



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 11, 2026

Mr. Jeffrey Hildreth, Superintendent
Turners Falls Fire District
226 Millers Falls Road
Turners Falls, MA 01376

Permittee: Turners Falls Fire District
Public Water Supply (PWS) ID: 1192000
Program: Water Management Act
WMA Permit # 9P-1-06-192.01
Action: Final Renewed Permit

Dear Mr. Hildreth:

This final renewed permit reflects updated permit requirements. Please find the following attached documents:

- Findings of Fact in Support of the Final Renewed Permit decision.
- Final Water Management Act Renewal Permit for withdrawals by Turners Falls Fire District in the Connecticut River Basin.
- Turners Falls Fire District revised Registration Statement #1-06-192.01.

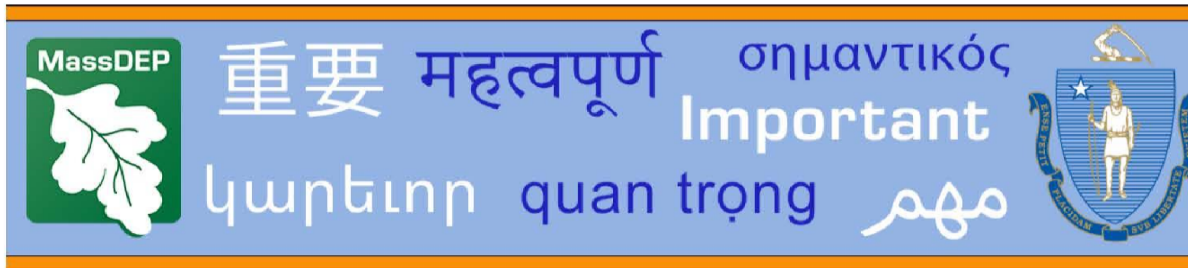
Notice of the Draft Renewal Permit and its accessibility for review was posted in the Public Notice section of the April 8, 2026 edition of the Massachusetts Environmental Policy Act (MEPA) Environmental Monitor. Notice of the Draft Renewal Permit was also sent to all WMA Registrants and Permittees in the Connecticut River Basin and to other interested parties offering a 30-day comment period. Comments submitted to MassDEP are herein addressed. If you have any questions regarding the permit, please contact Andrew Brokowski at andrew.brolowski@mass.gov or 857-278-5634.

Sincerely,

Duane LeVangie
Water Management Program Chief
Bureau of Water Resources

ecc: Andrew Kelly, Drinking Water Program Chief, MassDEP Springfield; Catherine Sarafinas-Hamilton, DEP Regional Planner; Lydia Olson, Mass Rivers Alliance; Jennifer Pederson, MA Water Works Association; Duane LeVangie, Water Management Program Chief

[mass.gov.sharepoint.com/W:\DWPWMA\Permits Renewals\Connecticut\Montague-Turners Falls\Montague-1192000-Final Renewed Permit-9P-1-06-192.01-2026-06-11](https://mass.gov/sharepoint.com/W:\DWPWMA\Permits Renewals\Connecticut\Montague-Turners Falls\Montague-1192000-Final Renewed Permit-9P-1-06-192.01-2026-06-11)



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 Environmental Justice at the telephone number listed below.

Español Spanish

Este documento es importante y debe ser traducido inmediatamente. Si necesita traducir este documento, póngase en contacto con el Director de Justicia Ambiental de MassDEP (*MassDEP's Director of Environmental Justice*) en el número de teléfono que figura más abajo.

Português Portuguese

Este documento é importante e deve ser traduzido imediatamente. Se você precisar traduzir este documento, entre em contato com o Diretor de Justiça Ambiental do MassDEP no número de telefone listado abaixo.

繁體中文 Chinese Traditional

本文檔很重要，需要即刻進行翻譯。
如需對本文檔進行翻譯，請透過如下列示電話號碼與 MassDEP 的環境司法總監聯絡。

简体中文 Chinese Simplified

这份文件非常重要，需要立即翻译。
如果您需要翻译这份文件，请通过下方电话与 MassDEP 环境司法主任联系。

Ayisyen Kreyòl Haitian Creole

Dokiman sa a enpòtan epi yo ta dwe tradui l imedyatman. Si w bezwen tradui dokiman sa a, tanpri kontakte Direktè. Jistis Anviwònmanal MassDEP a nan nimewo telefòn ki endike anba a.

Việt Vietnamese

Tài liệu này và quan trọng và phải được dịch ngay. Nếu quý vị cần bản dịch của tài liệu này, vui lòng liên hệ với Giám Đốc Phòng Công Lý Môi Trường của MassDEP theo số điện thoại được liệt kê bên dưới.

