



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

Central Regional Office • 8 New Bond Street, Worcester MA 01606 • 508-792-7650

Charles D. Baker  
Governor

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Commissioner

May 6, 2021

Ivan Pagacik, Chair Board of  
Water Commissioners  
Town of Littleton, Water Department  
P.O. Box 2406  
Littleton, MA 01460

RE: Town: Littleton  
PWS: Littleton Water Department  
PWS ID#: 2158000  
WMA Permit #: 9P-2-13-158.02  
MassDEP Transmittal: WM02 X280822  
Action: Final WMA Permit Amendment  
Beaver Brook Wells Rate Increase

Dear Mr. Pagacik,

Please find the enclosed documents:

- Findings of Fact in Support of the Final WMA Permit Amendment Decision; and
- Final Water Management Act Permit Amendment 9P-2-13-158.02 for the Town of Littleton in the Merrimack River Basin.

If you have any questions regarding the permit, please contact Susan Connors at 508-767-2701 or me at 508-767-2827.

Sincerely,

Marielle Stone  
Deputy Regional Director  
Bureau of Water Resources

Cc: Littleton Board of Selectmen, P.O. 1305, Littleton, MA 01460  
Ecc: Jennifer A. Pederson, Mass Water Works Association  
Julia Blatt and Sarah Bower, Mass Rivers Alliance  
Melany Cheesman, Natural Heritage and Endangered Species Program  
Duane LeVangie, MassDEP-WMA-Boston

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

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**Massachusetts Department of Environmental Protection**  
**One Winter Street, Boston MA 02108 • Phone: 617-292-5751**  
**Communication For Non-English Speaking Parties - 310 CMR 1.03(5)(a)**



**1 English:**

This document is important and should be translated immediately. If you need this document translated, please contact MassDEP's Diversity Director at the telephone numbers listed below.



**2 Español (Spanish):**

Este documento es importante y debe ser traducido inmediatamente. Si necesita este documento traducido, por favor póngase en contacto con el Director de Diversidad MassDEP a los números de teléfono que aparecen más abajo.



**3 Português (Portuguese):**

Este documento é importante e deve ser traduzida imediatamente. Se você precisa deste documento traduzido, por favor, entre em contato com Diretor de Diversidade da MassDEP para os números de telefone listados abaixo.



**4(a) 中國（傳統） (Chinese (Traditional)):**

本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼與 MassDEP 的多樣性總監聯繫。



**4(b) 中国（简体中文） (Chinese (Simplified)):**

本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼與 MassDEP 的多樣性總監聯繫。



**5 Ayisyen (franse kreyòl) (Haitian) (French Creole):**

Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradui imedyatman. Si ou bezwen dokiman sa a tradui, tanpri kontakte Divèsite Direktè MassDEP a nan nimewo telefòn ki nan lis pi ba a.



**6 Việt (Vietnamese):**

Tài liệu này là rất quan trọng và cần được dịch ngay lập tức. Nếu bạn cần dịch tài liệu này, xin vui lòng liên hệ với Giám đốc MassDEP đa dạng tại các số điện thoại được liệt kê dưới đây.



**7 ប្រទេសកម្ពុជា (Kmer (Cambodian)):**

ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាមៗ ប្រសិនបើអ្នកត្រូវបានបកប្រែ ឯកសារនេះសូមទំនាក់ទំនងឆ្លោកជំនាញក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយ ខាងក្រោម។



**8 Kriolu Kabuverdianu (Cape Verdean):**

*Es documento é importante e deve ser traduzido imidiatamente. Se bo precisa des documento traduzido, por favor contacta Director de Diversidade na MassDEP's pa es numero indicode li d'boche.*



**9 Русский язык (Russian):**

Этот документ является важным и должно быть переведено сразу. Если вам нужен этот документ переведенный, пожалуйста, свяжитесь с директором разнообразия MassDEP по адресу телефонных номеров, указанных ниже.



**10 العربية (Arabic):**

هذه الوثيقة الهامة وينبغي أن تترجم على الفور. إذا كنت بحاجة إلى هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في PMassDE على أرقام الهواتف المدرجة أدناه.



**11 한국어 (Korean):**

이 문서는 중요하고 즉시 번역해야 합니다. 당신이 번역이 문서가 필요하다면 아래의 전화 번호로 MassDEP의 다양성 감독에 문의하시기 바랍니다.



**12 հայերեն (Armenian):**

Այս փաստաթուղթը շատ կարևոր է եւ պետք է թարգմանել անմիջապես. Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանվել դիմել MassDEP բազմազանությունը տնօրեն է հեռախոսահամարների թվարկված են ստորև.



**13 فارسی (Farsi (Persian):**

این سند مهم است و باید فوراً ترجمه شده است.  
اگر شما نیاز به این سند ترجمه شده، لطفاً با ما تماس تنوع مدیر PMassDE در شماره تلفن های ذکر شده در زیر.



**14 Français (French):**

Ce document est important et devrait être traduit immédiatement. Si vous avez besoin de ce document traduit, s'il vous plaît communiquer avec le directeur de la diversité MassDEP aux numéros de téléphone indiqués ci-dessous.



**15 Deutsch (German):**

Dieses Dokument ist wichtig und sollte sofort übersetzt werden. Wenn Sie dieses Dokument übersetzt benötigen, wenden Sie sich bitte Diversity Director MassDEP die in den unten aufgeführten Telefonnummern.



