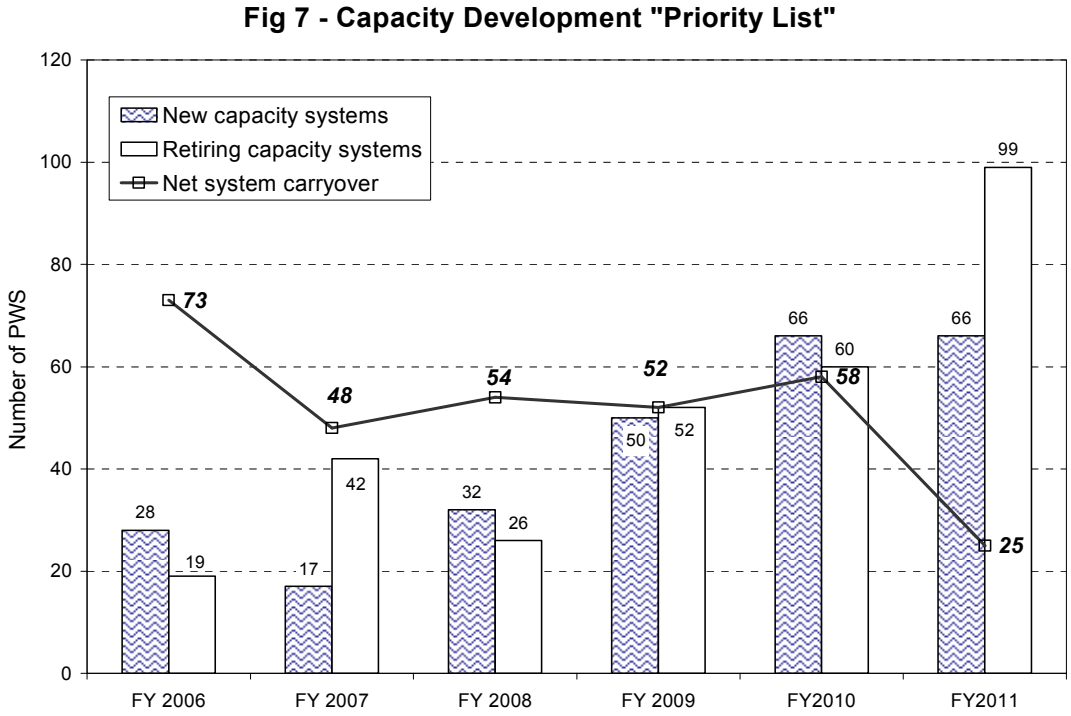



## 4. Identification and Prioritization of Systems in Need of Assistance

Systems in need of targeted assistance through the Capacity Development Program are identified through regular interactions including sanitary surveys, referrals from contract operators, customer complaints, grant and loan application lists, and repeat violations/enforcement lists. A rolling capacity development "priority list" is maintained by the Capacity Development staff wherein each system is assigned a lead "TA contact" from the Bureau, to identify root causes and solutions with the system representatives and consultants.

A chronological work log is opened to track general interactions and progress for each water system on the priority list, and is closed when the system has returned to compliance and is deemed to be stable. The assigned TA leads meet as a group twice per month, to review system progress or lack thereof. When needed, the Bureau Administrator personally attends meetings or conference calls with water system commissioners, owners, or board members to review the deficiencies and agree on a suitable work plan and timeline for resolution.

Quarterly tracking measures include "new capacity systems" and "retired capacity systems". Figure 7 shows the carryover from each fiscal year of active systems on the priority list. This past fiscal year shows a high number of "retirees" based on increased and continued contacts from DES with system representatives, for both technical assistance and enforcement. This resulted in the lowest carryover of troubled systems (25 total) into FY 2012.




# III. CAPACITY ASSURANCE FOR NEW SYSTEMS

From their inception, new public water systems must be designed to support adequate technical, financial and managerial resources for their long-term sustainability and reliability. The capacity assurance program for new systems includes regulatory requirements and control points to verify that new approvals are issued only to systems that have demonstrated these capabilities.

## 1. CHANGES IN STATE REGULATIONS FOR CAPACITY ASSURANCE

There were no changes in the Capacity Assurance state regulations in fiscal year 2011.

## 2. MODIFICATIONS TO THE STATE'S CONTROL POINTS FOR CAPACITY ASSURANCE

New Hampshire's main control point for capacity assurance is the water system **Business Plan**. The business plan is a tool for the system to document its managerial and financial assets, and to improve its ability to provide effective and reliable service to its customers over the long term. There were no changes to the business plan in this reporting period.

## 3. NEW PWS APPROVALS VS. ENFORCEMENT TARGETING TOOL (ETT) LIST

On average, around 10 new non-transient water systems are approved or "found" per year in New Hampshire (Figure 8). A few are also deactivated either because they connect to a larger system, or they no longer meet the definition of a PWS. The names of non-transient water systems added to our inventory over the past 3 fiscal years are listed in Table 1. Of these, **Sunset Villa in Fitzwilliam (PWS 0823010) and Epsom Medical Center in Epsom (PWS 0775020)** have been listed on the federal Enforcement Targeting Tool (ETT) due to repeat violations. An Administrative Order was filed against the Sunset Villa owner and they returned to compliance in Q3 2011. Epsom Medical Center was provided technical assistance for maintenance of its arsenic treatment and returned to compliance in Q1 2011.

