MassDEP
Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

February 14, 2020

Connor Read
Town Administrator
136 Elm Street
Easton, MA 02356

RE Easton Water Division
PWS ID#: 4088000
Water Management Permit 9P-4-25-088.01
Action: WMA Withdrawal Permit Renewal

Dear Mr. Read:

Please find attached the following:

- Findings of Fact in Support of the Water Management Permit Renewal Decision, and
- Water Management Permit #9P-4-25-088.01 for the Easton Water Division, Easton, Massachusetts.

If you have any questions regarding the permit, please contact Beth McCann at (617) 292-5901 or at elizabeth.mccann@mass.gov.

Very truly yours,

Duane LeVangie

Duane LeVangie, Program Chief
Water Management Act Program
Bureau of Water Resources

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Ecc: John Marsh Operation Manager, Easton Water Division, 417 Bay Rd., South Easton, MA 02375
Ryan Trahan, Environmental Partners Group
Patti Kellogg, MassDEP SERO
Sara Cohen, DCR OWR
Michelle Craddock, DFW
Julia Blatt, Massachusetts Rivers Alliance
Jen Pederson, MWWA
Priscilla Chapman, Taunton River Watershed Alliance, P.O. Box 1116, Taunton, MA 02780

Communication For Non-English Speaking Parties - 310 CMR 1.03(5)(a)
Contact Michelle Waters-Ekanem, Diversity Director/Civil Rights: 617-292-5751
TTY# MassRelay Service 1-800-439-2370.
http://www.mass.gov/eea/agencies/massdep/service/justice/ (Version 3.30.15)

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Findings of Fact in Support of Permit Renewal Decision
Easton Water Division
Water Management Permit #9P-4-25-088.01 in the Taunton River Basin

The Department of Environmental Protection (the Department) makes the following Findings of Fact in support of the attached Water Management Permit #9P-4-25-088.01, and includes herewith its reasons for issuing the Permit and for conditions of approval imposed, as required by M.G.L. c. 21G, § 11. The issuance of this permit is in response to a water withdrawal permit renewal application submitted on November 25, 2009, by the Easton Water Division (Easton).

The Department adopted revised Water Management Regulations at 310 CMR 36.00 on November 7, 2014, (described in greater detail below). Since that time, the Department has been working closely with each Water Management Act (WMA) permittee to fully consider all aspects of their individual situations and ensure thoughtful and implementable permits.

Easton Water Division's Water Withdrawal History

Registered Sources: Easton has registered withdrawals of 1.44 MGD from five sources, Stations #1 through #5 (4088000-01G through 05G), through the Water Management Act program.

Original Permit, May 31, 1991: Easton's original permit authorized an additional withdrawal of up to 1.01 MGD through 2010 from Stations #1 through #5 (4088000-01G through 05), for a total withdrawal of 2.45 MGD including the registration.

Amended Permit, April 18, 1996: Station #6 (Wheaton Farm Wellfield), monitoring of wetlands adjacent to Stations #1, #2 and #4, and a requirement to monitor drawdown impacts at the Fuller-Hammond cranberry bog reservoir were added to the permit.

Permit Review, March 6, 2002: The Department conducted a 5-year review of Easton's permit. Easton was in compliance with all permit conditions.

Amended Permit, August 1, 2003: Station #7 was added to the permit and the wetlands monitoring condition was expanded to include wetlands adjacent to Station #7. In addition, requirements were added to implement the Canoe River Aquifer Optimization Study upon its completion and, in the interim, monitor stream flow in the Canoe River Gage Station and discontinue use of Well #7 when streamflow fell below 4.03 cubic feet per second.

Amended Permit, September 17, 2008: The permit was amended to add:

- performance standards for residential gallons per capita day (65 RGPCD) and unaccounted-for-water (10% UAW),
- a baseline withdrawal rate of 2.12 MGD and a requirement to develop an offset feasibility study if Easton's withdrawals rose above the baseline,
- summer limits on withdrawals, including a requirement to shift withdrawals from Stations #3, #5, #6 and #7 in the Canoe River aquifer to Stations #1, #2 and #4 in the Queset Brook aquifer during drought conditions.

The Department also reviewed the data generated by the wetlands monitoring requirement and the Fuller-Hammond Reservoir monitoring plan and determined that Easton's withdrawals had no measureable impacts on the wetlands and reservoir. These monitoring requirements were terminated and removed from the permit.

The Permit Extensions

WMA permits issued during the first 20-year permitting cycle for the Taunton River Basin expired on February 28, 2010. All permittees seeking to renew their Water Management permits were required to file renewal applications on or before November 30, 2009. Easton filed a timely renewal application and received a one-year Interim Permit, to February 28, 2011, to continue operations while the permit renewal review was ongoing. The Department published notice of the permit renewal application in the Environmental Monitor on January 27, 2010.

Subsequently, the expiration dates for all Water Management permits were extended for four years by Chapter 240 of the Acts of 2010 as amended by Chapter 238 of the Acts of 2012, collectively known as the Permit Extension Act. In addition, in a letter of September 15, 2012, the Department informed Easton that the Department would need additional time before making a determination on the application in order to ensure that all permit renewal applicants in the Taunton River Basin fully understood the new Water Management Regulations (discussed below), and to give proper consideration to all permit renewal applications within the basin. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), Easton's permit continues in force and effect until the Department issues a final decision on the permit renewal application.

The expiration date for all permits going forward in the Taunton River Basin will be February 28, 2030, in order to restore the staggered permitting schedule set forth in the regulations.

The Water Management Act (M.G.L. c. 21G)

The Water Management Act (Act) requires the Department to issue permits that balance a variety of factors including without limitation:

- Impact of the withdrawal on other water sources;
- Water available within the safe yield of the water source;
- Reasonable protection of existing water uses, land values, investments and enterprises;
- Proposed use of the water and other existing or projected uses of water from the water source;
- Municipal and Massachusetts Water Resources Commission (WRC) water resource management plans;
- Reasonable conservation consistent with efficient water use;
- Reasonable protection of public drinking water supplies, water quality, wastewater treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation, hydropower

resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and

- Reasonable economic development and job creation.

Water Management Regulation Revisions

In 2010 the Executive Office of Energy and Environmental Affairs (EEA) convened the Sustainable Water Management Initiative (SWMI) for the purpose of incorporating the best available science into the management of the Commonwealth's water resources. SWMI was a multi-year process that included a wide range of stakeholders and support from the Departments of Environmental Protection, Fish and Game, and Conservation and Recreation. In November 2012 the *Massachusetts Sustainable Water Management Initiative Framework Summary* (http://www.mass.gov/eea/docs/eea/water/swmi-framework-nov-2012.pdf) was released.

