

## Town of Milton

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Milton, DE 19968



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### **A BETTER ACCOUNTING OF WATER USE**

**November 5, 2012**

The report this month primarily consists of a copy of the letter sent to the Division of Water Resources. This Division within the Department of Natural Resources and Environmental Control is the agency that “permits” the mining of water from underground aquifers. In 2010, CABE Associates filed a permit application so that an additional well could be established on the south side of town. In December 2011, the Division requested more information and made reference to a Plan that would enable the town to reach a water conservation goal. One hundred gallons per customer, per day was used as an example.

All requested information has been submitted to the Division’s Water Allocations Program Manager.

On October 3, the program manager acknowledged the receipt of the information and made very specific references to the conservation goals. The statewide goal for water conservation is 60 gallons per day (gpd) per person. An additional 40 gpd per person is allowed for all types of industrial and commercial uses (by dividing this type of use by the number of residents in the population). The average use in Milton, in 2011, was 142 gallons per person, per day (for all types of use).

The Water Conservation Plan detailed below documents our activity to date and our planned activity over the next five months. The outcome is what matters most to the Division of Water Resources. Through finding “missing” water, conservation measures or even changing our rate structure, the Town of Milton must reach the statewide goal of using less than 100 gpd, per customer, for all types of uses.

There is no penalty for non-compliance. If we wish to increase our allocation, though, this agency will expect that our combined use of water resources will be within the State of Delaware’s conservation goal, as a condition for approval.

All of the information contained in this letter and its attachments has already been reported to you. The only exception is the last paragraph under “Discrete Analysis of Water Use”. This item is on the Council Agenda for tonight. The condition that prompted the request for the referenced check valves was reported at the October 1 Council meeting.

There has been additional activity since this letter was written on October 8. More meter upgrades have occurred and we have spoken to a consultant about a survey of our high-volume water users. The original letter is provided so that you may be fully informed of the communication with the Division of Water Resources regarding this matter. The report “A Better Accounting of Water Use” will continue to be published on a regular basis.

*The letter follows on the reverse of this page*

Town of Milton  
115 Federal Street  
Milton, DE 19968

State of Delaware  
Division of Water Resources  
Mr. William Cocke  
Water Allocations Program Manager  
89 Kings Highway  
Dover, DE 19901

October 8, 2012

This letter comes to you in response to the December 2, 2011 letter regarding a request to modify Allocation Permit 87-0009. The information also relates to the Notice of Violation issued on September 29, 2011.

On October 3, 2012 the Town of Milton received an acknowledgement that your office has received regular monthly pumping and water level reports, as requested in the Request for Information (RFI) #2 of the 12/2/2011 letter. The response to RFI #1 had previously been reported as “all”.

Request for Information #3 included “an ongoing plan to reduce per capita water use within existing structures or existing practices”. The Water Conservation Plan, as further referenced in the October 3, 2012 response, follows:

Respectfully submitted,

Wilmer E. Abbott, IV.  
Town Manager

**TOWN OF MILTON  
WATER CONSERVATION PLAN  
MARCH 2012 – MARCH 2013**

Goal: Reduce per capita consumption to less than 100 gallons per day, per residential customer.

**Program: Effective Metering of all accounts**

The universal metering program started in 2007 was not completed. Some homes and institutions had no meters. Others had manual-read meters, or meters within homes. Finally, several meters significantly advanced in the meter lifecycle were identified. This situation resulted in no readings for the first group. There were often estimated readings for the second group. Bench tests indicated a 10-15% under-counting of water use by customers in the third group.

On March 5, 2012 the Milton Town Council approved the funding of eighty new water meters for installation in homes, businesses and institutions. Through September 30, 2012 the Town of Milton has installed or, otherwise upgraded, 110 meters at a cost of \$78,363.62 (including accessories). This is nearly 10% of our customer base. Approximately 23 residential, 1 commercial and 1 industrial account have yet to be upgraded. Upgrades should be complete by November 2012.

**TOWN OF MILTON  
WATER CONSERVATION PLAN  
MARCH 2012 – MARCH 2013**

**Program: Effective Metering of all accounts** (continued)

The effect of these upgrades on billing accuracy is detailed in **Attachment A**. The attachment compares the third quarter use in 2011 to that in 2012. The effect on water conservation efforts was more immediate. Customers such as Milton Elementary School found persistent system leaks to be “tolerable” – until more accurate metering revealed the true cost of the leaks. It is estimated that this one account was under-reporting use by 78,000 gallons per quarter. More accurate metering resulted in immediate steps to reduce waste.

