

September 14, 2005

Bill Hart  
Southern New Hampshire Services  
PO Box 5040  
Manchester, New Hampshire 03103

**Subject: NEW SYSTEM - UPPER BOW STREET ELDERLY HOUSING, NORTHWOOD  
NHDES #996118 FINAL APPROVAL – BEDROCK WELL NO. 1**

Dear Mr. Hart:

The purpose of this letter is to approve WS-1 (Bedrock Well 1) as described by the report titled “Final Report – Small Production Well – New Community Water System – Proposed Elderly Housing Development – Upper Bow Street” and dated September 2005. This approval is subject to the following conditions:

- 1) The recommendations contained in Sections 11 and 13 of the report must be implemented;
- 2) Southern New Hampshire Services or any subsequent owner of the water system is responsible providing a replacement water supply at no initial capital cost to the owners of the residences at 254 and 259 Bow Street should the pumping of its well adversely impact the ability of the wells at these properties to provide an adequate water supply;
- 3) No automatic irrigation systems or landscaping that requires routine irrigation shall be installed or constructed at the Elderly Housing development;
- 4) The water system collects water quality samples from residential wells located at 254, 259, 272 and 283 Bow Street and WS-1 (prior to treatment). Samples must be analyzed for MTBE. Sampling must initiate three months after system start-up and be repeated every three months for the first year of operation. After the first year of operation, sampling must be completed every six months unless otherwise directed by the Department of Environmental Services;
- 5) The water system must connect to the Northwood Ridge Water District as soon as the new connection moratorium is lifted; and
- 6) The water system must submit the Water Conservation Plan required by Env-Ws 390.10 within 60 days of receipt of this approval.

**Source Specifications:**

Well Number	Well Status	Permitted Production Volume	Sanitary Protective Area Radius	Wellhead Protective Area Radius	Source Description
Well 1	Active	(9300 gallons/day)	150 feet	1500 feet	Approx 150' southwest of the parking area in woods

The table above outlines the specifications for the new well. The Permitted Production Volume (PPV) is the maximum volume that may be pumped in any 24-hour period. The PPV for the well is as shown above.

**Chemical Monitoring Program:**

EPA ID #	Source ID#	Laboratory Name and Sample Numbers
New Replacement Well	001	Granite State #0508-00556-001 Aquarion 95461 Aquarion 95461 Aquarion 95527 Aquarion 95488

The laboratory results for the 08/11/05, 08/15/05, 08/17/05, 08/18/05, and 08/19/05 water quality samples for the new well listed in the table above will be forwarded to the Department's Chemical Monitoring Program. The sample identification numbers are also listed in the table. Contact Allyson Gourley at **271-0655** to obtain a chemical monitoring schedule for the new well.

Please contact me at 271-0660 or [bkernen@des.state.nh.us](mailto:bkernen@des.state.nh.us) with any questions.

Sincerely,

Brandon Kernen, PG  
 Hydrologist  
 Water Supply Engineering Bureau

H:\SWP\New Sources\Community Wells\2005\Northwood Elderly Housing0211.doc

- cc: J. Gill, NHDES  
 L. Cullerot, NHDES  
 A. Gourley, NHDES  
 Northwood Planning Board  
 M. Estabrook, NHDES  
 A. Fulton, Aries Engineering



**Report Form for  
Water Conservation Plans  
Small Community Water Systems  
October 2005\***

PROJECT NAME: Upper Bow Street Elderly Housing

TOWN/CITY: Northwood DATE: 2/8/06

EPA ID #: NHDES # 996118

**PURPOSE:** This form will provide the information needed for small community water systems to meet the reporting requirements of Env-Ws 390, *Water Conservation Rules*. Once completed, this form can fulfill the requirements of Env-Ws 390.10. You don't have to use this form. However, based on experience, the Department has found that use of a form speeds the application process. If you prefer to produce an original report, remember to provide all the information required under the rules and the Department recommends that you use this form as a checklist to help ensure your report is complete. Helpful information and reminders are provided throughout the form and are printed in *italics*. Copies of this form, the rules, a summary of the rules, educational materials for public distribution, and other useful publications may be found at the following website: [http://www.des.nh.gov/h2o\\_conservation.htm](http://www.des.nh.gov/h2o_conservation.htm).