On November 7, 2014, the Department adopted revised Water Management Regulations at 310 CMR 36.00 that incorporate elements of the SWMI framework and the Water Conservation Standards adopted by the Massachusetts WRC. The regulations reflect a carefully developed balance to protect the health of Massachusetts' water bodies while meeting the needs of businesses and communities for water.

Without limitation, the Department has incorporated the following into Water Management permitting:

- Safe yield determinations for the major river basins based on a new methodology developed through SWMI (see the Safe Yield in the Taunton River Basin section of this document). For more information on the Safe Yield methodology, go to the November 28, 2012, SWMI Framework Summary and Appendices;
- Water needs forecasts for public water suppliers developed by the Department of Conservation and Recreation, Office of Water Resources (DCR), using a methodology reviewed and approved by the Massachusetts WRC;
- Water supply protection measures for public water supplies including Zone II delineations for groundwater sources, and wellhead and surface water protection measures as required by Massachusetts Drinking Water Regulations (310 CMR 22.00);
- Water conservation and performance standards reviewed and approved by the WRC in July 2018 (https://www.mass.gov/files/documents/2018/09/11/ma-water-conservation-standards-2018.pdf), including without limitation;
    - performance standard of 10% or less unaccounted-for-water;
    - seasonal limits on nonessential outdoor water use;
    - a water conservation program that includes leak detection and repair, full metering of the system and proper maintenance of the meters, periodic review of pricing, and education and outreach to residents and industrial and commercial water users; and
- Environmental protections developed through SWMI, including;
    - protection for coldwater fish resources;
    - mitigation of the impacts of increasing withdrawals.

Safe Yield in the Taunton River Basin

This permit is being issued under the safe yield methodology adopted by the Department on November 7, 2014, and described in the regulations at 310 CMR 36.13. As of the date of issuance of this permit, the safe yield for the Taunton River Basin is 134.4 million gallons per day (MGD), and total registered and permitted withdrawals are 92.45 MGD. The maximum withdrawals that will be authorized in this

permit, and all other permits currently under review by the Department within the Taunton River Basin, will be within the safe yield and may be further conditioned as outlined in the regulations.

Findings of Fact for Permit Conditions in Easton's Water Management Act Permit

The following Findings of Fact for the special conditions included in the permit generally describe the rationale and background for each special condition in the permit. This summary of permit special conditions is not intended to, and should not be construed as, modifying any of the permit special conditions. In the event of any ambiguity between this summary and the actual permit conditions, the permit language shall control.

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume reflects the total authorized (registered plus permitted) annual average withdrawal volume based on the water needs forecast prepared by the Department of Conservation and Recreation (letter of September 22, 2015).

Easton has chosen to receive a permit based on the projections that assume compliance with performance standards of 65 residential gallons per capita day (RGPCD) and 10% unaccounted-for-water (UAW), and which forecast a 2030 demand of 2.25 MGD with an additional 5% buffer of 0.11 MGD for a total of 2.36 MGD.

Easton's Water Needs Forecasts (MGD)	
Permit Period	**DCR Water Needs Forecast**
2015-2020	2.02
2020-2025	2.21
2025-2030	2.25 + 5% buffer of 0.11 = 2.36

MassDEP recognizes that future growth in water demand may not occur precisely as forecasted. Therefore, this permit may authorize withdrawals of up to the maximum authorized withdrawal at any time during the life of the permit provided that Easton has the advance written approval of the Department and is meeting all other permit conditions. Specifically, Easton may increase annual average daily withdrawals to 2.36 MGD prior to 2026 if Easton is meeting:

- RGPCD of 65, or all RGPCD functional equivalence requirements;
- UAW of 10%, or all UAW functional equivalence requirements;
- Seasonal limits on nonessential outdoor water use; and
- Water conservation requirements;

as included in this permit.

Special Condition 2, Maximum Authorized Daily Withdrawals from Groundwater Withdrawal Points, reflects the MassDEP-approved Zone II maximum daily pumping rate, expressed in million gallons per day, for each of Easton's permitted wells based on prolonged pumping tests. Withdrawals in excess of these maximum daily rates require prior approval from the Department.

Special Condition 3, Zone II Delineations, requires MassDEP-approved Zone II delineations for all permitted PWS groundwater sources. Easton has approved Zone II delineations for all permitted wells and no further delineations are required as a condition of this permit.

Special Condition 4, Wellhead Protection, requires public water supply (PWS) permittees to implement appropriate wellhead protection zoning and non-zoning controls in accordance with Wellhead Protection Regulations at 310 CMR 22.21(2). Easton has adopted land use controls and water

supply protection measures meeting the requirements of the Wellhead Protection Regulations at 310 CMR 22.21(2) for all permitted wells and no further wellhead protection is required as a condition of this permit.

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water (RGPCD) and
Special Condition 6, Performance Standard for Unaccounted for Water (UAW) are part of the *Water Conservation Standards for the Commonwealth of Massachusetts* adopted by the MA Water Resources Commission in July 2018 and can be found at https://www.mass.gov/files/documents/2018/09/11/ma-water-conservation-standards-2018.pdf.

The **Residential Gallons Per Capita Day** performance standard required of all PWS permittees is 65 RGPCD. Permittees that cannot meet the performance standard within the timeframe in the permit must meet Functional Equivalence requirements outlined in Appendix A.

Easton's RGPCD for the last five years has not consistently met the performance standard, particularly during dry years. This permit limits nonessential outdoor water use to no more than 2 days per week whenever RGPCD is below 65 for the previous year, and to no more than 1 day per week whenever RGPCD is above 65 for the previous year. The additional restrictions on nonessential outdoor water use required by this renewed permit may help reduce Easton's relatively high summer water use and reduce overall RGPCD.

Easton's Residential Gallons Per Capita Day				
2018	**2017**	**2016**	**2015**	**2014**
64	63	69	68	66

The **Unaccounted for Water** performance standard required for all PWS permittees is 10% for 2 out of every 3 years. Permittees that cannot comply within the timeframe in the permit must meet Functional Equivalence requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36, as outlined in Attachment A.
Easton's recent UAW has been:

Easton's Unaccounted-for-Water				
2018	**2017**	**2016**	**2015**	**2014**
11%	5%	7%	4%	7%

Special Condition 7, Limits on Nonessential Outdoor Water Use (formerly Summer Limits on Withdrawals) has changed. Easton's 2008 Permit required restrictions based on either streamflows measured at the USGS Stream Gage 01108320-Canoe River near Norton, MA, or a declaration of Drought Advisory or higher by the MA Drought Management Task Force. In addition, the permit required that when streamflow in the Canoe River fell below 4.03 cfs, Easton would decrease reliance on Stations #3, #5, #6 and #7 and increase reliance to the greatest extent practicable on Stations #1, #2 and #4.