**Figure 8 - New Non-Transient Public Water Systems FY07-11**

Fiscal Year = July 1 to June 30

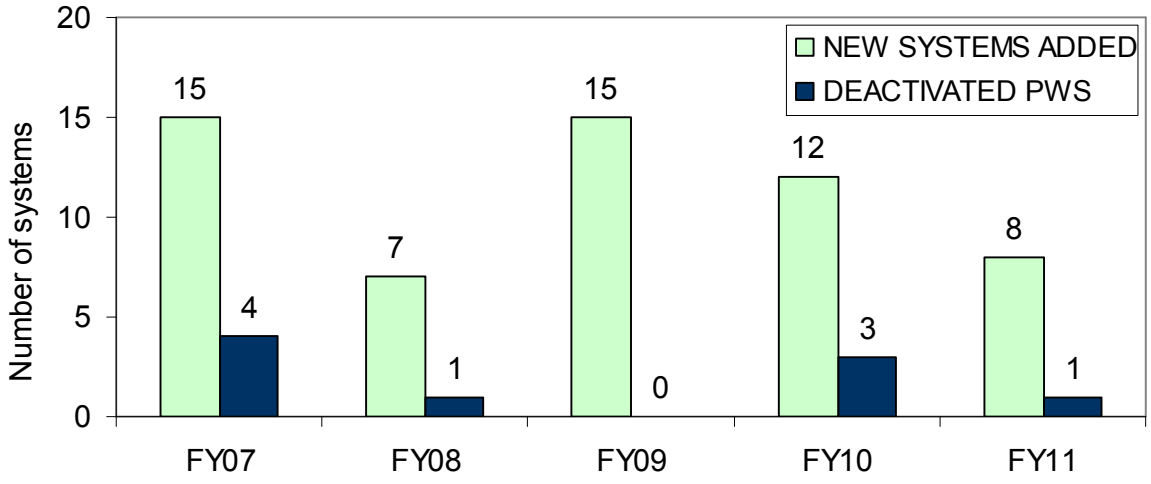



**Table 1 - New Non-transient Systems FY2009 to FY2011**

| EPA ID | TOWN | PWS NAME | TYPE |
|---|---|---|---|
| **FISCAL YR 2009 (JULY 1 2008 TO JUNE 2009)** | | | |
| 0025010 | Albany | White Mountain Waldorf School | NT/NC |
| 0265050 | Bow | Bow Youth Center | NT/NC |
| 0275080 | Bradford | NFI North School | NT/NC |
| 0666030 | Dublin | Dublin Village Park | NT/NC |
| **0775020** | **Epsom** | **Epsom Medical Center - ETT Q2 2010, closed Q1 2011** | **NT/NC** |
| 1625020 | Nashua | Second Nature Academy | NT/NC |
| 2545100 | Windham | Windham High School | NT/NC |
| 2546200 | Windham | Cyr Lumber | NT/NC |
| **FISCAL YR 2010 (JULY 1 2009 TO JUNE 2010)** | | | |
| 0116040 | Atkinson | Palmer Gas | NT/NC |
| 0346030 | Campton | USFS WMNF Administrative Complex | NT/NC |
| 0605010 | Deering | Robin Hill Farm/Blue House | NT/NC |
| **0823010** | **Fitzwilliam** | **Sunset Villa Park - ETT Q3 2010, closed Q3 2011** | **CWS** |
| 1462040 | Madison | Silver Lake Landing Sr Housing | CWS |
| 1685020 | Newfields | Gateway to Learning Preschool | NT/NC |
| 1936300 | Plaistow | Barons Condos | NT/NC |
| 2236160 | Stratham | Lindt and Sprungli Buildings (3 systems 6160, 6170, 6180) | NT/NC |
| 2546210 | Windham | Granite Oaks | NT/NC |
| **FISCAL YR 2011 (JULY 1 2010 TO JUNE 2011)** | | | |
| 0286060 | Brentwood | Rockingham County Courthouse | NT/NC |
| 0872020 | Fremont | Blackrocks Village | CWS |
| 1045050 | Hampton Falls | RCA Head Start | NT/NC |
| 1852100 | Pelham | Boulder Hills | CWS |
| 1992070 | Rindge | Payson Village | CWS |
| 2306050 | Swanzey | Honda of Keene | NT/NC |
| 2306060 | Swanzey | Toyota/Hyundai of Keene | NT/NC |
| 2546220 | Windham | Five Industrial Dr | NT/NC |

CWS = community public water system NTNC = Non-transient non-community public water system
ETT = EPA Enforcement Tracking Tool

# IV. CAPACITY ASSURANCE ACTIVITIES FOR EXISTING PWS

This section describes the different assistance programs administered by the DWGB to improve the managerial, financial and technical capacity of **existing** PWS. Activities include general and targeted outreach, grants and loans, and one-on-one assistance.

## 1. GRANTS AND LOANS

- Hired a contractor to have generator needs assessments completed at over 80 water systems throughout the state.
- Awarded 8 Local Source Water Protection grants for a total of $116,067 for various drinking water protection projects.
- Awarded 9 Record Drawing grant match funds totaling $6,340.55 to assist very small community water systems in developing or updating their record drawings. This grant program was developed in FY 2009 and offers 50 percent match of eligible costs up to $1,500 per water system. The grant will remain open until funds have been depleted. Monthly outreach consists of email or letter notices to systems cited the prior month for lack of record drawings during regular sanitary surveys, with links to the grant application and drawing guidance.
- The Drinking Water State Revolving Loan Fund (DWSRF) awarded a total of $7.2 million for 16 infrastructure project loans in 2009 (FY2010), of which nine projects (56%) were for systems serving <500 population (Table 2). All of the 2009 projects have continued work into FY2011, and are expected to be completed in FY2012. In August 2010, a total of $11.6 million were awarded for funding of 17 new projects including Green Infrastructure. However, three small systems on the 2010 project priority list declined the DWSRF award due to excessive debt service (two systems), or a better loan/grant package with USDA-Rural Development (Pittsburg Water Dept).

**Table 2 –DWSRF awards to systems serving <500 people (2009 and 2010 priority lists)**

| PWS ID | PWS Name | Popu-lation | Project Description | Initial Funding Request | Projected DWSRF Amt |
|---|---|---|---|---|---|
| **2009 DWSRF Project Priority List** | | | | | |
| 0831010 | Francestown Village Water Co | 150 | Well 2 deepen, PH rehab, As trt, access road | $ 207,000 | $ 100,000 |
| 1431010 | Lyme Water Association | 83 | Infrastructure improvements | $ 770,770 | $ 300,000 |
| 1852080 | Pelham Old Lawrence Road | 25 | PS/trt upgrades incl. new brine discharge | $ 242,000 | $420,000 |
| 1992040 | Rindge Hampshire Court Condos | 50 | PH/trt upgrades including VFD's | $ 61,034 | Same |
| 0512060 | Conway Forest Edge Water Co | 118 | PH upgrades, blending fluoride, VFD pumps | $ 126,000 | Declined |
| 0413010 | Charlestown, Blueberry Hill MHP | 75 | IC Charlestown, match for CDBG funding | $ 500,000 | $250,000 |
| 0882170 | Gilford, Country Village way | 100 | New PH and controls | $ 97,400 | $76,000 |
| 0151010 | Barrington, Swains Lake Vlg Wtr | 150 | New GW Supply and WTP rehab | $1,050,000 | Same |
| 0512240 | Conway Rockhouse Mountain | 250 | New well source and booster station | $ 65,000 | $230,000 |
| **2010 DWSRF Project Priority List** | | | | | |
| 1901010 | Pittsburg Water Dept | 198 | New well source, PH, piping and storage | $2,562,623 | Declined |
| 0993020 | Greenville Estates Village Dist | 480 | Distribution system improvements | $500,000 | Declined |
| 0803040 | Exeter Beech Hill MHP | 70 | New well source, PH and distribution | $273,500 | Declined |
| TOTAL DWSRF AWARD TO SYSTEMS <500 POPULATION | | | | $6.4 million | Est $1.4 million |

## 2. PUBLICATIONS

- Prepared and issued biannual newsletter "*Supply Lines with the Source*," which is emailed to all community water system contacts.
- Published monthly e-newsletter to promote source water protection activities in the Salmon Falls watershed.
- Published article in *New Hampshire Town & City* magazine regarding economic benefits of water supply land conservation.
- Reviewed and posted updates to 46 Drinking Water fact sheets on a variety of topics including Source Protection, Water Efficiency/Conservation, Water Quality, and Emergency Planning, available at www.des.nh.gov Quick Links, Publications/Fact Sheets.

## 3. SOURCE WATER PROTECTION & EMERGENCY PREPAREDNESS ASSISTANCE

- Published Model Water Use Restriction Ordinance for Water Systems Owned or Operated by Municipalities or Village Districts.
- Implemented annual tracking and mapping of known water use restrictions in New Hampshire.
- Began a new series of regional workshops to train local and regional planners in source water protection basics.
- Conducted annual Drinking Water Source Protection Workshop (largest in New England).
- Outreach to systems who conduct inspections of potential contamination sources in their source water protection areas, offering refresher training in conducting inspection programs. We provided training to 23 local inspectors during the past FFY.
- Notified water systems with source water protection areas where household hazardous waste collection events were being held and provided them with materials to promote those events (46 events during the first three quarters of the FFY).
- Developed and implemented more efficient system to contact and assist most vulnerable water systems in areas affected by natural disasters.
- Conducted 53 outreach events during the first three quarters of the FFY.

## 4. TOTAL COLIFORM BACTERIA PWS ASSESSMENT PILOT

In an effort to address our Number 1 compliance issue (51 percent of all health-based violations, as shown in Section II – State Capacity Needs, Figure 5), a new PWS "assessment" checklist is being sent with every Total Coliform Rule MCL violation letter since January 2010. The PWS assessment form was modeled after the federal, proposed Revised Total Coliform Rule (RTCR) "Level 1 Assessment," and is being piloted for evaluation with EPA's RTCR workgroup.

