Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

DRAFT

July 10, 2023

Bruce Graham
Norwell Select Board, Chair
345 Main Street
Norwell, MA 02061

RE: Town of Norwell
PWS Number: 4219000
WMA Permit #9P-4-19-219.01
Action: Draft Renewed Permit

Dear Mr. Graham:

Please find the attached documents:

- DRAFT Findings of Fact in Support of the Renewed Permit #9P-4-19-219.01; and
- DRAFT Water Management Act Permit #9P-4-19-219.01 (Boston Harbor Basin) for the Town of Norwell.

Consistent with 310 CMR 36.27 (6)-(8) of the revised Water Management Act Regulations promulgated on November 7, 2014, the Department will now publish notice in the Environmental Monitor that a DRAFT Permit is available for review and comment for 30 days following July 10, 2023 publication in the Environmental Monitor. Notice of the public comment period will also be sent to all registrants, permittees and those having non-consumptive use statements within the Boston Harbor Basin. The Department expects to issue the final permit within 30 days of the close of the public comment period.

The signature on this cover letter indicates formal issuance of the attached document. If you have any questions regarding this information, please contact Shi Chen at shi.chen@mass.gov or 857-360-0042.

Very truly yours,

Duane LeVangie,
Water Management Program Chief
Bureau of Water Resources

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

mass.gov.sharepoint.com/W: DWPArchive\SERO\2023\Norwell-4219000- DRAFT BH Permit 9P41921901-2023-7-10

Ecc: Jason Federico, Norwell Water Department
Jen Pederson, MWWA
Julia Blatt and Sarah Bower, Massachusetts Rivers Alliance
Jim McLaughlin, SERO
Samantha Woods, North & South Rivers Watershed Association
Anne Carroll, DCR

Massachusetts Department of Environmental Protection
One Winter Street, Boston MA 02108 • Phone: 857 262-0606

Communication for Non-English-Speaking Parties - 310 CMR 1.03(5)(a)

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

2 Español (Spanish):
Este documento es importante y debe ser traducido inmediatamente. Si necesita este documento traducido, comuníquese con el Director de Diversidad de MassDEP a los números de teléfono que aparecen más abajo.

3 Português (Portuguese):
Este documento é importante e deve ser traduzido imediatamente. Se você precisa deste documento traduzido, entre em contato com Diretor de Diversidade da MassDEP para os números de telefone listados abaixo.

4(a) 中國（傳統）(Chinese (Traditional):
本文件非常重要，應立即翻譯。如果您需要翻譯這份文件，請用下面列出的電話號碼與 MassDEP 的多元化總監聯繫。

4(b) 中国（简体中文）(Chinese (Simplified):
本文件非常重要，应立即翻译。如果您需要翻译这份文件，请用下面列出的电话号码与 MassDEP 的多元化总监联系。

5 Ayisyen (franse kreyòl) (Haitian) (French Creole):
Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradui imedyatman. Si ou bezwen dokiman sa a tradui, tanpri kontakte Divèsite Direktè MassDEP a nan nimewo telefòn ki nan lis pi ba a.

6 Việt (Vietnamese):
Tài liệu này rất quan trọng và cần được dịch ngay lập tức. Nếu bạn cần dịch tài liệu này, xin vui lòng liên hệ với Giám đốc Đa dạng của MassDEP theo các số điện thoại được liệt kê dưới đây.

7 ប្រទេសកម្ពុជា (Kmer (Cambodian):
ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាម។ ប្រសិនបើអ្នកត្រូវបានបកប្រែឯកសារនេះសូមទំនាក់ទំនងឯកោតជានាយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយខាងក្រោម។

8 Kriolu Kabuverdianu (Cape Verdean):
Es documento é importante e deve ser traduzido imidiatamente. Se bo precisa des documento traduzido, por favor contacta Director de Diversidade na MassDEP's pa es numero indicode li d'boche.

9 Русский язык (Russian):
Это важный документ и он должен быть безотлагательно переведен. Если вам нужен перевод данного документа, пожалуйста, свяжитесь с директором по разнообразию компании MassDEP по телефону указанному ниже

10 العربية (Arabic):
هذه الوثيقة مهمة ويجب ترجمتها على الفور. اذا كنت بحاجة الى هذه الوثيقة المترجمة، يرجى الاتصال بمدير التنوع في PMassDEعلى أرقام الهواتف المدرجة أدناه.

11 한국어 (Korean):
이 문서는 중요하고 즉시 번역해야 합니다. 이 문서의 번역이 필요하시다면, 아래의 전화 번호로 MassDEP 의 다양성 감독에 문의하시기 바랍니다.