ប្រទេសកម្ពុជា Khmer/Cambodian

ឯកសារនេះមានសារៈសំខាន់ ហើយត្រូវត្រូវបានបកប្រែភ្លាមៗ។
ប្រសិនបើអ្នកត្រូវការអោយឯកសារនេះបកប្រែ សូមទាក់ទងនាយកផ្នែកយុត្តិធម៌បរិស្ថានរបស់ MassDEP តាមរយៈលេខទូរស័ព្ទដែលបានរាយនាមខាងក្រោម។

Kriolu Kabuverdianu Cape Verdean

Es dokumentu sta important i tenki ser tradusidu imediatamenti. Se nho ta presisa ke es dokumentu sta tradisidu, por favor kontata O Diretor di Justisia di Environman di DEP ku es numero di telefoni menxionadu di baixo.

Русский Russian

Это чрезвычайно важный документ, и он должен быть немедленно переведен. Если вам нужен перевод этого документа, обратитесь к директору Департамента экологического правосудия MassDEP (MassDEP's Director of Environmental Justice) по телефону, указанному ниже.

العربية Arabic

هذه الوثيقة مهمة وتجب ترجمتها على الفور.

إذا كنت بحاجة إلى ترجمة هذه الوثيقة، فيرجى الاتصال بمدير العدالة البيئية في MassDEP على رقم الهاتف المذكور أدناه.

한국어 Korean

이 문서는 중대하므로 즉시 번역되어야 합니다. 본 문서 번역이 필요하신 경우, 매사추세츠 환경보호부의 "환경정의" 담당자 분께 문의하십시오. 전화번호는 아래와 같습니다.

հայերէն Armenian

Այս փաստաթուղթը կարևոր է, և պետք է անհապաղ թարգմանել այն: Եթե Ձեզ անհրաժեշտ է թարգմանել այս փաստաթուղթը, դիմեք Մասաչուսեթսի շրջակա միջավայրի պահպանության նախարարության (MassDEP) Բնապահպանական հարցերով արդարադատության ղեկավարին (Director of Environmental Justice)՝ ստորև նշված հեռախոսահամարով

فارسی Farsi Persian

این نوشتار بسیار مهمی است و باید فوراً ترجمه شود. اگر نیاز به ترجمه این نوشتار دارید لطفاً با مدیر عدالت محیط زیستی MassDEP در شماره تلفن ذکر شده زیر تماس بگیرید.

Français French

Ce document est important et doit être traduit immédiatement. Si vous avez besoin d'une traduction de ce document, veuillez contacter le directeur de la justice environnementale du MassDEP au numéro de téléphone indiqué ci-dessous.

Deutsch German

Dieses Dokument ist wichtig und muss sofort übersetzt werden. Wenn Sie eine Übersetzung dieses Dokuments benötigen, wenden Sie sich bitte an MassDEP's Director of Environmental Justice (Direktor für Umweltgerechtigkeit in Massachusetts) unter der unten angegebenen Telefonnummer.

Ελληνική Greek

Το έγγραφο αυτό είναι πολύ σημαντικό και πρέπει να μεταφραστεί αμέσως. Αν χρειάζεστε μετάφραση του εγγράφου αυτού, παρακαλώ επικοινωνήστε με τον Διευθυντή του Τμήματος Περιβαλλοντικής Δικαιοσύνης της Μασαχουσέτης στον αριθμό τηλεφώνου που αναγράφεται παρακάτω

Italiano Italian

Questo documento è importante e deve essere tradotto immediatamente. Se hai bisogno di tradurre questo documento, contatta il Direttore della Giustizia Ambientale di MassDEP al numero di telefono sotto indicato.

Język Polski Polish

Ten dokument jest ważny i powinien zostać niezwłocznie przetłumaczony. Jeśli potrzebne jest tłumaczenie tego dokumentu, należy skontaktować się z dyrektorem ds. sprawiedliwości środowiskowej MassDEP pod numerem telefonu podanym poniżej.

हिन्दी Hindi

यह दस्तावेज महत्वपूर्ण है और इसका अनुवाद तुरंत किया जाना चाहिए। यदि आपको इस दस्तावेज का अनुवाद कराने की जरूरत है, तो कृपया नीचे दिए गए टेलीफोन नंबर पर MassDEP के पर्यावरणीय न्याय निदेशक से संपर्क करें।



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

Findings of Fact in Support of Final Permit Decision Turners Falls Fire District Water Management Act Permit #9P-1-06-192.01

The Massachusetts Department of Environmental Protection (“MassDEP” or “the Department”) makes the following *Findings of Fact* in support of the attached renewed Water Management Act (WMA) Permit (#9P-1-06-192.01) and herewith includes 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 the timely filing of a water withdrawal permit renewal application by the Turners Falls Fire District (TFFD).

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

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

- impact of the withdrawal on other sources of water,
- water availability within the *Safe Yield* of the 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, floodplains, and,
- reasonable economic development and job creation.

