The State of New Hampshire
Department of Environmental Services
Thomas S. Burack, Commissioner

Celebrating 25 Years of Protecting
New Hampshire's Environment

AMENDED
WATER CONSERVATION PLAN APPROVAL

May 21, 2013

Steve Elliot
Milton Water District
PO Box 428
Milton, NH 03851

RE: Milton, NH – Milton Water District (PWS ID: 1581010)
Water Conservation Plan

Dear Mr. Elliot:

On January 3, 2007, the Department of Environmental Services ("DES") Drinking Water and Groundwater Bureau approved a Water Conservation Plan for Milton Water District. On May 14, 2013, DES received an Amended Water Conservation Plan for the system. The purpose of this letter is to approve the Amended Water Conservation Plan (the "Amended WCP"), dated February 2013, per the following conditions:

1. Ongoing compliance reports shall be submitted every three years from the date of the original Water Conservation Plan Approval, January 3, 2007. The next compliance report is due on **January 3, 2016.**

2. Revisions to the Amended WCP shall not be implemented without further approval from DES.

A copy of the Amended WCP and the *Water Conservation Plan Ongoing Compliance Form* may be located by going to the DES website, www.des.nh.gov, clicking on the "A-Z List" in the top right corner of the page, and scrolling down to Water Conservation.

Also, pursuant to Env-Wq 2101.05, Milton Water District is currently implementing a response plan to decrease percent unaccounted for water to below 15%. A progress report is due on **July 15, 2013**, as stated in the attached letter issued by DES on February 15, 2013.

Please feel free to contact me with any questions at (603) 271-0659 or via e-mail at stacey.herbold@des.nh.gov .

Sincerely,

Stacey Herbold
Water Conservation Program
Drinking Water and Groundwater Bureau

ec: Mark Badger, Town of Milton
Scott Clang, Granite State Rural

RCVD 5/14/2013

MILTON WATER DISTRICT
AMENDED WATER CONSERVATION PLAN
February 2013

I. Introduction

A. Contact Information

1. Name and location of system.

Milton Water District

2. Owner of system and mailing address.

Milton Water District
PO Box 428
Milton, NH 03851

B. System Overview

1. Reason for new source. **To comply with state drinking water regulations requiring at least two sources of groundwater supply, Milton needed to seek approval for a second source. In 2007, Milton sought approval for 4 new wells (Rocky Point Wellfield). Milton was also required to submit a Water Conservation Plan (WCP), as a WCP is required for systems seeking new sources. On January 3, 2007, DES issued an approval for the new wells and the WCP. This WCP is an amended version.**

2. Number of connections existing and proposed for each of the following classes:

a) Single Family Residential: **289**

b) Multi-Family Residential: **37**

c) Commercial: **21**

d) Government: **13**

e) Religious: **2**

3. Description of any connections that currently receive or will receive more than 20,000 gpd. **Currently there are no water customers that draw greater than 20,000 gallons per day at MWD.**

C. Water Use Trends and Supporting Data / Population Trends

1. Anticipated growth in population and seasonal fluctuations in population. **The population increases in the summer when second homes are in use. Seasonal populations can be difficult to ascertain as these homes have fluctuating populations based on holiday use, weather, rental practices and other activities. Per capita for a water connection is 2.5 people per connection, this would be seen early May thru late June with weekend use being somewhat higher. Worse case could be an average 6 to7 persons per**

household up to as much as 10 persons per connection. With 40 seasonal connections the population can fluctuate from 100 persons to about 400.