The purpose of the assessment is to assist the PWS to systematically evaluate the system from source to distribution, to sampling collection and handling, to identify and prevent future causes for the bacteria contamination. Systems are required to return the assessment form (or an equivalent evaluation report) after incurring a second MCL violation within 12 months. A review of the effectiveness (or not) of this tool will be performed in FY2012.

## 5. LEAD AND COPPER OUTREACH

Small system compliance with the Lead and Copper Rule has improved significantly in the past year thanks in part to increased verbal and written communications to (a) complete treatment

installations by the required deadline, and (b) review ongoing water quality results and make adjustments to treatment accordingly.

In addition to improvements in compliance, we adopted the new federal revisions as Env-Dw 714, Control of Lead and Copper in February 2011. Two stakeholders meetings were held to review the new steps and approach, aimed at achieving compliance in a more timely manner.

### 6. Evaluation of Lead Levels in Daycares served by Municipal Water Systems

In September 2010, DES received an EPA grant for $10,000 to evaluate lead levels in drinking water at daycares and preschools served by larger municipal water systems. The work plan included outreach and education to prevent lead in drinking water, and the collection of samples from 56 daycares or preschools located in five municipal water systems. Sample collection was performed between June to September 2011. Data analysis and a final report is planned to be completed by year-end 2011.

### 7. Seasonal Water Systems Annual Operations and Maintenance Training

Since 2009, DWGB staff coordinate annual training workshops for campgrounds and other seasonal systems, along with staff from Granite State Rural Water Association (GSRWA) and the New Hampshire Department of Resources and Economic Development (DRED). For FY2011, training sessions were held in North Conway (10 attendees), Hancock (eight attendees), Meredith (25 attendees), and Raymond (16 attendees). Training topics included:

- Water cycle and groundwater flow.
- New Hampshire geology and naturally-occurring drinking water contaminants.
- Well construction and water quality.
- Storage, distribution and treatment system construction and maintenance.
- Seasonal start-up and shut-down practices.
- Bacteria problems – causes and cures.
- Wastewater system considerations.
- State inspections – what to expect.

### 8. ARRA Set-aside for Leak Detection

Leak detection and repair play a fundamental role in reducing water loss and energy costs related to the treatment and delivery of drinking water. In FY 2010, DES issued a request for proposals and hired a professional leak detection firm through a set-aside of the American Recovery and Reinvestment Act (ARRA) to perform leak detection surveys at community water systems in New Hampshire. The surveys were completed during the summers of 2010 and 2011. The contractor was on site with the systems for almost 150 days at a total cost of $110,000.

Of the 27 systems surveyed, eight serve less than 500 people. Approximately 12 miles of pipe were surveyed at the small systems resulting in the discovery of seven leaks totaling 16 gallons per minute. This rate equates to roughly 8.4 million gallons per year or 675,000 gallons per year per mile of pipe surveyed.

The 19 systems serving more than 500 people had 116 leaks in the 550 miles of pipe surveyed. Although the total leak rate was much higher (825 gallons per minute or 434 million gallons per year), the rate per mile was similar to the smaller systems at 780,000 gallons per year per mile of pipe.

## 9. Operator Certification Program Outreach

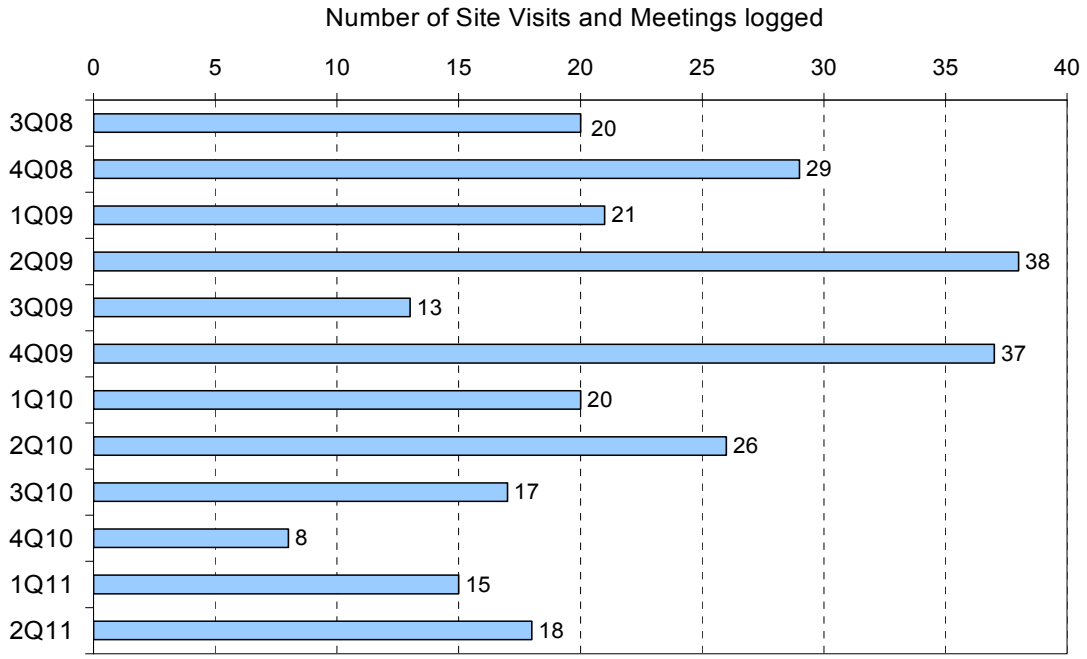
The Operator Certification program funds a number of outreach and training activities through the Operator Expense Reimbursement Grant, to advance the skill and knowledge of small water system operators and board members. Highlights for FY11 included:

- Request for proposals and subsequent contract with F.X. Lyons Inc., Intervale, for the design and construction of a pump station training mock-up at the DES Franklin Training Center in Franklin. The new center was completed in Spring 2011 and is scheduled for a public inauguration/ribbon cutting in October 2011.
- Contract with the New Hampshire Water Works Association (NHWWA) to coordinate the October 2010 NH Drinking Water Tradeshow and Exposition in Concord, featuring a full day of technical seminars (three parallel sessions, 17 presenters, 5 CEUs). This event is our main opportunity for outreach to very small system operators as it regularly attracts attendance by over 250 certified drinking water operators.
- Contract with the NHWWA to provide operator training for the Small Water Systems, Grade IA courses (Fall and Spring of each year), two basic math courses, one "advanced" water treatment seminar, and two Grade II treatment review courses.
- Two stakeholder meeting with Contract Operators and water system representatives from large, medium and small water systems for comments on the re-adoption of Env-Ws 360-361 Operations and Maintenance Rules (new Env-Dw 503-504), to be adopted in FY 2012.
- Annual outreach table and participation at Granite State Rural Water Association Operator Field Day (September of each year).

## 10. One-on-One Technical Assistance

DWGB technical staff provide ongoing technical assistance to small water systems to assist with source capacity issues, bacteria troubleshooting, and financial and managerial planning. Quarterly technical assistance site visits and meetings (2T and CM codes) attended by DWGB staff for FY09 to FY11 are shown in Figure 9. These site visits are *in addition* to standard sanitary surveys, permitting inspections, or special investigations performed by DWGB staff.