USGS Stream Gage 01108320-Canoe River near Norton, MA, was discontinued in 2009, and has been replaced in this permit with USGS Stream Gage 01108000 – Taunton River near Bridgewater, MA. The requirement to decrease reliance on certain wells based on flow in the Canoe River is no longer feasible.

This permit requires Easton to implement restrictions from May through September. Restrictions are based on whether Easton's reported RGPCD for the previous year was in compliance with the RGPCD Performance Standard (see Special Condition 5) and based on the permittee's preference for calendar or streamflow triggered restrictions.

Each year Easton may choose one of two options for implementing nonessential outdoor watering restrictions.

- **Calendar triggered restrictions** are in place from May 1st through September 30th. Many public water suppliers find this option easier to implement and enforce than the streamflow triggered approach.
- **Streamflow triggered restrictions** are implemented at those times when streamflow falls below designated flow triggers measured at an assigned, web-based, real-time U.S. Geologic Survey (USGS) stream gage from May 1st through September 30th. At a minimum, restrictions commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for seven consecutive days.

  The streamflow triggers are based on Aquatic Base Flow (ABF) levels that are protective of aquatic habitat for fish spawning during the spring bioperiod (May – June), and protective of flows for fish rearing and growth during the summer bioperiod (July – September). The flow levels are simulated natural flow values calculated by the Sustainable Yield Estimator (SYE)[1] from index gage flow data which represent the least altered stream flows in Massachusetts, and applied to the assigned local USGS stream gage.

  If Easton selects the streamflow trigger approach, it has been assigned USGS Stream Gage 01108000 – Taunton River near Bridgewater, MA. The May - June streamflow trigger is 265 cubic feet per second (cfs), and the July – September streamflow trigger is 119 cfs. Should the reliability of flow measurement at the Taunton River gage be so impaired as to question its accuracy, Easton may request MassDEP's review and approval to transfer to another gage to trigger restrictions. MassDEP reserves the right to require use of a different gage.

- **The 7-Day Low Flow Trigger** at which restrictions increase, is incorporated into both Calendar and Streamflow Triggered restrictions in order to provide additional protection to streamflows when flows are very low. The 7-day low flow trigger is based on the median value of annual 7-day low flows for the period of record. The 7-day low flow trigger is 47 cfs at the assigned Taunton River gage.

[1] Archfield, S.A., Vogel, R.M., Steeves, P.A., Brandt, S.L., Weiskel, P.K., and Garabedian, S.P., 2010, The Massachusetts Sustainable-Yield Estimator: A decision-support tool to assess water availability at ungaged stream locations in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2009–5227, 41 p. plus CD-ROM. See http://pubs.usgs.gov/sir/2009/5227/

This permit condition does not confer enforcement authority to the permittee. Easton's Mandatory Water Use Restrictions by-law (Town of Easton Water Division Regulations, ss 223-64) includes enforcement authority and establishes penalties for violations of the permit restrictions.

Special Condition 8, Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts adopted by the MA Water Resources Commission in July 2018 (https://www.mass.gov/files/documents/2018/09/11/ma-water-conservation-standards-2018.pdf).

Special Condition 9, Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins, requires permittees with permitted groundwater sources in subbasins[2] with net groundwater depletion of 25% or more during August to minimize their withdrawal impacts on those subbasins, to the greatest extent feasible, through optimization of groundwater source use, surface water releases to improve streamflows, outdoor water use restrictions and water conservation programs that go beyond standard Water Management permit requirements.

Six of Easton's 7 wells are located in August net groundwater water depleted (NGD) subbasins.

- Wells 4088000-01G, 02G and 04G are located in Subbasin 24009 in the Queset Brook Aquifer, which is 112.4% net groundwater depleted during August.
- Wells 4088000-03G, 05G and 07G are located in Subbasin 24031 in the Canoe River Aquifer, which is 63.7% net groundwater depleted during August.
- Well 4088000-06G is located in subbasin 24030 in the Canoe River Aquifer which is not groundwater depleted during August.

Based on Department records and information submitted by Easton, the Department finds that minimization requirements will be met as follows:

- Well #6 is Easton's only well located in a subbasin that is not August NGD. Department review of Easton's pumping records show Well #6 has pumped at over 60% of its Department-approved maximum daily capacity during 3 of the past 5 summers, and during the summer of 2017, Well #6 pumped at 80% of capacity. This permit does not require that Easton shift additional pumping to Well #6 because pumping at or near capacity for extended periods can be detrimental to the quality of the water produced and to the long-term life of the well.
- Easton has no surface water supplies and, therefore, cannot make releases to improve streamflow.
- The limits on nonessential outdoor water use set forth in **Special Condition 7** are restrictions developed to minimize withdrawals in August net groundwater depleted subbasins.
- Easton has outlined its current conservation measures that go beyond standard Water Management permit requirements. Continued implementation of those specific measures is required in **Special Condition 10**.

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[2] Subbasins used for WMA permitting are the 1,395 subbasins delineated by the U.S. Geological Survey in *Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover, and Water Quality for Massachusetts Stream Basins* (Weiskel *et al.*, 2010, USGS SIR 2009-5272). The Water Management Regulations, 310 CMR 36.03, define August net groundwater depletion (NGD) to mean the unimpeded median flow for August minus 2000-2004 groundwater withdrawals plus 2000-2004 groundwater returns described by U.S. Geological Survey in *Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover and Water Quality for Massachusetts Stream Basins.* A subbasin is groundwater, depleted if it has an August NGD of greater than 25%.

- Because Easton has a high ratio of summer to winter water use, water use for June through August is 70% higher than water use from November through March, Easton is required to document a program to increase participation and compliance with outdoor water use restrictions. At the next permit review Easton will be required to report on its outreach and enforcement efforts.
- The Department notes that Easton has already taken steps that will facilitate implementation of this requirement:
  - Easton was a voluntary participant in the Lawn Water Reduction Pilot Campaign during the summer of 2019 which is designed to change outdoor lawn watering behavior by providing targeted education and feedback to motivate water use behavior change (www.mass.gov/service-details/water-conservation-pilot).
  - Easton's Mandatory Water Use Restrictions by-law (Town of Easton Water Division Regulations, ss 223-64) includes enforcement authority and establishes penalties for violations of the permit restrictions.