Water Management Regulation Revisions

In 2010 the Executive Office of Energy and Environmental Affairs (EEA) created 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* was released, with link below.

[MA Sustainable Water Management Initiative \(Framework Summary, November 2012\)](#)

The Department adopted revised Water Management Regulations at 310 CMR 36.00 that incorporate elements of the SWMI framework and Water Conservation Standards adopted by the Massachusetts Water Resource Commission (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). For more information on the Safe Yield methodology, refer to the November 2012 SWMI Framework Summary and Appendices ([SWMI Framework Appendices, November 2012](#)),
- 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 ([Massachusetts Water Conservation Standards](#)) and, including without limitation:
 1. performance standard of 65 residential gallons per capita day (RGPCD) or less,
 2. performance standard of 10% or less unaccounted-for-water (UAW),
 3. seasonal limits on nonessential outdoor water use, and,
 4. a water conservation program that includes leak detection and repair, full metering of the system and proper maintenance of the meters, periodic review of pricing, and education and outreach to residents and industrial and commercial water users, and,
- environmental protections developed through SWMI, including without limitation:
 1. protection for Coldwater fish resources,
 2. minimization of withdrawal impacts in areas stressed by groundwater use, and,
 3. mitigation of the impacts of increasing withdrawals.

Safe Yield in the Connecticut River Basin

This permit has been issued in accordance with 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 Connecticut River Basin water source is 1,866.5 million gallons per day (MGD), with total allocated withdrawals of 149.87 MGD. The maximum withdrawals that will be authorized by this permit, and all other permits currently under review by the Department within the Connecticut River Basin will be within the remaining safe yield and may be further conditioned as outlined in the regulations.

Turners Falls Fire District’s Water Withdrawal History

TFFD’s current total authorized average daily withdrawal rate of 1.18 million gallons per day (MGD) includes 1.04 million gallons per day (MGD) of registered and 0.14 MGD of permitted average daily rates. TFFD’s registration includes two withdrawal sources, GP Well #1 (Tolan Farm Well #1) (01G) and Lake Pleasant (02S). Lake Pleasant is now considered an emergency backup source.

TFFD’s original permit, dated October 12, 1995, included only GP Well #2 (Tolan Farm Well #2) (02G) and had a condition to monitor nearby streamflow due to the presence of Coldwater Fisheries Resources (CFR). A permit modification was issued on November 20, 1995, which after consultation with staff at the Division of Fisheries and Wildlife removed the streamflow monitoring, included an additional allocation of up to a maximum of 0.14 MGD, and identified a maximum daily withdrawal rate of 2.16 MGD for GP Well #2 (02G). A Permit Amendment issued November 20, 2007, added Hannegan Brook Well (03G), specified a combined maximum daily pumping rate of 2.16 MGD for GP Well #1 (01G) and GP Well #2 (02G) (Tolan Farm Wells) and, upon activation, 1.224 MGD for Hannegan Brook Well. A Permit Amendment issued February 7, 2011, increased the maximum daily withdrawal rate of Hannegan Brook Well from 1.224 MGD to 1.44 MGD. **Table 1** below summarizes TFFD’s actual and authorized withdrawal rates for the past 5 years.

TABLE 1: TFFD’S ACTUAL AND AUTHORIZED AVERAGE DAILY WITHDRAWAL RATES

YEAR	TOTAL AUTHORIZED WITHDRAWAL RATE (MGD)	ACTUAL WITHDRAWAL RATE (MGD)
2020	1.18	0.69
2021		0.67
2022		0.61
2023		0.58
2024		0.63

The Permit Extensions

The expiration date in the Connecticut River Basin for all Water Management permits was extended for two years by Chapter 240 of the Acts of 2010 and further extended another two years by Chapter 238 of the Acts of 2012, collectively known as the Permit Extension Act. In November 2016, the Town filed a permit renewal application. Consistent with 310 CMR 36.17(1), the expiration date for withdrawal permits going forward in the Connecticut River Basin will be November 30, 2033.

Findings of Fact for Permit Conditions in Turners Falls Fire District’s WMA Permit

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

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume. This condition has been modified from the prior permit by reducing TFFD’s total allocation from 1.18 MGD to the 1.04 MGD authorized by their Registration Statement (#1-06-192.02). As shown above in Table 1, actual withdrawals have been significantly below the registered volume. Volumes beyond 1.04 MGD would require the preparation of a new Water Needs Forecast (WNF) by the Department of Conservation and Recreation (DCR). Preparing a new WNF would require significant improvement in TFFD’s Unaccounted-for-Water (UAW) values (see Special Condition 6).