**INSTRUCTIONS:**

- A. Obtain copies of the following materials from either the Department's Public Information Center (603) 271-2975 or by direct download from the above website.
- Administrative Rule, Env-Ws 390, *Water Conservation Rules*.
  - The fact sheet, *Summary of the Water Conservation Rule*.
  - Any pertinent water efficiency fact sheet.
  - Extra copies of this form.
- B. Review the water conservation rules and guidance materials obtained above. You should use these materials to prepare your water conservation plan. It is suggested that you

submit a draft plan for review prior to meeting your public notification requirements in case substantive changes to the plan are necessary. Resubmittal of the report to the public entities can be avoided if initial review is performed by the Department.

- C. Complete the form by answering all questions and providing the appropriate attachments. Answer the questions from top to bottom, unless instructed to skip to another section. Helpful information and reminders are provided throughout the form and are printed in *italics*.
- D. Before submitting, review the form to ensure all questions are answered and all attachments are included. When complete submit to:

Water Conservation Plans  
Small Community Well Siting Program  
Water Supply Engineering Bureau  
29 Hazen Drive, Post Office Box 95  
Concord, NH 03302 -0095.

For help with this form or other water conservation planning concerns call Diana Morgan at (603) 271-2947.

\*Information contained in this form is current as of October 2005. Statutory or regulatory changes that may occur after October 2005 may cause part or all of the information to be invalid. If there are any questions concerning the status of the information please contact DES at (603) 271-2947.

Section 1.0 GENERAL INFORMATION

WELL SITING:

Has a Preliminary Well Siting report been submitted to the Department? *(If your answer is NO, please contact the Department at 603-271-2947 before you proceed further.)*  
YES  NO

*(The section below asks you to identify the people and companies responsible for the water conservation plan application. This information will help ensure clear communication during the application process.)*

1.1 Project Contacts / System Ownership

1.1a Project Contact: *(Person completing this form?)*

Name: Andrew Fulton  
Address: 46 South Main Street, Concord, NH 03301  
Company: Aries Engineering, Inc.  
Phone Number: (603) 228-0008

1.1b Project Owner: *(Who is responsible for compliance with the water conservation plan, as approved by the Department?)*

Name: Bill Hart  
Address: PO Box 5040, Manchester, NH 03103  
Company: Southern New Hampshire Services  
Phone Number: (603) 668-8010

1.1c Person responsible for completing the activities outlined in this plan: *(Please note that the person completing water conservation plan activities must be a certified water system operator or water system personnel supervised by the certified operator.)*

Name: Mark Widdison  
Address: 44 Lowell Rd., Windham, NH 03087  
Company: US Water Consultants  
Phone Number: (877) 487-9283

1.1d Will ownership of the water system be transferred at a future date from the person listed in 1.1b to a Homeowner's Association or other entity?

YES  NO

If YES, indicate below the contact information for the new owner of the water system.

Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Company: \_\_\_\_\_  
Phone Number: \_\_\_\_\_

## Section 2.0 Metering & Leak Detection

*(This information is needed to help ensure the water conservation plan will meet the intended purpose and that the plan is designed appropriately.)*

### 2.1 Water System *(All systems must complete Sections 3.0-6.0)*

Is this a new water system? YES  NO  (If YES, go to Sections 2.2, 2.3d and 2.3e)

Is this a new source for an existing water system? YES  NO  (If YES, go to Section 2.3)

### 2.2 Metering of New Small Community Water Systems

*(Meters must be installed on all sources of water and at each service connection on new small community water systems.)*

2.2a Describe below the size of both the source and service connection meters to be utilized by the water system. *(In selecting, installing, and maintaining water meters, the water system must comply with procedures and protocols described in "Manual of Water Supply Practices, Water Meters", document AWWA M6, available from the American Water Works Association.)*

A source water meter is proposed for installation in the utility room. The proposed meter is a 3/4" AMCO Industrial Positive Displacement Meter, Model C700. It is rated at 98.5-101.5% accuracy at 2-30 gallons per minute (gpm). The meter is to be installed in the raw water line, prior to treatment and storage.