Special Condition 10, Mitigation of Impacts for Withdrawals that Exceed Baseline Withdrawals, requires mitigation where feasible, for withdrawals over a baseline volume. Baseline withdrawal means the volume of water withdrawn during calendar year 2005 plus 5%, or the average annual volume withdrawn from 2003 through 2005 plus 5%, whichever is greater provided that:

a) baseline cannot be less than a permittee's registered volume;
b) baseline cannot be greater than the permittee's authorized volume for 2005; and
c) if during the period from 2003 to 2005, the permittee's withdrawals from the water source were interrupted due to contamination of the source or construction of a treatment plant, the Department will use best available data to establish a baseline volume from the water source.

Baseline Withdrawal and Mitigation Calculation: Easton's baseline is 2.23 MGD, based on withdrawals made in 2005 plus 5%. Easton's water withdrawals in recent years have been below the 2.23 MGD baseline.

Easton's Annual Average Withdrawals				
2018	**2017**	**2016**	**2015**	**2014**
1.93 MGD	1.78 MGD	1.95 MGD	1.89 MGD	1.91 MGD

Water needs forecasts prepared by the Department of Conservation and Recreation (DCR) do not project Easton's water needs rising above 2.23 MGD until after 2025 (see Special Condition 1). No mitigation is required until Easton's total water withdrawals reach 2.23 MGD. Mitigation measures must be in place prior to Easton making withdrawals of more than the 2.23 MGD baseline.

The mitigation volume calculation below assumes that Easton's future withdrawals will be discharged to on-site septic systems at the same rate (99%) as current water withdrawals. A "wastewater adjustment" is calculated for water withdrawn that is returned to the ground as wastewater within the same major basin. MassDEP will assume that 85% of water delivered to customers with septic systems will be returned to the ground within the same major basin as the withdrawal, thus reducing the amount of mitigation needed. After calculating the adjustment for authorized withdrawals over baseline that will be returned to groundwater through septic system discharge (Step 2 below), Easton's total mitigation requirement will be up to 20,000 gallons per day (Step 3 below).

Easton's Wastewater Adjustment Calculation for Mitigation
1. Permitted amount above Baseline = 0.13 MGD • Permitted amount above Baseline: 2.36 – 2.23 = 0.13 MGD
2. Adjustment for Wastewater Discharge to Local Groundwater = 0.11 MGD • 99% of increased withdrawals are delivered to areas with on-site septic systems: 0.13 MGD x 0.99 (99%) = 0.1287 MGD • 85% of water delivered to areas with on-site septic systems returns to groundwater: 0.13 MGD x 0.85 (85%) = 0.11 MGD
3. Amount to be Mitigated after Adjustment for Wastewater Discharge to Local Groundwater = 0.02 MGD • Permitted amount above baseline (0.13 MGD) – adjustment for wastewater discharge to local groundwater (0.11 MGD) = 0.02 MGD or 20,000 gallons per day

Direct Mitigation, which will improve streamflow as a result of increased groundwater recharge, decreased stormwater runoff to streams, or surface water releases, must be considered first in mitigation planning.

Easton has no wastewater collection system, and therefore has no infiltration and inflow removal program that could increase groundwater recharge, no eligible stormwater projects completed since 2005, and no surface water sources from which to make releases to improve streamflow. Therefore, Easton has no direct mitigation credit at this time.

Indirect Mitigation, activities that result in environmental improvements that will help to compensate for streamflow impacts, are required when a permittee has insufficient direct mitigation credit.

Easton's Mitigation Credit		
Chapter 503: Wetlands Regulations	1 credit for enforceability of the bylaw 2 credits for jurisdiction to resource areas "*whether or not they border surface waters*" , and to intermittent streams 2 credits for performance standards tailored to specific resource areas	5 credits: 50,000 gpd
Chapter 501: Stormwater Management	2 credits for extending jurisdiction beyond the MS4 area to the entire municipality 1 credit for requiring infiltration in accordance with the Massachusetts Stormwater Handbook	3 credits: 30,000 gpd

Other Potential Mitigation Activities: Easton's submittal of July 30, 2019, included information about municipal land purchases for open space and water supply protection since 2005. Some of these purchases may be eligible for indirect mitigation credit, but additional information will be required in order for MassDEP to assess the eligibility of individual parcels. MassDEP will retain Easton's indirect mitigation proposal for further review should Easton choose to apply for additional withdrawal volumes and need additional mitigation credit in the future.

Special Condition 11, Requirement to Report Raw and Finished Water Volumes, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

Coldwater Fish Resource Protection was incorporated into the Water Management Regulations in November 2014. Coldwater Fish Resource Protection is not a condition of this permit because Easton's withdrawals do not impact any waters that the MA Division of Fisheries and Wildlife has identified as supporting coldwater fish.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Kathleen A. Theoharides
Secretary

Martin Suuberg
Commissioner

WATER WITHDRAWAL PERMIT
Town of Easton
Water Management Permit 9P-4-25-088.01

This renewal of Permit 9P-4-25-088.01 is issued pursuant to the Massachusetts Water Management Act for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This permit conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P-4-25-088.01 **BASIN:** Taunton

PERMITTEE: Town of Easton Water Division
417 Bay Road
Easton, MA 02375

EFFECTIVE DATE: February 14, 2020

EXPIRATION DATE: February 28, 2030

NUMBER OF WITHDRAWAL POINTS: Groundwater: 7 Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

AUTHORIZED WITHDRAWAL POINTS:

Table 1: Authorized Withdrawal Points

Source Name	PWS Source ID	Location
Station # 1	4088000-01G	Gary Lane
Station # 2	4088000-02G	Washington Street
Station # 3	4088000-03G	Red Mill Road
Station # 5	4088000-05G	Red Mill Road
Station # 6	4088000-06G	Bay Road
Station # 7	4088000-07G	Red Mill Road
Station #4R	4088000-08G	Washington Street

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Town of Easton (Easton) to withdraw water from the Taunton River Basin at the rate described in Table 2 below. The permitted withdrawal rate is in addition to the 1.44 million gallons per day (MGD) previously authorized for Easton under Water Management Act Registration #425088.01. The permitted volume is expressed both as an average daily withdrawal rate (million gallons per day or MGD), and as a total annual withdrawal volume (million gallons per year or MGY) for each five-year period of the permit term.