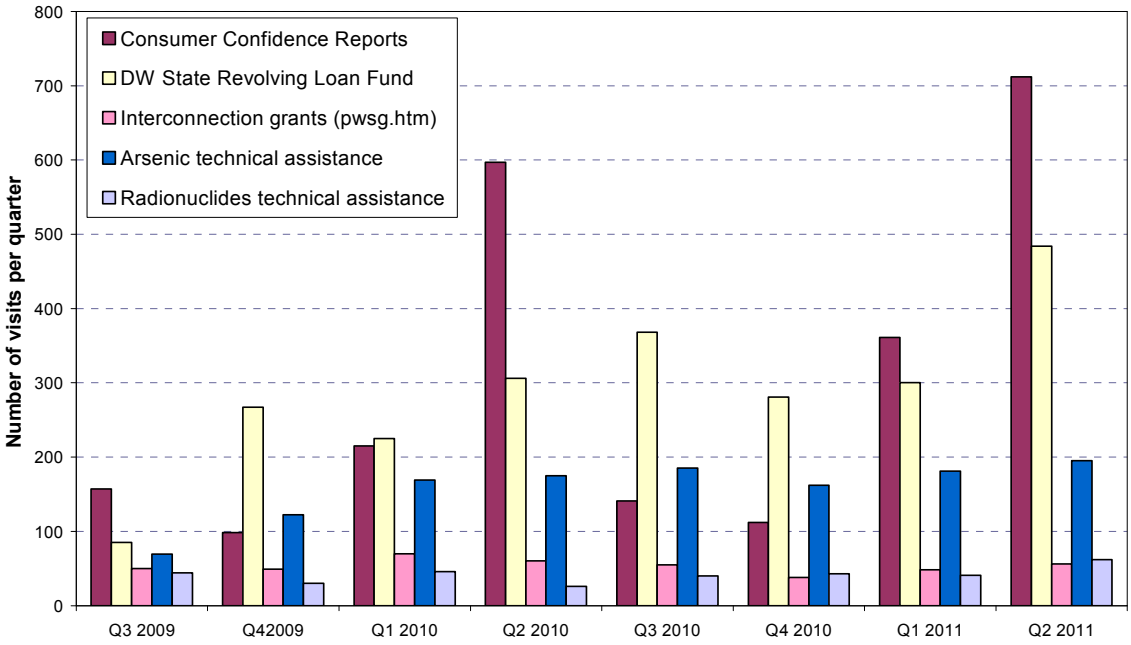
**Fig 9 - Technical Assistance Visits & Meetings by DWGB Staff**



### 11. Small Public Water Supply Help Center

New Hampshire's "Small Public Water Supply Help Center" (www.des.nh.gov, A to Z List) provides fact sheets and guidance to help small systems with the most pressing compliance issues. Web visits are tracked quarterly to identify most popular topics (Figure 10).

**Figure 10 - Small System Help Center Webpage visits**
**Most popular pages FY2010 and FY 2011**




## V. STATEWIDE REVIEW OF IMPLEMENTATION PROGRESS

Review of the capacity program implementation progress consists of weekly meetings by the lead TA contacts, quarterly meetings with all small and large water system technical staff, and quarterly measures tracking through the statewide Measures Tracking and Reporting System (MTRS). Current tracking measures are:

- Number of TA site visits by DWGB staff.
- Number of new systems added to the active capacity development list.
- Number of systems retired from the capacity development list.
- Number of visits to Small System Help Center/Capacity Assurance webpage.

Annual review of the program progress is provided via our annual reports to EPA, and triennial reports to the Governor.

# VI. MODIFICATIONS TO CAPACITY DEVELOPMENT STRATEGY

For FY 2012, the existing systems strategy is proposed to be enhanced by the following:

- Basic asset management planning and development of a simple capital improvements plan (CIP) for small systems to be funded through the DWSRF.
- Quarterly review and matching of outreach activities to number and types of violations.

In addition, we will continue close coordination with other local and regional technical assistance and training partners, including:

- Continued participation in the National Capacity Re-energizing Workgroup and alignment of state priorities and measures with national program strategies.
- Continued collaboration with the Water Technical Assistance Center (WTTAC) at the University of New Hampshire–Durham, on projects targeting public water system compliance issues such as Disinfection Byproducts control.
- Continued collaboration with US Dept of Agriculture–Rural Development to provide the best loan/grant funding of drinking water infrastructure improvements for water districts and municipalities.
- Continued collaboration with other TA providers including: Granite State Rural Water Development (funding through USDA–RD), RCAP Solutions Northeast Rural Community Assistance Partnership, New England Water Works (NEWWA), New Hampshire Water Works Association (NHWWA), and the New England Interstate Water Pollution Control Commission (NEIWPCC).

5500 South Quebec Street
Greenwood Village, CO 80111
800-542-8072
www.cobank.com

July 31, 2015

Mr. Thomas Mason, President and CEO
Lakes Region Water Co., Inc.

Dear Mr. Mason:

The following information proposal is for informational purposes only and is not a commitment to lend.

---

**Borrower:** Lakes Region Water Company, Inc. ("Borrower")

**Type of Credit Facility:** A secured term loan of up to 20 years and a maximum $420,000 (the "Loan").

**Purpose:** To finance the Mt. Roberts land purchase,associated fixed assets and closing costs.

**Availability:** Up to 1 month after closing.

**Interest:** In accordance with one or more of the following interest rate options, as selected by the Borrower:

Weekly Quoted Variable Rate Option: Under this option, balances may be fixed at a rate established by CoBank on the first "Business Day" (to be defined) of each week. The rate established shall be effective until the first Business Day of the next week.

Quoted Fixed Rate Option: At one or more rates to be quoted by CoBank. Under this option, rates can be fixed: (1) on balances of $100,000 or more; (2) for periods of, 6 months to the final maturity of the Loan; and (3) for each facility, on no more than 5 separate balances at any one time. The interest rate for a 20 year loan as of 7-31-15 is 5.41%.

Patronage: The above quoted interest rate is stated prior to the payment of patronage under CoBank's patronage program. Patronage will lower the effective interest rate by 75 basis points per annum based on the current program. The patronage program can be modified at any time by a vote of CoBank's board of directors thus payments are not guaranteed.

Interest will be calculated on the basis of a year consisting of 360 days and shall be payable monthly in arrears by the 20th day of the following month.

Notwithstanding the foregoing, during the continuance of a default, interest shall accrue at 4% in excess of the rates that would otherwise be in effect.

**Origination Fees:** Four thousand two hundred dollars payable at closing.

**Principal Repayment:** In consecutive monthly installments, each due on the 20th of the month, with the first installment due on the 20th day of the second month following the month in which the availability period ends. The amount of each installment shall be the same principal amount that would be due and payable if the Loan was payable in level installments of principal and interest and such schedule was calculated using the "CoBank Base Rate" (to be defined) on the date of the loan agreement; provided, however, that if on the date the Loan is made, the Borrower fixes the rate of interest on the entire principal amount of the Loan to the final maturity date thereof, then the rate utilized in calculating the amortization schedule shall be the rate of interest accruing on the Loan.

**Prepayment:** Balances bearing interest at the Weekly Quoted Variable Rate Option may be prepaid without premium. Balances bearing interest at the Quoted Fixed Rate Option may be prepaid upon payment of a premium equal to the present value of CoBank's "Funding Losses" (to be defined) plus a yield of .50% on a per annum basis.

**Capitalization:** The Loan will be capitalized in accordance with CoBank's bylaws and its capital plan. As such it will be eligible for patronage refunds.

**Collateral:** The Loan will be secured by a perfected priority lien on and security interest in all real and personal, tangible and intangible, present and future assets of the Borrower including a deed of trust or mortgage with evidence of title (in a form to be determined by CoBank) subject only to those exceptions approved by CoBank.

**Documentation:** The Loan would be subject to the negotiation, execution, delivery, and, where appropriate, recording of loan and loan related documentation (including exhibits, opinions, and security documentation) satisfactory to CoBank and its counsel in its or their sole discretion. In addition, all other matters whatsoever relating to the credit or the closing thereof must be approved by CoBank and its counsel in its or their sole discretion. Without limiting the foregoing, the loan documentation shall include conditions precedent, representations and warranties, covenants, events of default, remedies upon default, and various miscellaneous provisions.