Service meters are not proposed for the apartment complex.

2.2b Describe below the frequency in which each type of meter will be read. *(Source meters must be read at least every 30 days and service meters must be read at least every 90 days.)*

The source water meter reading frequency is to be monthly.

### 2.3 Metering of Existing Small Community Water Systems

*(If no further expansion of an existing small community water system is planned the water system may either install meters on all service connections within 3 years of approval of the plan and estimate unaccounted-for water [see section 2.3d], or the system may opt to conduct a comprehensive leak detection survey every 2 years and repair all leaks identified by the survey [See section 2.3e]. If further expansion of the system is proposed, meters must be installed on all new services, regardless of whether the system opts to conduct a leak detection audit rather than metering. Meters are also required on all sources of water for existing small community water systems.)*

(Not Applicable) 2.3a Is your system choosing to install meters on your existing system to track unaccounted-for water or is your system adding new service connections to your existing system?

YES \_\_\_ NO \_\_\_

If YES, your system must estimate unaccounted-for water annually, go to sections 2.3b, 2.3c and 2.3d. If you answered NO, your system must perform a leak detection survey every 2 years, go to section 2.3e.

(Not Applicable) 2.3b Describe below the size of both the source and service connection meters to be utilized by the water system. *(In selecting, installing, and maintaining water meters, the water system must comply with procedures and protocols described in "Manual of Water Supply Practices, Water Meters", document AWWA M6, available from the American Water Works Association.)*

(Not Applicable) 2.3c Describe below the frequency in which each type of meter will be read. *(Source meters must be read at least every 30 days and service meters must be read at least every 90 days.)*

### 2.3d Estimating Unaccounted-For Water

Describe below how the water system will estimate the volume and percentage of unaccounted-for water. Also note how often the water system proposes estimating unaccounted-for water. *(All new small community water systems and all existing small community water systems opting for metering and water accounting, or existing small community systems that are adding new connections, must meet this requirement. Estimates of unaccounted-for water must be performed at least once a year. If unaccounted-for water exceeds 15%, the system shall develop a response plan in accordance with Env-Ws 390.05(j) and (k), and submit it to the Department within 60 days.)*

This section does not apply to the elderly housing apartment complex. Service metering is not required.

### 2.3e Water Audit and Leak Detection Program

Describe below who will be responsible for conducting a leak detection survey, the frequency of the surveys and a brief text description of how those surveys will be conducted. *(Surveys for existing systems that are opting out of metering service connections shall be performed at least every two years. Leaks identified by the survey must be repaired within at least 60 days unless a waiver is obtained from the Department. The requirements of this section of the rule must follow the standards set forth in AWWA M36, "Manual of Water Supply Practices, Water Audits and Leak Detection", available from the American Water Works Association .)*

Leak detection is one of the goals of the yearly inspection program for each apartment unit. The inspector will look for physical signs of leaks and or evidence of faulty fixtures. Management will fix any leaks and fix or replace any faulty fixtures within 60 days of the inspection.

Leak detection for the exterior water service line will be performed by pressure testing the line every two years in the month of August. The supply line will be pressurized, then isolated at the well head and in the mechanical room, prior to treatment, with either foot, gate, or ball valves. A pressure gauge in the mechanical room on the supply line prior to the closed valve will be monitored over a two-hour time period. If a loss of pressure is experienced, the test will be repeated. If all fittings prove tight and the pressure loss is less than 10% over the two hours, the test will be repeated on a yearly basis to check for progressive degradation. If the pressure loss over two hours is greater than 10%, the water supply operator will either attempt to locate and fix the leak using acoustical leak detectors or similar devices within 60 days of discovery or request a waiver to replace the line within a one year period.