2. Average daily water use. **87,397 gal (2011)**

3. Maximum daily water use. **129,571 gal (Feb 2011) (This is due to a leak.)**

D. Source Meters

1. Name designation of each water source. **GPW (Source 1 – Rte 125 well), RPW-GPW1, RPW-GPW2, RPW-GPW3, and RPW-GPW4 (Note RPW = Rocky Point Well Field)**

2. Meter make, model, size, flow range, and date of last calibration for each existing source meter.

Two Krohne 3" Optiflux magnetic flow meters were installed around 2007 on Source 1 (Rt 125 well) and Source 2 (Rocky Point Well Field). The Krohne 3" Optiflux magnetic flow meter at Source 2 (Rocky Point Well Field) was calibrated by Electrical Engineering Inc from Moultonborough, NH on July 12, 2012. The source meter at Source 1 (Rte 125 well) is scheduled to be tested in 2013. The gate valve would not close so the meter could not be isolated. It was also found that the pump check valve was leaking and allowing water from the system and the other wells to leak back into this well any time the system was not pumping. There was also no piping means to actually conduct a flow test. The check valve was replaced and test piping installed in November 2012. EII will calibrate this meter as soon as there is a day safe enough to do it (without risk of freezing.)

3. Frequency that source meters will be tested/calibrated. **Source meters will be tested every two years.**

4. Frequency that source meters will be read (at least every 30 days). **Both source meters will be read daily to keep track of source water pumping rates. Daily meters readings are electronically stored in the pump station Supervisory Control and Data Acquisition (SCADA) system. Data is also checked and recorded on a daily basis.**

5. **Source meters will be selected, installed, and maintained in compliance with "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance,"(American Water Works Association, 1999).**

II. System Side Management

A. Metering and Water Accounting

1. Service Meters

a) How many un-metered connections exist? **None. Between October 2006 and 2009 service meters were installed on all connections including ball fields, municipal buildings, pump house etc. The remaining 9 meters were installed between 2009 and 2011 as new building construction occurred. Meter installation dates have been logged in on a spreadsheet, which will continually be updated as meters are replaced.**

b) All connections will remain metered.

c) Frequency that service meters will be read (at least every 90 days). **Previously service meters were read three times per year but Commissioners have recently voted to read meters 4 times per year (every 3 months). Meters will also be scrutinized during individual customer water audits in the event of a billing dispute.**

d) Description of all methods that will be used to read service meters. **Radio read meters are electronically read by an interrogator and some manual read meters are in the system.**

e) Expected number of days needed to read all service meters. **Under normal conditions it should take one day to read all service meters. Going forward all service meters will be read, through radio or manually, every 90 days for water accounting purposes.**

f) Proposed rate of meter testing and/or meter change out. **Milton Water District recently replaced most service meters with radio read water meters. Water meter change out began in 2006. Milton Water District will remove and replace 15-30 meters a year. New meters will be installed and the removed meters will be tested. Results from the water meter test will be used to track water meter accuracy trends for planning future water meter replacement programs.**

g) Service meters will be selected, installed, and maintained in accordance with "Manual of Water Supply Practices M6, Water Meters-Selection, Installation, Testing, and Maintenance," (American Water Works Association, 1999).

2. Other Meters and Accounting Methods

   a. **A SCADA system is in place. The SCADA system tracking trends and usage trends are checked multiple times a day.**

   b. **Meters have also been placed on all in-stream usage using finish water at the pump house. Those meters are read quarterly.**

   c. **Flushing is measured by estimating gallons through water pumping trends and/or tank drop above normal.**

   d. **Fire flow testing is calculated based on gpm x time elapsed.**

   e. **Fire flows are measured as follows:**
      1. **Tank filling at the station is metered.**
      2. **Other hydrant use is shown in pumping and tank level trends. Those calculations are compared with the daily averages at the time.**

3. Water Audit

   a) Most recent water audit, differentiating between apparent and real losses, and estimate of non-revenue water and the year it was estimated.

An accurate water audit was performed with the 1st Quarter 2012 water productions and meter billing information with GSRWA. This was the districts first complete audit. A 25% unaccounted for and non-revenue water loss was calculated. An estimate of about 6 gallons per minute will need to be realized to attain a minimum of the recommended 15%. Production meter calibrated +/- accuracy results will be incorporated in to the audit as well as a summer 2012 leak detection survey to capture the amount still unaccounted for.