12 հայերեն (Armenian):
Այս փաստաթուղթը շատ կարեւոր է եւ պետք է թարգմանել անմիջապես. Եթե Ձեզ անհրաժեշտ է այս փաստաթուղթը թարգմանվել դիմել MassDEP բազմազանությունը տնօրեն է հեռախոսահամարների թվարկված են ստորեւ.

13 فارسی (Farsi [Persian]):
این سند مهم است و باید فورا ترجمه شده است.
اگر شما نیاز به این سند ترجمه شده، لطفا با ما تماس تنوع مدیر PMassDE در شماره تلفن های ذکر شده در زیر.

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

15 Deutsch (German):
Dieses Dokument ist wichtig und sollte sofort übersetzt werden. Sofern Sie die Übersetzung von diesem Dokument benötigen, wenden Sie sich bitte an den Diversity Director MassDEP unter der unten aufgeführten Telefonnummer.

16 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.

17 Italiano (Italian):
Questo documento è importante e dovrebbe essere tradotto immediatamente. Se avete bisogno di questo documento tradotto, si prega di contattare il Direttore di Diversità di MassDEP ai numeri di telefono elencati di seguito.

18 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.

19 हिन्दी **(Hindi):**
यह दस्तावेज महत्वपूर्ण है और तुरंत अनुवाद किया जाना चाहिए. यदि आपको इस दस्तावेज़ का अनुवाद करने की आवश्यकता है, तो कृपया नीचे सूचीबद्ध टेलीफोन नंबरों पर मासडेप्स डाइवर्सिटी के निदेशक से संपर्क करें।.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

Findings of Fact in Support of
DRAFT Water Management Permit # 9P-4-19-219.01
Town of Norwell

The Department of Environmental Protection (the Department or MassDEP) makes the following Findings of Fact in support of the attached Draft Water Management Permit #9P-4-19-219.01, and includes herewith its reasons for issuing the Draft 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 Management Act (WMA) permit renewal application by the Town of Norwell (the Town or Norwell).

The Town of Norwell Withdrawal Summary

Norwell is registered to withdraw an annual daily average volume of 0.32 MGD from three groundwater sources in the Boston Harbor Basin; Grove Street GP Well #2 (02G), Grove Street GP Well #3 (03G), and Grove Street GP Well #5 (05G). See Registration #4-19-219.01. On May 31, 1991, the Department issued Norwell a WMA Permit for the three previously registered groundwater sources in the Boston Harbor Basin and one additional groundwater source, Grove Street Well GP #10 (11G).

Norwell is also registered to withdraw an annual daily average volume of 0.68 MGD from six groundwater sources in the South Coastal Basin GP Well #1 (01G), Well #4 Replacement Well (13G), Well #6 Replacement Well (12G), GP Well #7 (08G), GP Well #8 (09G), and GP Well #9 (10G).

In 1999, the Town applied for a WMA Permit for an additional groundwater source in the South Coastal Basin, GP Well #11(12G). In response to that application, MassDEP issued a joint permit for Norwell's sources in the Boston Harbor and South Coastal Permit. That permit allowed Norwell to pump a total average daily volume of up to 0.40 MGD from either of the two basins above the registered volumes. The 1999 Joint WMA Permit provided that the maximum approved pumping rate for Norwell's four permitted groundwater sources in the Boston Harbor Basin was 0.51 MGD.

On September 6, 2002, at the request of the Town, MassDEP issued separate permits for the authorized groundwater sources in each basin. The 0.40 MGD permitted volume was not split

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

between the two basins, which provided Norwell flexibility on how it was withdrawn between the two permits. However, the combined withdrawals from the two basins cannot exceed their combined registered volumes by more than 0.40 MGD and the individual rates identified for each basin.

In 2006, MassDEP issued separate Draft WMA Permits for Norwell's sources in both basins. The 2006 Draft Boston Harbor WMA Permit provided that the maximum approved pumping rate for Norwell's four groundwater sources in the Boston Harbor Basin was 0.64 MGD pending documentation including a reevaluation of the Zone II delineation of the Boston Harbor groundwater sources. The 2006 Draft Boston Harbor WMA Permit further provided that although the Town could pump up to 1.40 MGD from its combined sources in both the South Coastal and Boston Harbor Basins (0.40 MGD more than the combined registered volume in both basins), Norwell could not pump more than an annual average daily volume of 0.64 MGD from its sources in the Boston Harbor Basin (0.32 MGD above its registered volume in the Boston Harbor Basin). The Findings of Fact accompanying the 2006 Draft Boston Harbor WMA Permit additionally stated that the combined pumping rate for the Boston Harbor permitted groundwater sources would return to 0.51 MGD, the maximum approved pumping rate set forth in the 1999 Joint WMA Permit if the Town did not submit documentation that reevaluates the Zone II delineation and supports the increased maximum pumping rate. To date, the Town has not submitted the required documentation.