### Section 3.0 Pressure Reduction

*(Pressure reduction shall be implemented upon obtaining approval of a new source of water when it is technically feasible, consistent with industry standards, and consistent with public health and safety considerations. Existing small community water systems have one year after approval of the conservation plan to implement this requirement, if feasible. All pressure reduction measures must meet the requirements of Env-Ws 372, Design Standards for Small Community Public Water Systems.)*

Is pressure reduction possible for this system? If **YES**, explain below how it will be accomplished for the system. If **NO**, explain why below.

YES \_\_\_ NO X

Apartment building water pressure will be controlled by a bladder tank. Water distribution mains are not associated with this supply.

### Section 4.0 Conservation Rate Structure

*(Unless a small community water system is owned by a landlord who supplies water only to tenants and includes water service in a rental fee, all new small community water systems must adopt a rate structure, and existing systems that either add new service connections or choose to meter existing service connections as part of leak monitoring must adopt a rate structure, as described in Env-Ws 390.04 & .05.)*

4.1 Is this system owned by a landlord who supplies water only to tenants and includes water service in a rental fee? If **YES**, go to section 5.0; if **NO**, go to section 4.2.

YES X NO \_\_\_

4.2 Describe below the conservation rate structure the water system proposes adopting, or if not practical or feasible for the system, describe below how the water system will manage water service fees to meet the intent of the rule and promote water conservation. *(You will need to fill out a waiver application form found at the end of this document.)*

### **Section 5.0 Public Notification**

*(Within 7 days of submitting the final water conservation plan for review by the Department a small community water system must provide a copy of this report via certified mail to the governing board of the municipality in which a proposed source is located, to all wholesale customers [if any], and to the regional planning commission for the location of the proposed source. The water system shall supply the governing boards with a copy of a summary of the requirements of Env-Ws 390. This document can be found on the website noted at the beginning of this form. You must also note in your correspondence to the above-mentioned governing boards that a copy of the Well Siting Application is available for their review at the Department and provide them with Department contact information. The water system shall request that the governing boards amend any site plan submitted to them for review so that it reflects the requirements of Env-Ws 390 and promotes water conservation landscaping principals.)*

List the names and addresses of the governing boards receiving public notification. Attach a copy of the cover letter sent to the governing boards and a copy of the certified mail receipts when available. List the educational/outreach materials that the system is providing to the municipalities for review.

-Northwood Board of Selectmen, 818 First NH Turnpike, Northwood, NH 03261  
-Strafford Regional Planning Commission, 2 Ridge St., Suite 4, Dover, NH 03820-2505

1. Env-Ws 390 Summary Sheet
2. Fact Sheet WD-WSEB-26-2
3. Fact Sheet WD-WSEB-26-10

### **Section 6.0 Educational Outreach Initiative**

*(Such an initiative may be achieved in many ways, but must be implemented immediately upon approval of the conservation plan and should include the pertinent water efficiency fact sheets that can be found at the website listed at the beginning of this report. These educational mailings can be included with wellhead protection program educational mailings as required by Env-Ws 378.18 or with the water system service bills. Other acceptable outreach initiatives include water system or homeowner's association newsletters, posting of water conservation fact sheets in public areas used by water system customers, or any other initiative that meets the intent of the rules.)*

Provide a brief description of your educational outreach initiative. Include implementation procedures, the person responsible for the initiative, the content of educational mailings proposed (if any), and the wording of any newsletter insertions or public postings. *(There is no need to provide copies of educational outreach materials that you are acquiring from the Department website. Only provide copies of educational outreach materials generated by the water system.)*

1. Hand out Fact Sheet WD-WSEB-26-2 to tenants as they assume their lease.
2. Post Fact Sheet WD-WSEB-26-10 in laundry area.

-Bill Hart of Southern New Hampshire Services is responsible for implementation.

Before submitting, thoroughly check this form to be sure all applicable questions are answered, all information is provided, and all necessary attachments are included. Incomplete submittals will significantly slow the approval process.

If strict compliance with any of the requirements of Env-Ws 390 is not feasible, the small community water system may apply for a waiver to a specific portion of the rule. A waiver application form is provided at the end of this document for your convenience.

Preparer's Signature: Andrew C. Zeltner

Date: 2/8/06

As a reminder, have you included the following?