**16 Ελληνική (Greek):**

Το έγγραφο αυτό είναι σημαντικό και θα πρέπει να μεταφραστούν αμέσως. Αν χρειάζεστε αυτό το έγγραφο μεταφράζεται, παρακαλούμε επικοινωνήστε Diversity Director MassDEP κατά τους αριθμούς τηλεφώνου που αναγράφεται πιο κάτω.



**17 Italiano (Italian):**

Questo documento è importante e dovrebbe essere tradotto immediatamente. Se avete bisogno di questo documento tradotto, si prega di contattare la diversità Direttore di MassDEP ai numeri di telefono elencati di seguito.



**18 Język Polski (Polish):**

Dokument ten jest ważny i powinien być natychmiast przetłumaczone. Jeśli potrzebujesz tego dokumentu tłumaczone, prosimy o kontakt z Dyrektorem MassDEP w różnorodności na numery telefonów wymienionych poniżej.



**19 हिन्दी (Hindi):**

यह दस्तावेज महत्वपूर्ण है और तुरंत अनुवाद किया जाना चाहिए. आप अनुवाद इस दस्तावेज की जरूरत है, नीचे सूचीबद्ध फोन नंबरों पर MassDEP की विविधता निदेशक से संपर्क करें.



## Department of Environmental Protection

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### **Findings of Fact in Support of the Final Permit Amendment Decision Water Management Permit 9P-2-13-158.02**

The Massachusetts Department of Environmental Protection (“MassDEP”) has completed its review of the Water Management Act Permit Amendment application for the Town of Littleton (“Littleton”) in the Merrimack River Basin pursuant to the Water Management Act, M.G.L. ch. 21G. As a result of the review and Littleton’s response to the Order to Complete that was received May 20, 2019, MassDEP hereby issues this Final Water Management Act Permit #9P-2-13-158.02 (the “Permit”) in accordance with the Water Management Act (“WMA” or “the Act”).

MassDEP makes the following Findings of Fact in support of the attached permit amendment and includes herewith its reasons for approving the Permit and for the conditions of approval imposed, as required by MGL c 21G, §11 and the “Massachusetts Water Resources Management Program”, 310 CMR 36.00 (“the Regulations”).

#### **Littleton Water Department Withdrawal History**

Littleton holds a WMA Registration Statement (2-13-158.03) for an average annual daily withdrawal volume of 0.83 million gallons per day (MGD) and includes four groundwater sources: Whitcomb tubular wellfield (being replaced with Whitcomb Wellfield #3), Whitcomb Well #1, Beaver Brook Well, and Spectacle Pond Well. Littleton was issued its original WMA permit in 1997 in order to increase the total authorized system wide withdrawal volume. In 2014 Littleton was issued approval to activate three replacements wells at the Beaver Brook Well (Well 2-1, Well 2-2, and Well 2-3) and the original Beaver Brook Well was abandoned. Littleton is currently authorized through their permit and registration to withdraw 1.46 MGD through November 2018 (see Permit Extension Act below). Littleton has reported annual withdrawals below their combined registered and permitted volumes. This permit amendment increases the maximum daily withdrawal volume from the Beaver Brook Wells.

#### **The Permit Extension Act and Permit Expiration Dates**

In November 2017, Littleton submitted a 20-year permit renewal application for its Merrimack River Basin permit. The Permit Extension Act (PEA), Section 173 of Chapter 240 of the Acts of 2010, as amended by Sections 74 and 75 of Chapter 238 of the Acts of 2012, extended all existing permits by four years. Therefore, the original expiration date for permits in the Merrimack River Basin was

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

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extended from November 30, 2014 to November 30, 2018. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), Littleton's amended permit will continue in force and effect until MassDEP issues a decision on its renewal application. This action is an amendment of Littleton's existing Water Management Act permit and is not a renewal of the original permit. MassDEP has retained Littleton's Merrimack River Basin renewal application on file and will review that application when MassDEP begins the basin renewal process for all applications in the Merrimack River Basin in 2022. Note that MassDEP revised the Water Management Act Regulations (310 CMR 36.00) in November 2014 to require permittee's where applicable to address the impact of withdrawals on Cold Water Fishery Resources and develop Minimization and Mitigation Plans. Littleton will be contacted at the time of permit renewal if MassDEP needs any additional information to complete its review. The condition for nonessential outdoor water use restrictions will also be revised at the time of the Merrimack Basin renewal and the Concord Basin new permit processes.

## **The Water Management Act**

### Permit Factors

Section 7 of the Act requires that MassDEP issue permits that balance a variety of factors including without limitation:

- Impact of 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 from the water source;
- Municipal and Massachusetts Water Resources Commission (WRC) water resources 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.

### Safe Yield Permit Factor

This permit is being issued under the safe yield methodology adopted by MassDEP 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 Merrimack Basin is 900.40 million gallons per day (MGD), and total registered and permitted withdrawals are 80.22 MGD. The maximum withdrawals that will be authorized in this permit, and all other permits currently under review by MassDEP within the Merrimack Basin, will be within the safe yield and may be further conditioned as outlined in the regulations. Also note that this permit amendment is not allocating any increase in withdrawal volumes, so the permitting decision is not changing the currently allocated volumes in the basin identified above.

## **Findings of Fact for Specific Permit Conditions**

The following Findings of Fact for the special condition 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 special conditions. In the event of any ambiguity between this summary and 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, Office of Water Resources used in the original permit issued in 1997. The total authorized volume may be updated as part of the permit renewal process.