**Representations and Warranties:** Including, without limitation, representations and warranties as to organization; good standing and qualification; authorization of borrowing; compliance with law; financial condition; title to properties; liens; no material adverse change; litigation; payment of taxes; governmental regulations; disclosure; licenses; trademarks; and patents.

**Financial Covenants:** As stated in the existing Master Loan Agreement

**Negative Covenants:** As stated in the existing Master Loan Agreement.

**Reporting Requirements:** The Borrower will be required to deliver:

- Annual reviewed financial statements within 120 days of each fiscal year end.
- If requested by CoBank - Quarterly, company prepared, interim financial statements within 60 days of close of the 1st, 2nd and 3rd fiscal quarters.

**Expenses and Indemnification:** The Borrower will indemnify CoBank against all losses, liabilities, claims, damages, or expenses relative to the Credit Facility or the use of loan proceeds. All reasonable costs and expenses incurred by CoBank in connection with this transaction including, without limitation, all legal fees and expenses for CoBank's legal counsel, shall be paid by the Borrowers.

**Defaults:** As stated in the existing Master Loan Agreement.

***STATE OF NEW HAMPSHIRE***

**PUBLIC UTILITIES COMMISSION**

**Concord**

# PART Puc 610

# UNIFORM SYSTEM of ACCOUNTS for WATER UTILITIES

Prescribed by
**NHPUC Order No. 21.102**
**January 17, 1994**

2. The company shall adequately document the accounting procedures related to subsidiary records.

3. The subsidiary records shall be maintained at an adequate level of detail to satisfy state regulators.

## 610.01(e) Utility Plant - General

### 610.01(e)(1) Utility Plant - To be Recorded at Cost

A. All amounts included in the accounts for utility plant acquired as an operating unit or system shall be stated at the cost incurred by the person who first devoted the property to utility service. All other utility plant shall be included in the accounts at the cost incurred by the utility except as otherwise provided in the texts of the intangible plant accounts. Where the term "cost" is used in the detailed plant accounts, it shall have the meaning stated in the glossary.

B. When the consideration given for property is other than cash, the value of such consideration shall be determined on a cash basis. In the entry recording such transaction, the actual consideration shall be described with sufficient particularity to identify it. The utility shall be prepared to furnish the Commission the particulars of its determination of the cash value of the consideration if other than cash.

C. When property is purchased under a plan involving deferred payments, no charge shall be made to the utility plant accounts for interest, insurance, or other expenditures occasioned solely by such form of payment.

D. Utility plant accounts shall be charged with construction costs (estimated, if not known) of the utility plant contributed by others or constructed by the utility using contributed cash or its equivalent. For contributed utility plant, the accumulated depreciation or amortization account shall be charged with the estimated amount of depreciation or amortization applicable to the property at the time it was contributed to the utility. Account 271 - Contributions in Aid of Construction shall be credited with the net of the amounts charged to the plant and the accumulated depreciation or amortization accounts. For plant constructed using contributed cash or its equivalent, account 271 - Contributions in Aid of Construction shall be credited with the amount of the cash or its equivalent contribution.

### 610.01(e)(2) Utility Plant - Components of Construction Cost

A. The cost of construction properly included in the utility plant accounts shall include, where applicable, the direct and overhead costs as listed and defined hereunder:

1. "Contract work" includes amounts paid for work performed under contract by other companies, firms, or individuals, costs incident to the award of such contracts, and the inspection of such work.

2. "Labor" includes the pay and expenses of employees of the utility engaged in construction work, and related workmen's compensation insurance, payroll taxes and similar items of expense. It does not include the pay and expenses of employees which are distributed to construction through clearing accounts, nor the pay and expenses included in other items hereunder.

3. "Materials and supplies" includes purchase price at point of free delivery plus: customs duties, excise taxes, the cost of inspecting, loading and transportation, the related stores expenses, and the cost of fabricated materials from the utility's shop. In determining the cost of materials and supplies used for construction, proper allowance shall be made for unused materials and supplies, for materials recovered from temporary structures used in performing the work involved, and for discounts allowed and realized in the purchase of materials and supplies.

   **Note**: – The cost of individual items of equipment of small value (for example, $250 or less) or short life, including small portable tools and implements, shall not be charged to utility plant accounts unless the correctness of the accounting therefore is verified by current inventories. The cost shall be charged to the appropriate operating expense or clearing accounts, according to the use of such items, or, if such items are consumed directly in construction work, the cost shall be included as part of the cost of the construction unit.

4. "Transportation" includes the cost of transporting employees, materials and supplies, tools, purchased equipment, and other work equipment (when not under own power) to and from points of construction. It includes amounts paid to others as well as the cost of operating the utility's own transportation equipment (See item 5 following).

5. "Special machine service" includes the cost of labor (optional), materials and supplies, depreciation, and other expenses incurred in the maintenance, operation and use of special machines, such as pile drivers, derricks, ditchers, scrapers, material unloaders, and other labor saving machines; it also includes expenditures for rental, maintenance and operation of machines of others. It does not include the cost of small tools and other individual items of small value or short life which are included in the cost of materials and supplies (See item 3, above). When a particular construction job requires the use for an extended period of time of special machines, transportation or other equipment, the net book cost thereof, less the appraised or salvage value at time of release from the job, shall be included in the cost of construction.

6. "Shop service" includes the proportion of the expense of the utility's shop department assignable to construction work, except the cost of fabricated materials from the utility's shop shall be included in "materials and supplies."

7. "Protection" includes the cost of protecting the utility's property from fire or other casualties and the cost of preventing damages to others, or to the property of others, including payments for discovery or extinguishment of fires, cost of apprehending and prosecuting incendiaries, witness fees in relation thereto, amounts paid to municipalities and other fire protection, and other analogous items of expenditures in connection with construction work.

8. "Injuries and damages" include expenditures or losses in connection with construction work on account of injuries to persons and damages to the property of others; it also includes the cost of investigation of and defense against actions for such injuries and damages. Insurance recovered or recoverable on account of compensation paid for injuries to persons incident to construction shall be credited to the account or accounts to which such compensation is charged. Insurance recovered or recoverable on account of property damages incident to construction shall be credited to the account or accounts charged with the cost of damages.

9. "Privileges and permits" include payments for and expenses incurred in securing temporary privileges, permits for and expenses incurred in securing temporary privileges, permits or rights in connection with construction work, such as for the use of private or public property, streets, or highways, but it does not include rents or amounts chargeable as franchises (See account 302 - Franchises).

10. "Rents" include amounts paid for the use of construction quarters and office space occupied by construction forces and amounts properly included in construction costs for such facilities jointly used.

11. "Engineering and supervision" includes the portion of the pay and expenses of engineers, surveyors, draftsmen, inspectors, superintendents and their assistants applicable to construction work.

12. "General administration capitalized" includes the portion of the pay and expenses of the general officers and administrative and general expenses applicable to construction work.

13. "Engineering services" include amounts paid to other companies, firms or individuals engaged by the utility to plan, design, prepare estimates, supervise, inspect, or give general advice and assistance in connection with construction work.

14. "Insurance" includes premiums paid or amounts provided or reserved as self-insurance for the protection against loss and damages in connection with construction, by fire or other casualty, injuries to or death of persons other than employees, damages to property of others, defalcations of employees and agents, and the nonperformance of contractual obligations of others. It does not include workmen's compensation or similar insurance on employees included as "labor" in item 2 above.

15. "Legal expenditures" includes the general legal expenditures incurred in connection with construction and the court and legal costs directly related thereto, other than legal expenses included in "Protection", item 7 and in "Injuries and Damages", item 8.

16. "Taxes" include taxes on physical property (including land) during the period of construction and other taxes properly included in construction costs before the facilities become available for service.

