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

January 2, 2025

Lunenburg Water District
Attn: Water Commissioners
P.O. Box 375
Lunenburg, MA 01462

Re: PWS Town: Lunenburg
PWS Name: Lunenburg Water District
WMA Permit #: 9P2-2-11-162.01
WMA WM03 and 20 Year Permit Renewal
MassDEP Transmittal: X282469

Dear Water Commissioners:

Please find the attached documents:

- Findings of Fact in Support of the New Permit #9P2-2-11-162.01; and
- Water Management Permit #9P2-2-11-162.01 for the Lunenburg Water District.

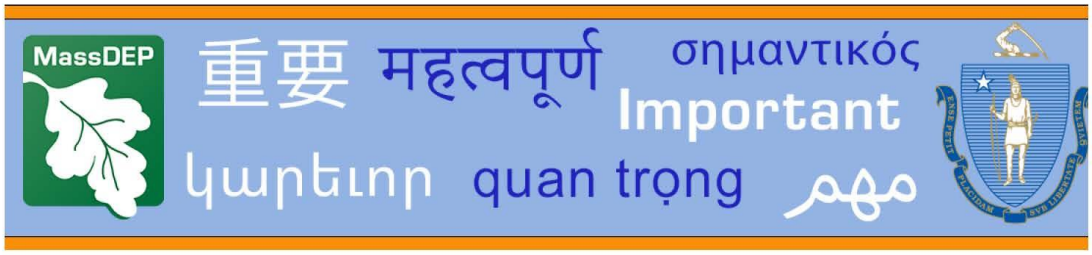
If you have any questions, please contact Beth McCann at elizabeth.mccann@mass.gov or at (857) 262-3205.

Sincerely,

Duane LeVangie, Chief
Water Management Program

mass.gov.sharepoint/DWPWMA/PermitRenewals/Nashua/Lunenburg/Lunenburg-2162000-WMA Final Permit 9P221116201-1-2-2025
mass.gov.sharepoint/DWP Archive/CERO/2025/Lunenburg-2162000-WMA Final Permit 9P221116201-1-2-2025

Ecc: Fran McNamara, Lunenburg Water District
Dave Harwood, GeoInsight
Jen Pederson, MWWA
Martha Morgan, Nashua River Watershed Association
Julia Blatt, Massachusetts Rivers Alliance
Lydia Olson, Massachusetts Rivers Alliance
Marielle Stone, MassDEP CERO
Timothy O'Keefe, MassDEP CERO



Communication for Non-English-Speaking Parties

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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

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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

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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 Anviwònmantal 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
ហើយគប្បីត្រូវត្រូវបានបកប្រែភ្លាមៗ។
ប្រសិនបើអ្នកត្រូវការអោយឯកសារនេះបកប្រែ
សូមទាក់ទងនាយកផ្នែកយុត្តិធម៌បរិស្ថានរបស់
MassDEPតាមរយៈលេខទូរស័ព្ទដែលបានរាយដូចខាងក្រោម។

Kriolu Kabuverdianu Cape Verdean

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

Contact Deneen Simpson 857-406-0738
Massachusetts Department of Environmental Protection
100 Cambridge Street 9th Floor Boston, MA 02114
TTY# MassRelay Service 1-800-439-2370 • https://www.mass.gov/environmental-justice
(Version revised 8.2.2023) 310 CMR 1.03(5)(a)

Русский Russian

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العربية Arabic

هذه الوثيقة مهمة وتجب ترجمتها على الفور.

إذا كنت بحاجة إلى ترجمة هذه الوثيقة، فيرجى الاتصال بمدير العدالة البيئية فيMassDEP 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.

հայերեն 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

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Deutsch German

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Ελληνική Greek

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Italiano Italian

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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।

Contact Deneen Simpson 857-406-0738
Massachusetts Department of Environmental Protection
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Findings of Fact in Support of
Water Management Permit #9P2-2-11-162.01
Lunenburg Water District

The Massachusetts Department of Environmental Protection (MassDEP) makes the following Findings of Fact in support of the attached Water Management Permit #9P2-2-11-162.01 and includes herewith its reasons for issuing the permit and for conditions of approval imposed, as required by M.G.L. c. 21G, § 11. The issuance of this permit is in response to the Water Management Act (WMA) permit application submitted on February 21, 2017, and to the permit renewal application submitted on November 26, 2018, by the Lunenburg Water District (LWD).

LWD's Water Withdrawal History

Registered Sources: LWD holds Water Management Act Registration Statement 2-11-162.01 for an average annual daily withdrawal volume of 0.29 million gallons per day (MGD) from four wells, Well #1 (01G), Well #2 (02G), Well #3 (03G), and Well #4 (04G) in the Nashua River Basin.

Original Permit, November 1995: LWD's permit (#9P2-2-11-162.01) authorized additional withdrawals of up to 0.25 MGD from its permitted sources Well #1 (01G), Well #2 (02G), Well #4 (04G), Wellfield #5 (05G) (later replace by Wellfield #5A (07G)), and Hickory Hills Well #6 (06G), for a total withdrawal of up to 0.54 MGD including the registration.

Modified Permit, October 2009: LWD's permit was modified to add the new Keating Well (08G).

Permit Extension Act: LWD's WMA Permit was initially set to expire on February 28, 2014. Prior to that date, 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 permits by four years. Therefore, WMA permits for withdrawals in the Nashua River basin were extended to February 28, 2018.