**Special Condition 2, Maximum Authorized Daily Withdrawals From Each Withdrawal Point**, reflects the maximum daily withdrawal rate for each source included in Littleton's permit, according to MassDEP approved rates. This amendment includes an increase in the approved rate for the Beaver Brook Wells based on the pumping test approved on November 15, 2018. The Beaver Brook Wells previously were assigned a single combined rate of 0.41 million gallons per day (MGD). The pumping test demonstrated that the wells can support individual approved rates of 0.288 MGD from each of Beaver Brook Wells 2-1 and 2-2 and 0.072 MGD from Beaver Brook Well 2-3 for a total of 0.648 MGD from the wells. This final permit also replaces the Whitcomb Ave Tubular Wellfield with its replacement wellfield that will be activated in 2021.

**Special Condition 3, Water Level Monitoring.** Drawdown in an isolated wetland resource area approximately 100 feet from the Beaver Brook Wells was exhibited during the pumping test. A long-term monitoring plan is required to be implemented to evaluate if the increased withdrawal at the Beaver Brook Wells adversely impacts water levels in the resource area. For example, a permanent lowering of surface water levels in the resource area may indicate an adverse impact. Littleton submitted a proposed monitoring plan as part of their response to the Order to Complete which is incorporated into this permit along with additional requirements per MassDEP.

**Special Condition 4, Groundwater Supply Protection.** MassDEP records show that Littleton is in compliance with the Drinking Water Regulations for Groundwater Supply Protection at 310 CMR 22.21(2) with regards to protection of the Zone II areas within the Town of Littleton. Documentation to support compliance includes the Town of Littleton Aquifer and Water Resource District Bylaw and map amended in 2019 and Littleton's Board of Health Floor Drain Regulation adopted in 2006. A portion of Littleton's Zone II area for the Whitcomb Wells extends into the Towns of Boxborough and Harvard and is still unprotected in those towns. The Drinking Water Regulations at 310 CMR 22.21(1)(e) requires that if the Zone II of a municipal public water system extends into another municipality, the water supplier must also demonstrate to MassDEP's satisfaction that it has used its best efforts to have all cities and towns into which the Zone II extends establish such zoning or nonzoning controls within the Zone II.

Demonstrating Best Effort is completed at MassDEP's direction during WMA permit renewals, new source approvals (including replacement wells), monitoring waiver applications, Zone II re-delineations, and Sanitary Survey stipulations; and is required to be repeated until the neighboring municipalities adopt the appropriate controls and include Littleton's Zone II areas in those controls. MassDEP will notify Littleton when the Best Effort needs to be repeated.

**Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water Use**, consistent with Section 3 of the Act, the performance standards of 65 residential gallons per capita day or less is based on the Massachusetts Water Conservation Standards approved by the Water Resources Commission in 2006, revised in July 2018. The latest Standards can be found at: <https://www.mass.gov/files/documents/2018/09/11/ma-water-conservation-standards-2018.pdf>. As accepted by MassDEP, Littleton's RGPCD for 2017, 2018, and 2019 was 50, 53, and 54, respectively.

**Special Condition 6, Performance Standard for Unaccounted for Water (UAW),** This permit condition has changed since the 2015 permit issued to Littleton to reflect MassDEP's latest approach to controlling UAW. UAW is defined as the residual resulting from the total amount of water supplied to a distribution system as measured by master meters, minus the sum of all amounts of water measured by consumption meters in the distribution system, and minus confidently estimated and documented amounts used for certain necessary purposes.

UAW includes unavoidable leakage, recoverable leakage, meter inaccuracies (unless they fall under the category of source meter calibration which allows for adjustment per results of source meter calibration); errors in estimation of stopped meters, unauthorized hydrant openings, illegal connections, stand pipe overflows, data processing errors; and undocumented firefighting uses. The need for water main flushing and the use of water in construction or meter calibration should be metered or estimated as appropriate to assist in determining actual demand. Uses that can be confidently estimated and documented in writing include: storage tank overflow and drainage; water main flushing and flow testing; firefighting; bleeders or blow-offs; sewer and stormwater system flushing; and street cleaning. Any adjustments made as a result of properly documented source meter calibration should be provided as required by the Annual Statistical Report (ASR). Any adjustment in the calculation of UAW made as a result of confidently estimated uses should be fully documented in the ASR. As accepted by MassDEP, Littleton's UAW for 2017, 2018, and 2019 was 9%, 12% and 12%, respectively.

**Special Condition 7, Requirement to Report Raw and Finished Water Volumes,** ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

**Special Condition 8, Seasonal Limits on Nonessential Outdoor Water Use,** is based in part upon Littleton's Residential Gallons per Capita Day (RGPCD) for the preceding year and will be implemented according to either: 1) calendar triggered restrictions; or 2) streamflow triggered restrictions. The USGS gage assigned to Littleton in Special Condition 8 is changed from a Merrimack River gage previously assigned to Littleton in the 2015 permit to a gage on the Concord River. The requirements have not otherwise changed from the 2015 permit. The USGS gage change is due to Littleton's WMA Permit application submitted for withdrawal from the Concord River Basin.

**1. Calendar triggered restrictions:** Restrictions shall be implemented from May 1st through September 30th. Many public water suppliers will find this option easier to implement and enforce than the streamflow triggered approach.

**2. Streamflow triggered restrictions:** Restrictions shall be 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 shall commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for seven consecutive days.

The basis for streamflow triggers is derived from Aquatic Base Flow (ABF) values calculated by the Sustainable Yield Estimator (SYE)<sup>1</sup> for simulated natural flow applied to the assigned local

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<sup>1</sup> 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/>

USGS stream gage. The two-tiered trigger values are based on flow levels that are protective of aquatic habitat for fish spawning during the spring bioperiod, designated with the June ABF; and protective flows for fish rearing and growth during the summer bioperiod, designated with the August ABF trigger. Protective flow levels are derived from index gage flow data which represent the least altered stream flows in Massachusetts and are further described in the Department of Conservation and Recreation (DCR)<sup>2</sup> and USGS Index Reports<sup>3</sup>.