Special Condition 2, Maximum Authorized Daily Withdrawal. The condition reflects the approved groundwater withdrawal rates and volume revisions by source, according to the Department approved Zone II rates. GP Well #2 (02G) whether individually or combined with Well 1 (01G) is limited to 2.16 MGD and Hannegan Brook Well (03G) is not to exceed 1.44 MGD.

Special Condition 3, Zone of Contribution Delineations. This condition reflects MassDEP approved Zone II delineations for TFFD’s permitted groundwater withdrawal sources. MassDEP records indicate approved Zone II delineations for TFFD’s permitted groundwater withdrawal sources.

Special Condition 4, Wellhead Protection. The condition requires TFFD’s sources to be in compliance with Wellhead Protection (WHP) regulations at 310 CMR 22.21(2) which protect Zone II recharge areas through conditions of land-use and activities. As a non-municipal public water system serving the Town of Montague, periodically, TFFD is subject to satisfying Best Effort Requirements at 310 CMR 22.21(2) until WHP is met, as cited in the attached Wellhead Protection Guidance | The Best Effort Requirement. Department records indicate Montague’s land use bylaws have not yet adopted Zone II exemptions for agricultural use, requirements for hazardous waste generation, storage and disposal, and floor drain controls, and the neighboring Town of Sunderland does not include adequate WHP for TFFD’s Zone II area extended therein.

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water Use (RGPCD). This condition updates the previous WMA permit Performance Standard of 80 RGPCD to 65 RGPCD. TFFD has been below 65 RGPCD since at least 2020 (Table 2). The Permit provides that if TFFD fails to meet this requirement, TFFD will be required to meet RGPCD Functional Equivalence requirements.

TABLE 2: RESIDENTIAL GALLONS PER CAPITA DAY AND UNACCOUNTED FOR WATER %

Year	RGPCD	UAW %
2020	51	15
2021	47	11
2022	40	22
2023	37	21
2024	38	20
Average	43	18

Special Condition 6, Performance Standard for Unaccounted for Water (UAW). This condition updates the previous WMA permit Performance Standard of 15% UAW to 10% UAW. The Permit requires permittees meet 10% UAW two out of every three years. The Permit will provide that if TFFD fails to meet 10% UAW, TFFD will be required to meet Functional Equivalence requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices.

TFFD has exceeded the former UAW Performance Standard of 15% since 2022 (**Table 2**). UAW Compliance Plans (UAW Plans) submitted by TFFD from 2022 through 2024 failed to identify UAW Plan requirements by not including an analysis of the causes of water loss and a schedule of remedial actions. The Department will require TFFD to conduct and submit the results of an American Water Works Association (AWWA) M36 "Top Down" Component Analysis (M36 Water Audit) by the due date of TFFD's 2026 ASR, followed by the documented development and implementation of a Municipal Water Loss Control Program by December 31, 2027. TFFD has been awarded grant funding by Massachusetts to conduct an AWWA Audit in fiscal year 2026. However, this does not relieve TFFD of UAW special condition requirements.

Special Condition 7, Seasonal Limits on Nonessential Outdoor Water Use.

TFFD's Nonessential Outdoor Water Use Restrictions ("Restrictions") are based on whether the permittee's reported RGPCD for the previous year was in compliance with the RGPCD Performance Standard (see Special Condition #5).

In addition, outdoor water use restrictions for permittees with wells in subbasins [1] that are 25% or more August net groundwater depleted (Aug NGD[2]) are set to minimize withdrawals from depleted subbasins. TFFD's GP Well #2 (02G) is located in Subbasin 14008 which is 36.1% Aug NGD, and therefore, nonessential outdoor water use is limited to 1 or 2 days per week.

Each year TFFD may choose one of the following two options for implementing nonessential outdoor watering restrictions:

- **Calendar triggered restrictions** are in place from May 1st through September 30th. Many public water suppliers find this option easier to implement and enforce than the streamflow triggered approach.
- **Streamflow triggered restrictions** are implemented at those times when streamflow falls below designated flow triggers measured at an assigned, web-based, real-time U.S. Geologic Survey (USGS) stream gage from May 1st through September 30th. At a minimum, restrictions commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions remain in place until streamflow at the assigned USGS stream gage meets or exceeds the trigger streamflow value for seven (7) consecutive days.

If TFFD selects the streamflow trigger approach, it has been assigned **USGS stream gage 01169000**, located on North River at Shattuckville, MA. The gage streamflow triggers at this site are a) **112 cubic feet per second (cfs)** for **May and June**, and b) **38 cfs** for **July, August, and September**.

Should the reliability of flow measurement at this station be so impaired as to question its accuracy, TFFD may request that MassDEP review and approve the transfer to another eligible gage that will trigger restrictions. MassDEP reserves the right to require use of a different gage.

- The **7-Day Low Flow Trigger**, at which point restrictions increase, is incorporated into both Calendar and Streamflow Triggered restrictions in order to provide additional protection to streamflows when flows are very low. The 7-day low-flow station is **USGS Gage 01169000** and is triggered at **15.3 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.