Permit Renewal Application: On February 21, 2017, MassDEP received a WMA permit renewal application from LWD for their withdrawal in the Nashua River Basin. MassDEP published notice of the permit renewal application in the Environmental Monitor on July 26, 2017. No comments were received.

On October 21, 2017, MassDEP informed LWD that MassDEP would need additional time before making a determination on the application in order to ensure that all permit renewal applicants fully understood the new Water Management Regulations (discussed below), and to give proper consideration to all permit renewal applications. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), LWD's permit continued in force and effect.

WM03 Water Management Withdrawal Permit Application: On December 7, 2018, MassDEP received a WM03 from LWD to increase the total authorized withdrawal and to add a new withdrawal point (Wellfield 9). On September 3, 2020, MassDEP issued the LWD an Order to Complete (OTC) for both applications outlining specific information that was required to complete MassDEP's review of the applications. A response was received from LWD on March 30, 2021. A draft of this modified permit was published in the Environmental Monitor on April 10, 2024, for a 30-day public comment period. The comment period closed on May 10, 2024, and no comment was received.

Modified Permit, January 2, 2025: This permit supersedes WMA Permit # 9P2-2-11-162.01 originally issued to LWD in November 1995, and last amended in October 2009. The permit adds an additional withdrawal point, Wellfield 9, and increases the permitted volume to a maximum of 0.37 MGD, for a total authorized withdrawal of 0.29 MGD (registered) + 0.37 (permitted) = 0.66 MGD to meet projected demands in the Town of Lunenburg. Should LWD distribute water to the Town of Lancaster, this permit authorizes up to an additional 0.03 MGD as described in Special Condition 1.

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

The Water Management Act (Act) requires MassDEP 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* (Sustainable Water Management Initiative (SWMI) Technical Resources | Mass.gov) was released.

On November 7, 2014, MassDEP 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 Water Resources 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, MassDEP 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 Nashua 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:
    - 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 Nashua River Basin

This permit is being issued under the safe yield methodology adopted by MassDEP on November 7, 2014, and described in the regulations at 310 CMR 36.13. As of the date of issuance of this permit, the Safe Yield calculation for the Nashua River Basin is 255.50 million gallons per day (MGD), and total registered and permitted withdrawals are 180.57 MGD. The withdrawals authorized by this permit and all other permits within the Nashua River Basin, will be within the safe yield of the Nashua River Basin and may be further conditioned as outlined in the regulations.

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

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume, reflects the total authorized (registered plus permitted) annual average withdrawal volume based on a final Water Needs Forecast prepared by the Department of Conservation and Recreation (DCR) (letter of February 22, 2021).

The Water Needs Forecast notes that Lunenburg could require up to 0.027 MGD (rounded to 0.03 MGD for WMA permitting) for sale to Lancaster to support new development. LWD has requested the additional 0.027 MGD in their permit application. This permit authorizes withdrawals of up to 0.69 MGD, 0.66 MGD for Lunenburg's projected water needs, and 0.03 MGD for sale to Lancaster, through February 28, 2034.

Lunenburg Water Needs Forecast Assuming 65 RGPCD and 10% UAW			
	2024	2029	2034
Projected Water Use (mgd):	0.64	0.64	0.63
With Five Percent Buffer:			0.03 = 0.66
Potential additional water needs, sales to Lancaster:			0.027: Rounds to 0.03

LWD's water withdrawals in recent years have been:

Lunenburg Water District's Annual Average Withdrawals (in MGD)				
2022	**2021**	**2020**	**2019**	**2018**
0.52	0.50	0.55	0.48	0.54

Special Condition 2, Maximum Authorized Daily Withdrawals from each Withdrawal Point, specifies the maximum daily withdrawal rates by source, according to the approved rates established by MassDEP's Drinking Water Program.

Special Condition 3, Groundwater Supply Protection, addresses the requirements of the MassDEP Drinking Water Program regulations for wellhead protection. LWD is required to satisfy MassDEP's "Best Effort" requirement for the revised Zone II that includes Wellfield 9 prior to MassDEP issuing activation of Wellfield 9. Per MassDEP's letter dated October 7, 2020, the Town of Lunenburg's bylaws did not meet MassDEP's requirements for land use controls in Zone II areas. The Town of Lunenburg adopted the revised Zone II area, including Wellfield 9, into its bylaw through Town Meeting on November 16, 2021, and is now in compliance with the wellhead protections regulations.

The Zone II for the Keating Well extends slightly into the Towns of Lancaster and Shirley. The Town of Lancaster currently protects Lunenburg's Zone II with all required land use controls. The area of the Zone II that extends into the Town of Shirley is one acre and is part of a large wetlands resource area. Therefore, MassDEP is not requiring that a Best Effort request be made to the Town of Shirley at this time, and LWD is in compliance with the Best Effort requirement for the Towns of Lancaster and Shirley.

Special Condition 4, Performance Standards for Residential Gallons Per Capita Day Water Use and **Special Condition 5, Performance Standard for Unaccounted for Water** are part of the *Water Conservation Standards for the Commonwealth of Massachusetts* adopted by the MA Water Resources Commission in July 2018 and can be found at https://www.mass.gov/files/documents/2018/09/11/ma-water-conservation-standards-2018.pdf.

The RGPCD performance standard for Public Water System (PWS) permittees is 65 gallons per person per day. Permittees that cannot meet the performance standard within the timeframe in the permit must meet Functional Equivalence requirements outlined in Appendix A.