If Littleton selects the streamflow approach, it has been assigned the USGS local stream gage #01099500 Concord River below River Meadow Brook at Lowell. The streamflow triggers are 427 cfs for May and June; and 156 cfs for July, August and September.

Should the reliability of flow measurement at the Concord River gage be so impaired as to question its accuracy, Littleton 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.

Drought triggered restrictions are incorporated into the seasonal limits on outdoor water use as outlined in this Special Condition. Times of low streamflow and drought do not always coincide, but both low streamflow and drought conditions can have adverse effects on water supplies, natural resources and aquatic life. Please note that many communities impose drought-based outdoor water use restrictions before the Massachusetts Drought Management Task Force declares a Level 1- Mild Drought (formerly Drought Advisory) because drought conditions can begin to impact local water supplies before a regional advisory is declared.

This permit condition will be updated at the time of the permit renewal to incorporate the latest requirements associated with drought and low flow values that will limit non-essential outdoor water use to one day per week regardless of the RGPCD value.

**Special Condition 9, Water Conservation Requirements**, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission in July 2006, and as revised in 2018.

### **Other Agency Review**

During the public notice period for the Draft WMA Permit, the Massachusetts Fish and Game, Natural Heritage and Endangered Species Program (NHESP) determined that a review of this project is required under the Massachusetts Endangered Species Act. Littleton collected data and provided it to NHESP. On April 13, 2021, NHESP issued a decision that the increase in withdrawal "will not result in a prohibited Take of state-listed rare species".

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<sup>2</sup> Massachusetts Department of Conservation and Recreation (DCR), 2008 Index Streamflows for Massachusetts, May 2008, Prepared by Office of Water Resources for the Massachusetts Water Resources Commission, 45 p., plus CD-ROM.

<sup>3</sup> Armstrong, D.S., Parker, G.W., and Richards, T.A., 2008, Characteristics and classification of least altered streamflows in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2007-5291, 113 p., plus CD-ROM.





## Department of Environmental Protection

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### WATER WITHDRAWAL PERMIT MGL c 21G

This Permit Amendment 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 Amendment 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-2-13-158.02

**RIVER BASIN:** Merrimack

**PERMITTEE:** Town of Littleton Water Department

**AMENDMENT DATE:** May 6, 2021

**EXPIRATION DATE:** November 30, 2018<sup>4</sup>

**NUMBER OF WITHDRAWAL POINTS:**

Groundwater: 6      Surface Water: 0

**USE:** Public Water Supply

**DAYS OF OPERATION:** 365

**LOCATION(S):**

**Table 1: Withdrawal Point Identification**

Well Name	PWS Source ID	Well Name	PWS Source ID
Whitcomb Wellfield #3	To Be Assigned	Beaver Brook Well 2.1	2158000-05G
Whitcomb Ave GPW #1	2158000-02G	Beaver Brook Well 2.2	2158000-06G
Spectacle Pond Well	2158000-04G	Beaver Brook Well 2.3	2158000-07G

<sup>4</sup> Littleton's most recent 20-year permit was set to expire November 30, 2014. In 2010, the permit was extended for 2 years to November 30, 2016 by Section 173 of Chapter 240 of the Acts of 2010 (Permit Extension Act). In 2012 the Permit Extension Act was amended by Chapter 238 of the Acts of 2012 and this permit was extended an additional 2 years to November 30, 2018. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), the amended permit will continue in force and effect until MassDEP issues a decision on Littleton's renewal application.

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

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## SPECIAL CONDITIONS

### 1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Littleton Water Department to withdraw water from its sources in the Merrimack River Basin at the rates described below (Table 2). The volume reflected by this rate is in addition to the 0.83 million gallons per day (MGD) previously authorized to the Littleton Water Department under Water Management Act registration #2-13-158.03. The total authorized volume is expressed both as an annual 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.

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

**Table 2: Maximum Authorized Withdrawal Volumes**

Permit Periods	Total Raw Water Withdrawal Volumes			
	Permit		Permit + Registration	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
3/6/1997 to 11/30/1999	0.42	153.30	1.25	457.88
12/1/1999 to 11/30/2004	0.50	182.50	1.33	487.08
12/1/2004 to 11/30/2009	0.59	215.35	1.42	519.93
12/1/2009 to 11/30/2018*	0.63	229.95	1.46	534.53

\* Littleton's most recent 20-year permit was set to expire November 30, 2014. In 2010, the permit was extended for 2 years to November 28, 2016 by Section 173 of Chapter 240 of the Acts of 2010 (Permit Extension Act). In 2012 the Permit Extension Act was amended by Chapter 238 of the Acts of 2012 and this permit was extended an additional 2 years to November 30, 2018. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), the amended permit will continue in force and effect until MassDEP issues a decision on Littleton's renewal application.

### 2. Maximum Authorized Daily Withdrawals From Each Withdrawal Point

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed in Table 3 below without specific advance written approval from MassDEP. The authorized maximum daily volume is the approved rate of each source. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

**Table 3: Maximum Authorized Withdrawal Volumes**

Well Name	PWS Source ID Code	Maximum Daily Rate
Whitcomb Wellfield #3*	To Be Assigned	0.86 MGD (600 gpm) combined rate for the Whitcomb Wells
Whitcomb GP Well #1	2158000-02G	
Spectacle Pond Well	2158000-04G	0.94 MGD (650 gpm)
Beaver Brook Well 2.1	2158000-05G	0.29 MGD (285 gpm)
Beaver Brook Well 2.2	2158000-06G	0.29 MGD (285 gpm)
Beaver Brook Well 2.3	2158000-07G	0.07 MGD (50 gpm)

\*Whitcomb Wellfield #3 is a replacement for the Whitcomb Tubular Wellfield (2158000-01G). The new wellfield is proposed to be activated in May 2021.