In 2010, MassDEP issued an Amended South Coastal Basin WMA Permit. The 2010 Amended South Coastal WMA Permit reallocated the withdrawal volume originally allocated to Well #11 which was never built to Well #1 and Well #6. In 2018, MassDEP issued a renewed South Coastal Basin Permit. The 2018 Renewed South Coastal Basin WMA Permit contains many conditions that are included in the DRAFT 2023 Renewed Boston Harbor WMA Permit including the Performance Standard for Residential Gallons Per Capita Day (RGPCD) and Unaccounted for Water (UAW) and the Seasonal Restrictions on Nonessential Outdoor Water Use.

The Permit Extensions

The original Boston Harbor permit issued in 1991 and modified in 2002 had an expiration date which was initially set to expire on February 28, 2010. MassDEP accepted a renewal application from Norwell for their Boston Harbor Basin permit on November 27, 2009. MassDEP issued an interim permit on February 28, 2010, to provide time for review of the renewal application. The interim permit was valid for one year from the date of issuance until February 28, 2011. Subsequently, the Permit Extension Act, Section 173 of Chapter 240 of the Acts of 2010, as amended by Sections 74 and 75 of Chapter 238 of the Acts of 2012, extended all existing interim permits by four years. Therefore, the WMA interim permit for withdrawals in the Boston Harbor Basin was extended to February 28, 2015. Because the term of the interim permit extends beyond the term of the original permit, Norwell's interim permit is the controlling permit.

On January 9, 2015, the Department informed Norwell that the Department would need additional time before making a determination on the application in order to ensure that all permit renewal applicants in the Boston Harbor Basin fully understood the new Water

Management Regulations (discussed below), and to give proper consideration to all permit renewal applications within the basin. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), Norwell's interim permit continues in force and effect until the Department issues a final decision on the permit renewal application.

The Department published notice of the permit renewal application in the Environmental Monitor for a second time on September 5, 2018. No comments were received.
The expiration date for all permits going forward in the Boston Harbor Basin will be June 5, 2031, 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 Boston Harbor Basin section of this

document or for more information on the Safe Yield methodology, go to the November 28, 2012 SWMI Framework Summary and Appendices);

- Water needs forecasts for public water suppliers developed by the Department of Conservation and Recreation, Office of Water Resources (DCR), using a methodology reviewed and approved by the Massachusetts WRC;
- Water supply protection measures for public water supplies including Zone II delineations for groundwater sources, and wellhead and surface water protection measures as required by Massachusetts Drinking Water Regulations (310 CMR 22.00);

Water conservation standards reviewed and approved by the WRC in July 2006 and revised in July 2018 (https://www.mass.gov/doc/massachusetts-water-conservation-standards-2)/ 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;
  - 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;
  - protection for coldwater fish resources;
  - minimization of withdrawal impacts in areas stressed by groundwater use;
  - mitigation of the impacts of increasing withdrawals.

Safe Yield in the Boston Harbor 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. With the issuance of this permit which actually lowers the allocated volume (Registered 0.32 MGD + Permitted 0.40 MGD = 0.72 MGD reduced to potentially 0.64 MGD) by 0.08 MGD, the Safe Yield calculation for the Boston Harbor Basin is 54.9 million gallons per day (MGD), and total registered and permitted withdrawals are reduced from 37.94 MGD to 37.86 MGD. The maximum withdrawals that will be authorized in this permit, and all other permits currently under review by the Department within the Boston Harbor Basin, will be within the Safe Yield and conditioned as outlined in the regulations. Withdrawal authorizations are further limited by other factors, such as the impact to local resources, water quality constraints, pumping rate limits placed on individual sources, and the regulatory requirement that permit holders demonstrate a need for the water. The renewed permit will not increase the volume of withdrawals from the Boston Harbor Basin and will not cause an exceedance of the Basin's safe yield.

Findings of Fact for Permit Conditions in Norwell's Water Management Act 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 DRAFT permit. This summary of permit special conditions is not intended to, and should not be construed as, modifying any of the permit special conditions. In the event of any ambiguity between this summary and the actual permit conditions, the permit language shall control.