Easton's baseline withdrawal for the purpose of triggering "Special Condition 10, Mitigation of Impacts for Withdrawals that Exceed Baseline Withdrawals" is 2.23 MGD.

The Department of Environmental Protection (MassDEP) will use the raw water withdrawal volume from all authorized withdrawal points to assess compliance with the registered and permitted withdrawal volumes.

Table 2: Authorized Withdrawals

Permit Periods	Total Raw Water Withdrawal Volumes			
	Permit		Registration + Permit	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
2/14/2020 to 2/28/2020	0.58	211.70	1.44 + 0.58 = 2.02	737.30
3/1/2020 to 2/28/2025	0.77	281.05	1.44 + 0.77 = 2.21	806.65
3/1/2025 to 2/28/2030	0.81 + 0.11 buffer = 0.92	375.95	1.44 + 0.92 = 2.36	861.40

With advance written approval from MassDEP, Easton may be authorized to increase annual average daily withdrawals to the maximum authorized (2.36 MGD) prior to 2025 if Easton is meeting:

- Residential Gallons Per Capita Day (RGPCD) of 65 or less, or all RGPCD functional equivalend requirements in Special Condition 5;
- Unaccounted-for-water (UAW) of 10% or less, or all UAW functional equivalence requirements in Special Condition 6;
- Seasonal limits on nonessential outdoor water use in Special Condition 7; and
- Water conservation requirements in Special Condition 8.

2. Maximum Authorized Daily Withdrawals from Groundwater Withdrawal Points

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed in Table 3 without specific advance written approval from the Department. The authorized maximum daily volume is the approved rate of each source based on DEP-approved Zone II delineations.

Table 3: Approved Withdrawal Rates

Source Name	PWS Source ID	Maximum Daily Rate (MGD)
Station # 1	4088000-01G	1.08
Station # 2	4088000-02G	1.44
Station # 3	4088000-03G	0.50
Station # 5	4088000-05G	0.72
Station # 6	4088000-06G	0.50
Station # 7	4088000-07G	0.47
Station # 4R	4088000-08G	1.22

3. **Zone II Delineations**
MassDEP records indicate that all of Easton's sources have approved Zone II delineations. Therefore, no further Zone II work is required as a condition of this permit.

4. **Wellhead Protection**
MassDEP records indicate that Easton has adopted land use controls and water supply protection measures meeting the requirements of the Wellhead Protection Regulations at 310 CMR 22.21(2). Therefore, no further wellhead protection work is required as a condition of this permit.

5. **Performance Standard for Residential Gallons Per Capita Day Water Use**
Easton's performance standard for residential gallons per capita day (RGPCD) is 65 gallons or less. Easton shall be in compliance with this performance standard, if Easton does not meet the standard, Easton shall be in compliance with the functional equivalence requirements (Appendix A).

   Easton shall report its RGPCD water use annually in its Annual Statistical Report (ASR).

   Note that Special Condition 7 limits summer nonessential outdoor water use to no more than 2 days per week when RGPCD for the previous year was 65 or below, and to no more than 1 day per week when RGPCD for the previous year was above 65 in order to minimize August net groundwater depletion in subbasins along the Canoe River and Queset Brook aquifers.

6. **Performance Standard for Unaccounted-for-Water (UAW)**
Easton's Performance Standard for Unaccounted for Water (UAW) is 10% or less of overall water withdrawal for 2 of the most recent years 3 throughout the permit period. If Easton does not meet the standard, it shall be in compliance with the functional equivalence requirements based on the *AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36,* as outlined in Appendix B.

   Easton shall report its UAW annually in its Annual Statistical Report (ASR).

   Nothing in the permit shall prevent a permittee who meets the 10% performance standard from demonstrating compliance with the UAW performance standard by developing and implementing a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs*.

   Permittees meeting the Performance Standard for Unaccounted for Water through implementation of a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the Annual Statistical Report for public water suppliers.

7. **Seasonal Limits on Nonessential Outdoor Water Use**
Easton shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in below. To the extent feasible, all summer outdoor water use should take place before 9 a.m. and after 5 p.m. when evaporation and evapotranspiration rates are lower.

Table 4: Easton's Seasonal Limits on Nonessential Outdoor Water Use

Restrictions if Easton has met the 65 RGPCD Standard for the preceding year
RGPCD was 65 or less as reported in the ASR and accepted by MassDEP

Calendar Triggered Restrictions	Nonessential outdoor water use is restricted to: a) **two (2) days per week** before 9 a.m. and after 5 p.m.; and b) **one (1) day per week** before 9 a.m. and after 5 p.m. when USGS stream gage 01108000 – Taunton River near Bridgewater, MA falls below **47 cfs** for three (3) consecutive days. Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at the gage meets or exceeds **47** cfs for seven (7) consecutive days.
Streamflow Triggered Restrictions	Nonessential outdoor water use is restricted to: a) **two (2) days per week** before 9 a.m. and after 5 p.m. when USGS stream gage 01108000 – Taunton River near Bridgewater, MA falls below: • May 1 – June 30: **265 cfs** for three (3) consecutive days • July 1 – September 30: **119 cfs** for three (3) consecutive days b) **one (1) day per week** before 9 a.m. and after 5 p.m. when USGS stream gage 01108000 – Taunton River near Bridgewater, MA falls below **47 cfs** for three (3) consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.

Restrictions if Easton has not met the 65 RGPCD standard for the preceding year
RGPCD was more than 65 as reported in the ASR and accepted by MassDEP

Calendar Triggered Restrictions	Nonessential outdoor water use is restricted to **one (1) day per week** before 9 a.m. and after 5 p.m.
Streamflow Triggered Restrictions	Nonessential outdoor water use is restricted to **one (1) day per week** before 9 a.m. and after 5 p.m. when USGS stream gage 01108000 – Taunton River near Bridgewater, MA falls below: • May 1 – June 30: **265 cfs** for three (3) consecutive days • July 1 – September 30: **119 cfs** for three (3) consecutive days Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.

Instructions for Accessing Streamflow and Drought Advisory Website Information

If the Easton chooses Streamflow Triggered Restrictions, Easton shall be responsible for tracking streamflows and drought advisories and recording and reporting to MassDEP when restrictions are implemented.

Streamflow information is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts streamflows in real time, i.e., the most recent, usually quarter-hourly, reading made at each USGS stream gage.