The MWD metering program is relatively new and as additional data becomes available, a more accurate picture of unaccounted for non-revenue water may be calculated.

For Sept-Nov 2011 total water produced was 8,328,000 gal and total water billed was 5,356,245 gal.
Unaccounted for water = 1-5,356,245/8,329,000=0.36 or 36%

Source water pumped from October 2010 to November 2011 is decreasing.

The total source water pumped in October 2011 is 24% less than the total source water pumped in October 2010. The November 2011 total is 22%less than the November 2010 total.

b) Frequency that water audit will be conducted (at least annually).

With the recently developed Quarterly Production and Metered spreadsheet designed to track water produced versus metered customer volume the district will be able to easily conduct quarterly audits. The Milton Water District will maintain a database, spreadsheet, or similar mechanism that compares metered water use at the sources (wells) and the combined meter water use by the users. At least four times per year the District will compare the total water pumped from the wells with the total water as recorded by the user water meters, using the spreadsheet or similar mechanism. After considering instances of estimated unmetered water use the audit will include an estimate of additional water that is "unaccounted-for water," as defined in Env-Wq 2101.03 (o). "Unaccounted-for water means water for which a specific use cannot be determined due to accounting procedure errors, data processing errors, meter inaccuracies, authorized water use that does not pass through meters, leaks, seepage, overflow, evaporation, theft, unauthorized water use, or malfunctioning distribution controls."

c) The quarterly water audits will be conducted "using protocols and procedures described in 'Manual of Water Supply Practices, Water Audits and Leak Detection' document identification number AWWA M36, American Water Works Association, 1999."

d) The water system shall prepare and submit a response plan to the department within 60 days if the percentage of non-revenue water or unaccounted for water exceeds 15 percent of the total water introduced to the water system. The response plan shall identify how the water system intends to reduce the percentage water to below 15 percent within two years.

4. Conservation Rate Structure and Billing

a) In accordance with Env-Wq 2101.05(q), the residential rate structure will continue to be a flat rate structure or incremental rate structure, meaning that the cost of water will never decrease with the volume of water consumed. **Currently the rate is residential $35.00, multi-family $50.00, commercial/municipal/industrial $80.00 per month user fee which includes first 500 gallons per month. Each additional 500 gallons is $1.75.**

b) Proposed billing frequency (minimum is quarterly). **Billing will be conducted quarterly.**

B. Leak Detection

1. **A SCADA system is in place. The SCADA system tracking trends are checked multiple times a day. When unusual gallons of water are pumped or an unusual drop in the tank occurs, leak detection is scheduled. Leaks are logged and mapped with information on pipe size, typical water pressure, and estimated time elapsed with the leak. This information is compared to pumping trends and tank drop trends.**

2. Summary of findings for the most recent leak detection surveys including the following information:

a) Year(s) conducted.**100% of system from 2008-2010.**

b) Number of leaks found. **13**

c) Estimated losses recovered. **32 gpm**

d) Percent of system surveyed. **100%**

3. Are pipe locations known? **Yes. Leaks are being and will continue to be tracked on a plan.**

4. Breakdown of pipe material, age, and length. **There is approximately 7 miles of piping made from cast iron and ductile with a pipe diameter of 6", 8" and some 10".**

5. Will future leak detection surveys be conducted in-house or contracted out? **Leak surveys will also be incorporated during seasonal flushing programs and when necessary indicated by daily flows that exceed averages. Should it be necessary, the system will rely on subsurface leak detection (correlation) to determine difficult areas of concern. Granite State Rural Water has done leak detection using leak correlations and will continue to work with the**

Milton Water District on an annual basis or as needed. GSRW will be back out in Spring 2013 for a round of correlating.

6. If in-house, what equipment will be used and what training will be required?

The district purchased a D.L.D leak detector.

