

February 11, 2014

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Bureau of Drinking Water and Groundwater  
Wisconsin Department of Natural Resources  
101 S. Webster Street  
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Subject: Response to December 13, 2013, Letter on Compliance with Wisconsin Administrative Code Chapter NR 852

Dear Eric:

In the subject letter, the Wisconsin Department of Natural Resources (WDNR) requested additional documentation related to the following requirements of Chapter NR 852, Wisconsin Administrative Code, Water Conservation and Water Use Efficiency:

1. Detailed information on the actions the City has taken to reduce industrial water demand, including an estimate or measurement of water use reductions
2. Outline of a detailed water conservation monitoring plan, including how the data are collected and how the data will be used to manage water resources
3. Submission of the Alliance for Water Efficiency Water Conservation Tracking Tool used in conservation program planning
4. Documentation of how the City's 2012 water conservation plan, which is based on a forecasted average day demand of 10.9 million gallons per day (mgd), is to be reconciled with the updated forecasted average day demand of 10.1 mgd.

**Comment 1 response:**

The following supplemental information has been excerpted from Waukesha Water Utility's (WWU) operational records and Conservation Program annual reports provided to the Public Service Commission of Wisconsin (2007–2012). Examples of the City's engagement with the industrial and commercial customers include:

- Enacted Municipal Ordinance 13.11 Water Conservation relating to sprinkling restrictions in April 2006. The ordinance applies to all customers, including commercial and industrial customers.
- Sent letters regarding the conservation ordinance to each customer—2006
- Newspaper Article in Waukesha Freeman—2006
- Developed Sprinkling Brochure and distributed via bills—2007
- Developed Refrigerator Magnet and distributed via bills—2008
- Developed Postcard and distributed via bills—2009, 2010, 2011, 2012 and 2013
- Initiated Brown Lawn is Green Campaign with Yard Signs—2010

- Hands-on collaboration with industrial customers serving on City's water conservation plan stakeholder committee—2011 and 2012
- Participated, with staff and water conservation materials, in General Electric Ecomagination™ Day—2103

The City of Waukesha, in partnership with Waukesha County, created the Waukesha (now Wisconsin) Water Conservation Coalition in 2006. The Coalition includes commercial and industrial sector members and, since its inception, the Coalition has served as an educational and outreach platform for the City to these customer classes. More specifically, via the Coalition, the City:

- Provided table tents at the annual Wisconsin Restaurant Association Show luncheon for use at restaurants. The table tents promoted water conservation measures by the industry.—2009
- Initiated a Water Conservation award for local businesses—2009
- Filmed a morning event with TV6. One of the three components of the morning was the highlight of the rain barrel program and sprinkling ordinance. Both programs relate to commercial and industrial customers.—2009
- Planned and participated in the two-day Water and Energy Efficiency Expo at the Waukesha County Fairgrounds. Day 1 focused specifically on conservation strategies for businesses.—2010.
- Through Coalition meetings and phone calls to individual industrial customers, offered to conduct water audits for commercial and industrial customers—2010
- Staffed an exhibit at the annual Wisconsin Restaurant Association to publicize water saving measures—2010
- Hosted an Earth Day Open House targeted at all customer classes at the Utility Pumping Station—2012

Water conservation information is presented to the following groups are made about twice annually:

- Waukesha County Business Alliance
- Waukesha Rotary Club
- Southside Business Council

As a result of the public outreach mentioned above, the Utility was invited by the following companies to brainstorm about water saving measures. It is important to note that NR 852.05(2) and PWS-R3 do not require the Utility to be deeply embedded in a commercial/industrial water audit or leak survey. This is likely in recognition of the industry-specific knowledge required to perform meaningful audit/surveys. As a result, the Utility established a program that publicizes the importance for customers to perform audits/surveys (assisted or self-performed) and to implement the resulting conservation measures (with or without assistance from the Utility). To date, all of the commercial/industrial customers that the City has met with have opted to self-perform the audits and implement conservation measures specific to their industries. This approach has proven to be cost-effective for the City and its water customers.

