



Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs

Department of Environmental Protection

Address: 100 Cambridge Street, Suite 900, Boston MA 02114 | Phone: 617-292-5500

Maura T. Healey
Governor

Kim Driscoll
Lieutenant Governor

Rebecca Tepper
Secretary

Bonnie Heiple
Commissioner

June 18, 2026

Town of Hadley Select Board
Town Hall
100 Middel Street, Room 205
Hadley, MA 01035-

RE: Hadley – BRP/WMA
Town of Hadley- Water
Department PWS ID #1117002
Water Management Act Permit
Renewal
Permit #9P2-1-06-117.01

Dear Board Members:

Attached, please find:

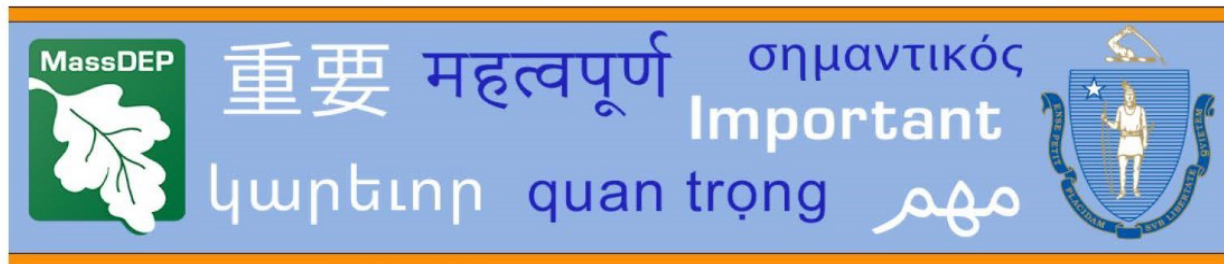
- Findings of Fact in support of Hadley’s Water Management Act (WMA) Permit #9P2-1-06-117.01, in the Connecticut River Basin; and
- WMA Permit #9P2-1-06-117.01 for the Town of Hadley’s Water Department in the Connecticut River Basin.

The signature on this cover letter indicates formal issuance of the attached documents. If you have any questions regarding this information, please contact Jen D’Urso via e-mail at: jen.durso@mass.gov.

Sincerely,

Duane LeVangie, Chief
Water Management Act Program
Bureau of Resource Protection

Ecc: Scott McCarthy, Town of Hadley
Anne Carroll, DCR OWR
Jen Pederson, MWWA
Lydia Olson, MA Rivers Alliance
Melissa Shapiro, MA Rivers Alliance
Soloe Dennis, DRD, MassDEP WERO
Ron Rhodes, CT River Conservancy



Communication for Non-English-Speaking Parties

This document is important and should be translated immediately.

If you need this document translated, please contact MassDEP's Director of EJ at the telephone number listed below.

Español Spanish

Este documento es importante y debe ser traducido de inmediato. Si necesita este documento traducido, comuníquese con la Directora de Diversidad de MassDEP al número de teléfono que aparece más abajo.

Português Portuguese

Este é um documento importante e deve ser traduzido imediatamente. Se precisar de uma tradução deste documento, entre em contato com o Diretor de Diversidade da MassDEP nos números de telefone listados abaixo.

繁體中文 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聯絡 MassDEP 多元化負責人。

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 的多元化主任聯繫。

Ayisyen Kreyòl Haitian Creole

Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradwi l imedyatman. Si ou bezwen dokimar sa a tradwi, tanpri kontakte Direktè Divèsite MassDEP la nan nimewo telefòn endike anba.

Việt Vietnamese

Tài liệu này rất quan trọng và cần được dịch ngay lập tức. Nếu quý vị cần dịch tài liệu này, xin liên lạc với Giám đốc Đa dạng của MassDEP theo các số điện thoại ghi dưới đây.

ប្រទេសកម្ពុជា Khmer/Cambodian

ឯកសារនេះគឺសំខាន់ហើយត្រូវបានបកប្រែភ្លាមៗ។ ប្រសិនបើអ្នកត្រូវការឱ្យគេបកប្រែឯកសារនេះ សូមទាក់ទងមកនាយកផ្នែកពិពិធកម្មរបស់ MassDEP តាមលេខទូរស័ព្ទខាងក្រោម។

Kriolu Kabuverdianu Cape Verdean

Kel dokumentu li é inportáti y debe ser traduzidu imidiatamenti. Se bu meste di kel dokumentu traduzidu, pur favor kontakta Diretor di Diversidádi di MassDEP na numeru abaxu indikadu.



Contact Deneen Simpson 857-406-0738
Massachusetts Department of Environmental Protection
100 Cambridge Street 9th Floor Boston, MA 02114
TTY# MassRelay Service 1-800-439-2370 • <https://www.mass.gov/environmental-justice>
(Version revised 4.21.2023) 310 CMR 1.03(5)(a)

Русский Russian

Это важный документ, и он должен быть безотлагательно переведен. Если вам нужен перевод данного документа, пожалуйста, свяжитесь с директором по вопросам многообразия (Diversity Director) компании MassDEP по указанному ниже телефону.

