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City of Wilmington
Delaware

LOUIS L. REDDING CITY/COUNTY BUILDING
800 FRENCH STREET-6TH FLOOR
WILMINGTON, DELAWARE
19801-3537

***DEPARTMENT OF PUBLIC WORKS***
***Water Division***

October 23, 2015

John T. Barndt, P.G.
Department of Natural Resources and Environmental Control
Division of Water, Water Supply Section
89 Kings Highway
Dover, DE 19901

**RE: Certification of Adequate Water Supply/Consumer Water Conservation Plan**
**City of Wilmington**

Dear Mr. Barndt:

The City of Wilmington is pleased to provide a single filing in accordance with the Water Self-Sufficiency Act, Title 26, Chapter 14. If additional information is required, please let us know. This submission has been revised from the June 17, 2015 report to address comments received on September 22, 2015

If you have any further questions, please feel free to contact Sean Duffy at 302-576-3074.

Sincerely,

Matthew J. Miller, CHMM
Assistant Water Division Director

CC: Sean Duffy, Water Division Director

## City of Wilmington Certification of Adequate Water Supply for Projected Year (2018)

Previous water usage, future growth potential and water supply self-sufficiency projections from the UD Water Resources Agency (2/27/2015) were reviewed.

As documented previously, the Brandywine Creek is Wilmington's primary source of water supply. For Water Year 2014, USGS reports that the Brandywine Creek annual average flow was 659 cfs or 426 MGD. This is well above the City's water supply needs.

The City uses Hoopes Reservoir as a secondary water source. The reservoir stores a nominal volume of 2.19 Billion Gallons, 1.95 BG of which is usable.

The City of Wilmington has sufficient sources of water supply to provide adequate supply to meet the projected demand for the Reporting Year 2015, which in this case is Calendar Year 2018. The Water Resource Agency projected maximum monthly demand of 21.6 MGD for the City of Wilmington for 2018. Based on the 2002 drought of record, 38.3 MGD is the available supply at Wilmington. The City is well positioned to meet this demand with a projected surplus of 16.7 MGD. Additionally, with Hoopes Reservoir usable capacity of 1950 MG, over 75 days in a hypothetical drought condition, an additional 26 MGD is available. The City has an agreement with United Water Delaware to release a maximum of 2.7 MGD over that 75-day hypothetical drought condition, reducing the volume available to the City to 23.3 MGD during that same time. This agreement is on file with the Delaware DNREC Division of Water.

**Summary of Future Supply and Demand**

| | 2018 | | |
|---|---|---|---|
| Water Sources | Supply (MGD) | Max Monthly Demand (MGD) | Surplus Supply (MGD) |
| ***City of Wilmington (total)*** | **38.3** | **21.6** | **16.7** |
| Brandywine Creek | 15.0 [1] | | |
| Hoopes Reservoir | 23.3 [2] | | |

[1] Based on the maximum pumping capability during 2002 drought of record
[2] Based on 26 MGD available minus 2.7 MGD per UWD agreement

It should also be noted that even during a drought of record, the City is well positioned to take advantage of limited precipitation events (when flows in the Brandywine Creek will increase for short periods of time) and decrease the releases of water from Hoopes Reservoir and at times even replenish reservoir water.

# City of Wilmington Water Conservation and Sustainable Use

***Water Conservation Rates***

The City of Wilmington approved Water Conservation Rates for residential water customers in fiscal year 2006. These rates took effect July 1, 2005. The purpose of the rate structure is to promote water conservation among City of Wilmington water customers.

The residential rates are **Inclining Block Rates**. For Inside-City customers, they are charged an initial volume charge of $5.412 per 1,000 gallons for the first 15,000 gallons each quarter. This rate then increases by 25% to $6.763 per 1,000 gallons for all usage in excess of 15,000 gallons per quarter.

For Outside-City customers, they are charged an initial volume charge of $9.797 per 1,000 gallons for the first 15,000 gallons each quarter. This rate then increases by 25% to $12.240 per 1,000 gallons for all usage in excess of 15,000 gallons per quarter.

In addition, for low water consumption, the quarterly allowance (or fixed portion of the water bill) was decreased from 10,000 gallons to 8,000 gallons on July 1, 2005. This means that customers who use less than 8,000 gallons per quarter are charged a Quarterly Facilities Charge only. Prior to this, the quarterly allowance was for 10,000 gallons.

The Table Below shows the City of Wilmington's current water rates for Inside and Outside Residential Customers:

| **Meter Size (Inches)** | **Quarterly Facilities Charge (i)** | **Inside City Residential Customers Usage Charges (per 1,000 gallons)** | |
|---|---|---|---|
| | | 1st Block (ii) | 2nd Block (iii) |
| 5/8 | 55.97 | 5.412 | 6.763 |
| 3/4 | 63.11 | 5.412 | 6.763 |
| 1 | 69.97 | 5.412 | 6.763 |
| 1 1/2 | 82.35 | 5.412 | 6.763 |
| 2 | 107.13 | 5.412 | 6.763 |
| 3 | 345.93 | 5.412 | 6.763 |
| 4 | 658.78 | 5.412 | 6.763 |
| 6 | 889.37 | 5.412 | 6.763 |
| 8 | 1235.27 | 5.412 | 6.763 |

(i) Includes a quarterly allowance of 8,000 gallons for 5/8", 3/4", and 1" metered customers.
(ii) All usage between 8,001 gallons and 15,000 gallons per quarter for 5/8", 3/4", and 1" metered customers. All usage up to 15,000 gallons per quarter for all other meter sizes.
(iii) All usage over 15,000 gallons per quarter.