- MetalTek—WWU replaced MetalTek's two 6-inch turbine meters with two 6-inch compound meters in order to more accurately measure water use. Increased accuracy in flow metering resulted in higher meter readings. To evaluate its water use, MetalTek conducted a water use audit and implemented the following conservation measures: replaced failed parts on their softeners/filters, corrected valves on the flushing cycle, closed a bypass valve inadvertently left open by an operator, and replaced leaking pipe on toilet in a remote building, saving an estimated 4 million gallons the following year.—2009
- Navistar—Replaced hard water in its cooling tower with soft water. As a result, less water is added to the system and fewer purge cycles are needed. Automatic shutoff valves and controls further optimize water use in the water cooled heat exchangers. The effort saves 15 million gallons per year.—2010

- Dean Foods/Golden Guernsey Dairy—Implemented changes to water lubricated systems, cooling water recirculation in homogenizing units, and wash water handling, with an estimated savings of 1.85 million gallons annually.—2010
- GE—Installed faucet aerators and reduced water used in janitorial services, saving 324,000 gallons annually.—2010
- MetalTek—Consulted with WWU resulting in the installation of radio transmitted leak detection equipment. No estimated savings available.—2011
- La Casa de Esperanza—In 2012, Village I replaced 40 3.5—4.5 gpf toilets to 1.6 gpf toilets and replaced its water softener with an energy/water efficient model. Measured water savings of 97,252 gallons.—2013
- H2OScore—In 2013 WWU implemented H2OScore, a water use education tool, for residential class customers. WWU will continue to evaluate its impact on the residential customer class and determine its potential application with commercial and industrial customers.

The Utility installed AWE's Water Use Calculator on the Utility website. The calculator includes water saving tips specific to commercial, industrial, and institutional water use. The Utility sent announcements to every customer in these customer classes, making them aware of the Water Use Calculator.—2013

During the summer of 2013, Act 25 was enacted, regarding confidentiality of customer information. The City is comfortable sharing the information above because it has been reported prior to Act 25 being passed. However, in the future, the City may be prohibited from sharing additional information about customer activities. During the meeting of December 18, 2013, the City expressed concern about its ability to release information about its customers, given the restrictions placed upon it by Act 25. The WDNR indicated it would research and determine how the parties should continue, in light of the new law.

**Comment 2 response:**

The City's water conservation program is dynamic because its performance is continuously monitored and changes are made to best meet the City's water savings, customer satisfaction, and financial performance goals. Program monitoring plays an essential role in adapting the program, as appropriate, to meet the changing needs of the City's customers and to maintain a program that is effective and economical. The City's water conservation program monitoring plan consists of the following four general activities:

1. Keeping records of water use data before and after implementation of a CEM
2. Tracking how well the portfolio of CEMs is achieving program goals
3. Comparing actual program costs against planned program costs
4. Evaluating how well program elements are received by customers

Examples of specific types of data that are collected and managed, along with how WWU databases and the AWE Tracking Tool are used to help inform decisions about the program are listed below.

- CEM PWS-R1 Distribution System Pressure Management—To be energy efficient and minimize water loss from leaks that can be exacerbated by high pressures, the City performed a distribution system pressure management evaluation. This analysis determined there are negligible opportunities to improve on its current pressure management strategies. One operating parameter that the City monitors to track the effectiveness of pressure management in the distribution system is unaccounted-for water. The City audits its water loss by collecting data as defined in PSC 185.85, Wisconsin Administrative Code. Since 2006, unaccounted-for water has averaged 7 percent and ranged 4 to 12 percent. If, however, unaccounted-for water exceeds 15 percent, the Utility will engage in a water loss control program, as outlined in PSC 185.85.