العربية Arabic

هذه الوثيقة مهمة ويجب ترجمتها على الفور. إذا كنت بحاجة إلى هذه الوثيقة مترجمة، يرجى الاتصال بمدير التنوع PMassDE على أرقام الهواتف المدرجة أدناه.

한국어 Korean

이 문서는 중요하고 즉시 번역해야 합니다. 이 문서의 번역이 필요하시다면, 아래의 전화 번호로 MassDEP의 다양성 담당 이사에 문의하시기 바랍니다.

հայերէն Armenian

Այս փաստաթուղթը կարևոր է և պետք է անմիջապես թարգմանվի:
Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանել, դիմեք MassDEP-ի բազմազանության տնօրենին ստորև նշված հեռախոսահամարով:

فارسی Farsi Persian

این سند مهم است و باید فوراً ترجمه شود.
اگر به ترجمه این سند نیاز دارید، لطفاً با مدیر بخش

Deutsch German

Dieses Dokument ist wichtig und sollte sofort übersetzt werden. Sofern Sie eine Übersetzung dieses Dokuments benötigen, wenden Sie sich bitte an den Diversity Director MassDEP unter der unten aufgeführten Telefonnummer.

Ελληνική Greek

Το παρόν έγγραφο είναι σημαντικό και θα πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του παρόντος εγγράφου, παρακαλούμε επικοινωνήστε με τον Διευθυντή Διαφορετικότητας του MassDEP στους αριθμούς τηλεφώνου που αναγράφονται παρακάτω.

Italiano Italian

Comunicazione per parti che non parlano inglese. Questo documento è importante e dovrebbe essere tradotto immediatamente. Se avete bisogno di questo documento tradotto, potete contattare il Direttore di Diversità di MassDEP al numero di telefono elencato di seguito.

Język Polski Polish

Dokument ten jest ważny i powinien zostać natychmiast przetłumaczony. Jeśli potrzebujesz przetłumaczonej wersji dokumentu, prosimy o kontakt z dyrektorem ds. różnorodności MassDEP pod jednym z numerów telefonu wymienionych poniżej.



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**Findings of Fact in Support of Permit Issuance Water
Management Permit #9P2-1-06-117.01
Town of Hadley**

The Department of Environmental Protection (the “Department” or “MassDEP”) makes the following Findings of Fact in support of the attached Water Management Permit #9P2-1-06-117.01 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 by the Town of Hadley’s Water Division, (Hadley or the Town) for the purpose of public water supply.

Hadley operates four sources in the Connecticut River Basin that are registered for 0.79 Million Gallons per Day (MGD) and was issued its initial Connecticut River Basin WMA permit on January 12, 2005 with an interim permit allocation of 0.13 MGD, for a total authorized withdrawal volume of 0.92 MGD. The interim allocation was due to due to the high variability of the unaccounted-for water (UAW) data and other data reported by the Town, which made developing a Water Needs Forecast (WNF) difficult.

In an October 25, 2016 letter to the Town, the Department of Conservation and Recreation-Office of Water Resources (DCR-OWR) stated that they still could not provide a WNF for Hadley for the same reasons stated above. A temporary allocation was again recommended. Hadley submitted a timely permit renewal application on November 14, 2016, requesting their currently permitted rate of 0.13 MGD in the Connecticut River Basin be continued. Hadley has made improvements in the UAW % since 2016.

The expiration date for this permit going forward in the Connecticut River Basin will be November 30, 2033, 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 Connecticut River Basin section of this document);
- 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/massachusetts-water-conservation-standards>), including without limitation;
 - performance standard of 65 residential gallons per capita day or less;
 - performance standard of 10% or less unaccounted-for-water;
 - seasonal limits on nonessential outdoor water use; and

- 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.

Safe Yield in the Connecticut 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 Connecticut Basin is 1,866.5 million gallons per day (MGD), and total registered and permitted withdrawals are 149.87 MGD. The issuance of this permit will not increase the allocation in the Connecticut River Basin. The maximum withdrawal that will be authorized in this permit, and all other permits currently under review by the Department within the Connecticut 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 Hadley’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. Hadley’s authorized volume in this permit does not increase Hadley’s overall withdrawal volume from its previous permit issued in 2005, which was 0.13 MGD. Please see Table 1. Hadley’s average withdrawal rate over the past 5 years is 0.63 MGD.

Table 1: Hadley’s Authorized Withdrawal Rates Compared to Actual Withdrawal Rate

River Basin	Registered Rate	Permitted Rate	Total Authorized Rate	Actual Withdrawal Rate				
				2020	2021	2022	2023	2024
Connecticut	0.79	0.13	0.92	0.64	0.65	0.65	0.59	0.62

Special Condition 2, Maximum Daily Withdrawals from Groundwater Withdrawal Points reflects the MassDEP-approved Zone II maximum daily pumping rate for each of Hadley’s permitted wells based on prolonged pumping tests. Withdrawals in excess of these maximum daily rates require approval from the Department.