The UAW performance standard for PWS permittees is 10% for 2 out of every 3 years. Permittees that cannot comply within the timeframe in the permit must meet Functional Equivalence requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36, as outlined in Appendix B. The table below shows LWD's recent RGPCD and UAW values as approved by MassDEP.

LWD	2022	2021	2020	2019	2018
RGPCD	55	52	62	59	60
UAW	8%	8%	5%	3%	7%

Former Special Condition 5, Wetlands and Groundwater Monitoring required annual water level monitoring in the vicinity of the Keating Well to evaluate potential impacts to Tophet Swamp. Monitoring was conducted

from 2010 through 2014 and the data was submitted to MassDEP. Review of the 2014 report shows that groundwater levels recover quickly when the well is shut down, and the well is downstream of the portion of the Catacoonamug Brook that supports a Coldwater Fishery Resource area (CFR).

In addition, the October 2020 Order to Complete for this permit application notes that CFRs are identified in all three subbasins[1] where LWD's sources are located. On September 8, 2017, a site visit was conducted to LWD's wells adjacent to Walker Brook and to the proposed wellfield at the existing Lancaster Avenue site adjacent to Catacoonamug Brook. Staff from LWD, MassDEP, the Massachusetts Department of Fish and Game (DFG), and Nashua River Watershed Association attended and reviewed the sites. DFG determined that an additional CFR consult is not required to develop further CFR protection measures at the sites.

Based on the above, former Special Condition 5 has now been removed from the permit.

Special Condition 6, Seasonal Limits on Nonessential Outdoor Water Use requires restrictions on nonessential outdoor water use from May through September and has changed since the existing permit was issued in 2009. The options outlined in Special Condition 6 are based on whether LWD's reported RGPCD for the previous year was in compliance with the RGPCD Performance Standard (see Special Condition 4, Performance Standard for RGPCD).

In addition, outdoor water use restrictions for communities with wells in subbasins that are more than 25% August net groundwater depleted (Aug NGD)[2] are set to minimize withdrawals from depleted subbasins. LWD has Wells 1 (01G), 2 (02G), 4 (04G), and 5 and 5A (05G and 07G) located in Subbasin 11027 which is 25.1% Aug NGD, the Keating Well (08G) located in Subbasin 11050 which is 28.7% Aug NGD, and the Hickory Hills Well (06G) located in Subbasin 11067 which is less than 25% Aug NGD.

Each year LWD must 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 LWD selects the streamflow trigger approach, it has been assigned USGS Gage 01096000 on the Squannacook River near West Groton, MA. The local gage streamflow triggers at this site are 62 cubic feet per second (cfs) for May and June, and 24 cfs for July, August and September. Should the reliability of flow measurement at this

[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).

[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.*

gage be so impaired as to question its accuracy, LWD may request MassDEP's review and approval to transfer to another gage to trigger restrictions. MassDEP reserves the right to require use of a different gage.

- **The 7-Day Low Flow Trigger**, at which restrictions increase, is incorporated into both Calendar and Streamflow Triggered restrictions in order to provide additional protection to streamflows when flows are very low. The 7-day low flow trigger is based on the median value of the annual 7-day low flows for the period of record. The 7-day low- flow trigger for the USGS Gage 01096000 on the Squannacook River near West Groton, MA is 11 cfs.

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

This permit condition does not confer enforcement authority to the permittee. LWD By-Laws effective October 3, 2020, provide enforcement authority and establish penalties for violations of a Declaration of a State of Water Supply Conservation. However, the levels of restrictions in the By-Law do not reflect requirements in this permit. Specifically, the levels include odd/even day watering and a complete ban on outdoor water use. It does not include one day or two days per week restrictions. A requirement to update LWD's authority is included in Special Condition 7, Water Conservation Requirements.

Special Condition 7, 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 8, Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins, requires permittees with permitted groundwater sources in subbasins with August NGD of 25% or more 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.

LWD has sources located in Subbasins 11027 and 11050 with August NGD values of 25.1% and 28.7%, respectively. LWD submitted a Minimization Plan as part of the applications which has been incorporated as a condition of this permit.

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

- By adopting a regulation requiring that all automatic irrigation systems connected to LWD complete a registration process with LWD.
- By adopting a regulation requiring that all irrigation systems for municipal properties with automatic irrigation systems connected to LWD install WaterSense-labeled weather-based controllers.
- By performing a Best Effort to get the Town of Lunenburg to pass a bylaw extending seasonal limits on nonessential outdoor water use to private well users.

Lunenburg will also implement Seasonal Limits on Nonessential Outdoor Water Use in Special Condition 6 that are based on the August NGD of Subbasins 11027 and 11050.

Special Condition 9, Mitigation of Impacts for Withdrawals that Exceed Baseline Withdrawals, requires mitigation for withdrawals over a baseline volume. Baseline withdrawal is the volume of water withdrawn during calendar year 2005 plus 5%, or the average annual volume withdrawn from 2003 through 2005 plus 5%, whichever is greater provided that:

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

Baseline Withdrawal**:** LWD's baseline is 0.50 MGD, based on withdrawals made in 2005 plus 5%.

Environmental Impact of Increased Withdrawals[3]: MassDEP assesses impact of increased withdrawals over a permittee's Baseline on the subbasins from which the withdrawals will be taken, specifically on the Groundwater Withdrawal Category (GWC) and the Biological Category (BC) of each subbasin as of 2004. MassDEP's assessment assumes that the entire withdrawal increase over baseline could come from any subbasin with permitted withdrawal points.