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume, reflects the total (registered plus permitted) annual average authorized withdrawal volume from the Boston Harbor Basin and the combined volumes authorized from the Boston Harbor and South Coastal Basins. The combined volumes reflect Norwell's Water Needs Forecast (WNF) prepared by the Department of Conservation and Recreation's Office of Water Resources (DCR) assuming that Norwell meets the Performance Standard for Residential Gallons per Capita Day (RGPCD) and 10 % Unaccounted for Water (UAW). See Table 1. The combined volumes for the Boston Harbor and South Coastal Basin sources also appear in the 2018 Renewed South Coastal Basin WMA Permit. Norwell's recent water use is less than the combined annual average daily withdrawal volumes set forth in the 2018 Renewed South Coastal Basin WMA Permit and the DCR WNF. See Table 2. Should Norwell need to increase its authorized combined withdrawal volumes for the system, a WM03 new permit application is required.

Table 1 Norwell Water Department
System-Wide WNF of Annual Average Daily Water Withdrawal Rates (MGD)

	2025	2030	2030 plus 5% buffer
DCR 65/10 WNF	1.14	1.15	1.15 + 0.06 = 1.21

Table 2 Norwell's 2017-2021 Water Withdrawals (MGD)

	2017	2018	2019	2020	2021	2017-2021 Average
South Coastal	0.69	0.60	0.58	0.57	0.45	0.58
Boston Harbor	0.27	0.28	0.34	0.40	0.49	0.356
Combined	0.96	0.88	0.92	0.97	0.94	0.934

As noted above, Special Condition 1 also specifies the combined volume for the Boston Harbor Basin sources. The combined annual average daily volume for the Boston Harbor Basin sources depends on the documentation submitted by the Town of Norwell. Unless and until the Town submits documentation justifying a combined maximum daily rate for the Boston Harbor Basin sources that is higher than the 0.51 MGD set forth in the 1999 Joint WMA Permit, the combined annual average daily rate for the Boston Harbor Basin sources shall not exceed 0.51 MGD.

Special Condition 2, Maximum Daily Withdrawals from Groundwater Withdrawal Points, reflects the Department approved Zone II maximum daily pumping rate for each of Norwell`s permitted Boston Harbor wells based on prolonged pumping tests for all of the wells combined. Norwell has not submitted the necessary pumping test data justifying a combined pumping rate higher than the 0.51 MGD set forth in the joint South Coastal and Boston Harbor Basin WMA Permit issued on October 14, 1999. However, MassDEP recognizes that Norwell may need to temporarily shift its withdrawals from its sources in the South Coastal Basin to its sources in the Boston Harbor Basin while the South Street Water Treatment Facility is being modified to address water quality issues (PFAS). Therefore, MassDEP will temporarily allow Norwell to withdraw up to a combined 0.64 MGD from all the Boston Harbor Basin sources while it pursues the necessary approvals, including a Water Management Act permit amendment, for the higher maximum daily withdrawal rate. This higher withdrawal rate is authorized for one year from the issuance date of this permit renewal, unless extended by the Department.

Special Condition 3, Zone II Delineations All of Norwell`s permitted sources have approved Zone II`s delineated. No further Zone II work is required as a condition of this permit. If, however, Norwell seeks a combined maximum pumping rate for its Boston Harbor Basin sources that is greater than 0.51 MGD, Norwell is required to redelineate the Zone IIs of those sources.

Special Condition 4, Wellhead Protection, requirements have been met and are up to date as of the issuance of this permit. No further Wellhead Protection work is required as a condition of this permit unless and until the Zone IIs of Norwell's Boston Harbor sources are redelineated.

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day (RGPCD) Water Use, for all public water suppliers (PWSs) is 65. As shown in Table 3, Norwell has met this Performance Standard since 2017. Permittees that cannot comply with the RGPCD Performance Standard are required to develop and implement a functional equivalence program as set forth in Appendix A Functional Equivalence with the RGPCD Performance Standard.

Table 3 Residential Gallons Per Capita Day Water Use

Year	2021	2020	2019	2018	2017
RGPCD	52	61	58	53	60

Special Condition 6 Performance Standard for Unaccounted for Water (UAW), for all Public Water Suppliers (PWSs) is 10%. Norwell is required to meet 10% or less UAW for two of the three most recent years throughout the permit period, As shown in Table 4, Norwell has met this Performance Standard since 2017 except for the year of 2021. Permittees that cannot comply with the UAW Performance Standard are required to develop and implement a water loss control program as set forth in Appendix B Functional Equivalence with the 10% UAW Performance Standard.