- CEM PWS-R2 Residential Demand Management—The City established and publicized its offer to conduct residential customer water use audits and leak surveys. To date, no residential customers have requested the audit or surveys. Should a customer request the service, the City will:
  - Obtain a written waiver of liability and permission to conduct the survey
  - Flag the customer account in the City’s billing system
  - Determine the three-year average annual consumption for the property prior to the survey
  - Conduct the survey/audit
  - Provide written recommendations as necessary for water conservation
  - Collect consumption data for that customer account for three years after the survey to determine a three-year average for annual water savings
  - Enter the cost of the audit and data collection in the AWE Tracking Tool
  - Enter actual savings in the AWE Tracking Tool
  - Use the AWE Tool to determine the Utility’s benefit/cost ratio of the CEM
- CEM PWS R-3 Commercial and Industrial Demand Management—The City established and publicized its offer to conduct water use audits/leak surveys. In response, Golden Guernsey, Navistar, GE Medical Systems, and MetalTek performed their own surveys and implemented water conservation measures specific to their consumption patterns. For each of these customers the City has:
  - Flagged the customer account in the City’s billing system
  - Recorded the conservation measure taken by the company
  - Determined the three-year average annual water use for the property prior to the date of the customer’s intervention
  - Collected customer reported savings attributable to the conservation measure(s)
  - Corroborated the customer reported savings via the City’s billing system
  - Entered the cost of data collection in the AWE Tracking Tool
  - Using the AWE Tool determine the Utility’s benefit/cost ratio of the program
- CEM PWS R-4 Water Reuse—The City assessed the feasibility of water reuse in the operation of its water supply, treatment, and distribution facilities and concluded that there are negligible opportunities because:
  - Plumbing fixtures in the WWU facilities have been retrofit with high efficiency units.
  - Facilities’ landscaped areas are not irrigated.
  - Water used in water treatment processes cannot be recycled because of high radium concentrations.

The City’s water conservation program includes a commitment to implement environmentally sound and cost-effective water reuse measures. One measure currently being considered is the potential reuse of wastewater treatment plant effluent within the treatment facilities and sanitary collection system. When a reuse measure is implemented it will be monitored like other CEMs by evaluation of measured or estimated water savings and comparison of actual versus planned costs.

- CEM Additional 1 - High Efficiency Toilet Rebate Residential
  - Verified toilet replacement—photos and receipts
  - Flagged the customer account in the City’s billing system
  - Entered the activity in the AWE Tool
  - At year end, WWU uses consumption from the billing system to perform a reasonableness test on aggregate statistics produced by the AWE Tool
  - Calculated the Utility’s benefit/cost ratio of the program
- CEM Additional 2 - High Efficiency Toilet Rebate Commercial
  - Verified toilet replacement—photos and/or receipts

- Flagged the customer account in the City's billing system
  - Entered the activity in the AWE Tool
  - At year end, WWU uses consumption from the billing system to perform a reasonableness test on aggregate statistics produced by the AWE Tool
  - Calculated the Utility's benefit/cost ratio of the program
- CEM Additional 3—Leak Detection - Horeb Pool - Public—In the fall of 2013, the City coordinated an effort to reduce water loss at its Horeb Pool. Upon examination, the Utility formed the opinion that there was a structural leak near one of the slides and that there was a leak in one of the recirculating lines. An assessment will be done in 2014 after repairs have been completed.

**Comment 3 response:**

The Alliance for Water Efficiency Conservation Tracking Tool (AWE Tool) is being transmitted to the WDNR with the request that it be kept confidential or made public only under conditions agreed to by the owner of the copyright. Per s. 19.36, Wis. Stats, the Tool is a copyrighted computer program. As the City understands the statute, the electronic Tool in its entirety will not be made public, but individual worksheets containing inputs or outputs may be printed and released.

It is also important to note that the AWE Tool was just one of many used to develop the plan. It was used primarily to test the cost/benefit of individual CEMs. It has a role in the planning and implementation of the City's water conservation program, but it is not of singular importance to successfully achieving water savings. The City's conservation program is successful because decisions and actions are supported by data; research is on-going; stakeholder and customer input is gathered; and water utility best management practices are used.

**Comment 4 response:**

The City does not plan to reduce its water savings goal (of approximately 1 mgd) in response to a reduction in the forecasted average day demand because the water savings is already factored into the forecasted demand. The City's forecasted average day demand would be about 1 mgd greater without continued water conservation and water use efficiency.

NR 852.05(1) specifies that "persons . . . shall complete the elements specified . . . in either (2) or (3)." The City wishes to clarify its application by stating that it intends to complete the elements in (2). Therefore, the calculations referred to in the comment above are not necessary to determining whether the Great Lakes Diversion Application is complete.

Sincerely,  
Waukesha Water Utility



Daniel S. Duchniak, P.E.  
General Manager—Waukesha Water Utility