Lunenburg's Potential Impact to Subbasin Groundwater Withdrawal Categories (GWC)			
Lunenburg's maximum permitted withdrawal above Baseline = 0.19 MGD (0.69 Total – 0.50 Baseline)			
Subbasin	**GWC**	**Additional water available before GWC change**	**Wells**
11027	4	0.25 MGD	Well 1 (01G), Well 2 (02G), Well 4 (04G), Wellfield 5 & 5A (05G & 07G), Wellfield 9 (TBD)
11067	3	**0.13 MGD**	Hickory Hills Well ((06G)
11050	4	0.47 MGD	Keating Well 1 (08G)

MassDEP's assessment has shown that LWD's permitted withdrawal above baseline has the potential to downgrade the Groundwater Withdrawal Category (GWC) of Subbasin 11067 when its withdrawals exceed 0.63 MGD (0.50 MGD baseline withdrawal + an additional 0.13 MGD).

Lunenburg is required to first provide all feasible direct mitigation for withdrawals over baseline, and then provide indirect mitigation for all remaining withdrawals over baseline. Lunenburg is required to provide double the standard level of indirect mitigation for withdrawals over baseline that have the potential to downgrade the GWC of a subbasin, i.e. withdrawals between 0.63 and 0.69 MGD.

Wastewater Adjustment: Permittees must mitigate any increases in withdrawals above baseline commensurate with impact. A "wastewater adjustment" is calculated for water withdrawals that are returned to the ground as wastewater within the same major basin. MassDEP assumes that 85% of water delivered to customers with septic systems will be returned to the ground, thus reducing the amount of mitigation needed.

Mitigation Calculation: The mitigation calculation below assumes that LWD's future withdrawals will be discharged to on-site septic systems at the same rate (70%) as current water withdrawals. After calculating the adjustment for authorized withdrawals over baseline that will be returned to groundwater, LWD will be required to provide mitigation for 0.05 MGD (50,000 gpd) for withdrawals up to 0.63 MGD, and 0.02 MGD (20,000 gpd) for withdrawals from 0.63 up to 0.69 MGD (Steps 3 below).

[3] Information on the Groundwater Withdrawal Category (GWC), the Biological Category (BC), or August Net Groundwater Depletion (August NGD) of subbasins can be found in the Sustainable Water Management Initiative Framework at https://www.mass.gov/service-details/sustainable-water-management-initiative, Information on specific subbasins can be found in the WMA Permitting Access Tool at https://www.mass.gov/guides/sustainable-water-management-initiative-swmi-technical-resources.

LWD's Wastewater Adjustment Calculation for Mitigation for Withdrawals up to 0.63 MGD
LWD's Baseline withdrawals = 2005 withdrawals + 5% = 0.50 MGD
1. Permitted amount above Baseline that does not impact GWC of Subbasin 11067 = 0.13 MGD • Permitted amount above Baseline: 0.63 – 0.50 = 0.13 MGD
2. Adjustment for Wastewater Discharge to Local Groundwater = 0.08 MGD • 70% of increased withdrawals are delivered to areas with on-site septic systems: 0.13 MGD x 0.70 (70%) = 0.091 MGD • 85% of water delivered to areas with on-site septic systems returns to groundwater: 0.091 MGD x 0.85 (85%) = 0.077 MGD (rounds to 0.08)
3. Mitigation Required after Adjustment for Wastewater Discharge to Groundwater = 0.05 MGD • Permitted amount above baseline (0.13 MGD) – adjustment for wastewater discharge to local groundwater (0.08 MGD) = 0.05 MGD or 50,000 gallons per day • Indirect Mitigation Credits required for these 50,000 gpd will be worth 10,000 gpd per credit

LWD's Wastewater Adjustment Calculation for Mitigation for Withdrawals from 0.63 to 0.69 MGD
1. Permitted amount with potential to impact the GWC of Subbasin 11067 = 0.06 MGD • Permitted amount with potential for impact: 0.69 - 0.63 = 0.06 MGD
2. Adjustment for Wastewater Discharge to Local Groundwater = 0.04 MGD • 70% of increased withdrawals are delivered to areas with on-site septic systems: 0.06 MGD x 0.70 (70%) = 0.042 MGD • 85% of water delivered to areas with on-site septic systems returns to groundwater: 0.042 MGD x 0.85 (85%) = 0.0357 MGD (rounds to 0.04)
3. Mitigation Required after Adjustment for Wastewater Discharge to Groundwater = 0.02 MGD • Permitted amount with potential to impact the GWC of a subbasin (0.06 MGD) – adjustment for wastewater discharge to local groundwater (0.04 MGD) = 0.02 MGD or 20,000 gallons per day • If Indirect Mitigation Credits are used as mitigation for withdrawals from 0.63 to 0.69 MGD, 2X the indirect credits (4 credits) will be required.

Mitigation Credit: Water Management permits can include both direct and indirect mitigation activities.

- Direct mitigation credit, for activities which will improve streamflow as a result of increased groundwater recharge, decreased stormwater runoff to streams, or by surface water releases, must be considered first in mitigation planning.
- If the required mitigation cannot be achieved through direct mitigation, then the applicant must evaluate indirect mitigation activities that provide environmental improvements that will compensate for streamflow impacts, but which cannot be volumetrically quantified.
- Indirect mitigation activities are assessed on a credit system for the benefits of a particular action. Each indirect credit is equal to 10,000 gpd, and withdrawals that lower the GWC of any subbasin require twice the amount of credits.