Special Condition 3, Zone II Delineation requirements have been met and is up to date as of the issuance of this permit.

Special Condition 4, Wellhead and Surface Water Protection requirement has been met and is up to date as of the issuance of this permit.

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water is 65 gallons. Permittees that cannot comply within the timeframe in the permit must meet Functional Equivalence (FEP) requirements outlined in Appendix A. Hadley’s DEP-approved 2024 RGPCD was 54. Please see Table #2 below for Hadley’s historical RGPCD and UAW.

Table #2: Hadley’s Historical RGPCD and UAW

	2025	2024	2023	2022	2021
RGPCD	53	54	49	55	53
UAW (%)	9	6	10	8	14

Special Condition 6, Performance Standard for Unaccounted for Water is 10% for two out of three most recent 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 Appendix B. Hadley’s DEP-approved 2024 UAW was 6%.

Special Condition 7, Limits on Nonessential Outdoor Water Use. Hadley’s Nonessential Outdoor Water Use Restrictions (“Restrictions”) are based on whether the permittee’s reported RGPCD for the previous year met the RGPCD Performance Standard of 65 residential gallons per capita day or less (see Special Condition #5).

An additional consideration in Water Management permitting is whether a permittee has a well in a subbasinⁱ that is 25% or more August net groundwater depleted (Aug NGDⁱⁱ). Restrictions for PWSs with well(s) in such subbasins are set to minimize withdrawals from depleted subbasins. Because Hadley’s s well(s) is not located in a subbasin which is Aug NGD by 25% or more, the more stringent nonessential outdoor water use restrictions have not been included in this permit.

Each year, Hadley shall choose one of two options for implementing nonessential outdoor water use restrictions:

- **Calendar triggered restrictions** are in place from May 1 through September 30. 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.

If Hadley selects the streamflow trigger approach, it has been assigned **USGS Gage 01171500, Mill River at Northampton, MA**. The May-June streamflow trigger is **60** cubic feet per second (cfs), and the July-September streamflow trigger is **25** cfs. Should the reliability of flow measurement at this gage be so impaired as to question its accuracy, the permittee may request that MassDEP review and approve the transfer to another gage that will 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 to provide additional protection when flows are very low. The 7-day low flow trigger is based on the median value of the annual 7-day low flows for the period of record. The 7-day low-flow trigger for **USGS Gage 01171500** is **10 cfs**.

The permittee may choose to implement limits on nonessential outdoor water use that are stricter than those required by the permit.

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.

Guidance for Permittees Concerning Enforcement Authority

This permit condition does not confer enforcement authority to the Permittee. For Permittees that do not have the necessary local enforcement authority, MassDEP has developed a Model Outdoor Water Use Bylaw/Ordinance to help municipalities implement nonessential water use restrictions. The Model Bylaw also includes options for regulating private wells and in-ground irrigation systems. See [Model Water Use Restriction Bylaw/Ordinance Update | Mass.gov](#).

DEP strongly advises Permittees to consult with Town or City Counsel to ensure adoption of an appropriate, enforceable and legally valid bylaw that will meet municipal/district needs.

Note that if the permittee holds a Water Management registration, **the nonessential outdoor water use restrictions in this permit supersede restrictions in the permittee's registration.**

Special Condition 8, Water Conservation Requirements incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the WRC in July 2018. ([Details on the 2018 Massachusetts Water Conservation Standards | Mass.gov](#))

Special Condition 9, Coldwater Fish Resource (CFR) Protection was incorporated into the Water Management Regulations in November 2014. Coldwater Fish Resource Protection was evaluated as a condition of this permit because Hadley's withdrawals from the Connecticut River Basin may impact waters that MA Division of Fisheries and Wildlife (DFW) has identified as supporting coldwater fish. Hadley evaluated their ability to optimize all of their sources to reduce their environmental impact. The Town of Hadley's current source selection is driven by the immediate availability of reliable, high-quality water from the Callahan Wells, due to its past investment in the construction of the Callahan Wells Treatment Facility. The Mt. Warner Wells are not currently in use. To optimize all sources and minimize impacts on the Fort River, a CFR near the Callahan Wells, the Town's preferred, and most efficient plan, is to fund the rehabilitation and treatment of the Mt. Warner Wells in one comprehensive project as soon as possible. Once completed, the Town plans to operate the Mt. Warner and Callahan wells in tandem, ensuring system reliability while achieving substantial environmental benefits for the CFR. The Town has and is actively seeking funds to ensure there is progress in rehabilitating the Mt. Warner Wells.