Note that if the permittee also holds a Water Management Act registration, **the nonessential outdoor water use restrictions in the permit shall be controlling.**

Special Condition 8, Water Conservation Requirements. This condition identifies minimum water conservation requirements and will update previous water conservation requirements to reflect the July 2018 standards outlined in the Massachusetts Water Resources Commission's Water Conservation Standards.

Special Condition 9, Minimization of Groundwater Withdrawals Impacts in Stressed Basins. Requires permittees with groundwater sources in subbasins with August NGD of 25% or greater to minimize their withdrawal impacts on those subbasins to the greatest extent feasible through optimization of groundwater source use, surface water releases to improve streamflows, outdoor water use restrictions, and water conservation programs that go beyond standard Water Management permit requirements. TFFD's sources, GP Well #1 (01G) and GP Well #2 (Toland Farm Wells), are located in the Connecticut River Subbasin #14008, which has an August NGD of 36%. TFFD has submitted a Minimization Plan as part of the application which has been incorporated into Special Condition 10 of this permit.

Special Condition 10, Water Use and Reporting. This condition identifies water use reporting requirements by the filing of Annual Statistical Reports (ASRs) from the Permittee to include raw and finished water volumes for the entire water system and raw water volumes for individual water withdrawal points.

Other WMA Considerations

Coldwater Fishery Resource (CFR) Protection. Permittees with withdrawals point(s) impacting a CFR must evaluate options for shifting withdrawals to other withdrawal points and/or utilizing potentially alternative withdrawal sources to minimize the impacts to CFRs through feasible optimization. TFFD's withdrawal sources are in two subbasins (#14008 and #14009), each with a CFR. The Department's CFR consultation with the Division of Fisheries and Wildlife concluded that shifting groundwater withdrawals to the lesser impacted subbasin is not required at this time since TFFD withdrawal volumes are significantly below their registered volume and the renewed permit authorizes no increase in allocation above the registered volume, and minimization requirements will potentially reduce demands helping to further minimize impact to both subbasins. Should water use increasing significantly, the CFR Optimization Review may be revisited.

Mitigation of Impacts for Withdrawals that Exceed a Baseline Withdrawal. The WMA regulations require WMA permittees to address mitigation of withdrawals greater than the permittees baseline withdrawal volume. Water Management Act permittees whose total authorized volume exceeds their baseline volume are required to implement mitigation measures to offset impact of their withdrawals above the baseline.

WMA regulations, 310 CMR 36.03, define baseline to mean the volume of water withdrawn during calendar year 2005 plus 5%, or the average annual volume withdrawn from 2003 through 2005 plus 5%, whichever is greater provided that:

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

TFFD's permit allocates no additional volume, therefore TFFD's baseline is their registration volume of 1.04 MGD. An authorized volume above baseline would require TFFD to obtain a new WNF and mitigation measures commensurate with the increase above baseline.

Changes from Draft Permit

Ongoing efforts by the United State Geological Survey (USGS) to update the USGS National Water Information System (NWIS): Web Interface have resulted in changes to the web links for accessing USGS streamflow information. As a result, suppliers have sometimes been unable to access their trigger information for implementing nonessential outdoor water use restrictions.

MassDEP has now developed an internal webpage to better support suppliers' access to the USGS website. Permits will now direct permittees to a MassDEP webpage to link to the USGS web interface. Any ongoing changes to the USGS web interface links will be updated in the MassDEP webpage. This change was not introduced in the draft permit that was recently released but is incorporated in this final permit. There are no changes to the requirements for the permittee, only changes to the instructions for accessing stream gage data (see **Table 5**).

Questions about accessing trigger information for implementing nonessential outdoor water use restrictions, should be directed to Brittany Segill at Brittany.segill@mass.gov or to dep.wma@mass.gov.



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

WATER WITHDRAWAL PERMIT M.G.L. c. 21G

This permit is issued 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 beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P-1-06-192.01

RIVER BASIN: CONNECTICUT

PERMITTEE: Turners Falls Fire District
226 Millers Falls Road
Turners Falls, MA 01376

EFFECTIVE DATE: June 11, 2026

EXPIRATION DATE: November 30, 2033

NUMBER OF WITHDRAWAL POINTS: 2
Groundwater: 2

USE: Public Water System (PWS)

DAYS OF OPERATION: 365

LOCATIONS:

TABLE 1: WITHDRAWAL POINT IDENTIFICATION

SOURCE NAME	PWS SOURCE ID
GP WELL #2 (TOLAN FARMS WELL #2)	1192000-02G
HANNEGAN BROOK WELL	1192000-03G

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes Turners Falls Fire District (TFFD) to withdraw water from the Connecticut River Basin at rates described below in **Table 2**. The permitted volume is expressed both as an annual average daily withdrawal rate in million gallons per day (MGD) and as a total annual withdrawal volume in million gallons per year (MGY) for the permit period. The Department of Environmental Protection (MassDEP) uses raw water withdrawal volumes from all authorized withdrawal points to assess compliance with the registered and permitted withdrawal volumes.