Direct Mitigation can be provided though surface water releases to improve streamflow, recharging stormwater to the ground, improvements to the sewer collection system to reduce infiltration and inflow (I&I).

- LWD does not control surface water impoundments that could be used to augment streamflow and identified no wastewater collection system direct credits for infiltration and inflow removal.

- LWD identified direct mitigation associated with Stormwater BMPs that were built on or after January 1, 2005. These BMPs now infiltrate stormwater from impervious surfaces to recharge groundwater rather than discharging the stormwater directly to a surface water body (directly connected impervious surface)[4].
- The Stormwater BMP mitigation volume is calculated based on average annual precipitation, BMP design infiltration depth[5], and the area of directly connected impervious surface built prior to 2005 redirected to the BMP built on or after January 1, 2005.
    - Stormwater infiltration volumes were identified for two properties on Electric Ave. totaling 0.008 MGD, or 8,000 gpd. Therefore, the first 10% of LWD's required mitigation will be direct mitigation.
    - 72,000 gallons per day remains to be mitigated for withdrawals of up to 0.69 MGD.

Indirect Mitigation, activities that result in environmental improvements that will compensate for streamflow impacts, is required when a permittee has insufficient direct mitigation credit. Indirect mitigation activities are scored according to a qualitative credit system. Each indirect credit is equal to 10,000 gallons per day. Note that twice as much indirect mitigation is required for withdrawals that contribute to lowering the GWC or BC in a subbasin. Because a change to the GWC of Subbasin 11067 is possible when withdrawals increase from 0.63 MGD to 0.69 MGD, twice is much indirect mitigation is required for this additional increase over baseline.

LWD's currently available mitigation credits are outlined in the table below.

Lunenburg Water District's Direct and Indirect Mitigation Credits	
Direct Mitigation	
Stormwater BMP credit	0.008 MGD = direct credit for 8,000 gpd
Indirect Credits Required for withdrawals up to 0.63 MGD - 50,000 gpd total mitigation requirement – 8,000 direct mitigation = 42,000 gpd to be mitigated through indirect mitigation • **42,000 gpd** to be mitigated through indirect mitigation at 10,000 gpd per credit (rounds to 4 credits)	4.0 credits
Indirect Credits Required for withdrawals from 0.63 to 0.69 MGD - 20,000 gpd total mitigation requirement • **20,000 gpd** to be mitigated through indirect mitigation at 2X the credits	4.0 credits
Lunenburg Water District's Currently Available Indirect Mitigation Credits	
Wetlands Bylaw/Regulations	3 credits
Sewer I/I	1 credit
Stormwater Bylaw	2 credits
MS4 Implementation	2 credits
Total Indirect Mitigation Credit	8 credits

Indirect Mitigation Credits are provided as follows:

[4] Directly connected impervious surfaces are those whose runoff discharges directly to a surface water body, e.g. is discharged via a drainage pipe.
[5] BMP design infiltration depth is the inches of runoff from 24 hours of precipitation that is infiltrated via a BMP in 72 hours, per MA Stormwater Handbook, Vol. 3, Ch. 1, page 25.

- The Town of Lunenburg's Chapter 239, Wetlands Protection Bylaw (5/14/1988, most recently amended 5/7/2016) and Chapter 335, Wetlands Regulations:
    - One credit for implementation and enforceability which includes a clear review process and a schedule of fines for violations;
    - Two credits for its jurisdiction expanded beyond the requirements of the Wetlands Protection Act to vegetated wetlands, intermittent streams and vernal pools.
- Sewer Infiltration and Inflow:
    - One credit for an approved I/I Analysis and SSES (letter of November 31, 2021, from David Boyer of MassDEP to Robert Oliva, Lunenburg DPW Director):
        - Two additional credits are potentially available if the Lunenburg DPW completes the additional requirements in the November 30, 2021, letter:
            1. The town shall submit an updated schedule for all proposed SSES activities by no later than June 30, 2022.
            2. The town shall continue to submit annual reports summarizing the work performed and any updates to the future work by no later than December 31 of each year."
- The Town of Lunenburg's Chapter 204, Stormwater and Storm Sewers Bylaw (11/28/2017, amended 11/17/2020):
    - One credit for the geographic extend covering the urbanized area (MS4) only;
    - One credit for regulating projects of one acre or more.
- The Town of Lunenburg's MS4 Implementations:
    - Two credits for having met all on-going MS4 implementation requirements to date.

Special Condition 10, Requirement to Report Raw and Finished Water Volumes, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

Coldwater Fish Resource Protection was incorporated into the Water Management Regulations in November 2014. LWD's groundwater sources are located in three subbasins, all with Coldwater Fishery Resources (CFRs) designations. Groundwater and wetlands piezometer monitoring was conducted during the 15-day pumping test for proposed Wellfield #9 and no adverse impacts were recorded.