Special Condition 10, Mitigation of Impacts for Withdrawals that Exceed Baseline, requires mitigation of the impacts of withdrawals above the permittee's baselineⁱⁱⁱ by direct and/or indirect mitigation activities. Hadley's Baseline in the Connecticut River Basin is its Registration volume of 0.79 MGD. Mitigation of the impacts of increasing withdrawals can be through:

- Direct mitigation that will result in enhanced streamflow through
 - Purchase and retirement of other registered or permitted withdrawals,
 - Surface water releases,
 - Stormwater recharge, or
 - Infiltration and inflow removal from sewer systems.
- Indirect mitigation activities that will result in streamflow and habitat improvements

In addition, since the additional volumes proposed to be withdrawn are expected to serve areas with on-site septic systems or those served by the Town's groundwater discharge facility, the Department assumes that a percentage of the water withdrawn above the baseline will be returned to the subsurface. This permit authorizes Hadley to withdraw up to 0.92 MGD in the Connecticut Basin, which is 0.13 MGD above the baseline rate 0.79 MGD. Please see Table #3 below.

Table 3: Hadley’s Mitigation Calculation

<p>Permit request above Baseline = 0.13 MGD</p> <ul style="list-style-type: none"> Permit amount above Baseline: $0.92 - 0.79 = 0.13$ MGD
<p>Adjustment for Wastewater Discharge to Local Groundwater in the Connecticut River Basin = 0.06 MGD</p> <ul style="list-style-type: none"> 50% of increased withdrawals are delivered to areas with on-site groundwater disposal systems: $0.13 \text{ MGD} \times 0.5 (50\%) = 0.065$ MGD 85% of water delivered to areas with on-site groundwater disposal systems returns to groundwater: $0.065 \text{ MGD} \times 0.85 (85\%) = 0.055$ MGD
<p>Amount to be Mitigated after Adjustment for Wastewater Discharge to Local Groundwater = 0.08 MGD</p> <ul style="list-style-type: none"> Permitted amount above baseline (0.13 MGD) – adjustment for wastewater discharge to groundwater (0.055 MGD) = 0.075 MGD or 75,000 gallons per day

After accounting for the wastewater return adjustment, 0.075 MGD of future additional withdrawals from the Connecticut River Basin must be mitigated. Hadley was unable to identify any direct mitigation credits associated with stormwater recharge and Infiltration/Inflow removal. Therefore, Hadley’s mitigation need is being met by 7.7 indirect mitigation credits accrued from Land Protection in a Zone II, and protection of priority conservation land. Please see Appendix C.

Special Condition 11, Reporting Requirements, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

Response to Comments

Hadley’s Draft WMA Permit was available for public comment in the Massachusetts Environmental Monitor from April 8th, 2026 to May 8th, 2026. Comments were filed by the Massachusetts Rivers Alliance. Below is a summary of those comments and MassDEP’s response.

Comment #1:

We urge MassDEP to limit the total authorized withdrawal volume for the Town of Hadley in the Connecticut River Basin to their baseline, which is their registered volume of 0.79 MGD.

Response #1:

Hadley is registered for 0.79 Million Gallons per Day (MGD) and was issued its initial Connecticut River Basin WMA permit on January 12, 2005 with an interim permit allocation of 0.13 MGD, for a total authorized withdrawal volume of 0.92 MGD. The interim allocation was due to the high variability of the unaccounted-for water (UAW) data and other data reported by the Town, which made developing a Water Needs Forecast (WNF) difficult. In an October 25, 2016 letter to the Town, the Department of Conservation and Recreation- Office of Water Resources (DCR-OWR) stated that they still could not provide a WNF for Hadley for the same reasons stated above. The same temporary allocation of 0.92 MGD was again recommended. Hadley submitted a timely permit renewal application on November 14, 2016, requesting their currently permitted rate of 0.13 MGD in the Connecticut River Basin be continued. Hadley has made significant

improvements in their UAW % since 2016 and has been consistently below 10% for five of the last six years. Although discussions occurred in 2025 between MassDEP and DCR on providing Hadley with a new Water Needs Forecast, a new WNF was not developed. Given the request from the Town, and the shortened length of the permit (less than 7 years) MassDEP maintained the existing allocation volume. Reducing the allocation now without a WNF would be arbitrary and could be perceived as punishing Hadley for the positive steps they have taken to reduce their UAW. Hadley will need a detailed projection of their future water needs in six years when applying to renew again. MassDEP also notes that Hadley will need to reassess their direct mitigation options during that renewal process.

Comment #2:

The subbasin from which the Mt. Warner wells draw (14048) is not much less stressed than the subbasin containing the Callahan wells (14064). Neither subbasin is August Net Groundwater Depleted (Aug NGD), however both biological conditions and groundwater conditions in each subbasin are similarly stressed by groundwater withdrawals. We urge MassDEP to require further measures to reduce impacts to CFRs in both subbasins, such as implementing indirect mitigation actions that would improve streamflows and fish habitat. Some examples include dam removal or streambank restoration.

Response #2:

Hadley's permit is the regulatory means by which the Department can require mitigation, minimization, and activities that minimize impacts to the CFRs. At this time, the Mt. Warner Wells are not currently in use. To optimize all sources and minimize impacts on CFRs, the Town's preferred and most efficient plan is to fund the rehabilitation and treatment of the Mt. Warner Wells in one comprehensive project as soon as possible. Once completed, the Town plans to operate the Mt. Warner and Callahan wells in tandem, ensuring system reliability while achieving substantial environmental benefits by spreading the impacts of withdrawals on the CFRs. At this time, this plan and its associated activities are considered adequate optimization measures. Division of Fisheries and Wildlife was consulted on this approach and approved of this plan.