Table 4 Unaccounted for Water

Year	2021	2020	2019	2018	2017
UAW	16%	9.0%	5.0%	9.0%	9.0%

Special Condition 7 Seasonal Limits on Nonessential Outdoor Water Use specifies the restrictions on nonessential outdoor water use from May through September. The options outlined in Special Condition 7 are based on whether reported RGPCD for the previous year was in compliance with the RGPCD Performance Standard (see Special Condition 5, Performance Standard for RGPCD).

In addition, outdoor water use by suppliers, like Norwell, with wells in August net groundwater depleted subbasins[1] is limited to one or two days per week to minimize withdrawals from depleted subbasins.

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

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

If Norwell selects the streamflow trigger approach, it has been assigned USGS stream gage 01105730 Indian Head River at Hanover. The May-June streamflow trigger is 31 cubic feet per second (cfs), and the July-September streamflow trigger is 13 cfs. Should the reliability of flow measurement at the Indian Head River gage at Hanover be so impaired as to question its accuracy, Norwell may request the Department review and approval to transfer to another gage to trigger restrictions. The Department reserves the right to require use of a different gage.

- **The 7-Day Low Flow Trigger**, at which restrictions increase, is incorporated into both Calendar and Streamflow Triggered restrictions in order to provide additional protection to streamflows when flows are very low. The 7-day low flow trigger for Norwell is 4.9 cfs.

Norwell may choose to implement limits on nonessential outdoor water use that are stricter than those required by the permit. This condition has not changed from the condition included in the 2018 South Coastal Basin Permit.

Special Condition 8 Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission in July 2018 (https://www.mass.gov/doc/massachusetts-water-conservation-standards-2).

Special Condition 9, Minimization of Groundwater Withdrawal Impacts in Stressed Subbsins, requires permittees with permitted groundwater sources in subbasins with net groundwater depletion of 25% or more during August to minimize their withdrawal impacts on those subbasins to the greatest extent feasible, through optimization of groundwater source use,

[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).

surface water releases to improve streamflows, outdoor water use restrictions and water conservation programs that go beyond standard Water Management permit requirements.

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

- All of Norwell's Boston Harbor groundwater sources are in Subbasin 21037, a subbasin with an August NGD of 151.9%, and three of Norwell's South Coastal Basin sources are in Subbasin 22015, a subbasin with an August NGD of 49.3%. Although three of Norwell's South Coastal basin sources are in Subbasin 22013, due to the limited authorized maximum daily withdrawal rates of those three wells, the Department determined that Norwell is unable to shift its withdrawals to a less impacted subbasin in the summer to alleviate impacts, therefore it needs to use its sources in groundwater depleted subbasins to meet summer demand.

- Additional data is required to evaluate the potential for releases from Jacobs Pond, as stated in Norwell's 2018 South Coastal Basin Renewed Permit. Norwell should provide an update on any additional work or evaluations of releases from Jacobs Pond to MassDEP within six months of the issuance of the permit.

- Although the limits on nonessential outdoor water use set forth in Special Condition 7 are restrictions developed to minimize withdrawals in August net groundwater depleted subbasins, Norwell has tier-based restrictions that are more restrictive than DEP requires in Special Condition 7.

- Norwell reported in the Order to Complete responses that all the water accounts in the town have been converted to the radio-based metering system and it has an ongoing program to replace the radio-based meters when it reaches its lifetime use.

- Norwell outlined conservation measures that go beyond the standard Water Management Act permit requirements. Within six months of issuance of the permit, Norwell should confirm with DEP that it continues to monitor and reach out to its high-use residential customers to encourage them to conserve water.

Special Condition 10 Reporting Requirements ensure that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

Coldwater Fish Resource Protection was incorporated into the Water Management Regulation in November 2014. Coldwater Fish Resource protection is not a condition of this permit because Norwell's withdrawals from its Boston Harbor basin groundwater sources do not impact any waters that the Massachusetts Division of Fisheries and Wildlife has identified as supporting coldwater fish at this time.

Mitigation The Water Management 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.