Seasonal Nonessential Outdoor Water Use Restrictions are implemented when the mean daily streamflow falls below the designated trigger for 3 consecutive days. The mean daily flow is not calculated until after midnight each day when the USGS computes the hourly data into a mean daily streamflow. As a result, permittees must use the mean daily streamflow from the preceding day when tracking streamflows.

Table 4: Easton's Seasonal Limits on Nonessential Outdoor Water Use

Mean daily streamflow gage readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=flow.

- Scroll down to 01108000 – Taunton River near Bridgewater, MA.
- Click on the gage number.
- Scroll down to "Provisional Date Subject to Revision – Available data for this site" and click on the drop down menu.
- Click on "Time-series: Daily data" and hit GO.
- Scroll down to the "Available Parameters" box. Within the box, be sure "Discharge (mean)" is checked, then, under "Output Format" click "Table" and hit GO.
- Scroll down to "Daily Mean Discharge, cubic feet per second" table and find the current date on the table.
- Compare the cubic feet per second (cfs) measurement shown on the table to the cfs shown under Streamflow Triggered Restrictions above.

Easton shall document compliance with the Seasonal Nonessential Outdoor Water Use Restrictions annually in its Annual Statistical Report (ASR), and indicate whether it anticipates implementing calendar triggered restrictions or streamflow triggered restrictions during the next year.

Restricted Nonessential Outdoor Water Uses

Nonessential outdoor water uses that are subject to mandatory restrictions include:

- irrigation of lawns via automatic irrigation systems or sprinklers;
- filling swimming pools;
- washing vehicles, except in a commercial car wash or as necessary for operator safety; and
- washing exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, stucco, pavement or cement.

The following uses may be allowed when mandatory restrictions are in place:

- irrigation to establish a new lawn and new plantings during the months of May and September;
- irrigation of public parks and recreational fields before 9 a.m. and after 5 p.m.;
- irrigation of gardens, flowers and ornamental plants by means of a hand-held hose or drip irrigation system; and
- irrigation of lawns by means of a hand-held hose.

Water uses NOT subject to mandatory restrictions are those required:

- for health or safety reasons;
- by regulation;
- for the production of food and fiber;
- for the maintenance of livestock; or
- to meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees, greens, and minimal fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

Public Notice of Seasonal Nonessential Outdoor Water Use Restrictions

Easton shall notify its customers of the restrictions, including a detailed description of the restrictions and penalties for violating the restrictions, by April 15th each year.

Notice that restrictions have been put in place shall be filed each year with the Department within 14 days of the restriction's effective date. Filing shall be in writing on the form "Notification of Water Use Restrictions" available on MassDEP website.

Nothing in the permit shall prevent Easton from implementing water use restrictions that are more stringent than those set forth in this permit.

8. Water Conservation Requirements

At a minimum, Easton shall implement the following conservation measures forthwith. The Department recognizes that Easton is currently implementing a number of these requirements. Compliance with the water conservation requirements shall be reported to the Department upon request or at the time of permit renewal unless otherwise noted below.

Table 5: Water Conservation Requirements

Leak Detection

1. At a minimum, conduct a full leak detection survey every three years. The first full leak detection survey shall be completed no later than 3 years from the date of the last documented leak detection survey.

2. Conduct leak detection of the entire distribution system within one year whenever the percentage of UAW increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey, submit to the Department a report detailing the leak detection survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs.

3. Conduct field surveys for leaks and repair programs in accordance with the AWWA Manual 36.

4. Repair reports shall be kept available for inspection by the Department. The permittee shall establish a schedule for repairing leaks that is at least as stringent as the following:
   - Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection.
   - Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible.
   - Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway.
   - Leaks shall be repaired in accordance with the permittee's priority schedule including leaks up to the property line, curb stop or service meter, as applicable.
   - Permittee shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.

   The following exceptions may be considered:
   - Repair of leakage detected during winter months can be delayed until weather conditions become favorable for conducting repairs;* and
   - Leaks in freeway, arterial or collector roadways may be coordinated with other scheduled projects being performed on the roadway**.

   *Reference: MWRA regulations 360 CMR 12.09
   **Mass Highway or local regulations may regulate the timing of tearing up pavement to repair leaks.

Metering

1. Calibrate all source, treatment and finished water meters at least annually and report date of calibration on the ASR.

Table 5: Water Conservation Requirements

2. One hundred percent (100%) metering of the system is required. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards as set forth in AWWA Manual M6 – Water Meters.

3. The permittee shall have an ongoing program to inspect individual service meters to ensure that all service meters accurately measure the volume of water used by its customers. The metering program shall include regular meter maintenance, including testing, calibration, repair, replacement and checks for tampering to identify and correct illegal connections. The plan shall continue to include placement of sufficient funds in the annual budget to calibrate, repair, or replace meters as necessary.

Pricing

1. Establish a water pricing structure that includes the full cost of operating the water supply system. Full cost pricing recovers all costs as applicable, including:
   - pumping and distribution equipment cost, repair and maintenance;
   - water treatment;
   - electricity;
   - capital investment, including planning, design and construction;
   - land purchase and protection;
   - debt service;
   - administrative costs including systems management, billing, accounting, customer service, service studies, rate analyses and long-range planning;
   - conservation program including audits, leak detection equipment, service and repair, meter replacement program, automated meter reading installation and maintenance, conservation devices, rebate program, public education program;
   - regulatory compliance; and
   - staff salaries, benefits training and professional development.

2. Evaluate rates at a minimum every three to five years and adjust costs as needed.

3. Permittee shall not use decreasing block rates. Decreasing block rates which charge lower prices as water use increases during the billing period, are prohibited by M.G.L. Chapter 40 Section 39L.

4. If billing frequency is less than quarterly (i.e. annual or biannual), implement quarterly or more frequent meter reading and billing as soon as practicable.

Residential and Public Sector Conservation

1. Meet all standards set forth in the Federal Energy Policy Act, 1992, and the Massachusetts Plumbing Code.

2. Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.

3. Easton shall continue to ensure that water savings devices are installed in all municipal buildings as they are renovated, and shall ensure water conserving fixtures and landscaping practices are incorporating into the design of new municipal capital projects.

Industrial and Commercial Water Conservation

1. Easton reports that 88% of all water distributed is for residential use, and the remainder is for commercial and institutional use. Easton reports no industrial water users.

   The Town shall ensure implementation of water conservation practices, including the installation of WaterSense compliant low flow plumbing fixtures where applicable, and low water use landscaping in all development proposals.