Comment #3:

The sentence "*Because Hadley's well(s) is not located in a subbasin which is Aug NGD by 25% or more, the more stringent nonessential outdoor water use restrictions have not been included in this permit*" is an incorrect interpretation of the Water Management Act regulations. Permittees withdrawing from subbasins that are August Net Groundwater Depleted of 25% or more are required to submit a minimization plan that can, but does not have to, include "adopting restrictions on nonessential outdoor water use more stringent than those required by the permit conditions described at 310 CMR 36.28(4)(c)4."³ The nonessential outdoor water use conditions being set by the permit are not being determined by August NGD level but RGPCD; furthermore a minimization plan required by WMA regulations will not necessarily include limitations on nonessential outdoor watering restrictions. We recommend removing the paragraph from Special Condition 7 to avoid confusion on equating minimization plans with certain nonessential outdoor watering restrictions.

Response #3:

Please refer to 310 CMR 36.22 (5)(c). Groundwater applicants with a withdrawal point in a subbasin(s) having an August NGD greater than 25% **shall** submit a plan to minimize the impacts

of the withdrawals to the extent feasible, **including but not limited to** adopting restriction on nonessential outdoor water use more stringent than those required by the permits conditions in 310 CMR 36.28 (4) (c) 1., 2., and 3. Flexibility associated with watering are driven by both the minimization requirements and how well the PWS is doing with respect to the RGPCD Standard. Were Hadley's withdrawal points in subbasins with an August NGD greater than 25% (which they are not, with subbasin 14064 that includes the Callahan Wells at 22%, and subbasin 14048 with the Warner Wells at 18%) they would be subject to the more stringent nonessential outdoor restrictions we require in minimization plans. In addition, the restriction also is written to provide additional watering flexibility should the PWS meet the 65 RGPCD standard for the prior year. Therefore, no change has been made to the draft permit.

Comment #4:

Summary tables for RGPCD and UAW over the past 5 or so years were not included, which usually are in WMA draft permits. There are statements under each Special Condition that give information on Hadley's RGPCD and UAW for 2024, but that is the only information provided.

Response#4:

A summary table for historical RGPCD and UAW has been added to the Findings of Fact.



Commonwealth of Massachusetts
Executive Office of Energy and Environmental Affairs

Department of Environmental Protection

Address: 100 Cambridge Street, Suite 900, Boston MA 02114 | **Phone:** 617-292-5500

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WATER WITHDRAWAL PERMIT
Permit #9P2-1-06-117.01
Town of Hadley

This issuance of Permit #9P2-1-06-117.01 is approved pursuant to the Massachusetts Water Management Act (WMA) 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.

PERMIT NUMBER: 9P2-1-06-117.01 **RIVER BASIN:** Connecticut

PERMITTEE: Town of Hadley
Board of Water Commissioners
Town Hall
100 Middel Street, Room 205
Hadley, MA 01035-

EFFECTIVE DATE: June 18, 2026
EXPIRATION DATE: November 30, 2033

TYPE AND NUMBER OF WITHDRAWAL POINTS: Groundwater: 4 Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

AUTHORIZED WITHDRAWAL POINTS:

Table 1: Withdrawal Point Identification

Source Code	Source
1117002-01G	MOUNT WARNER #1
1117002-02G	MOUNT WARNER #2
1117002-03G	CALLAHAN #1
1117002-04G	CALLAHAN #2

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal

This permit authorizes the Town of Hadley to withdraw water from the Connecticut River Basin at the rate described below in Table 2. The permitted withdrawal rate is in addition to the 0.79 million gallons per day (MGD) previously authorized for the Town of Hadley under Water Management Act Registration #1-06-117.02 in the Connecticut River Basin. 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 permit period. 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 rates.

Table 2: Hadley’s Authorized Withdrawals in the Connecticut River Basin

Permit Periods	Total Raw Water Withdrawal Volumes			
	Permit		Permit and Registration	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
6/18/2026 to 11/30/2033	0.13	47.45	$0.13 + 0.79 = 0.92$	$47.45 + 287.65 = 335.10$

2. Maximum Daily Withdrawals from Groundwater Withdrawal Points

Withdrawals from permitted groundwater sources are not to exceed the approved maximum daily rates listed below in Table 3 without advance written approval from the Department.

Table 3: Maximum Daily Water Rates from Groundwater Withdrawal Points

Source	Maximum Daily Rate (MGD)
MOUNT WARNER #1 – 1117002-01G	0.792
MOUNT WARNER #2– 1117002-02G	1.152
CALLAHAN #1– 1117002-03G	1.512
CALLAHAN #2– 1117002-04G	1.512

3. Zone II Delineation

Department records show that all withdrawal points have DEP approved Zone II delineations. Therefore, no further Zone II work is required as a condition of this permit.