| **Meter Size (Inches)** | **Quarterly Facilities Charge (i)** | **Outside City Residential Customers Usage Charges (per 1,000 gallons)** | |
|---|---|---|---|
| | | 1st Block (ii) | 2nd Block (iii) |
| 5/8 | 89.59 | 9.797 | 12.240 |
| 3/4 | 98.01 | 9.797 | 12.240 |
| 1 | 109.23 | 9.797 | 12.240 |
| 1 1/2 | 121.91 | 9.797 | 12.240 |
| 2 | 164.70 | 9.797 | 12.240 |
| 3 | 560.05 | 9.797 | 12.240 |
| 4 | 1087.09 | 9.797 | 12.240 |
| 6 | 1449.36 | 9.797 | 12.240 |
| 8 | 2059.97 | 9.797 | 12.240 |

(i) Includes a quarterly allowance of 8,000 gallons for 5/8", 3/4", and 1" metered customers.
(ii) All usage between 8,001 gallons and 15,000 gallons per quarter for 5/8", 3/4", and 1" metered customers. All usage up to 15,000 gallons per quarter for all other meter sizes.
(iii) All usage over 15,000 gallons per quarter.

***Public Education***

The City continues to educate the public on the importance of watershed protection and conservation and does that through several means: school presentations, water plant tours, community events, annual Earth Day festival, and our annual Consumer Confidence Report. We continue to focus our efforts to protect our water supply through the implementation of our AWWA award winning source water protection program.

***Water Audit and Leak Detection***

Hand and hand with promoting conservation in its customer base, the City of Wilmington firmly believes in sustainable use of its water allocation, by having an active water loss control program. Beginning with fiscal year 2009, the City of Wilmington continues to complete the AWWA/IWA Water Audit following the AWWA M36 Manual. The Delaware River Basin Commission is now requiring this audit for each calendar year.

The key indicators from these audits are summarized in the table on page 6. The first stage of our water loss program was getting the audits complete and tightening up the data validity. Now that we are very familiar with the process, and the audit data is recognized across departments, our program has active efforts for decreasing water losses. As seen in the Table, Wilmington's real water loss is approximately 121 gal per connection per day and is on a downward trend. Water loss control efforts include a pilot Pressure Management Zone, a leak detection program with both in-house staff and Echologics, on-going distribution system improvements and tighter quality control on metering and billing services.

During the next five years, the City will also be embarking on an intensive meter inspection and replacement program which will facilitate data acquisition and verification of accounts to support improved data quality used for the water audit program.

| | # of Services | Water Production | Billed Water Consumption | Authorized Consumption | Total Water Loss | Apparent Losses | Real Losses | % Non-Revenue Water | Real Losses - gallons per Service Connection per day | Infrastructure Leakage Index |
|---|---|---|---|---|---|---|---|---|---|---|
| **FY09 July 08 to June 09** | 39000 | 6719.894 MG<br>*18.4 MGD* | 4358.308 MG<br>*11.9 MGD* | 4703.581 MG<br>*117 gal/cap-day* | 2016.313 MG<br>*5.52 MGD* | 259.936 MG<br>*0.71 MGD* | 1756.38 MG<br>*4.81 MGD* | 35.1% | 123.38 | 10.61 |
| **FY10 July 09 to June 10** | 37495 | 6061.204 MG<br>*16.6 MGD* | 3460.746 MG<br>*9.5 MGD* | 3729.861 MG<br>*93 gal/cap-day* | 2331.343 MG<br>*6.39 MGD* | 282.474 MG<br>*0.77 MGD* | 2048.87 MG<br>*5.61 MGD* | 42.9% | 149.71 | 12.68 |
| **FY11 July 10 to June 11** | 37495 | 6604.801 MG<br>*18.1 MGD* | 3482.000 MG<br>*9.5 MGD* | 3679.560 MG<br>*92 gal/cap-day* | 2925.241 MG<br>*8.01 MGD* | 789.316 MG<br>*2.16 MGD* | 2048.87 MG<br>*5.61 MGD* | 47.3% | 149.71 | 13.14 |
| **FY12 July 11 to June 12** | 37495 | 6052.000 MG<br>*16.6 MGD* | 3426.120 MG<br>*9.4 MGD* | 3589.420 MG<br>*89 gal/cap-day* | 2509.253 MG<br>*6.87 MGD* | 784.905 MG<br>*2.15 MGD* | 1724.35 MG<br>*4.72 MGD* | 43.8% | 126.00 | 10.61 |
| **FY13 July 12 to June 13** | 37751 | 5870.612 MG<br>*16.1 MGD* | 3239.437 MG<br>*8.9 MGD* | 3336.179 MG<br>*83 gal/cap-day* | 2534.433 MG<br>*6.94 MGD* | 771.726 MG<br>*2.11 MGD* | 1762.71 MG<br>*4.83 MGD* | 44.8% | 127.93 | 11.99 |
| **FY14 July 13 to June 14** | 38524 | 5766.622 MG<br>*15.8 MGD* | 3178.960 MG<br>*8.7 MGD* | 3293.252 MG<br>*82 gal/cap-day* | 2473.371 MG<br>*6.78 MGD* | 769.535 MG<br>*2.11 MGD* | 1703.84 MG<br>*4.67 MGD* | 44.9% | 121.17 | 10.27 |

* Census 2010 indicated a population of 110,000 for Wilmington Water Service Area