As required in the WMA regulations (36.22), the applicant requested review by the Massachusetts Division of Fisheries and Wildlife for optimization of groundwater withdrawal points. On September 8, 2017, a site visit was conducted to LWD's wells adjacent to Walker Brook and to the proposed wellfield at the existing Lancaster Avenue site adjacent to Catacoonamug Brook with staff from LWD, MassDEP, the Massachusetts Division of Fisheries and Wildlife (DFW), and Nashua River Watershed Association. DFW determined that no further action was advised.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection
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Governor

Kimberley Driscoll
Lieutenant Governor

Rebecca L. Tepper
Secretary

Bonnie Heiple
Commissioner

WATER WITHDRAWAL PERMIT
MGL C 21G

This permit is issued pursuant to the Massachusetts Water Management Act (the Act) for the sole purpose of authorizing the withdrawal of a volume of water as stated herein 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: 9P2-2-11-162.01 **RIVER BASIN:** Nashua

PERMITTEE: Lunenburg Water District

EFFECTIVE DATE: January 2, 2025

EXPIRATION DATE: February 28, 2034

NUMBER OF WITHDRAWAL POINTS: 8
Groundwater: 8 Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

LOCATION(S):

Table 1. Source Names and PWS Source ID Codes

Source Name	PWS Source Code	Source Name	PWS Source Code
Well 1	2162000-01G	Wellfield 5/replaced by 5A	2162000-05G
Well 2	2162000-02G	Wellfield 5A	2162000-07G
Well 4	2162000-04G	Keating Well	2162000-08G
Hickory Hills Well	2162000-06G	Wellfield 9	2162000-TBD*

* The final Source Code will be assigned when the source is approved to activate.

SPECIAL PERMIT CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Lunenburg Water District (LWD) to withdraw water from the Nashua River Basin at the rate described below in Table 2. The permitted withdrawal volume is in addition to the 0.29 million gallons per day (MGD) previously authorized to Lunenburg under Water Management Act Registration #211162.01 for withdrawal from the Nashua River Basin. The authorized volumes are expressed both as an annual average daily withdrawal rate (MGD) and as a total annual withdrawal volume (million gallons per year or MGY) for each period of the permit term.

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

Table 2: Authorized Withdrawals - With up to 0.03 MGD for Sale to Lancaster*

Permit Periods	Total Raw Water Withdrawal Volumes			
	Permit		Registration + Permit	
	Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
1/2/2025 to 2/28/2029	0.35	127.75	0.29 + 0.35 = 0.64	233.60
3/1/2029 to 2/28/2034	0.34 + 0.03 buffer = 0.37	135.05	0.29 + 0.37 = 0.66	240.90
Potential additional authorization for sales to Lancaster throughout permits period*			0.03 MGD for a total potential authorization of 0.69 MGD	

* Lancaster will be required to file an application for a BRP WS 32 Permit, Distribution Modifications for Systems that serve more than 3,300 people and receive approval from the Department prior to connecting to the Lunenburg distribution system.

2. Maximum Authorized Daily Withdrawals from each Withdrawal Point

Withdrawals from individual withdrawal points are not to exceed the approved maximum daily volumes listed below in Table 2 without specific advance written approval from MassDEP. The authorized maximum daily volume is the approved rate of each source. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

Table 3: Maximum Authorized Daily Withdrawal Rates

Source Name	PWS Source ID Code	Approved Rate
Well 1	2162000-01G	0.18 MGD (122 gpm)
Well 2	2162000-02G	0.11 MGD (75 gpm)
Well 4	2162000-04G	0.29 MGD (200 gpm)
Hickory Hills Well	2162000-06G	0.72 MGD (500 gpm)
Wellfield 5A	2162000-07G	0.40 MGD (280 gpm)
Keating Well	2162000-08G	1.44 MGD (1000 gpm)
Wellfield 9	2162000-TBD*	0.42 MGD (291 gpm)

3. Groundwater Supply Protection

LWD is in compliance with MassDEP's Drinking Water Program regulations "Best Effort" requirement for all permitted sources. MassDEP records indicate that the Town of Lunenburg's revised Zone II

delineation/Water Supply Protection District and land use controls, as amended through 2023, meet the requirements of the Wellhead Protection Regulations at 310 CMR 22.21(2) for all permitted wells, and that the Town of Lancaster currently protects Lunenburg's Zone II with all required land use controls.

The Zone II area extending into the Town of Shirley is one acre and part of a large wetlands resource area. Therefore MassDEP is not requiring that a Best Effort request be made to the Town of Shirley at this time.

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

LWD's performance standard for residential gallons per capita day (RGPCD) is 65 gallons or less. LWD shall report its RGPCD water use annually in its Annual Statistical Report (ASR).

If LWD does not meet the standard at any time during the permit period, LWD shall implement an on-going program that ensures "best practices" for controlling residential water use as described in the functional equivalence requirements in Appendix A of this permit.

5. Performance Standard for Unaccounted for Water

LWD's Performance Standard for Unaccounted for Water (UAW) is 10% or less of overall water withdrawal for 2 of the most recent 3 years throughout the permit period. LWD shall report its UAW annually in its Annual Statistical Report. LWD's ASR shall include the calculation used to derive that figure including, without limitation, the source of data used, the methodology for calculating UAW and any assumptions used in making the calculation.

Nothing in the Permit shall prevent a permittee who meets the 10% performance standard from developing and implementing a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs*. Permittees implementing a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the Annual Statistical Report for public water suppliers.

If LWD does not meet the standard beginning with calendar year 2024, it shall be in compliance with the Functional Equivalence Requirements based on the AWWA/IWA Water Audits and Loss Control Programs, Manual of Water Supply Practices M36, as outlined in Appendix B.

6. Seasonal Limits on Nonessential Outdoor Water Use

LWD shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th annually as outlined below beginning calendar year 2024. 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.

LWD 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.