4. Wellhead and Surface Water Protection

Department records indicate that the Town of Hadley meets the requirements of 310 CMR 22.21(2) for its groundwater withdrawal points. 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

The Town of Hadley’s performance standard for residential gallons per capita day (RGPCD) is 65 gallons or less. Hadley shall be in compliance with this performance standard by December 31, 2027. If Hadley does not meet the standard in future years, it shall be in compliance with the RGPCD functional equivalence requirements (Appendix A).

6. Performance Standard for Unaccounted for Water

The Town of Hadley’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. Hadley shall be in compliance with this performance standard by December 31, 2027. If Hadley does not meet the standard, it shall be in compliance with the UAW functional equivalence requirements (Appendix B).

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. Limits on Nonessential Outdoor Water Use

Hadley shall limit nonessential outdoor water use through mandatory restrictions from May 1 through September 30, as outlined in Table 4 below. Hadley shall be responsible for tracking streamflow gages and recording and reporting when restrictions are implemented (see Table 5.) The permittee shall document compliance with the limits on nonessential outdoor water use annually in its ASR.

Table 4: Limits on Nonessential Outdoor Water Use

<p>For Permittees Meeting the 65 RGPCD Standard for the Preceding Year When RGPCD was 65 or below as reported in the ASR and accepted by MassDEP, choose either Calendar Triggered Restrictions or Streamflow Triggered Restrictions from this section of the Table.</p>
<p>CALENDAR Triggered Restrictions</p> <p>Nonessential outdoor water use is allowed before 9 a.m. and after 5 p.m.:</p> <ul style="list-style-type: none"> a. Seven (7) days per week, unless, b. USGS Gage 01171500 on the Mill River at Northampton, MA falls below 10 cfs for three (3) consecutive days, then one (1) day per week is allowed. <p>Once implemented, restrictions shall remain in place until streamflow at the gage meets or exceeds 10 cfs for seven (7) consecutive days.</p>
<p>STREAMFLOW Triggered Restrictions</p> <p>Nonessential outdoor water use is allowed before 9 a.m. and after 5 p.m.:</p> <ul style="list-style-type: none"> a. Seven (7) days per week, unless,

b. **USGS Gage 01171500 on the Mill River at Northampton, MA** falls below **10 cfs** for three (3) consecutive days, then **one (1) day per week** is allowed.

Once implemented, restrictions shall remain in place until streamflow at the gage meets or exceeds **10 cfs** for seven (7) consecutive days.

For Permittees NOT Meeting the 65 RGPCD Standard for the Preceding Year
When RGPCD was above 65 as reported in the ASR and accepted by MassDEP, choose either Calendar Triggered Restrictions or Streamflow Triggered Restrictions from this section of the Table.

CALENDAR Triggered Restrictions

Nonessential outdoor water use is allowed before 9 a.m. and after 5 p.m.:

b. **Two (2) days per week**, unless,

b. **USGS Gage 01171500 on the Mill River at Northampton, MA** falls below **10 cfs** for three (3) consecutive days, then **one (1) day per week** is allowed.

Once implemented, restrictions shall remain in place until streamflow at the gage meets or exceeds **10 cfs** for seven (7) consecutive days.

STREAMFLOW Triggered Restrictions

Nonessential outdoor water use is allowed before 9 a.m. and after 5 p.m.:

a. **Two (2) days per week** when **USGS Gage 01171500 on the Mill River at Northampton, MA** falls below:

- **60 cfs** for three (3) consecutive days from **May 1 – June 30**, and
- **25 cfs** for three (3) consecutive days from **July 1 – September 30**, unless

b. **USGS Gage 01171500** falls below **10 cfs** for three (3) consecutive days, at any time from **May 1 – September 30**, then **one (1) day per week** is allowed.

Once implemented, restrictions shall remain in place until streamflow at the gage meets or exceeds the triggering streamflow for seven (7) consecutive days.

Table 5: Tracking Streamflows through the USGS Website

Instructions for Accessing Streamflow Website Information

If the Permittee chooses Streamflow Triggered Restrictions, the Permittee shall be responsible for tracking streamflows 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 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 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, the Permittee must use the mean daily streamflow from the preceding day when tracking streamflows.

For additional questions or for additional support, contact the MassDEP Water Management Program at DEP.WMA@mass.gov (preferred), or the WMA Program contact identified in this permit.

Should the reliability of flow measurement at the **USGS Gage 01171500 on the Mill River at Northampton, MA** be so impaired as to question its accuracy, Hadley may request MassDEP's review and approval to transfer to another gage to trigger restrictions.

MassDEP reserves the right to require the use of a different gage.