17. "Allowance for funds used during construction" (AFUDC) includes the net cost for the period of construction of borrowed funds used for construction purposes and a reasonable rate upon the utility's own funds when so used. No allowance for funds used during construction shall be included in these accounts upon expenditures for construction projects which have been abandoned.

    **Note:** – a. AFUDC, if charged, shall be charged each month upon the balance at the beginning of the month in Unfinished Construction. The period for which interest charges may be capitalized shall be limited to the duration of the construction work and shall not extend beyond the time when the property becomes ready for service. In case construction work is suspended, interest charges may not be capitalized for more than six months thereafter, except under order of the Commission.

    b. When only a part of a plant or project is placed in operation or is completed and ready for service but the construction work as a whole is incomplete, that part of the cost of the property placed in operation, or ready for service, shall be treated as "Utility Plant in Service" and the allowance for funds used during construction thereon as a charge to construction shall cease. Allowance for funds used during construction on that part of the cost of the plant which is incomplete may be continued as a charge to construction until such time as it is placed in operation or is ready for service, except as limited in item 17 above.

18. "Earnings and expenses during construction." The earnings and expenses during construction shall constitute a component of construction costs.

    a. The earnings shall include revenues received or earned by plants during the construction period. The revenues shall also include rentals for lands, buildings, etc., and miscellaneous receipts not properly included in other accounts.

    b. The expenses shall consist of the cost of operating the water plant, and other costs incident to the water utility costs for which

construction is credited under paragraph (a) above, including the cost of repairs and other expenses of operating and maintaining lands, buildings, and other property, and other miscellaneous and like expenses not properly included in other accounts.

## 610.01(e)(3) Utility Plant - Overhead Construction Costs

A. All overhead construction costs, such as engineering, supervision, general office salaries and expenses, construction engineering and supervision by others than the accounting utility, legal expenses, insurance, injuries and damages, relief and pensions, taxes and allowance for funds used during construction, shall be charged to particular jobs or units on the basis of the amounts of such overheads reasonably applicable thereto, so that each job or unit shall bear its equitable proportion of such costs and that the entire costs of the unit, both direct and overhead, shall be deducted from the plant accounts at the time the property is retired.

B. As far as practicable, the determination of payroll charges included in construction overheads shall be based on time card distributions thereof. Where this procedure is impractical, special studies shall be made periodically of the time of supervisory employees devoted to construction activities so that only such overhead costs as have a definite relation to construction shall be capitalized. The addition to direct construction costs of arbitrary percentages or amounts to cover assumed overhead costs is not permitted.

C. The records supporting the entries for overhead construction costs shall be so kept as to show the total amount of each overhead for each year, the nature and amount of each overhead expenditure charged to each construction work order and to each utility plant account, and the basis of distribution of such costs.

## 610.01(e)(4) Utility Plant - Purchased or Sold

A. When utility plant constituting an operating unit or system is acquired by purchase, merger, consolidation, liquidation, or otherwise, the costs of acquisition, including expenses incidental thereto properly includible in utility plant, shall be charged to account 104 - Utility Plant Purchased or Sold.

B. The accounting for the acquisition shall then be completed as follows:

1. The original cost of plant, estimated if not known, shall be credited to account 104 - Utility Plant Purchased or Sold, and concurrently charged to the appropriate utility plant in service accounts and to account 102 - Utility Plant Leased to Others and account 103 - Property Held for Future Use, and account 105 - Construction Work in Progress, as appropriate.

2. The requirements for accumulated depreciation and amortization applicable to the original cost of the properties purchased, if required by

Tom and Barbara Mason Revocable Trust
Cost and Financing Buildup for Mt. Roberts Assets
8% AFUDC (Allowance for Funds Used During Construction) - Time Pediod to end 07/05/2012
Interest Rate Used 8%