- Educational outreach initiative documentation and materials created by the water system.
- Public notification documentation (certified mail receipts).
- Public notification cover letters and pertinent documents.
- Other pertinent or supportive materials.

Monday, Nov. 14, 2005

New Hampshire Department of Environmental Services

Home

## Water Conservation

[About DES](#)  
[DES Programs](#)  
[Public Information](#)  
[Rules/Regulatory](#)  
[Business Center](#)  
[OneStop Data](#)

What's New?

A-Z Topics List

Although New Hampshire is typically thought of as a water-rich state, it is currently experiencing extensive demand for water as its population and economy expand. In addition, natural water losses due to seasonal variation cause reduced water supplies in the state during certain parts of the year. In addition, recent droughts have demonstrated the need to develop effective long-range water supply planning that includes water conservation practices.



DES defines "water conservation" as any beneficial reduction in water losses, waste, or use. Water conservation practices are proven to save valuable water resources and protect the environment. The current Large Groundwater Withdrawal Rules, Env-Ws 387 & 388 and the proposed Instream Flow Rules, Env-Ws 1900 partially address the problem of growing impacts to our state's water resources. DES and the Public Utilities Commission also recently completed a legislative report that makes recommendations to the legislature on how existing state laws and policy can be enhanced to further encourage water efficiency.

### Summary of Water Conservation Rule

### Water Conservation Rule (Env-Ws 390)

### Water Efficiency Case Studies

### Model Water Use Restrictions

### Irrigation Best Management Practices for Agriculture in New Hampshire

### Small Community Water Conservation Plan Report Form



To help you save money, protect the environment, and conserve New Hampshire's valuable water resources, DES has created a series of 16 fact sheets outlining water efficiency practices and conservation techniques based on your type of water use.

### Water Efficiency Fact Sheets

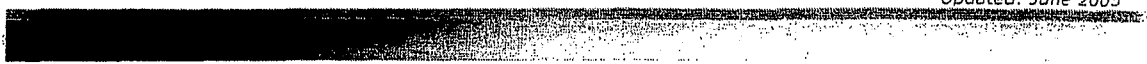
- [Water Efficiency Overview](#)
- [Domestic Indoor Use](#)
- [Outdoor Use](#)
- [Xeriscaping](#)
- [Agricultural Irrigation](#)
- [Golf Courses](#)
- [Industrial Facilities](#)
- [Sand/Gravel Operations](#)
- [Public Water Utilities](#)
- [Laundry Facilities](#)
- [Snowmaking](#)
- [Aquaculture](#)
- [Institutions](#)

- [Health Care Facilities](#)
- [Water Audits \(Domestic\)](#)
- [Water Audits \(Industrial\)](#)
- [Water Conservation at Home](#)

#### Program Staff

- Diana Morgan, 603-271-2947, or [dmorgan@des.state.nh.us](mailto:dmorgan@des.state.nh.us)
- Brandon Kernen, 603-271-0660, or [bkernen@des.state.nh.us](mailto:bkernen@des.state.nh.us)

*Updated: June 2005*





## Water Conservation Rules (Env-Ws 390)

Applicants applying for permits to develop new sources of water need to be aware that they are subject to new water conservation requirements required by RSA 485.61 which became law in July 2002. The law requires that the Department of Environmental Services (Department) adopt and administer water conservation rules for applicants developing the following type of new water sources:

1. New sources of groundwater for community water systems subject to RSA 485:3;
2. New sources of groundwater for bottled and bulk water operations subject to RSA 485:3;
3. New sources of groundwater that exceed 57,600 gallons over any 24-hour period subject to RSA 485-C; and
4. New sources of surface water associated with projects that require a water quality certification pursuant to Section 401 of the Federal Clean Water Act.

The Department met with an advisory committee consisting of representatives of municipalities, community water systems, environmental organizations, and business and industry to develop the water conservation rules. The rules were formally adopted by the Department in May 2005.

A general summary of the requirements of the water conservation rules is provided below.