Nonessential Outdoor Water Use means a use that is not required:

- a. for health or safety reasons, including public facilities used for cooling such as splash pads and swimming pools, and for washing of boats, engines, or marine equipment to prevent negative saltwater impacts or the transfer of invasive aquatic species;
- b. by permit, license, statute or regulation;
- c. for the production of food, including vegetable gardens, and fiber;
- d. for the maintenance of livestock;
- e. to meet the core functions (those functions essential to the commercial operations) of a business, including but not limited to:
 1. plant nurseries as necessary to maintain stock;
 2. golf courses as necessary to maintain greens and tees, and limited fairway watering per 310 CMR 36.07(2)(c)2.a. through c.;
 3. venues used for weddings or similar special events that limit watering to hand-held hose or drip irrigation as necessary to maintain gardens, flowers and ornamental plants;
 4. professional washing of exterior building surfaces, parking lots, driveways and/or sidewalks as necessary to apply surface treatments such as paint, preservatives, stucco, pavement, or cement in the course of construction, reconstruction or renovation work;
- f. for irrigation of public parks before 9:00 a.m. and after 5:00 p.m.,
- g. for irrigation of public and private recreation fields, including those operated by schools, colleges, universities and athletic associations, before 9:00 a.m. and after 5:00 p.m.,
- h. for irrigation of publicly funded shade trees and trees in the public right-of-way; or
- i. to establish a new lawn as necessary to stabilize soil in response to new construction or following the repair or replacement of a Title 5 system.

Public Notice of Seasonal Nonessential Outdoor Water Use Restrictions

The 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 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 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 form "Notification of Water Use Restrictions" available on MassDEP's website ([Outdoor Water Use Restrictions for Cities, Towns, and Golf Courses | Mass.gov.](#))

Enforcement Authority

This permit condition does not confer enforcement authority to the permittee. If Hadley does not have appropriate enforcement authority, then beginning as soon as possible, but no later than 24 months after issuance of the permit, the permittee shall establish enforceable restrictions limiting nonessential outdoor water use.

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

8. Water Conservation Requirements

At a minimum, Hadley shall implement the following conservation measures. Compliance with the water conservation requirements shall be reported to the Department upon request, unless otherwise noted below.

Table 6: Minimum Water Conservation Requirements

Leak Detection
1. At a minimum, conduct a full leak detection survey every three years.
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 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 <u>AWWA Manual 36</u> .
4. Hadley shall have repair reports available for inspection by the Department. Hadley shall establish a schedule for repairing leaks that is at least as stringent as the following: <ul style="list-style-type: none">○ 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 Hadley’s priority schedule including leaks up to the property line, curb stop or service meter, as applicable. Hadley shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.

Metering

1. Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2. Hadley reports its system is 100% metered. 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. Hadley 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. Hadley shall maintain a water pricing structure that includes the full cost of operating the water supply system. Hadley shall evaluate rates at a minimum every three to five years and adjust costs as needed. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into prices.
2. Hadley 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.

Residential and Public Sector Conservation

1. Hadley 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. Hadley has reported that all municipally owned public buildings have been retrofitted with water saving devices (faucet aerators, low flow shower heads and low flow toilets). Hadley 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. Hadley shall ensure water conservation practices in all development proposals, particularly low flow devices and water-wise landscaping practices.

Public Education and Outreach

1. Hadley shall continue to implement its water conservation and education efforts designed to educate the Town's water customers on ways to conserve water. Without limitation, Hadley's plan may include the following actions:
 - 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;
 - Public space advertising/media stories on successes (and failures);
 - Conservation information centers perhaps run jointly with electric or gas company;
 - Speakers for community organizations;
 - Public service announcements; radio/T.V./audio-visual presentations;
 - Joint advertising with hardware stores to promote conservation devices;
 - 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
 - Provide multilingual materials as needed.
2. Upon request of the Department, the Town of Hadley shall report on its public education and outreach effort, 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. Cold Water Fishery (CFR) Resource Protection

To optimize all sources and minimize impacts on the Fort River, a CFR near the Callahan Wells, Hadley's plan is to fund the rehabilitation and treatment of the Mt. Warner Wells as soon as possible. Once completed, the Town plans to operate the Mt. Warner and Callahan wells in tandem, ensuring system reliability while achieving substantial environmental benefits for the CFR. The Town has and is actively seeking funds to ensure there is progress in rehabilitating the Mt. Warner Wells. Until such time that the Mt. Warner Wells are active, Hadley has no option but to pump from its two active sources, Callahan Well #1 and Callahan Well #2, both of which are located in the subbasin where the CFR is currently located. If the Mt. Warner Wells do become active, Hadley shall submit an Optimization Plan to MassDEP with the next Annual Statistical Report that outlines their efforts to reduce the impact of pumping on the Fort River CFR.

10. Mitigation of Impacts for Withdrawals that Exceed Baseline

Hadley is required to mitigate 0.075 MGD for its permitted withdrawals over baseline in the Connecticut River Basin. The mitigation requirement of 0.075 MGD will be met with 7.7 credits in indirect mitigation from the Water Supply Protection Land and the protection of priority conservation land. Please see Appendix C.