| IN SERVICE DATE | Date | Vendor | Inv # | Description | Inv Amt | Land | Wells | Pumps | Mains | CAPI | DAYS HELD TO JULY 05, 2012 | Daily Interest Rate 8% | AFDUC | Cost | COST PLUS INTEREST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/5/2012 | 10/29/06 | A & L Labs | | | 310.00 | | 310.00 | | | | 2076 | 0.00022 | $ 141.05 | $ 310.00 | $ 451.05 |
| 7/5/2012 | 11/01/06 | Northern Woods Tree Service | 1408 | Chip brush to well | 1,050.00 | | 1,050.00 | | | | 2073 | 0.00022 | 477.07 | 1,050.00 | 1,527.07 |
| 7/5/2012 | 11/09/06 | NH Electric Co-op | 16504 | Electric Service from rt 109 to hous | 5,826.42 | | 5,826.42 | | | | 2065 | 0.00022 | 2,637.05 | 5,826.42 | 8,463.47 |
| 7/5/2012 | 11/09/06 | Hydrosource | 2207 | Site inspection & geophysical surve | 6,912.68 | | 6,912.68 | | | | 2065 | 0.00022 | 3,128.70 | 6,912.68 | 10,041.38 |
| 7/5/2012 | 12/18/06 | Skillings & Sons | 110004995 | well depth 610' casing | 6,538.20 | | 6,538.20 | | | | 2026 | 0.00022 | 2,903.32 | 6,538.20 | 9,441.52 |
| 7/5/2012 | 12/22/06 | Hydrosource will not provide | 2219 | Balance of payment | 2,430.51 | | 2,430.51 | | | | 2022 | 0.00022 | 1,077.15 | 2,430.51 | 3,507.66 |
| 7/5/2012 | 12/22/06 | Hydrosource will not provide | 2219 | Well logging and site mtgs | 2,500.00 | | 2,500.00 | | | | 2022 | 0.00022 | 1,107.95 | 2,500.00 | 3,607.95 |
| 7/5/2012 | 12/28/06 | LRW Water Services, Inc | 98098 | Excavate road to well field - Mt Rob | 885.00 | | 885.00 | | | | 2016 | 0.00022 | 391.05 | 885.00 | 1,276.05 |
| 7/5/2012 | 12/28/06 | LRW Water Services, Inc | 98098 | Build road, (equipment charge) | 885.00 | | 885.00 | | | | 2016 | 0.00022 | 391.05 | 885.00 | 1,276.05 |
| 7/5/2012 | 03/06/07 | Water Industries | 84462 | WTC 800 | 437.85 | | 437.85 | | | | 1948 | 0.00022 | 186.94 | 437.85 | 624.79 |
| 7/5/2012 | 04/20/07 | Hydrosource will not provide | 2244 | Prlim report to NHDES, video log,br | 3,040.00 | | 3,040.00 | | | | 1903 | 0.00022 | 1,267.97 | 3,040.00 | 4,307.97 |
| 7/5/2012 | 05/30/07 | Bryar Enterprises | 677 | Gravel | 592.00 | | 592.00 | | | | 1863 | 0.00022 | 241.73 | 592.00 | 833.73 |
| 7/5/2012 | 05/30/07 | Hydrosource will not provide | 2249 | surveys second well on "Mt Roberts | 2,900.00 | | 2,900.00 | | | | 1863 | 0.00022 | 1,184.15 | 2,900.00 | 4,084.15 |
| 7/5/2012 | 07/06/07 | Bryar Enterprises | 716 | Gravel | 3,024.00 | | 3,024.00 | | | | 1826 | 0.00022 | 1,210.26 | 3,024.00 | 4,234.26 |
| 7/5/2012 | 07/11/07 | Water Industries | 86386 | well seal | 96.71 | | 96.71 | | | | 1821 | 0.00022 | 38.60 | 96.71 | 135.31 |
| 7/5/2012 | 07/19/07 | Skillings & Sons | 110005570 | well depth 940' casing 40' | 16,833.00 | | 16,833.00 | | | | 1813 | 0.00022 | 6,688.93 | 16,833.00 | 23,521.93 |
| 7/5/2012 | 07/31/07 | LRW Water Services, Inc | 98280 | Build raod for # 3 well | 2,480.00 | | 2,480.00 | | | | 1801 | 0.00022 | 978.95 | 2,480.00 | 3,458.95 |
| 7/5/2012 | 08/01/07 | LRW Water Services, Inc | 98287 | Gravel well field road | 592.00 | | 592.00 | | | | 1800 | 0.00022 | 233.56 | 592.00 | 825.56 |
| 7/5/2012 | 08/10/07 | Hydrosource will not provide | 2271 | well drilling observations, recomme | 2,435.58 | | 2,435.58 | | | | 1791 | 0.00022 | 956.08 | 2,435.58 | 3,391.66 |
| 7/5/2012 | 08/20/07 | Skillings & Sons | 110005680 | reamed out hole to 400' | 4,834.80 | | 4,834.80 | | | | 1781 | 0.00022 | 1,887.29 | 4,834.80 | 6,722.09 |
| 7/5/2012 | 11/06/07 | LRW Water Services, Inc (1of3) | 98346 | Pump Well, installation | 880.00 | | 880.00 | | | | 1703 | 0.00022 | 328.47 | 880.00 | 1,208.47 |
| 7/5/2012 | 12/29/07 | LRW Water Services, Inc | 98402 | Burn brush - well field | 350.00 | | 350.00 | | | | 1650 | 0.00022 | 126.58 | 350.00 | 476.58 |
| 7/5/2012 | 12/31/07 | LRW Water Services, Inc | 98472 | Excavate, build roads, inatall culver | 5,897.00 | | 5,897.00 | | | | 1648 | 0.00022 | 2,130.03 | 5,897.00 | 8,027.03 |
| 7/5/2012 | 02/08/08 | LRW Water Services, Inc | 100517 | Build 40 foot culvert | 1,460.00 | | 1,460.00 | | | | 1609 | 0.00022 | 514.88 | 1,460.00 | 1,974.88 |
| 7/5/2012 | 02/11/08 | Tamworth Sand & Gravel | | Gravel | 600.00 | | 600.00 | | | | 1606 | 0.00022 | 211.20 | 600.00 | 811.20 |
| 7/5/2012 | 02/15/08 | Hydrosource will not provide | 2298 | | 2,000.00 | | 2,000.00 | | | | 1602 | 0.00022 | 702.25 | 2,000.00 | 2,702.25 |
| 7/5/2012 | 03/07/08 | Hydrosource will not provide | 2298 | | 2,171.15 | | 2,171.15 | | | | 1581 | 0.00022 | 752.35 | 2,171.15 | 2,923.50 |
| 7/5/2012 | 10/08/08 | LRW Water Services, Inc | 98740 | Build Pad area for test well | 3,420.00 | | 3,420.00 | | | | 1366 | 0.00022 | 1,023.94 | 3,420.00 | 4,443.94 |
| 7/5/2012 | 10/24/08 | Skillings & Sons | "ditto" | "ditto" | 1,000.00 | | 1,000.00 | | | | 1350 | 0.00022 | 295.89 | 1,000.00 | 1,295.89 |
| 7/5/2012 | 10/24/08 | Skillings & Sons | "ditto" | "ditto" | 2,000.00 | | 2,000.00 | | | | 1350 | 0.00022 | 591.78 | 2,000.00 | 2,591.78 |
| 7/5/2012 | 10/24/08 | Skillings & Sons | "ditto" | "ditto" | 2,500.00 | | 2,500.00 | | | | 1350 | 0.00022 | 739.73 | 2,500.00 | 3,239.73 |
| 7/5/2012 | 10/24/08 | Skillings & Sons | "ditto" | "ditto" | 2,863.00 | | 2,863.00 | | | | 1350 | 0.00022 | 847.13 | 2,863.00 | 3,710.13 |
| 7/5/2012 | 10/24/08 | Skillings & Sons | 110006811 | well depth 740' casing 22" | 6,000.00 | | 6,000.00 | | | | 1350 | 0.00022 | 1,775.34 | 6,000.00 | 7,775.34 |
| 7/5/2012 | 11/12/08 | Lakes Region ump, Irrigation & He | 1346 | install test pump well #4 | 1,105.00 | | 1,105.00 | | | | 1331 | 0.00022 | 322.36 | 1,105.00 | 1,427.36 |
| 7/5/2012 | 12/17/08 | Aubuchon | 1028 | parts | 53.49 | | 53.49 | | | | 1296 | 0.00022 | 15.19 | 53.49 | 68.68 |
| 7/5/2012 | 12/23/08 | Hydrosource will not provide | 2338 & 2378 | | 4,571.29 | | 4,571.29 | | | | 1290 | 0.00022 | 1,292.49 | 4,571.29 | 5,863.78 |
| 7/5/2012 | 01/08/09 | Rick Taylor | | | 400.00 | | 400.00 | | | | 1274 | 0.00022 | 111.69 | 400.00 | 511.69 |
| 7/5/2012 | 02/25/09 | Hydrosource | 2399 | TW 4 test prelimimary report | 6,904.37 | | 6,904.37 | | | | 1226 | 0.00022 | 1,855.29 | 6,904.37 | 8,759.66 |
| 7/5/2012 | 04/07/09 | Hydrosource | 2409 | TW 4 tests and reports | 3,759.20 | | 3,759.20 | | | | 1185 | 0.00022 | 976.36 | 3,759.20 | 4,735.56 |
| 7/5/2012 | 01/28/10 | Mike Kepple | | | 300.00 | | 300.00 | | | | 889 | 0.00022 | 58.45 | 300.00 | 358.45 |
| 7/5/2012 | 01/31/10 | LRW Water Services, Inc | 99436 | Staples | 12.25 | | 12.25 | | | | 886 | 0.00022 | 2.38 | 12.25 | 14.63 |
| 7/5/2012 | 11/30/10 | Emery & Garrett | 10129 | Review Background Data, conduct s | 19,000.00 | | 19,000.00 | | | | 583 | 0.00022 | 2,427.84 | 19,000.00 | 21,427.84 |
| | | **Total Wells** | | | 131,850.50 | | 131,850.50 | | | | | | $ 44,230.48 | $ 131,850.50 | $ 176,080.98 |
| | | | | | | | | | | | | | | | |
| 7/5/2012 | 06/20/07 | FW Webb Company | 2897000 | Parts | 2.84 | | | 2.84 | | | 1842 | 0.00022 | $ 1.15 | $ 2.84 | $ 3.99 |
| 7/5/2012 | 07/05/07 | Water Industries | 86294 | pump and related parts | 4,886.65 | | | 4,886.65 | | | 1827 | 0.00022 | 1,956.80 | 4,886.65 | 6,843.45 |
| 7/5/2012 | 07/06/07 | Lakes Region ump, Irrigation & He | 1174 | Boom truck to install well + new we | 340.00 | | | 340.00 | | | 1826 | 0.00022 | 136.07 | 340.00 | 476.07 |
| 7/5/2012 | 08/03/07 | FW Webb Company | 3175161 | pitless adapter | 384.97 | | | 384.97 | | | 1798 | 0.00022 | 151.71 | 384.97 | 536.68 |
| 7/5/2012 | 11/06/07 | LRW Water Services, Inc (2of3) | 98346 | Pump Well, installation | 990.00 | | | 990.00 | | | 1703 | 0.00022 | 369.53 | 990.00 | 1,359.53 |
| 7/5/2012 | 03/09/09 | Aubuchon | | | 86.00 | | | 86.00 | | | 1214 | 0.00022 | 22.88 | 86.00 | 108.88 |
| 7/5/2012 | 03/15/09 | RE Prescott | | | 677.60 | | | 677.60 | | | 1208 | 0.00022 | 179.41 | 677.60 | 857.01 |
| | | **Total Pumps** | | | 7,368.06 | | | 7,368.06 | | | | | $ 2,817.55 | $ 7,368.06 | $ 10,185.61 |
| | | | | | | | | | | | | | | | |
| 7/5/2012 | 11/06/07 | LRW Water Services, Inc (3of3) | 98346 | Pump Well, installation | 350.00 | | | | 350.00 | | 1703 | 0.00022 | $ 130.64 | $ 350.00 | $ 480.64 |
| 7/5/2012 | 06/16/08 | LRW Water Services, Inc | 100518 | Install 800 feet of temp HDPE | 4,800.00 | | | | 4,800.00 | | 1480 | 0.00022 | 1,557.04 | 4,800.00 | 6,357.04 |
| 7/5/2012 | 06/26/09 | LRW Water Services, Inc | 99043 | 300ft 6" DR11 HDPE | 2,076.00 | | | | 2,076.00 | | 1105 | 0.00022 | 502.79 | 2,076.00 | 2,578.79 |
| 7/5/2012 | 05/01/11 | LRW Water Services, Inc | 100519 | Install 1102 Feet 6" HDPE pipe | 69,668.00 | | | | 69,668.00 | | 431 | 0.00022 | 6,581.24 | 69,668.00 | 76,249.24 |
| | | **Total Mains** | | | 76,894.00 | | | | 76,894.00 | | | | $ 8,771.71 | $ 76,894.00 | $ 85,665.71 |