**TABLE 2:
MAXIMUM AUTHORIZED ANNUAL AVERAGE RAW WATER WITHDRAWAL VOLUMES**

PERMIT PERIOD	Permit		Registration + Permit	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
6/11/2026 to 11/30/2033	0.0	0	1.04 + 0 = 1.04	379.6 + 0379.6 = 379.6

2. Authorized Withdrawal Points

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed below in **Table 3** without specific advance written approval from the MassDEP. The authorized maximum daily volume is the approved daily rate obtained through the MassDEP new source approval process.

TABLE 3: MAXIMUM DAILY WITHDRAWAL VOLUMES IN MGD

WELL NAME	PWS SOURCE CODE	MAXIMUM DAILY RATE
GP WELL #2	1192000-02G	2.16
HANNEGAN BROOK WELL	1192000-03G	1.44
GP WELL #1 & GP WELL #2 COMBINED	1192000-01G & 1192000-02G	2.16

3. Zone of Contribution Delineations

MassDEP records show that the combined withdrawals from GP Well #2 and Hannegan Brook Well have MassDEP approved Zone II delineations. No further Zone II delineation work is required as a condition of this permit.

4. Wellhead Protection

MassDEP records show that TFFD is not in compliance with Wellhead Protection (WHP) Regulations 310 CMR 22.12(2) relative to 1) adoption of Zone II exemptions for agricultural use, requirements for hazardous waste generation, storage and disposal, and floor drain controls, and 2) adequate protection of TFFD’s Zone II area extending into the town of Sunderland. Being a non-municipal public water system, the alternative wellhead protection compliance standard provides for TFFD to meet Best Effort Requirement (Best Effort) at 310 CMR 22.21(1). Using Best Effort notification criteria cited at [Wellhead Protection Guidance | The Best Effort Requirement](#), until all WHP criteria is met, TFFD shall, on a periodic basis, request from the towns of Montague and Sunderland conformance with aforementioned land use non-compliances.

5. Performance Standard for Residential Gallons Per Capita Day (RGPCD) Water Use

TFFD is required to meet the 65 RGPCD performance standard. TFFD shall report its RGPCD water use annually in its Annual Statistical Report (ASR), and document compliance with this performance standard in its ASR for 2027 and each year thereafter. As part of its ASR submittals, TFFD shall report its RGPCD and the method of calculation used to derive it 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 requirements if the performance standard for RGPCD is not met.

6. Performance Standard for Unaccounted for Water

TFFD was required to meet an annual UAW of 15% or less by December 31, 2009. TFFD failed to meet the 15% for the years 2022 – 2024. The Performance Standard has now changed statewide to a UAW of 10% or less of overall water withdrawal for two (2) out of the three (3) current consecutive years throughout the permit period. Permittees that cannot comply with the UAW Performance Standard are required to develop and implement Functional Equivalence requirements for UAW which are based on the American Water Works Association (AWWA) Water Audits and Loss Control Program, Manual of Water Supply Practices M36, as outlined in **Appendix B**. TFFD shall report its UAW annually in its Annual Statistical Report (ASR).

Conditions of this permit include the following schedule of compliance actions and dates:

- 1) By the due date of TFFD's 2026 ASR, as a component of the subsequent implementation of a Municipal Water Loss Control Program, TFFD shall conduct and submit a "Top Down" American Water Works Association (AWWA) M36 Audit providing a water balance of water losses, and,
- 2) By December 31, 2027, the development and implementation of a Municipal Water Loss Control Program shall be completed. 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 UAW 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 ASR for public water suppliers.

TFFD is required to meet the performance standard of 10% for unaccounted for water (UAW) of its total finished water. TFFD shall report its UAW annually in its ASR and document compliance with this performance standard in its ASR for 2026 and each year thereafter. As part of its ASR submittals, TFFD shall report the calculation used to derive its UAW.

See **Appendix B** for additional information on requirements if the performance standard for UAW is not met.

7. Limits on Nonessential Outdoor Water Use

TFFD shall limit nonessential outdoor water use through mandatory restrictions from May 1 through September 30, as outlined in **Table 4** below. TFFD 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.

When RGPCD for the previous year is 65 or below, TFFD shall choose either Calendar Triggered Restrictions or Streamflow Triggered Restrictions.