### 3. Water Level Monitoring

Littleton shall implement a water level monitoring plan beginning in 2021, to monitor surface water levels in the isolated wetlands resource area adjacent to the Beaver Brook Wells. Littleton submitted a proposed plan on May 20, 2019 that is incorporated below and includes additional requirements by MassDEP:

- Water level measurements of surface water levels at drive point PZ1 shall be collected annually from May 1 through September 30.
- The water level measurements shall be collected with an electronic measuring device that shall be set to record data minimally every 1 hour.
- Daily precipitation measurements shall be recorded onsite or from the closest NOAA weather station.
- Daily pumping volumes from each of the Beaver Brook Wells shall be recorded.
- All data shall be provided to MassDEP in graph and table formats by December 31<sup>st</sup> each year. Water level data may be submitted only in electronic format (e.g. Excel) due to the volume of data, but the graphs and tables of precipitation and pumping volumes shall be submitted in paper format with a cover letter briefly describing any issues with the data collection and/or field observations.
- The monitoring shall continue for a minimum of three years after the pumping rate is increased at the Beaver Brook Wells before MassDEP will consider a reduction in the monitoring plan.

### 4. Groundwater Supply Protection

Littleton shall provide documentation during the WMA Permit renewal process that it satisfies the Best Effort requirement pursuant to 310 CMR 22.21(1)(e) for the Zone II area of the Whitcomb Wells that extends into the Towns of Boxborough and Harvard. MassDEP will contact Littleton during the permit renewal process to complete this requirement.

## **5. Performance Standard for Residential Gallons Per Capita Day Water Use**

Permittee's performance standard for residential gallons per capita day (RGPCD) is 65 gallons. Permittee is required to report its RGPCD water use annually in its Annual Statistical Report (ASR) and document compliance with this Performance Standard in its ASR. Permittee shall report its RGPCD and the calculation used to derive that figure as part of its ASR including, without limitation, the source of the data used to establish the service population and the year in which this data was developed. See Appendix A for additional information on the requirements if the performance standard for RGPCD is not met.

## **6. Performance Standard for Unaccounted for Water**

Permittee's Performance Standard for Unaccounted for Water (UAW) is 10% or less of overall water withdrawal for 2 of the most recent 3 years throughout the permit period. If the Permittee does not meet the standard beginning with CY2019, 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. Permittee is required to report its UAW annually in its Annual Statistical Report (ASR) so as to document compliance with this performance standard. Permittee's ASR shall include the calculation used to derive that figure including, without limitation, the source of data used, the methodology for calculating UAW and any assumptions used in making the calculation.

Nothing in the Permit shall prevent a Permittee who meets the 10% performance standard from developing and implementing a water loss control program following the AWWA M36 Water Audits and Loss Control Programs. Permittees implementing 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. Requirement to Report Raw and Finished Water Volumes**

Littleton shall report annually on its ASR the raw water volumes and finished water volumes for the entire water system and the raw water volumes for individual water withdrawal points.

[No further text appears on this page].

## 8. Seasonal Limits on Nonessential Outdoor Water Use

Permittee shall limit nonessential outdoor water use through mandatory restrictions from May 1<sup>st</sup> through September 30<sup>th</sup> as outlined in Table 4 below. Permittee shall be responsible for tracking streamflows and drought advisories and recording when restrictions are implemented if streamflow triggered restrictions are implemented. See *Accessing Streamflow and Drought Advisory Website Information* in Table 4 for instructions.

Permittee shall document compliance with the summer limits on nonessential outdoor water use annually in its Annual Statistical Report (ASR) and indicate whether it anticipates implementing calendar triggered restrictions or streamflow triggered restrictions during the next year.

Nothing in this permit shall prevent Permittee from implementing water use restrictions that are more restrictive than those set forth in this permit.

### **Water Uses Restrictions**

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

- irrigation of lawns via sprinklers or automatic irrigation systems;
- washing of vehicles, except in a commercial car wash or as necessary for operator safety; and
- washing of 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 by means of automatic sprinklers outside the hours of 9 am to 5 pm; and
- irrigation of lawns, gardens, flowers and ornamental plants 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 limited fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