**Program: System Leak Detection**

In March 2012, the five areas most likely to have un-detectable leaks were identified and surveyed. These areas were places where the water supply passes under a waterway, by way of a spring and through a wetland. One leak was identified and repaired. Conditions point to a leak condition that lasted more than a quarter. The estimated water conservation is 90,000 gallons per quarter.

In June 2012, the Town of Milton installed radio transmitters on each well. The transmitters broadcast to a monitor that alerts our staff to pumping activity four times a hour, every day. This is an improvement to daily pump activity. Alerts can be programmed for unusual activity. This includes: pumping in the middle of the night, exceedingly long pumping periods and short pump “rest” cycles.

The unusual pump activity may be caused by a new system leak. Or, they could be caused by large, unauthorized withdrawals from the system. In any case, this monitoring provides several benefits of a SCADA system at a fraction of the cost (\$3,511, plus annual web-based data collection service costs).

On August 6, 2012, the System Leak Detection program took another step forward. The Town Council authorized \$6,000 for leak detection on the six miles of mains that were identified as the “aging” part of our system. With help from the Delaware Rural Water Association and the City of Milford, isolation valves boxes were cleaned and each section of main was tested. No leaks were found (**Attachment B**).

In September 2012, the Milton Town Council approved funds for the purchase of transducers in each storage tank. These devices will accurately track the level of water in each tower. Together with the pump activity transmitters, information about activity will be more timely and accurate. This will help our crews to be more responsive to emergencies and more pro-active when it appears that use restrictions may be warranted.

**Program: Promoting a Conservation Ethic through Public Outreach**

“A Better Accounting of Water Use” became a regular report of monthly Town Council meetings in February 2012. The report, both written and verbal, is presented to document Water Department goals and achievements. It also educates the public about water conservation measures (**Attachment C**).

In March 2012, the enclosed brochure “Easy Water Conservation Ideas for the Town of Milton” was inserted into every one of the more than 1200 quarterly utility bills sent to customers in our system.

At the June 2012 Town Council meeting, a rain barrel was displayed and information about discount purchasing through the Town of Milton (courtesy of DNREC) was distributed – and continues to be prominently posted on the town web site.

Additional conservation tips from authoritative sources are regularly distributed at meetings.

**TOWN OF MILTON  
WATER CONSERVATION PLAN  
MARCH 2012 – MARCH 2013**

**Program: Discrete Analysis of Water Use**

With approximately 98% of all customers on up-to-date meters, an analysis of water use by customer type is now a relevant measure of activity. An internal database that separates residential, commercial, industrial and irrigation accounts has been created. The frequency of readings will be increased from quarterly, to monthly (as the season and workload allow). Over time, this will provide the town with a basis for conservation goal-setting on the consumption side.

A closer examination of pump activity, however, has brought about questions regarding the accuracy of data from the production side of the system equation.

Meters at each pump operate by detecting changes in the magnetic properties of the fluid that passes by the externally mounted sensor. The sensitivity had been set at 12.5%. In August 2012, this was reduced to a value close to 0% so that the flow could be more accurately measured. Conversations with peers, however, reveal that the manufacturer of the model in use has models that perform better with waste water than with potable water. Sensitivity to the flow of waste water is not so critical because waste water is more viscous than drinking water.

Further investigation of well pumping activity has revealed that the check valves installed at each pump are not effectively preventing water from being pushed back into the wells. When the pumps are “at rest”, the system pressure pushes water “backwards” into the wells.

The backwards flow is recorded as a deduction of meter total activity. The deduction, however, is most accurate at the treatment plant – where all wells come together. The lower flow amounts at each well, though, are virtually undetected. The water at each well, therefore, is often counted twice. And, it is the pump activity at each well that is reported to the Division of Water Resources as it relates to our allocation permit.

In October 2012, the Town of Milton Water Committee made the recommendation that \$16,094 be provided to the Water Department for the purchase and installation of more effective check valves and more accurate magnetic flow meters at the three active wells and the treatment plant. On November 5, the Town Council will consider this additional investment.

**Program: Legislative, Executive and Administrative Action**

In May, 2010, a comprehensive re-write of the Town of Milton Water Ordinance was enacted. This ordinance provided for numerous measures that clarified Town authority regarding water system connection, use and restrictions. The law was codified (published) in December 2012.

In July 2012, the Mayor exercised his authority to declare a water emergency for conservation purposes on two different occasions. The restrictions lasted several days each and had the desired effect of reducing the gallon per day use.

In the 2013 fiscal year, the Town of Milton will be the recipient of a technical assistance grant from the Delaware Rural Water Association. This grant will enable us to update our EPA CUPSS financial program, which is designed to help calculate rates. The resulting model will enable the town to support conservation-oriented rate modifications with substantive financial data.