TABLE 4: LIMITS ON NONESSENTIAL OUTDOOR WATER USE

<p>For Permittees Meeting the 65 RGPCD Standard for the Preceding Year</p> <p>When RGPCD is 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) Two (2) days per week, unless, b) USGS gage 01169000, located on North River at Shattuckville, MA falls below 15.3 cfs for three (3) consecutive days, then one (1) day per week is allowed. <p>Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at gage meets or exceeds 15.3 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) Two (2) days per week when USGS gage 01169000, located on North River at Shattuckville, MA falls below: <ul style="list-style-type: none"> ➤ 112 cfs for three (3) consecutive days from May 1 – June 30, and ➤ 38 cfs for three (3) consecutive days from July 1 – September 30, unless, b) USGS gage 01169000 falls below 15.3 cfs for three (3) consecutive days at any time from May 1 – September 30, then one (1) day per week is allowed. <p>Once implemented, restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.</p>
<p>For Permittees NOT Meeting the 65 RGPCD Standard for the Preceding Year</p> <p>When RGPCD is 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</p>
<p>CALENDAR Triggered Restrictions:</p> <p>Nonessential outdoor water use is allowed before 9 a.m. and after 5 p.m. one (1) day per week.</p>
<p>STREAMFLOW Triggered Restrictions:</p> <p>Nonessential outdoor water use is allowed before 9 a.m. and after 5 p.m. one (1) day per week when USGS gage 01169000, located on North River at Shattuckville, MA falls below:</p> <ul style="list-style-type: none"> ➤ 112 cfs for three (3) consecutive days from May 1 – June 30, and, ➤ 38 cfs for three (3) consecutive days from July 1 – September 30. <p>Once implemented, restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.</p>

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.

Mean daily streamflow gage readings are also available by following the instructions on MassDEP's [USGS Stream Gage and Well-Monitoring Data webpage](#).

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 01169000**, located on North River at Shattuckville, MA be so impaired as to question its accuracy, TFFD 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 link [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 TFFD 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, TFFD shall implement the following conservation measures. Compliance with the water conservation requirements shall be reported to MassDEP upon request, unless otherwise noted below in **Table 6**.

TABLE 6: MINIMUM WATER CONSERVATION REQUIREMENTS

System Water Audits and Leak Detection

1. At a minimum, conduct a full leak detection survey every three years. The first full leak detection survey shall be completed no later than 3 years from the date of the last documented leak detection survey.
2. Conduct leak detection of the entire distribution system within one year whenever the percentage of UAW increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey, submit to the Department a report detailing the survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs.
3. Conduct field surveys for leaks and repair programs in accordance with the AWWA Manual 36.
4. TFFD shall have repair reports available for inspection by MassDEP. TFFD shall establish a schedule for repairing leaks that is at least as stringent as the following:
 - Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection.
 - Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible.
 - Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except 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 TFFD 's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. TFFD shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.

Metering

1. TFFD shall continue to calibrate all source and finish water meters at least annually and report date of calibration on the ASR.
2. TFFD shall complete updating its metering system as soon as possible to reach 100% metering.
3. Each year TFFD shall submit as an attachment to their ASR a list of water meters greater than 20 years old and a list of water meters replaced that year.

Pricing

1. TFFD shall have a plan and schedule for establishing and maintaining a water pricing structure that includes the full cost of operating the water supply system. Thereafter, TFFD shall implement the plan and schedule as approved by MassDEP. Full cost pricing factors all costs - operations, maintenance, capital, and indirect costs (environmental impacts, watershed protection) - into prices.
2. Evaluate rates at a minimum every three to five years and adjust costs as needed.
3. TFFD will continue to implement an increasing block rate structure.
4. TFFD shall continue to bill at least quarterly.

TABLE 6 (continued): MINIMUM WATER CONSERVATION REQUIREMENTS (continued)

Residential and Public Sector Conservation

1. TFFD shall ensure that the standards set forth in the Federal Energy Policy Act of 1992 and the Massachusetts Plumbing Code are met when buildings are constructed or renovated.
2. TFFD reports metering water supplied to contractors using fire hydrants for pipe flushing and construction and shall continue to do so.
3. Within 24 months of issuance of this permit, TFFD shall ensure that it has enforcement authority in place for the specific Seasonal Limits on Nonessential Outdoor Water Use contained in Special Condition 7 of this permit.

Industrial and Commercial Water Conservation

1. TFFD shall inspect industrial facilities and recommend the use of separate meters for process water where appropriate.

Public Education and Outreach

1. Within six months of the effective date of this permit, TFFD shall submit to MassDEP a plan and schedule for the development and implementation of a water conservation education and outreach plan designed to educate customers on ways to conserve water.

Without limitation, the 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. Thereafter, TFFD shall develop and implement the water conservation education and outreach plan and schedule as approved by MassDEP. Upon request of MassDEP, TFFD shall report on its public education and outreach efforts.