11. Reporting Requirements

Hadley shall report annually as required by completing the electronic Annual Statistical Report (eASR) for public water suppliers and shall provide other reporting as specified in the Special Conditions above.

GENERAL PERMIT CONDITIONS (applicable to all permittees except Cranberry permits)

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 the Department has received a timely permit renewal 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, the Water Management Act regulations at 310 CMR 36.00, and all other 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 the Department to enter and examine at reasonable times any property, facility, operation, equipment or activity involving the withdrawal of water, and to inspect and copy any relevant 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, §§ 15-17, M.G.L. c. 111, §§ 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 the submittal of a transfer application in accordance with 310 CMR 36.33 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 as set forth in 310 CMR 4.00.

6. **Duty to Report:** The permittee shall complete and submit annually, on a form provided by the Department, all of the information required by said form including, without limitation, a certified statement of the withdrawal. Such report shall be received by the Department by the date specified on the form each year. For public water supplier permittees, the report form is the MassDEP Drinking Water Program Public Water Supply Annual Statistical Report.

7. **Annual Compliance Fee:** The permittee shall submit any applicable annual compliance fee as established in 310 CMR 4.00.

8. **Duty to Maintain Records:** The permittee shall maintain withdrawal records and other information in sufficient detail to demonstrate compliance with this permit.

9. **Metering:** All withdrawal points included within the permit shall be metered. Meters are to be calibrated annually. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.

10. **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.

NOTICE OF APPEAL RIGHTS

Any person aggrieved by this decision may request an adjudicatory hearing by timely filing a Notice of Claim for an Adjudicatory Appeal (“Notice of Claim”) in accordance with 310 CMR 36.37 and 310 CMR 1.01 within twenty-one (21) days of receipt of this Permit. The Notice of Claim shall state specifically, clearly, and concisely the facts that are grounds for the appeal, the relief sought, and any additional information required by applicable law or regulation. A copy of this Permit shall be included with the Notice of Claim. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent at the same time 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 Permittee, unless such person notifies the Permittee of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

The Notice of Claim and supporting documentation, including a copy of the fee transmittal form and a copy of the check, must be sent by certified mail or hand delivered to:

Case Administrator
Office of Appeals and Dispute Resolution
Department of Environmental Protection
100 Cambridge Street, Suite 900
Boston, MA 02114

In addition, the Department’s fee transmittal form, together with a valid check or money order made payable to the Commonwealth of Massachusetts in the amount of \$100 for the appeal filing fee, if required, must be mailed to:

Commonwealth of Massachusetts Lock Box
Department of Environmental Protection
P.O. Box 4062
Boston, MA 02211

The Notice of Claim may be dismissed if the filing fee is not paid unless the appellant is exempt or granted a waiver. The filing fee is not required if the appellant is a city, town (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority. The Department may waive the adjudicatory filing fee for a person who shows that paying the fee will create an undue financial hardship. A person

seeking a waiver must file, along with the hearing request, an affidavit setting forth the facts believed to support the claim of undue financial hardship.

Duane LeVangie

6/18/2026

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

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 its 2018 Annual Statistical Report (ASR), or in any ASR thereafter, 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 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 the Department.
3. Continued implementation will be a condition of the permit in place of meeting the 10% UAW performance standard.
4. 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 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 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 in 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 6th 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.

Appendix C – Hadley’s Mitigation Credits

Indirect Credit

Water Supply Protection Land								
Property	Owner	Municipal Assessors Map and Lot Number	Parcel Purchase Date	Acres	Date of Conservation Restriction	Term of Conservation Restriction	Book and Page Number of Deed	Credits
Chmura Road/ Bay Road	Hadley Water Dept.	Map 8, parcel 9; Map 8, parcel 46; Map 8 parcel 48	Historically owned by Town of Hadley for water supply protection	67	9/14/2020	In perpetuity	Hampshire County Registry of Deeds, Plan Book 247, Pages 86, 87, and 88	6.7
Total Credits								6.7

Priority Conservation Land								
Property	Owner	Municipal Assessors Map and Lot Number	Acres	Parcel Purchase Date	Effective Date of Conservation Restriction	Term of Restriction	Book and Page Number of Deed	Credits
Chmura Road/ Bay Road	Hadley Water Dept.	Map 8, parcel 9; Map 8, parcel 46; Map 8 parcel 48	5	Historically owned by Town of Hadley for water supply protection	9/14/2020	In perpetuity	Hampshire County Registry of Deeds, Plan Book 247, Pages 86, 87, and 88	1
Total Credits								1

Total Indirect Credits: 7.7

ⁱ 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).

ⁱⁱ The Water Management Regulations, 310 CMR 36.03, define August net groundwater depletion 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.

ⁱⁱⁱ Baseline is the volume of water withdrawn in 2005 plus 5%, or the average volume withdrawn from 2003 to 2005 plus 5%, which is greater. Baseline cannot be less than the registered volume and cannot be more than the authorized volume during the 2003-2005 period. For suppliers with authorizations in multiple major basins, baseline is computed for each basin and for the entire system.