Under this definition, Norwell's baseline in the Boston Harbor Basin is 0.60 MGD, its 2005 actual use plus 5 percent. The Water Management Regulations, 310 CMR 36.21(3)(b), provide that permit applications include a plan to offset any water withdrawal volume above baseline through a mitigation plan. To date, the Town has not obtained final approval of maximum approved pumping rates for its individual Boston Harbor Basin sources that total more than 0.51 MGD. Unless and until Norwell obtains approval of individual pumping rates for its Boston Harbor Basin sources that total more than its baseline of 0.60 MGD, the Town is not required to develop and implement a mitigation plan for its Boston Harbor Basin sources. As a result, mitigation is not required as a condition of this permit. If and when Norwell submits an application to amend the permit to allow the Town to withdraw more than its baseline volume from its Boston Harbor sources, Norwell may be required to submit a plan to mitigate the volume requested above baseline.[2]

[2] See discussion of Special Condition 2.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
100 Cambridge Street Suite 900 Boston, MA 02114 • 617-292-5500

Maura T. Healey
Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

DRAFT WATER WITHDRAWAL PERMIT

#9P-4-19-219.01
TOWN OF NORWELL

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-4-19-219.01 **RIVER BASIN:** Boston Harbor Basin

PERMITTEE: Town of Norwell

EFFECTIVE DATE: XX, 2023

EXPIRATION DATE: June 5,2031

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

USE: Public Water Supply

DAYS OF OPERATION: 365

Table 1: WITHDRAWAL POINT IDENTIFICATION

Source Name	PWS Source ID Code
Grove Street GP Well # 2	4219000-02G
Grove Street GP Well # 3	4219000-03G
Grove Street GP Well # 5	4219000-05G
Grove Street GP Well # 10	4219000-11G

This information is available in alternate format. Please contact Melixza Esenyie at 617-626-1282.
TTY# MassRelay Service 1-800-439-2370
MassDEP Website: www.mass.gov/dep

Printed on Recycled Paper

SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Town of Norwell (the Town or Norwell) to withdraw water from the Boston Harbor Basin at the rate described below (Table 2). This permitted volume is in addition to the 0.32 Million Gallons per Day (MGD) that the Town is authorized to withdraw from its sources in the Boston Harbor Basin under its WMA Registration #4-19-219.01. The permitted volume is expressed both as an annual average daily withdrawal rate, MGD, and as a total annual withdrawal volume, million gallons per year (MGY), for each permit period over the term of this permit. The Department of Environmental Protection (MassDEP or the Department) bases these withdrawal volumes on the raw water withdrawn from the authorized withdrawal points and will use the raw water amount to assess compliance with the registered and permitted withdrawal volumes.

Table 2: Maximum Authorized Withdrawal Volumes from the Boston Harbor Basin

Permit Periods	Total Raw Water Withdrawal Volumes*			
	Permit		Permit + Registration	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
XXX/2023 to 6/5/2026	0.19*	69.35	0.32+0.19=0.51*	186.15
6/6/2026 to 6/5/2031	0.19*	69.35	0.19+0.32=0.51*	186.15

*With a permit amendment that includes the necessary supporting documentation (see Special Condition #2) and required mitigation, Norwell's permitted volume maybe increased to 0.32 MGD for a total allocation of 0.64 MGD.

In addition to the limitations outlined above in Table 2 for the Boston Harbor Basin MassDEP limits system-wide withdrawals from all of Norwell's sources to the volumes set forth in Table 3.

Table 3: Combined Maximum Authorized Annual Average Withdrawal Volumes from the Boston Harbor and South Coastal Basins

Permit Periods	Daily Average (MGD)	Total Annual (MGY)
XXX/2023 to 6/5/2026	1.14*	416.10*
6/6/2026 to 6/5/2031	1.21	441.65

* With advance written approval from the Department, Norwell is authorized to increase annual average daily withdrawals to the maximum authorized (1.21 MGD) prior to 2025 if Norwell is meeting the following Permit Special Conditions:

- Residential gallons per capita day water (RGPCD) of 65 or less or all RGPCD functional equivalence requirements in Special Condition 5;

- Unaccounted for Water use (UAW) of 10% or less or all UAW functional equivalence requirements in Special Condition 6;
- Seasonal Limits on Nonessential Outdoor Water Use in Special Condition 7; and
- Water Conservation requirements in Special Condition 8.

2. Maximum Authorized Daily Withdrawals from Groundwater Withdrawal Points

Withdrawals from permitted withdrawal points are not to exceed the approved maximum daily volumes listed below without specific advance written approval from MassDEP (Table 4). The authorized maximum daily volume is the approved rate of each source and a combined maximum daily rate as outlined. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

Table 4: Maximum Daily Withdrawal Volumes

Source Name	PWS Source Code ID	Maximum Daily Rate (MGD)*
Grove Street GP Well # 2	4219000-02G	0.12
Grove Street GP Well # 3	4219000-03G	0.07
Grove Street GP Well # 5	4219000-05G	0.12
Grove Street GP Well # 10	4219000-11G	0.20

*The combined maximum daily rate from these sources is 0.51 MGD. However, Norwell may withdraw up to 0.64 MGD as a maximum daily withdrawal rate for one year from this permit's issuance while they prepare supporting documentation and a permit amendment application for a higher pumping rate from these sources. The Department may extend this deadline upon request.