### **Requirements for All Large Community Water Systems and All New Small Community Water Systems Developing New Sources of Water**

1. Install and maintain meters for all water withdrawals and service connections.
2. Implement a water audit, leak detection and leak repair program in accordance with the "Manual of Water Supply Practices, Water Audits and Leak Detection", document identification number AWWA M36, American Water Works Association, 1999.
3. When applicable, development and implementation of response plans to reduce unaccounted for water to less than 15%.
4. Implement a rate structure that encourages efficient water use.
5. Implement a water conservation educational outreach initiative.

**Requirements for Existing Small Community Water Systems  
Developing New Sources of Water**

1. Either: a) Install source and service connection meters and implement a water audit, leak detection and leak repair program in accordance with the "Manual of Water Supply Practices, Water Audits and Leak Detection", document identification number AWWA M36, American Water Works Association, 1999; or b) Complete a system-wide leak detection once every two years.
2. Repair all leaks within 60 days of identification.
3. Implement a water conservation educational outreach initiative.

**Requirements for Applicants Developing New Sources of Water for Industrial,  
Commercial, or Institutional Water Uses**

1. Install water meters for all water sources.
2. Retrofit or replace single pass water-cooling systems when feasible based upon an economic analysis that includes a four-year payback period.
3. Install controls to stop the overflow or discharge of water to waste when feasible based upon an economic analysis that includes a four-year payback period.
4. Identify water conservation best management practices or best available technologies that may be applicable to the types of water-using processes at the subject facility, and implement these measures when feasible based upon an economic analysis that includes a four-year payback period.
5. For all new lawn areas, install six (6) inches of loam and devices to shut-off automatic irrigation systems when not needed.

For more information about the water conservation rules, contact Brandon Kernen at 271-0660 or [bkernen@des.state.nh.us](mailto:bkernen@des.state.nh.us).

Monday, Nov. 14, 2005

**Water Supply Engineering**

Home

**Environmental  
Fact Sheet**

Print Version

About DES

DES Programs

Public Information

Rules/Regulatory

Business Center

OneStop Data

What's New?

A-Z Topics List

WD-WSEB-26-2

2001

**Water Efficiency Practices for Domestic Indoor Water Use**

Only 1 percent of the earth's water is available for drinking. The average adult uses between 125 and 150 gallons of water a day. Our excessive water use habits deplete potable drinking water supplies and return trillions of gallons of wastewater to streams and coastal waters. The following indoor water efficiency practices can save as much as 25,000 gallons of water per person per year. Water efficiency practices not only save water, they save money. See Fact Sheet, [\*\*Performing a Domestic Water Use & Conservation Audit\*\*](#) for a description of how to determine how you use water in your home.

See fact sheet, [\*\*Water Efficiency Practices for Outdoor Water Use\*\*](#), for water savings outdoors.

**General Water Efficiency Practices**

The following water efficiency practices apply to general domestic water use. Bathroom, kitchen and laundry water use are addressed in later sections.

- Shut off water when not in use, such as when you brush your teeth or shave.
- Install low flow faucet aerators or laminar flow restrictors that limit flow to <2.5gpm on all faucets in the house. These devices are readily available at most hardware and building supply stores.
- Never put water down the drain when you can use it for something else, such as watering plants.
- Insulate water pipes and hot water heaters. This retains heat so that you don't have to run the water as long for it to get hot. It also saves on energy costs.
- As they wear out, replace water-wasting appliances, such as washing machines and dishwashers, with water efficient ones.
- Avoid water softening systems unless absolutely necessary. Backwashing these systems uses large quantities of water. If you do use a water softener, run the minimum amount of regenerations recommended to maintain softness.
- Turn off pumps, water softeners, and other water-using equipment while on vacation.
- Check for leaks.
  1. Detect leaks in toilet tanks by dropping food coloring in the tank (12 drops). Do not flush the toilet for at least an hour. If the tank leaks the dye will show up in the bowl.
  2. If you are on municipal water and have a meter at your house, check the meter over a period of time when no one is using



- water. If the meter moves, you have a leak.
3. If you have a well, the pump shouldn't run at times when no water is being used.
  4. Replace leaky faucets. Even if you are on well water, this can save money in addition to water. Most pumps run on 220 V. One leaking faucet can waste approximately 3000 gallons a month which costs as much as \$30 on your monthly electric bill.