Table 4: Seasonal Limits on Nonessential Outdoor Water Use	
For Permittees meeting 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 allowed: 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 Gage 01096000 on the Squannacook River near West Groton, MA falls below **11 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 13 cfs for seven (7) consecutive days.
Streamflow Triggered Restrictions	Nonessential outdoor water use is allowed: a) **Two (2) days per week** before 9 am and after 5 pm when USGS Gage 01096000 on the Squannacook River near West Groton, MA falls below: • May 1 – June 30: **62 cfs** for three (3) consecutive days • July 1 – September 30: **24 cfs** for three (3) consecutive day**s** b) **one (1) day per week** before 9 am and after 5 pm when USGS Gage 01096000 on the Squannacook River near West Groton, MA falls below **11 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.
For Permittees NOT meeting 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 allowed **one (1) day per week** before 9 am and after 5pm;
Streamflow Triggered Restrictions	Nonessential outdoor water use is allowed **one (1) day per week** before 9 am and after 5 pm when USGS Gage 01096000 on the Squannacook River near West Groton, MA falls below: • May 1 – June 30: **62 cfs** for three (3) consecutive days • July 1 – September 30: **24 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 LWD chooses Streamflow Triggered Restrictions, LWD 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 for 3 consecutive days. The mean daily flow is not calculated until after midnight each day when the USGS computes the hourly data into a mean daily streamflow. As a result, permittees must use the mean daily streamflow from the preceding day when tracking streamflows.

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 01096000 on the Squannacook River near West Groton, 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.

Restricted Nonessential Outdoor Water Uses

As defined at 310 CMR 36.03, 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

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

Notice that restrictions have been put in place shall be filed each year with 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 website.

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

7. Water Conservation Requirements

At a minimum, LWD 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 5: Minimum Water Conservation Requirements
System Water Audits and Leak Detection
1. At a minimum, conduct a full leak detection survey every three years. A full leak detection survey shall be completed by December 31, 2025.
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 MassDEP 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. Repair reports shall be kept available for inspection by MassDEP. The permittee shall establish a schedule for repairing leaks that is at least as stringent as the following: • Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection. • Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible. • Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway. • Leaks shall be repaired in accordance with the permittee's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. • Permittee shall have water use regulations in place that require property owners to expeditiously repair leaks on their property. The following exceptions may be considered: • Repair of leakage detected during winter months can be delayed until weather conditions become favorable for conducting repairs;* and • Leaks in freeway, arterial or collector roadways may be coordinated with other scheduled projects being performed on the roadway**. *Reference: MWRA regulations 360 CMR 12.09 **Mass Highway or local regulations may regulate the timing of tearing up pavement to repair leaks.
Metering
1. Calibrate all source, treatment and finished water meters at least annually and report date of calibration on the ASR.

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

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

Pricing

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

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

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

4. Continue to implement quarterly or more frequent meter reading and billing.

Residential and Public Sector Conservation

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

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

3. Municipal buildings
   - LWD reported that the building owned by LWD complies with the latest plumbing code with respect to water conservation. LWD submitted a letter dated November 6, 2020 to the Lunenburg Town Manager requesting that the Town complete retrofitting of public buildings with water saving devices and fixtures.

4. Within 24 months of issuance of this permit, the LWD By-Laws, effective October 3, 2020, shall be updated to provide enforcement authority for the specific Seasonal Limits on Nonessential Outdoor Water Use contained in Special Condition 6 of this permit.

Industrial and Commercial Water Conservation

1. LWD shall ensure implementation of water conservation practices, including the installation of WaterSense compliant low flow plumbing fixtures where applicable, and low water use landscaping in all development proposals.
Public Education and Outreach
2. Develop and implement a water conservation and education plan designed to educate water customers on ways to conserve water. Without limitation, the plan may include the following actions: • 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.
3. Upon request of MassDEP, LWD shall report on its public education and outreach efforts, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials.

8. Minimization of Groundwater Withdrawal Impacts in Stressed Subbasins

LWD shall minimize the impacts of its groundwater withdrawals from its permitted sources in Subbasins 11027 and 11050, as follows:

- By December 31, 2025, adopt a regulation requiring that all automatic irrigation systems connected to LWD complete a registration process with LWD.
- By December 31, 2025, adopt a regulation requiring that all irrigation systems for municipal properties with automatic irrigation systems connected to LWD install WaterSense-labeled weather-based controllers.
- By December 31, 2025, perform a Best Effort to get the Town of Lunenburg to pass a bylaw extending seasonal limits on nonessential outdoor water use to private well users.
- By implementing the Seasonal Limits on Nonessential Outdoor Water Use in Special Condition 6 of this permit.

9. Mitigation of Impacts for Withdrawals that Exceed Baseline

MassDEP's assessment has shown that LWD's permitted withdrawal above baseline has the potential to downgrade the Groundwater Withdrawal Category (GWC) of Subbasin 11067 when its withdrawals exceed 0.63 MGD (0.50 MGD baseline withdrawal + an additional 0.13 MGD). Therefore, Lunenburg is required to first provide all feasible direct mitigation for withdrawals over baseline, and then provide indirect mitigation for all remaining withdrawals over baseline. Lunenburg is required to provide double the standard level of indirect mitigation for withdrawals over baseline that have the potential to downgrade the GWC of a subbasin, i.e. withdrawals between 0.63 and 0.69 MGD.