3. Zone II Delineation

The Town delineated the Zone IIs to justify the pumping rates set forth in Table 4. If the Town seeks to obtain a higher maximum approved pumping rate for some or all of its groundwater sources in the Boston Harbor Basin, it must redelineate the Zone IIs and demonstrate to the satisfaction of MassDEP that it should approve one or more maximum pumping rates greater than the rates set forth in Table 4.

4. Wellhead Protection

MassDEP records show that Norwell has implemented municipal controls that comply with the Wellhead Protection Regulations, 310 CMR 22.21(2) for all the sources included in this permit. If the Town redelineates the Zone IIs for its groundwater sources in the Boston Harbor Basin, Norwell must implement municipal controls that comply with the Wellhead Protection Regulations, 310 CMR 22.21(2) for the redelineated Zone IIs.

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

The Town of Norwell`s Performance Standard for residential gallons per capita day (RGPCD) is 65 gallons or less. If, at any time Norwell does not meet the RGPCD Performance Standard, it shall comply with the functional equivalence requirements set forth in Appendix A.

6. Performance Standard for Unaccounted for Water

The Town of Norwell`s Performance Standard for Unaccounted for Water (UAW) is 10% or less of overall water withdrawal for two of the most recent three years throughout the permit period. If, at any time Norwell does not meet the UAW Performance Standard, it shall comply with the functional equivalence requirements set forth in Appendix B.

7. Seasonal Limits on Nonessential Outdoor Water Use

Norwell shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in below (Table 5).

Table 5: Seasonal Limits on Nonessential Outdoor Water Use

Restrictions if Norwell has met the 65 RGPCD Standard for the preceding year RGPCD ≤ 65 as reported in the ASR and accepted by MassDEP	
Calendar Triggered Restrictions	Nonessential outdoor water use is restricted to: a) **two (2) days per week** before 9 am and after 5 pm; and b) **one (1) day per week** before 9 am and after 5 pm when USGS stream gage 01105730– Indian Head River at Hanover, MA falls below 7-day the low-flow statistic **4.9 cfs** for three (3) consecutive days. Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at the gage meets or exceeds 4.9 cfs for seven (7) consecutive days.
Streamflow Triggered Restrictions	Nonessential outdoor water use is restricted to: a) **two (2) days per week** before 9 am and after 5 pm when USGS stream gage 01105739– Indian Head River at Hanover, MA falls below: • May 1 – June 30: **31 cfs** for three (3) consecutive days • July 1 – September 30: **13 cfs** for three (3) consecutive day**s** b) **one (1) day per week** before 9 am and after 5 pm when USGS stream gage 01105730 – Indian Head River at Hanover, MA falls below the 7-day low-flow statistic **4.9 cfs** for three (3) consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.
Restrictions if Norwell has not met the 65 RGPCD standard for the preceding year RGPCD > 65 as reported in the ASR and accepted by MassDEP	
Calendar Triggered Restrictions	Nonessential outdoor water use is restricted to **one (1) day per week** before 9 am and 5 pm.

Streamflow Triggered Restrictions	Nonessential outdoor water use is restricted to **one (1) day per week** before 9 am and after 5 pm when USGS stream gage 01105730 – Indian Head River at Hanover, MA falls below: • May 1 – June 30: **31 cfs** for three (3) consecutive days • July 1 – September 30: **13 cfs** for three (3) consecutive days Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.