Tom and Barbara Mason Revocable Trust
Cost and Financing Buildup for Mt. Roberts Assets
8% AFUDC (Allowance for Funds Used During Construction) - Time Pediod to end 07/05/2012
Interest Rate Used 8% 8%

| IN SERVICE DATE | Date | Vendor | Inv # | Description | Inv Amt | Land | Wells | Pumps | Mains | CAPI | DAYS HELD TO JULY 05, 2012 | Daily Interest Rate | AFDUC | Cost | COST PLUS INTEREST |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Summary of Assets Transferred to LRWC for Equity on 04/01/2014 | | | | | | | | | | | | | |
| | | Wells | | | | | | | | | | | $ 44,230.48 | $ 131,850.50 | $ 176,080.98 |
| | | Pumps | | | | | | | | | | | 2,817.55 | 7,368.06 | 10,185.61 |
| | | Mains | | | | | | | | | | | 8,771.71 | 76,894.00 | 85,665.71 |
| | | Total | | | | | | | | | | | $ 55,819.74 | $ 216,112.56 | $ 271,932.30 |

Tom and Barbara Mason Revocable Trust

Cost and Financing Buildup for Mt. Roberts Assets

| IN SERVICE DATE | Date | Vendor | Description | | Land | (S minus F) DAYS HELD TO JULY 14, 2012 | YEARS | INTEREST FACTOR | COST PLUS INTEREST @ 7.5% | Cost | Interest | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7/14/2012 | 07/30/06 | Nancy Montegue | 40 acres less 5 acres & house | \| | 200,000.00 | 2176 | 5.962 | 1.539 | $307,805.29 | 200,000.00 | 107,805.29 | 307,805.29 |
| 7/14/2012 | 07/31/06 | Cleveland, Waters & Bass | Legal on land purchase | \| | 683.00 | 2175 | 5.959 | 1.539 | $1,050.95 | 683.00 | 367.95 | 1,050.95 |
| 7/14/2012 | 10/31/06 | Cleveland, Waters & Bass | Legal on land purchase | \| | 1,073.00 | 2083 | 5.707 | 1.511 | $1,621.22 | 1,073.00 | 548.22 | 1,621.22 |
| 7/14/2012 | 12/31/06 | Town of Moultonboro | 2006 Property Tax Bill | | 1,807.00 | 2022 | 5.540 | 1.493 | $2,697.44 | 1,807.00 | 890.44 | 2,697.44 |
| 7/14/2012 | 01/15/07 | Wright Survey | January 15, 2007 Statement | | 2,820.00 | 2007 | 5.499 | 1.488 | $4,197.13 | 2,820.00 | 1,377.13 | 4,197.13 |
| 7/14/2012 | 03/01/07 | Wright Survey | February 16, 2007 Statement | | 2,210.00 | 1962 | 5.375 | 1.475 | $3,260.04 | 2,210.00 | 1,050.04 | 3,260.04 |
| 7/14/2012 | 03/22/07 | Wright Survey | March 15, 2007 Statement | | 2,007.50 | 1941 | 5.318 | 1.469 | $2,949.03 | 2,007.50 | 941.53 | 2,949.03 |
| 7/14/2012 | 04/26/07 | Wright Survey | April 21,2007 Statement | | 2,571.25 | 1906 | 5.222 | 1.459 | $3,751.08 | 2,571.25 | 1,179.83 | 3,751.08 |
| 7/14/2012 | 05/01/07 | Keith R Nelson | Legal on land and house purchase | \| | 100.00 | 1901 | 5.208 | 1.457 | $145.74 | 100.00 | 45.74 | 145.74 |
| 7/14/2012 | 12/31/07 | Town of Moultonboro | 2007 Property Tax Bill | | 2,262.00 | 1657 | 4.540 | 1.389 | $3,141.08 | 2,262.00 | 879.08 | 3,141.08 |
| 7/14/2012 | 07/01/08 | Nancy Montegue | 5 acres & house | \| | 50,000.00 | 1474 | 4.038 | 1.339 | $66,958.94 | 50,000.00 | 16,958.94 | 66,958.94 |
| 7/14/2012 | 10/10/08 | Hambrook Land Surveying | prepare special exemption for Moul | \| | 630.00 | 1373 | 3.762 | 1.313 | $826.97 | 630.00 | 196.97 | 826.97 |
| 7/14/2012 | 12/31/08 | Town of Moultonboro | 2008 Property Tax Bill | | 2,459.00 | 1291 | 3.537 | 1.291 | $3,175.78 | 2,459.00 | 716.78 | 3,175.78 |
| 7/14/2012 | 12/31/09 | Town of Moultonboro | 2009 Property Tax Bill | | 2,435.00 | 926 | 2.537 | 1.201 | $2,925.38 | 2,435.00 | 490.38 | 2,925.38 |
| 7/14/2012 | 01/05/10 | Cleveland, Waters & Bass | Legal on land purchase | \| | 1,488.00 | 921 | 2.523 | 1.200 | $1,785.89 | 1,488.00 | 297.89 | 1,785.89 |
| 7/14/2012 | 12/31/10 | Town of Moultonboro | 2010 Property Tax Bill | | 2,393.00 | 561 | 1.537 | 1.118 | $2,674.34 | 2,393.00 | 281.34 | 2,674.34 |
| 7/14/2012 | 12/31/11 | Town of Moultonboro | 2011 Property Tax Bill | | 2,434.00 | 196 | 0.537 | 1.040 | $2,530.38 | 2,434.00 | 96.38 | 2,530.38 |
| 12/31/12 | 12/31/12 | Town of Moultonboro | 2012 Property Tax Bill | | 2,501.00 | 0 | 0.000 | 1.000 | $2,501.00 | 2,501.00 | - | 2,501.00 |
| 12/31/13 | 12/31/13 | Town of Moultonboro | 2013 Property Tax Bill | | 1,909.00 | 0 | 0.000 | 1.000 | $1,909.00 | 1,909.00 | - | 1,909.00 |
| | | Total Land | | | 281,782.75 | | | | 415,906.69 | 281,782.75 | 134,123.94 | 415,906.69 |