### **Water Efficiency Practices in the Bathroom**

More than one fourth of all domestic indoor water consumption is used in the bathroom. The following water efficiency practices will help you save water in the bathroom.

- Install ultra low flow toilets (ULF) that use a maximum of 1.6 gal/flush (6.0L/flush) or retrofit existing toilets with displacement bottles or dams. Dual flush toilets offer a choice between the 1.6-gallon flush for solid wastes and a 1.0-gallon flush for liquid only. Never put bricks in toilet tanks; they disintegrate over time. Use a squat, fat glass jar, like a pickle jar, no more than 6" high, filled with water. Glass is heavier than plastic and less apt to shift around in the tank.
- Don't use the toilet as a garbage disposal. Avoid unnecessary toilet flushing by disposing of tissues, cigarette butts and the like in the trash and composting vegetable food waste.
- Replace or repair toilet flush handles that stick in the flush position.
- Avoid using automatic bowl cleaners in your toilet tank. These chemicals rapidly degrade flapper valves and other tank components, causing the toilet to leak.
- Adjust the toilet tank float level so that water fills no higher than .5-1.0" below the top of the overflow pipe. At higher levels water can flow down the pipe and leak through to the bowl. The refill valve then tops off the tank, causing a continuous cycle of drain and fill.
- Install low flow showerhead devices that limit flow to <2.5gpm and take shorter showers.
- Fill bathtubs no more than half full.

### **Water Efficiency Practices in the Kitchen**

The following water efficiency practices can be applied to routine kitchen chores to save water.

- Operate dishwashers with full loads only. Use the water-save cycle if your dishwasher is equipped with one.
- If washing dishes by hand, rinse them in a basin rather than under running water.
- Store drinking water in the refrigerator rather than running the tap for cold water.
- Compost food scraps rather than using a garbage disposal. Not only do disposal units waste water; the fine particles they produce can clog a septic system.
- Consider installing an instant water heater on the kitchen faucet. This reduces the time needed to run water until it becomes hot.
- Do not run water to melt ice or thaw frozen foods. Defrost them in a microwave or in the refrigerator overnight.
- Rinse vegetables in a pan of water rather than under running water.

### **Water Efficiency Practices in the Laundry**

Water use in the laundry is usually the second highest domestic indoor water use. The following water efficiency practices are designed to save water in the laundry.

- Wash full loads only. If unable to wash a full load, set your washer to the appropriate water level setting.
- Consider replacing your top loading, vertical axis washer with a more efficient horizontal axis washer. Most of these are front loading like laundromat machines, but some newer models are also top loading. These washers rotate clothes rather than agitating them and use much less water, an average of 27 gallons per load compared to an average of 43 gallons for conventional washers. See the EPA's Energy Star website listed at the end of this document for a catalog of Energy Star approved efficient washing machines.

#### **For Additional Information**

Contact Water Supply Engineering Bureau at 603-271-2513 or visit our website at [www.des.state.nh.us](http://www.des.state.nh.us)

*Woodinville, WA Water District.* In-depth water-saving tips, how to check for leaks.

<http://www.woodinvillewater.com/Conservation/Indoor/Indoor.htm>

*Michigan State University Extension.* Water-saving tips, a graphic explaining how to make and install a toilet dam

[www.msue.msu.edu/imp/mod02/01500570.html](http://www.msue.msu.edu/imp/mod02/01500570.html)

*National Exemption Service, Inc.* Indoor water-saving tips.

*US EPA.* Listing of Energy Star rated washing machines.

[www.energystar.gov/products/clotheswashers/commercial-cw.shtml](http://www.energystar.gov/products/clotheswashers/commercial-cw.shtml)

#### References:

\_\_\_\_\_, *MRI Water Conservation Technical Bulletin #5, Water Conservation Best Management Practices for Domestic/Sanitary Water Use*; New England Interstate Water Pollution Control Commission, Wilmington, MA; 1996.

\_\_\_\_\_; *MIL-Handbook-1165, Water Conservation*; US Dept. of Defense; 1997; pp 25-37.