**Table 4: Seasonal Limits on Nonessential Outdoor Water Use**

<b>Permittees meeting the 65 RGPCD standard for the preceding year (as reported in the ASR and accepted by MassDEP) must implement either:</b>	
<b>1. Calendar Triggered Restrictions from May 1<sup>st</sup> through September 30<sup>th</sup></b>	<b>No nonessential outdoor water use from 9 am - 5 pm</b>
<b>2. Streamflow Triggered Restrictions from May 1<sup>st</sup> through September 30<sup>th</sup></b>	<b>No nonessential outdoor water use from 9 am - 5 pm whenever:</b> <ul style="list-style-type: none"> <li>a) Streamflow at the assigned USGS local stream gage (gage #01099500 Concord River below River Meadow Brook at Lowell) falls below the following designated flow triggers for <b>three (3)</b> consecutive days: <ul style="list-style-type: none"> <li>• May 1<sup>st</sup> through June 30<sup>th</sup>: <b>427 cfs</b> (based on minimum flows that are protective of habitat for fish spawning during the spring bioperiod), and</li> <li>• July 1<sup>st</sup> through September 30<sup>th</sup>: <b>156 cfs</b> (based on minimum flows that are protective of habitat for fish rearing and growth during the summer bioperiod).</li> </ul> Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for <b>seven (7)</b> consecutive days; or</li> <li>b) A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force.</li> </ul>
<b>Permittees NOT meeting the 65 RGPCD standard for the preceding year (as reported in the ASR and accepted by MassDEP) must implement either:</b>	
<b>1. Calendar Triggered Restrictions from May 1<sup>st</sup> through September 30<sup>th</sup></b>	<ul style="list-style-type: none"> <li>a) <b>Nonessential outdoor water use is allowed TWO DAYS per week</b> before 9 am and after 5 pm; and</li> <li>b) <b>Nonessential outdoor water use is allowed ONE DAY per week whenever</b> A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force.</li> </ul>
<b>2. Streamflow Triggered Restrictions from May 1<sup>st</sup> through September 30<sup>th</sup></b>	<b>Nonessential outdoor water use is allowed ONE DAY per week before 9 a.m. and after 5 p.m. whenever:</b> <ul style="list-style-type: none"> <li>a) Streamflow at the assigned USGS local stream gage (gage #01099500 Concord River below River Meadow Brook at Lowell) falls below the following designated flow triggers for <b>three (3)</b> consecutive days: <ul style="list-style-type: none"> <li>• May 1<sup>st</sup> through June 30<sup>th</sup>: <b>427 cfs</b> (based on minimum flows that are protective of habitat for fish spawning during the spring bioperiod), and</li> <li>• July 1<sup>st</sup> through September 30<sup>th</sup>: <b>156 cfs</b> (based on minimum flows that are protective of habitat for fish rearing and growth during the summer bioperiod).</li> </ul> Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for <b>seven (7)</b> consecutive days; or</li> <li>b) A Level 1- Mild Drought (formerly Drought Advisory) or higher is declared by the Massachusetts Drought Management Task Force.</li> </ul>

### **Instructions for Accessing Streamflow and Drought Advisory Website Information**

**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 quarterly hourly, reading made at each USGS stream gage.

Seasonal Limits on Nonessential Outdoor Water Use are implemented when the mean daily streamflow falls below the designated trigger. 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.

**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 gage ##01099500 Concord River below River Meadow Brook at Lowell.
- 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.

**Drought Advisory** information is available at the Massachusetts Department of Conservation and Recreation (DCR) Drought Status Website at <https://www.mass.gov/info-details/drought-status>

- The color coded map displays the seven drought regions in Massachusetts. Restrictions are implemented when a Level 1- Mild Drought (formerly Drought Advisory), Level 2- Significant Drought (formerly Drought Watch), Level 3- Critical Drought (formerly Drought Warning) or Level 4- Emergency Drought is announced through the DCR website.

### **Public Notice of Water Use Restrictions**

Permittee shall notify its customers of the restrictions and the consequences of failing to adhere to the restrictions.

- For calendar-triggered restrictions, customers shall be notified by April 15<sup>th</sup> each year.
- For streamflow-triggered restrictions, when streamflow at the assigned USGS local stream gage falls below a streamflow trigger for three consecutive days, customers shall be notified as soon as possible, but within three days of implementing the restrictions.

Notice to customers shall include the following:

- A detailed description of the restrictions and penalties for violating the restrictions;
- The need to limit water use, especially nonessential outdoor water use, to ensure a sustainable drinking water supply and to protect natural resources and streamflow for aquatic life; and
- Ways individual homeowners can limit water use, especially nonessential outdoor water use.

Notice that restrictions have been put in place shall be filed each year with MassDEP within 14 days of the restriction's effective date. Filing shall be in writing on the Water Use Restrictions Form on the MassDEP website. Notice to MassDEP need not be provided if Permittee has already implemented water use restrictions that conform to the applicable restrictions and those restrictions are still in force.

## 9. Water Conservation Requirements

Compliance with the following conservation measures was required in the Permit issued to Littleton on May 7, 2015. Continued compliance is required.

**Table 5: Minimum Water Conservation Requirements**

<b>System Water Audits and Leak Detection</b>	
1.	At a minimum, conduct a full leak detection survey every three years. Littleton reported to MassDEP that leak detection surveys are completed annually on the entire distribution system.
2.	Perform a leak detection survey of those sections of the distribution system that have not been surveyed within the last year whenever the percentage of unaccounted for water 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, Permittee shall submit to MassDEP 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 <i>AWWA Manual 36</i> .
4.	<p>Permittee shall have repair reports available for inspection by MassDEP. Permittee shall establish a schedule for repairing leaks that is at least as stringent as the following:</p> <ul style="list-style-type: none"> <li>Leaks of 15 gallons per minute or more shall be repaired as soon as possible but not later than one month after leak detection.*</li> <li>Leaks of less than 15 gallons per minute, but greater than 5 gallons per minute, shall be repaired as soon as possible but not later than two months after leak detection.*</li> <li>Leaks of 5 gallons per minute or less shall be repaired as soon as possible but not later than six months after leak detection, except that hydrant leaks of one gallon or less per minute shall be repaired as soon as possible.*</li> <li>Leaks shall be repaired in accordance with the priority schedule including leaks up to the property line, curb stop or service meter, as applicable.</li> <li>Have water use regulations in place that require property owners to expeditiously repair leaks on their property.</li> </ul> <p>The following exceptions can be considered:</p> <ul style="list-style-type: none"> <li>Repair of leakage detected during winter months can be delayed until weather conditions become favorable for conducting repairs;* and</li> <li>Leaks in freeway, arterial or collector roadways may be coordinated with other scheduled projects being performed on the roadway.**</li> </ul> <p>*Reference: MWRA regulations 360 CMR 12.09 **Mass Highway or local regulations may regulate the timing of tearing up pavement on roads to repair leaks.</p>
5.	Ensure placement of sufficient funds in the annual water budget to conduct water audits and leak detection and repair leaks as necessary.