Table 5: Water Conservation Requirements
Lawn and Landscape
1. Develop and adopt or update as necessary, a water use restriction bylaw, ordinance or regulation that authorizes enforcement of the seasonal limits on nonessential outdoor water use. MassDEP has developed the "DEP Model Outdoor Water Use Bylaw/Ordinance" to help municipalities and water districts implement seasonal water conservation requirements. The Model Bylaw also includes options for regulating private wells and in-ground irrigationsystems. See http://www.mass.gov/eea/agencies/massdep/water/regulations/model-water-use-restriction-bylaw-ordinance.html Easton's Mandatory Water Use Restrictions by-law (Town of Easton Water Division Regulations, ss 223-64) includes enforcement authority and establishes penalties for violations of the permit restrictions.
Public Education and Outreach
1. Develop and implement a water conservation and education plan designed to educate water customers on ways to conserve water. Without limitation, the plan may include the following actions: o Include in bill stuffers and/or bills, a work sheet to enable customers to track water use and conservation efforts and estimate the dollar savings; o Public space advertising/media stories on successes (and failures); o Conservation information centers perhaps run jointly with electric or gas company; o Speakers for community organizations; o Public service announcements; radio/T.V./audio-visual presentations; o Joint advertising with hardware stores to promote conservation devices; o Use of civic and professional organization resources; o Special events such as Conservation Fairs; o Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and o Provide multilingual materials as needed.
2. Upon request of MassDEP, permittee shall report on its public education and outreach efforts, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials.

9. Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins

Easton shall minimize the impacts of its groundwater withdrawals from Stations #1, #2 and #4R located in Subbasin 24009 in the Queset Brook Aquifer and from Stations #3, #5 and #7 located in Subbasin 24031 in the Canoe River Aquifer, as follows:

Table 6: Minimization Plan Requirements
1. Implement seasonal limits on nonessential outdoor water use as outlined in Special Condition 7
2. Continue implementation of conservation program elements that go beyond the minimum requirements of Special Condition 8, including: • increasing block rates for higher water users; • quarterly or more frequent billing; • maintenance of the automatic remote metering system; • replacement of all customer meters on a 10-year cycle.

3. Develop and implement a program to increase participation and compliance with outdoor water use restrictions, including, but not limited to: a) a targeted outreach program to high summer water use households; and b) a targeted enforcement program to water users who do not comply with the restrictions.
4. At the next permit review, prepare a report documenting all outreach and enforcement efforts of the outdoor water use restrictions, including but not limited to: • copies or examples of all targeted outreach materials and a summary of methods used to distribute the materials; and • a summary of enforcement efforts including number of violations recorded, number of violation notices and fines imposed, and number of water users cited for repeat offenses.

10. Mitigation of Impacts for Withdrawals that Exceed Baseline Withdrawals

Easton is required to mitigate up to 0.020 MGD (20,000 gpd) for its permitted withdrawals over its 2.23 MGD baseline withdrawal rate. The mitigation requirement of 0.020 MGD is met through the following indirect mitigation measures.

Table 7: Easton's Mitigation Credit

Chapter 503: Wetlands Regulations	1 credit for enforceability of the bylaw 2 credits for jurisdiction to resource areas "*whether or not they border surface waters*" , and to intermittent streams 2 credits for performance standards tailored to specific resource areas	5 credits: 50,000 gpd
Chapter 501: Stormwater Management	2 credits for extending jurisdiction beyond the MS4 area to the entire municipality 1 credit for requiring infiltration in accordance with the Massachusetts Stormwater Handbook	3 credits: 30,000 gpd

Easton shall notify MassDEP should there be changes to the status of the mitigation measures.

11. Requirement to Report Raw and Finished Water Volumes

Easton shall report annually on its ASR the raw water volumes and finished water volumes for the entire water system. Monthly raw water volumes for individual water withdrawal points shall be reported annually in the ASR.

GENERAL CONDITIONS (applicable to all permittees)

1. **Duty to Comply** The permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance** The permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw up to the authorized volume so as not to impair the purposes and interests of the Act.
3. **Entry and Inspections** The permittee or the permittee's agent shall allow personnel or authorized agents or employees of the Department at reasonable times to enter and examine any property or inspect and copy any records for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.

4. **Water Emergency** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by the Department pursuant to M.G.L. c. 21G, s. 15-17, M.G.L. c. 111, s. 160, or any other enabling authority.

5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.33.

6. **Duty to Report** The permittee shall submit annually, on the electronic Annual Statistical Report (eASR) accessed through the Department's eDEP website, a statement of the withdrawal. Such report must be submitted annually by the date identified on eDEP each year, unless the permittee has explicit permission from the MassDEP Drinking Water program for an extension of time.

7. **Duty to Maintain Records** The permittee shall be responsible for maintaining withdrawal records in sufficient detail to assess compliance with the conditions of this permit.

8. **Metering** All withdrawal points included within the permit shall be metered. Meters are to be calibrated annually.

9. **Amendment, Suspension or Termination** The Department may amend, suspend or terminate the permit in accordance with M.G.L. c. 21G and 310 CMR 36.29.

APPEAL RIGHTS AND TIME LIMITS

This permit is a decision of the Department. Any person aggrieved by this decision and any person who has been allowed pursuant to 310 CMR 1.01(7) to intervene in the adjudicatory proceeding that resulted in this decision may request an adjudicatory hearing. Any such request must be made in writing, by certified mail or hand delivered, and received by the Department within twenty-one (21) days of the date of receipt of this permit. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail, or delivered by hand to the local water resources management official in the city or town in which the withdrawal point is located; and for any person appealing this decision, who is not the applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

CONTENTS OF HEARING REQUEST

The request for a hearing shall state specifically, clearly and concisely the facts which are the grounds for the appeal, the relief sought, and any additional information required by 310 CMR 1.01(6)(b) or other applicable law or regulation. For any person appealing this decision who is not the applicant, the request must include sufficient written facts to demonstrate status as a person aggrieved and documentation to demonstrate previous participation where required.

FILING FEE AND ADDRESS

The hearing request, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of $100 must be mailed to:

Commonwealth of Massachusetts
Department of Environmental Protection
P.O. Box 4062

Boston, MA 02211

The request shall be dismissed if the filing fee is not paid, unless the appellant is exempt or granted a waiver as described below.

EXEMPTIONS

The filing fee is not required if the appellant is a city or town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

WAIVER

The Department may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of the Department that the fee will create an undue financial hardship. A person seeking a waiver must file, together with the hearing request, an affidavit setting forth the facts which support the claim of undue hardship.

Duane LeVangie

Duane LeVangie, Program Chief
Water Management Act Program
Bureau of Water Resources

2/14/2020

Date

Appendix A–Functional Equivalence with the 65 Residential Gallons Per Capita Day Performance Standard

MassDEP will consider PWS permittees who cannot meet the 65 RGPCD performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures best practices for controlling residential water use as described below.

If the permittee fails to document compliance with the RGPCD performance standard in any Annual Statistical Report (ASR), then the permittee must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall include, at a minimum:

1. A description of the actions taken during the prior calendar year to meet the performance standard;
2. An analysis of the cause of the failure to meet the performance standard;
3. A description of the actions that will be taken to meet the performance standard which must include, at a minimum, at least one of the following:
    a) a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
    b) a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets), or
    c) the adoption and enforcement of an ordinance, by-law or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems;

    and may include, without limitation, the following:

    d) the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
    e) a program that provides rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
    f) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction include water saving devices and low water use appliances;
    g) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction minimize lawn area and/or irrigated lawn area, maximize the use of drought resistant landscaping, and maximize the use of top soil with a high water retention rate;
    h) the implementation of a program to encourage the use of cisterns or rain barrels for outside watering;
    i) the implementation of monthly or quarterly billing.
4. A schedule for implementation; and
5. An analysis of how the planned actions will address the specific circumstances that resulted in the failure to meet the performance standard.

If the permittee is already implementing one or more of these programs, it must include in its RGPCD plan the continued implementation of such program(s), as well as implementation of at least one additional program. All programs must include a public information component designed to inform customers of the program and to encourage participation in the program.

RGPCD plans may be amended to revise the actions that will be taken to meet the performance standard. Amended RGPCD plans must include the information set forth above.

If a RGPCD plan is required, the permittee must:

1. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD plan annually at the time it files its ASR, and
2. continue to implement the RGPCD plan until it complies with the performance standard and such compliance is documented in the permittee's ASR for the calendar year in which the standard is met.

Appendix B – Functional Equivalence: 10% Unaccounted for Water Performance Standard

MassDEP will consider PWS permittees who cannot meet the 10% UAW performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures "best practices" for controlling water loss. The water loss control program will be based on annual water audits and guidance as described in the AWWA/IWA *Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs* (AWWA M36).

If Easton fails to document compliance with the Unaccounted for Water performance standard (UAW of 10% or less for 2 of the 3 most recent years throughout the permit period), then Easton shall develop and implement a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs* within 5 full calendar years of failing to meet the standard as follows:

1. Conduct an annual "top down" water audit, calculate the data validity level/score using AWWA Water Loss Control Committee's Free Water Audit Software, and submit the AWWA WLCC Free Water Audit Software: Reporting Worksheet and data validity score annually with its Annual Statistical Report (ASR).
    - If a PWS's data validity level/score is less than Level III (51-70), steps recommended through the audit(s) shall be taken to improve the reliability of the data prior to developing a long-term program to reduce real and apparent water losses.
    - Data with a validity score of 50 or less are considered too weak to be used to develop a component analysis or for infrastructure planning and maintenance.
    - Developing data with an acceptably strong validity score can be a multi-year process.
2. When the data validity score meets the Level III (51-70) requirement, conduct a component analysis to identify causes of real and apparent water loss and develop a program to control losses based on the results of the component analysis.
3. Within 5 full calendar years of failing to meet the standard, submit the component analysis and water loss control program with a proposed implementation schedule to the Department.
4. Continued implementation will be a condition of the permit in place of meeting the 10% UAW performance standard.
5. Upon request of the Department, the permittee shall report on its implementation of the water loss control program.

A PWS permittee may choose to discontinue the water loss program implementation if UAW, as reported on the ASR and approved by the Department, is below 10% for four consecutive years, and the water audit data validity scores are at least Level III (51-70) for the same four years.

NOTE FOR SMALL SYSTEMS: For small systems with less than 3,000 service connections or a service connection density of less than 16 connections per mile of pipeline, the Unavoidable Annual Real Loss (UARL) calculation and the Infrastructure Leak Index (ILI) developed as the final steps of the top down water audit may not result in valid performance indicators, and may not be comparable to the UARL and ILI calculations for larger systems.

However, these small systems can benefit from developing reliable data and conducting an annual top down water audit. Small systems can rely on the real losses (gallons per mile of main per day) performance indicator developed in the water audit as a measure of real water loss when developing a water loss control program. The M36 Manual discusses the audit process for small systems, and includes a chapter to guide small systems in understanding the results of their audits and in developing a water

loss control program (*Manual of Water Supply Practices – M36, Fourth Edition, Chapter 9: Considerations for Small Systems*, pp. 293-305).

MassDEP UAW Water Loss Control Measures: If Easton is required to develop a Functional Equivalence Plan for the 10% Unaccounted for Water Performance Standard, and Easton does not have a MassDEP-approved Water Loss Control Program in place within 5 full calendar years of failing to meet the standard, Easton will be required to implement the MassDEP UAW Water Loss Control Measures outlined below:

- An annual water audit and leak detection survey, as described in the AWWA M36 Manual, of the entire system.
  - Within one year, repair 75% (by water volume) of all leaks detected in the survey that are under the control of the public water system;
  - Thereafter, repair leaks as necessary to reduce permittee's UAW to 10% or the minimum level possible.
- Meter inspection and, as appropriate, repair, replace and calibrate water meters:
  - Large Meters (2" or greater) – within one year
  - Medium Meters (1" or greater and less than 2") – within 2 years
  - Small Meters (less than 1") - within three years
  - Thereafter, calibrate and or replace all meters according to type and specification.
- Bill at least quarterly within three years.
- Water pricing structure sufficient to pay the full cost of operating the system.

Hardship - A permittee may present an analysis of the cost-effectiveness of implementing certain conservation measures included in the MassDEP UAW Water Loss Control Measures and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce equal or greater environmental benefits.

A permittee's hardship analysis shall:

- Document economic hardship and present an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship;
- Present reasons why specific measures are not cost-effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard; and
- Propose specific conservation measures that would result in equal or greater system-wide water savings or equal or greater environmental benefits than the conservation measures included in the MassDEP UAW Water Loss Control Measures.

MassDEP will review a permittee's detailed, written analysis to determine whether unique circumstances make specific Best Management Practices (BMPs) less cost-effective than alternatives, or infeasible for the permittee.