9. Minimization

TFFD's Tolan Farm Wells (01G and 02G) are in a depleted subbasin (14008) with an August NGD of 36%. Therefore, in accordance with 310 CMR 22(5), TFFD shall implement the elements listed below based on their July 7, 2025-submitted *Minimization Plan* to offset impacts to the depleted subbasin containing GP Well #2 (02G):

To minimize the amount of groundwater being withdrawn at Well 2, the Turners Falls Water District shall implement the following protocols when feasible during the July-September months or drought periods:

1. Run GP Well #2 at a lower rate when the water is not needed to perform Filter Plant regenerations. The Swamp Road Filter Plant requires a minimum of 1,000 GPM to perform weekly backwashes, regenerations, and air washes. When the required flow is not necessary the TFWD shall run the well at a lower rate.
2. Run the Hannegan Brook (HB) Well more frequently. The amount of water being withdrawn in Subbasin 14008 can be reduced by pumping the HB Well located in Subbasin 14009 more. TFFD notes that attention will need to be given to the amount of Potassium Hydroxide being used for Hannegan Brook Well due to its high cost. Hannegan Brook Well is more expensive to operate than Well 2.

10. Water Use and Reporting

TFFD shall continue to file Annual Statistical Reports which include raw and finished water volumes for the entire water system and the raw water volumes for individual water withdrawal points.

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.



June 11, 2026

Duane LeVangie
Water Management Program Chief
Bureau of Water Resources

Date

Endnotes

Appendix A: Functional Equivalence with the RGPCD Performance Standard

Appendix B: Functional Equivalence with the 10% UAW Performance Standard

ENDNOTES

- [1] 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) at [USGS Publication | sir20095272](#). The Water Management Regulations, 310 CMR 36.03, define August net groundwater depletion (NGD) to mean the unimpeded median flow for August minus 2000-2004 groundwater withdrawals plus 2000-2004 groundwater returns described by U.S. Geological Survey in Indicators of Streamflow Alteration, Habitat Fragmentation, Impervious Cover and Water Quality for Massachusetts Stream Basins. A subbasin is groundwater, depleted if it has an August NGD of greater than 25%.
- [2] 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.

APPENDIX A

Functional Equivalence with 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 be in compliance with the permit Special Condition, Seasonal Limits on Nonessential Outdoor Water Use, and 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 (UAW)
Performance Standard

Water Loss Control Program: 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 ongoing Water Loss Control Program in place that ensures best practices for controlling water loss.

Developing a Municipal Water Loss Control Program: A permittee who fails to document compliance with the 10% UAW performance standard for 2 out of the 3 years during the permit period, shall develop a Municipal Water Loss Control Program in accordance with the *AWWA M36 Water Audits and Loss Control Program*. Within 5 full calendar years of failing to meet the standard, the permittee shall:

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 as an attachment to the 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 component analysis and long-term program to reduce real and apparent water losses.
 - i. 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.
 - ii. Developing data with an acceptably strong validity score can be a multi-year process.
2. When the data validity score meets the Level III (51-70) requirement, conduct a component analysis to identify causes of real and apparent water loss and develop a program to control losses based on the results of the component analysis.
3. Submit the Municipal Water Loss Control Program that includes an M36 component analysis and implementation schedule and identifies implementation funding to the Department.
4. Upon request of the Department, the permittee shall report on its implementation of the water loss control program.
5. Continued implementation of the Program will be required for the permittee to be considered functionally equivalent with the 10% UAW performance standard and in compliance with their permit.

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

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

However, these small systems can benefit from developing reliable data and conducting an annual top-down water audit. Small systems can rely on the real losses (gallons per mile of main per day) performance indicator developed in the water audit as a measure of real water loss when developing a water loss control program. The M36 Manual discusses the audit process for small systems and includes a chapter to guide small systems in understanding the results of their audits and in developing a water loss control program (*Manual of Water Supply Practices – M36, Fourth Edition, Chapter 9: Considerations for Small Systems*, pp. 293-305).

MassDEP Water Loss Control Program: If the permittee is required to develop a Water Loss Control Program in order to be functionally equivalent with the 10% Unaccounted for Water Performance Standard, and the permittee has not developed a Municipal Water Loss Control Program that includes a component analysis and identifies implementation funding after 5 full calendar years of failing to meet the standard, the permittee will be required to implement the MassDEP UAW Water Loss Control Program measures outlined below:

- Complete an annual water audit and leak detection survey, as described in the AWWA M36 Manual, for 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.
- Review the permittee's water pricing structure and ensure revenues are 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 Water Loss Control Program and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce equal or greater environmental benefits.

A permittee's hardship analysis shall:

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

MassDEP will review a permittee's detailed, written analysis to determine whether unique circumstances make specific water loss control measures less cost-effective than alternatives, or infeasible for the permittee.