Lunenburg Water District's Direct and Indirect Mitigation Credits	
Direct Mitigation	
Stormwater BMP credit	0.008 MGD = direct credit for 8,000 gpd
Indirect Credits for withdrawals up to 0.63 MGD - 50,000 gpd total mitigation requirement – 8,000 direct mitigation = 42,000 gpd to be mitigated through indirect mitigation • **42,000 gpd** to be mitigated through indirect mitigation at 10,000 gpd per credit (rounds to 4 credits) 4.0 credits	
Indirect Credits for withdrawals from 0.63 to 0.69 MGD - 20,000 gpd total mitigation requirement • **20,000 gpd** to be mitigated through indirect mitigation at 10,000 gpd per credit. Requires 2X times the indirect credit requirements because of GWC change 4.0 credits	
Lunenburg Water District's Currently Available Indirect Mitigation Credits	
Wetlands Bylaw/Regulations	3 credits
Sewer I/I	1 credit
Stormwater Bylaw	2 credits
MS4 Implementation	2 credits
Total Indirect Mitigation Credit	8 credits

Indirect Mitigation Credits are provided as follows:

- The Town of Lunenburg's Chapter 239, Wetlands Protection Bylaw (5/14/1988, most recently amended 5/7/2016) and Chapter 335, Wetlands Regulations:
    - One credit for implementation and enforceability which includes a clear review process and a schedule of fines for violations;
    - Two credits for its jurisdiction expanded beyond the requirements of the Wetlands Protection Act to vegetated wetlands, intermittent streams and vernal pools.
- Sewer Infiltration and Inflow:
    - One credit for an approved I/I Analysis and SSES (letter of November 31, 2021, from David Boyer of MassDEP to Robert Oliva, Lunenburg DPW Director):
        - Two additional credits are potentially available if the Lunenburg DPW completes the additional requirements in the November 30, 2021, letter:
            1. The town shall submit an updated schedule for all proposed SSES activities by no later than June 30, 2022.
            2. The town shall continue to submit annual reports summarizing the work performed and any updates to the future work by no later than December 31 of each year."
- The Town of Lunenburg's Chapter 204, Stormwater and Storm Sewers Bylaw (11/28/2017, amended 11/17/2020):
    - One credit for the geographic extend covering the urbanized area (MS4) only;
    - One credit for regulating projects of one acre or more.
- The Town of Lunenburg's MS4 Implementations:
    - Two credits for having met all on-going MS4 implementation requirements to date.

10. Requirement to Report Raw and Finished Water Volumes

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

GENERAL CONDITIONS (applicable to all permittees)

1. **Duty to Comply:** The permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance:** The permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw up to the authorized volume so as not to impair the purposes and interests of the Act.
3. **Entry and Inspections:** The permittee or the permittee's agent shall allow personnel or authorized agents or employees of MassDEP at reasonable times to enter and examine any property or inspect and copy any records for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.
4. **Water Emergency:** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by MassDEP pursuant to M.G.L. c. 21G, s. 15-17, M.G.L. c. 111, s. 160, or any other enabling authority.
5. **Transfer of Permits:** This permit shall not be transferred in whole or in part unless and until MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.33.
6. **Duty to Report:** The permittee shall submit annually, on the electronic Annual Statistical Report (eASR) accessed through MassDEP's eDEP website, a statement of the withdrawal. Such report must be submitted annually by the date identified on eDEP each year, unless the permittee has explicit permission from the MassDEP Drinking Water program for an extension of time.
7. **Duty to Maintain Records:** The permittee shall be responsible for maintaining withdrawal records in sufficient detail to assess compliance with the conditions of this permit.
8. **Metering:** All withdrawal points included within the permit shall be metered. Meters are to be calibrated annually.
9. **Amendment, Suspension or Termination:** MassDEP may amend, suspend or terminate the permit in accordance with M.G.L. c. 21G and 310 CMR 36.29.

APPEAL RIGHTS AND TIME LIMITS

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

CONTENTS OF HEARING REQUEST

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

FILING FEE AND ADDRESS

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

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

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

EXEMPTIONS

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

WAIVER

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

Duane LeVangie

January 2, 2025

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

Date

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

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

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

1. A description of the actions taken during the prior calendar year to meet the performance standard;
2. An analysis of the cause of the failure to meet the performance standard;
3. A description of the actions that will be taken to meet the performance standard which must include, at a minimum, at least one of the following:
    a) provide water saving devices such as faucet aerators and low flow shower heads at cost;
    b) provide rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets), or
    c) adopt and enforce 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) increasing block water rates or a seasonal water rates as a tool to encourage water conservation;
    e) provide rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
    f) adopt and enforce an ordinance, by-law or regulation to require that all new construction include water saving devices and low water use appliances;
    g) adopt and enforce an ordinance, by-law or regulation to require all new construction to minimize lawn area and irrigated lawn area, maximize drought resistant landscaping, and maximize the use of topsoil with a high water retention rate;
    h) encourage the use of cisterns or rain barrels for outside watering;
    i) 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 measures, those must be included in the RGPCD plan for continued implementation, as well as implementation of at least one additional measure. The plan must include a public information component to inform customers of the plan and to encourage participation.

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

If a RGPCD plan is required, the permittee must:

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

Appendix B – Functional Equivalence with the 10% Unaccounted for Water (UAW) 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 UAW 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 MassDEP.
4. Continued implementation will be a condition of the permit in place of meeting the 10% UAW performance standard.
5. Upon request of MassDEP, the permittee shall report on its implementation of the water loss control program.

A PWS permittee may choose to discontinue the water loss program implementation if UAW, as reported on the ASR and approved by MassDEP, 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.