7. **Leak detection will be conducted in accordance with "Manual of Water Supply Practices M36, Water Audits and Loss Control Programs" (American Water Works Association, 2009).**

8. **Leaks will be repaired within 60 days of discovery unless a waiver is obtained in accordance with Env-Wq 2101.09.**

C. Pressure Management

1. Existing minimum distribution pressure (anticipated pressure for new landlord owned systems). **15 psi**

2. Existing maximum distribution pressure (anticipated for new landlord owned systems). **100+psi**

3. How is pressure currently monitored and how will pressure continue to be monitored?

4. What method will be used to reduce pressures in zones found to be in excess of 80 psi? **Due to the general configuration and small size of the system, creating individual pressure zones is not feasible. The District currently requires any customers with pressure at 80 psi or above to incorporate a pressure reducing valve (PRV) valve in the service line within the building.**

5. If pressure reduction is not technically feasible, please explain why and describe what additional steps the water system will take to monitor and repair leakage within these zones?

Acoustic leak detection will be conducted in high pressure zones at least annually.

D. Intentional Water Loss

1. Are there "bleeders" used within the system at dead ends to improve water quality or prevent freeze-up? If yes, what looping opportunities exist? **No.**

2. Are storage tanks intentionally allowed to overflow because of system hydraulics or water quality concerns? If yes, what opportunities exist for the installation of altitude valves or tank mixing systems? **No.**

III. Consumption Side Management

A. Educational Outreach Initiative

1. Informational materials that will be used. **Milton Water District began by including the WaterSense flyer from the EPA describing toilets as an option to conserve water by customers as a stuffing with the March 2012 quarterly bills. In the future they plan to utilize additional materials from EPA or information developed by NHDES (Environmental Fact Sheets) as bill**

stuffers and/or handouts during the Annual District meetings. The MWD currently has water saver kits that were distributed at prior District meetings.

2. Rate of dissemination. **Literature will be included in quarterly bills twice a year. Once during the summer months so that information is relayed to seasonal customers while in service.**

3. Does the water system intend on becoming a WaterSense partner? http://www.epa.gov/watersense/ **Milton Water District commissioners will discuss this item during their meetings in 2012.**

4. Will a rebate program be offered to replace older fixtures with WaterSense certified fixtures? **Milton Water District commissioners will discuss this item during their meetings in 2012.**

5. Will customer audits be offered? **Milton Water District commissioners will discuss this item during their meetings in 2012.**

6. Other outreach plans? **Milton Water District commissioners will discuss this item during their meetings in 2012.**

IV. Zoning Ordinance / Bylaws

A. Are connections to the water system subject to any of the following water efficiency ordinances or bylaws?

1. Indoor
    a) Water efficient fixtures beyond the existing plumbing code.
2. Landscaping
    a) Minimum topsoil requirements.
    b) Use of native/drought tolerant plants and grasses.
    c) Area and slope restrictions for turf grass.
3. Irrigation System
    a) Prohibition or restrictions to irrigation systems.
    b) Require soil moisture sensors.
    c) Require rain sensors.
4. Other water efficiency ordinances?

Milton Water District is not a Town of Milton entity and does not have Zoning Ordinance restrictions or Bylaw Restrictions other than Water Use Restrictions. As we review our bylaws this year, we will consider all the above listed.

V. Water Use Restrictions

A. What is the water system's plan relative to implementing water restrictions? **The Milton Water District Commissioners along with the certified water system operator are responsible for implementing water restrictions.**

VI. Reporting and Implementation

A. The water system will submit a form supplied by DES once every three years documenting how compliance with the requirements of Env-Wq 2101 is being achieved.

B. Activities outlined in the water conservation plan will be completed by water system personnel under the supervision of a certified water system operator.

I certify that I have read this Water Conservation Plan, understand the responsibilities of the water system as referenced in the plan, and that all information provided is complete, accurate, and not misleading.

Owner Name (print): Steven Elliott

Owner Signature: _____ Date: 5/7/13