Instructions for Accessing Streamflow Website Information
If Norwell chooses Streamflow Triggered Restrictions, Norwell shall be responsible for tracking streamflows and drought advisories and recording and reporting to MassDEP when restrictions are implemented.
Streamflow information is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts streamflows in real time, i.e., the most recent, usually quarterly hourly, reading made at each USGS stream gage. Seasonal Limits on Nonessential Outdoor Water Use are implemented when the mean daily streamflow falls below the designated trigger. The mean daily flow is not calculated until after midnight each day when the USGS computes the hourly data into a mean daily streamflow. As a result, permittees must use the mean daily streamflow from the preceding day when tracking streamflows. **Mean daily streamflow gage** readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=flow. • Scroll down to 01105730 – Indian Head River at Hanover, MA. • Click on the gage number. • Scroll down to "Provisional Date Subject to Revision – Available data for this site" and click on the drop-down menu. • Click on "Time-series: Daily data" and hit GO. • Scroll down to the "Available Parameters" box. Within the box, be sure "00060 Discharge (Mean)" is checked, then, under "Output Format" click "Table" and hit GO. • Scroll down to "Daily Mean Discharge, cubic feet per second" table and find the current date on the table. • Compare the cubic feet per second (cfs) measurement shown on the table to the cfs shown under Streamflow Triggered Restrictions above.
Norwell shall document compliance with the Seasonal Nonessential Outdoor Water Use Restrictions annually in its Annual Statistical Report (ASR) and indicate whether it anticipates implementing calendar triggered restrictions or streamflow triggered restrictions during the next year.

<u>Restricted Nonessential Outdoor Water Uses</u>

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

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

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

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

Water uses NOT subject to mandatory restrictions are those required:

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

Public Notice of Seasonal Nonessential Outdoor Water Use Restrictions

Norwell 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 15th 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.

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

8. Water Conservation Requirements

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

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.
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. Norwell shall have repair reports available for inspection by MassDEP. Norwell shall establish a schedule for repairing leaks that is at least as stringent as the following: • Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection. • Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible. • Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway. Leaks shall be repaired in accordance with Norwell's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. Norwell 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. Norwell 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. Norwell 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 include placement of sufficient funds in Norwell's annual water budget to calibrate, repair, or replace meters as necessary.
Pricing
1. Norwell shall maintain a water pricing structure that includes the full cost of operating the water supply system. Norwell 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. Norwell 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. c. 40, § 39L.
Residential and Public Sector Conservation
1. Norwell shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code.
2. Norwell shall meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.
3. Norwell shall continue to ensure that water savings devices are installed in all municipal buildings as they are renovate 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. Norwell shall ensure water conservation practices in all development proposals, particularly low flow devices and water-wise landscaping practices.
Public Education and Outreach
1. Norwell 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, Norwell'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 MassDEP, Norwell 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. Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins

Norwell shall minimize the impacts of its groundwater withdrawals from sources in Subbasins 21037, as follows:

- Continue to implement tier-based restrictions that are more restrictive than DEP requires in Special Condition 7 (Table 5 above). Tier 1 which is always in effect allows 2 days/week 4 hours per day (3-7AM) for a total of 8 hours per week.;
- Continue to implement the ongoing meter replacement program;
- Continue to upgrade and maintain the automatic drive-by meter reading system;
- Provide an update to MassDEP on the evaluation of releases from Jacobs Pond within six months of issuance of the permit; and
- Confirm the town continues to monitor and reach out to its high-use residential customers to encourage them to conserve water within six months of issuance of the permit.

10. Reporting Requirement

Norwell 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)

1. **Duty to Comply** The Permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance** The Permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw up to the authorized volume so as not to impair the purposes and interests of the Act.
3. **Entry and Inspections** The Permittee or the Permittee's agent shall allow personnel or authorized agents or employees of MassDEP to enter and examine any property, inspect and monitor the withdrawal, and 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 MassDEP 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 MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
6. **Duty to Report** The Permittee shall submit annually, on a form provided by MassDEP, a certified statement of the withdrawal. Such report is to be received by MassDEP by the date specified by MassDEP. Such report must be mailed or hand delivered to the address specified on the report form.

7. **Duty to Maintain Records** The Permittee shall be responsible for maintaining withdrawal records as specified by this permit.
8. **Metering** Withdrawal points shall be metered. Meters shall be calibrated annually. Meter shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.
9. **Amendment, Suspension or Termination** The Department may amend, suspend or terminate this permit in accordance with M.G.L. c. 21G or 310 CMR 36.29.

APPEALS

Any person aggrieved by this decision may request an adjudicatory hearing on this Permit 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 its 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 a 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 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 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
Water Management Program Chief
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 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: 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 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 of failing to meet the standard as follows:

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

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

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

However, these small systems can benefit from developing reliable data and conducting an annual top down water audit. Small systems can rely on the real losses (gallons per mile of main per day) performance indicator developed in the water audit as a measure of real water loss when

developing a water loss control program. The M36 Manual discusses the audit process for small systems and includes a chapter to guide small systems in understanding the results of their audits and in developing a water loss control program (*Manual of Water Supply Practices – M36, Fourth Edition, Chapter 9: Considerations for Small Systems*, pp. 293-305).

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

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

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

A permittee's hardship analysis shall:

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

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