Vickers, Amy; *Handbook of Water Use and Conservation*; WaterPlow Press, Amherst, MA; 2001; pp 23-75, 87-133.

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Monday, Nov. 14, 2005

## Water Supply Engineering

Home

Environmental  
Fact Sheet

About DES

DES Programs

Public Information

Rules/Regulatory

Business Center

OneStop Data

What's New?

A-Z Topics List

[Print Version](#)

WD-WSEB-26-10

2001

## Water Efficiency Practices for Laundry Facilities

Laundry facilities vary in size from industrial operations to self-service machine businesses. Laundry operations can use the water efficiency practices in this fact sheet to save water and the costs associated with water supply and discharge. A comprehensive audit should be performed to assess the facility's water system and identify locations where these practices can be employed to conserve water. See fact sheet, [Performing a Business or Industry Water Use and Conservation Audit](#), for directions.

- Wash full loads only.
- Reduce water volumes for partial loads.
- Install a system to reuse rinse water for wash water make-up. Computer controlled rinse water reclamation systems can save as much as 25 percent over conventional systems (Vickers, 2001).
- Employ a rinse water or wash water treatment system to allow reclamation and reuse of the water in laundry operations. These systems treat wastewater for reuse in initial wash cycles and can save up to 50 percent of total water use for the entire system (Vickers, 2001).
- Investigate washing systems that internally reuse rinse water and wash water in a continuous batch or "tunnel" type process with counter current flow. These washers can reduce water use by as much as 60 percent when compared with washer-extractor types. They also use less chemicals and energy and are less labor-intensive.
- Install an ozone laundry system that uses ozone rather than detergent as a cleaning agent. These systems work on a closed loop process and use cold water only. Water needed for the rinse cycle is reduced since no detergent is present to be rinsed from the laundry.
- Schedule wash loads carefully to minimize the need to adjust the chemical/detergent composition and machine variables. Develop methods using minimum water requirements based on load soil conditions and treatment requirements.
- Install water saving devices on all fixtures.
- Inspect and repair valves, sensors and other controls regularly.
- Utilize static rinse tanks where feasible.
- Meter flows through the cleaning systems for more effective operations control. By metering flows, minimum flow rates can be accurately maintained.
- Backflush filter systems only when necessary.
- Replace conventional machines in laundromats with water saving horizontal axis machines. These washers rotate laundry rather than agitating it and use much less water.
- Post water efficiency signs telling customers how they can save water and money by washing full loads only or lowering the water level settings on partial loads.

*Crystal Laundry in Manchester, New Hampshire saves approximately 675,000 gallons of water per month by using a horizontal flow 'unnel-type' washing machine that reuses rinse waters for bleaching and washing. This washing system is capable of using approximately 40 percent less water than a 'conventional type' machine, based on equivalent cleaning requirements.*

### **Additional Information**

Contact Water Supply Engineering Bureau at 603-271-2513 or visit our website at [www.des.state.nh.us/ws.htm](http://www.des.state.nh.us/ws.htm)

*Pennsylvania DEP, General water conservation tips for laundries.*  
[www.dep.state.pa.us/dep/subject/hotopics/drought/facts/laundry.htm](http://www.dep.state.pa.us/dep/subject/hotopics/drought/facts/laundry.htm)

*US EPA, Energy Star, Listing of commercial washers that meet the Energy Star rating.*

[http://www.energystar.gov/index.cfm?fuseaction=clotheswash.display\\_commercial\\_cw](http://www.energystar.gov/index.cfm?fuseaction=clotheswash.display_commercial_cw)

### References:

\_\_\_\_\_, *MRI Water Conservation Technical Bulletin #8, Water Conservation Best Management Practices Laundry Facilities*; New England Interstate Water Pollution Control Commission, Wilmington, MA; 1996.

\_\_\_\_\_; *MIL-Handbook-1165, Water Conservation*; US Dept. of Defense; 1997; pp 51-55.

Vickers, Amy; *Handbook of Water Use and Conservation*; WaterPlow Press, Amherst, MA; 2001; pp 278-278.

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