**Table 5: Minimum Water Conservation Requirements**

<b>Metering</b>
1. Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2. Ensure that the system is 100% metered, including all water use at municipal facilities (schools, school athletic fields, etc.). Permittee reports its system is 100% metered.
3. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards. AWWA References: AWWA Manual M22 – Sizing Water Service Lines and Meters AWWA Manual M6 – Water Meters, or as amended
4. 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 your customers. The metering program shall include regular meter maintenance, including testing, calibration, repair, replacement and checks for tampering to identify and correct illegal connections.
5. Ensure placement of sufficient funds in the annual water budget to calibrate, repair, or replace meters as necessary.
<b>Pricing</b>
1. Implement a water revenue structure that includes the full cost of operating the water supply system in compliance with state and federal requirements. Evaluate revenues every three to five years and adjust rates as needed. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into the revenue structure. AWWA References for Additional Information on Pricing: AWWA Manual 1 – Principals of Water Rates, Fees and Charges AWWA Manual 29 – Fundamentals of Water Utility Financing
2. Permittee shall not use decreasing block rates. Decreasing block rates which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40 Section 39L.
<b>Residential and Public Sector Conservation</b>
1. Permittee shall meet the 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. Municipal buildings An inventory of all municipally owned public buildings served by Littleton and a description of whether or not the buildings are fitted with water-saving devices (e.g. faucet aerators, toilet displacement devices or low flow toilets, low flow shower heads, etc.) was submitted to MassDEP on September 24, 2013. Littleton Town Hall, the Reuben Hoar Library, and Shaker Lane Elementary do not have low flow fixtures. On November 27, 2015, Littleton submitted a cost estimate for each of these building to be retrofitted and also committed to installing 48 toilet displacement devices. The devices were installed in 2016.

### **Industrial and Commercial Water Conservation**

1. Permittee shall review the use records for its industrial, commercial and institutional water users and develop an inventory of the largest water users. Permittee shall develop and implement an outreach program designed to inform and (where appropriate) work with its largest industrial, commercial and institutional water users on ways to reduce their water use. Such outreach plans can include, but are not limited to: information on water audits, meter sizing, water reuse, low-flow plumbing fixtures, mandatory outdoor water use restrictions, suggestions for contacting trade associations for process specific information on water use reductions, and information on contacting the Executive Office of Environmental Affairs Office of Technical Assistance for Toxics Use Reduction (OTA) which offers a range of assistance and information to help facilities improve water use efficiency and reduce wastewater discharge. OTA can be contacted at (617) 626-1060 or at [www.mass.gov/envir/ota](http://www.mass.gov/envir/ota).
2. Upon request by MassDEP, Permittee shall report on industrial, commercial and institutional water conservation including the results of its review of water use records for industrial, commercial and institutional water users, the inventory of the largest water users, copies of any outreach materials distributed to industrial, commercial and institutional water users, and to the extent practical, a summary of water use reductions or savings that have resulted. Upon receipt of this report, MassDEP will take whatever action it deems appropriate to promote the interests of the WMA, including without limitation requiring Permittee to take additional actions to reduce industrial, commercial and institutional water use.

### **Lawn and Landscape**

1. Continue to implement Permittee's water use restriction bylaw.

### **Public Education and Outreach**

1. Develop and implement a Water Conservation Education Plan. Permittee's Water Conservation Education Plan shall be designed to educate Permittee's water customers of ways to conserve water. Without limitation, Permittee's plan may include the following actions:
  - Annual work sheets, included in water bills or under separate cover, to enable customers to track water use and conservation efforts and estimate the dollar savings;
  - Public space advertising/media stories on successes (and failures);
  - Conservation information centers perhaps run jointly with electric or gas company;
  - Speakers for community organizations;
  - Partner with garden clubs, or other private and non-profit organizations, to promote efficient water use;
  - Provide information on water-wise landscaping, gardening, efficient irrigation and lawn care practice;
  - Public service announcements; radio/T.V./audio-visual presentations;
  - Joint advertising with hardware stores to promote conservation devices;
  - Water conservation workshops for the general public
  - Use of civic and professional organization resources;
  - Special events such as Conservation Fairs;
  - Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and
  - Make multilingual materials available as needed.

References and additional information available through the USEPA Water Sense Program at <http://www.epa.gov/watersense>.

## **GENERAL PERMIT CONDITIONS (applicable to all permittees)**

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date MassDEP has received a renewal permit application pursuant to 310 CMR 36.00.

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 water 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 MassDEP to enter and examine any property over which Permittee has authority, title or control, 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 MassDEP pursuant to M.G.L. c. 21G, §§ 15-17, M.G.L. c. 150, § 111, or any other enabling authority.
5. **Transfer of Permits:** This permit shall not be transferred in whole or in part unless and until MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP 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 a form provided by MassDEP, a certified statement of the withdrawal. Such report is to be received by MassDEP by the date specified by MassDEP. Such report must be submitted as specified on the report form.
7. **Duty to Maintain Records:** The Permittee shall be responsible for maintaining withdrawal and all other records as specified by this permit.
8. **Metering:** Withdrawal points shall be metered. Meters shall be calibrated annually. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.
9. **Right to Amend, Suspend or Terminate:** MassDEP 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 MassDEP. Any person aggrieved by this decision may request an adjudicatory hearing as described herein and in accordance with the procedures described at 310 CMR 36.37. Any such request must be made in writing, by certified mail or hand delivered and received by MassDEP within twenty-one (21) days of the date of receipt of this permit. The hearing request, including proof of payment of the filing fee, must be mailed to:

Case Administrator  
MassDEP Office of Appeals and Dispute Resolution  
One Winter Street  
Boston, MA 02108

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 community 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 MassDEP.

#### **CONTENTS OF HEARING REQUEST**

310 CMR 1.01(6)(b) requires the request to include a clear and concise statement of the facts which are the grounds for the request and the relief sought. In addition, the request must include a statement of the reasons why the decision of MassDEP is not consistent with applicable rules and regulations, and for any person appealing this decision who is not the applicant, a clear and concise statement of how that person is aggrieved by the issuance of his permit.

#### **FILING FEE AND ADDRESS**

MassDEP's fee transmittal form, 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 municipality (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

#### **WAIVER**

MassDEP may waive the adjudicatory hearing filing fee for any person who demonstrates to the satisfaction of MassDEP 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.



May 6, 2021

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Marielle Stone, Deputy Regional Director  
Bureau of Water Resources  
Central Regional Office

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Date

## **Appendix A – Residential Gallons Per Capita Day (RGPCD)**

### **I. Compliance Plan Requirement**

If the Permittee fails to achieve and document compliance with the RGPCD performance standard in its Annual Statistical Report (ASR), then the Permittee must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall:

- a. meet the requirement set forth below in Section II;
- b. include measures to be implemented to meet the performance standard); and
- c. include the schedule for implementing such measures.

The filing of an RGPCD Plan shall not constitute a return to compliance, nor shall it affect MassDEP's authority to take action in response to the Permittee's failure to meet the performance standard.

If an RGPCD Plan is required, the Permittee must:

- a. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD Plan annually at the time it files its ASR; and
- b. 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.

### **II. Contents of an RGPCD Plan**

A Permittee that does not meet the 65 RGPCD performance standard within 2 years, has the choice to file an RGPCD Plan containing measures that the Permittee believes will be sufficient to bring the system into compliance with the performance standard (Individual RGPCD Plan) or may adopt the MassDEP RGPCD Functional Equivalence Plan that includes mandated Best Management Practices (BMPs).

A Permittee that has been unable to meet the 65 RGPCD performance standard within 5 years must implement the MassDEP RGPCD Functional Equivalence Plan to be considered functionally equivalent with the performance standard.

At a minimum, all RGPCD Compliance Plans must include a detailed:

- a. description of the actions taken during the prior calendar year to meet the performance standard;
- b. analysis of the cause of the failure to meet the performance standard;
- c. description and schedule of the actions that will be taken to meet the performance standard; and
- d. analysis of how the actions described in c. will address the specific circumstances that resulted in the failure to meet the performance standard.

RGPCD Plans may be amended to revise the actions that will be taken to meet the performance standard.

#### **Individual RGPCD Plan**

Individual RGPCD Plan will document a plan to adopt and implement measures tailored to the specific needs of the water supply system that the Permittee believes will be sufficient to bring the system into compliance with the performance standard within three years.

At a minimum, all Individual RGPCD Plans for failure to meet the RGPCD performance standard must include implementation of at least one of the following residential conservation programs:

- 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, bylaw or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems.

If the Permittee is already implementing one or more of these programs, it must include in its Individual 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.

Without limitation, the Individual RGPCD Plan for failure to meet the RGPCD performance standard may include any of the actions set forth in the MassDEP RGPCD Functional Equivalence Plan below.

#### **MassDEP RGPCD Functional Equivalence Plan**

In order to be considered functionally equivalent with the RGPCD performance standard, the Permittee must adopt and implement the MassDEP RGPCD Functional Equivalence Plan that requires all the following residential conservation programs:

- 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);
- c. the adoption and enforcement of an ordinance, bylaw or regulation to require the installation of soil moisture sensors or similar climate related control technology on all automatic irrigation systems;
- d. the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
- e. the adoption and enforcement of an ordinance, bylaw or regulation to require that all new construction include water saving devices and low water use appliances; and
- f. the implementation of monthly or quarterly billing.

#### **Hardship**

A Permittee may present an analysis of the cost effectiveness of implementing certain conservation measures included in the MassDEP RGPCD Functional Equivalence Plan and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce equal or greater environmental benefits. Suppliers will be able to present:

- a. Reasons why specific measures are not cost effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard;
- b. Alternative 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 RGPCD Functional Equivalence Plan; and
- c. When applicable, an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship.

### **Appendix B – Functional Equivalence with the 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, as of December 31, 2019, the Permittee 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 the Permittee shall develop and implement a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs* within 5 full calendar years.

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, the Permittee shall 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. The Permittee shall submit the component analysis and water loss control program with a proposed implementation schedule to MassDEP.
3. Continued implementation will be a condition of the Permit in place of meeting the 10% UAW performance standard.
4. Upon request of MassDEP, 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 DEP, 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:** Permittees who do not have MassDEP approved Water Loss Control Programs in place by 6<sup>th</sup> calendar year after 2019 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. Suppliers will be able to present:

- Reasons why specific measures are not cost effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard;
- Alternative 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 Functional Equivalence Plan; and
- When applicable, an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship.