



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

One Winter Street Boston, MA 02108 • 617-292-5500

Charles D. Baker
Governor

Karyn E. Polito
Lieutenant Governor

Matthew A. Beaton
Secretary

Martin Suuberg
Commissioner

October 20, 2017

Board of Commissioners
Shelburne Falls Fire District
121 State Street
Shelburne Falls, MA 01370

Shelburne Falls – BRP/WMA
Shelburne Falls Fire District
PWS ID #1268000
Renewed Water Management Act Permit
Permit #9P103268.01

Dear Board Members,

Attached please find:

- Findings of Fact in Support of the Renewed Permit and;
- Renewed Water Management Act Permit # 9P-1-03-268.01 for the Shelburne Falls Fire District, Massachusetts.

No public comment was received within the 30 day comment period following the July 12, 2017 Environmental Monitor publication that contained notice of this decision to renew your Water Management Act permit.

If you have any questions regarding this information, please contact Jim Bumgardner at (413) 755-2270 or via e-mail at james.bumgardner@state.ma.us.

Sincerely,

Deirdre Doherty, Section Chief
Drinking Water Program
Bureau of Water Resources

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Ecc: Jim Bumgardner, MassDEP WERO, Duane LeVangie, MassDEP

Michele Drury, DCR OWR

Jen Pederson, MWWA

Cc: Howard Wheeler, Shelburne Falls Fire District

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

Contact Michelle Waters-Ekanem, Diversity Director/Civil Rights: 617-292-5751 TTY#

MassRelay Service 1-800-439-2370.

<http://www.mass.gov/eea/agencies/massdep/service/justice/>

(Version 3.30.15)



1 English:

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



2 Español (Spanish):

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



3 Português (Portuguese):

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



4(a) 中國（傳統）(Chinese (Traditional)):

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



4(b) 中国（简体中文）(Chinese (Simplified)):

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

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



6 Việt (Vietnamese):

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



7 ប្រទេសកម្ពុជា (Kmer (Cambodian)):

ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាមៗ ប្រសិនបើអ្នកត្រូវបានបកប្រែ ឯកសារនេះសូមទំនាក់ទំនងឆ្នោតជាមួយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយ ខាងក្រោម។



8 Kriolu Kabuverdianu (Cape Verdean):

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9 Русский язык (Russian):

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

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

Contact Michelle Waters-Ekanem, Diversity Director/Civil Rights: 617-292-5751 TTY#
MassRelay Service 1-800-439-2370.

<http://www.mass.gov/eea/agencies/massdep/service/justice/>

(Version 3.30.15)

**10 العربية (Arabic):**

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

**11 한국어 (Korean):**

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

**12 հայերեն (Armenian):**

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

**13 فارسی (Farsi (Persian):**

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

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

**15 Deutsch (German):**

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

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

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**18 Język Polski (Polish):**

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**19 हिन्दी (Hindi):**

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



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Findings of Fact in Support of Water Management Permit #9P103268.01 Shelburne Falls Fire District

The Department of Environmental Protection (the Department) makes the following Findings of Fact in support of the attached Water Management Permit #9P103268.01, including its reasons for issuing the Permit and for conditions of approval imposed, as required by M.G.L. c. 21G, § 11. The issuance of this permit is in response to a water withdrawal permit renewal application by the Shelburne Falls Fire District (SFFD) for the purpose of public drinking water supply.

The Department adopted revised Water Management Regulations at 310 CMR 36.00 on November 7, 2014, (described in greater detail below). Since that time, the Department has been working closely with each Water Management Act (WMA) permittee to fully consider all aspects of their individual situations and ensure thoughtful and implementable permits.

On May 5, 2015, MassDEP issued an Order to Complete requiring SFFD to submit daily water withdrawal volumes from its groundwater sources, Well #2 and Well #3. On July 16, 2015, SFFD responded to the OTC in a satisfactory manner by demonstrating that the wells were not withdrawing above its permit limited daily maximum withdrawal volumes.

The Department has included water conservation elements of SFFD's Emergency Plan, submitted with its permit renewal application on February 25, 2015, in consideration of the special conditions in the renewed permit.

The Permit Renewal Schedule

WMA permits issued during the first 20-year permitting cycle for the Deerfield Basin were originally set to expire on February 29, 2012. However, the expiration dates for all Water Management permits were extended for four years by Chapter 240 of the Acts of 2010 as amended by Chapter 238 of the Acts of 2012, collectively known as the Permit Extension Act. All Permittees seeking to renew their Water Management permit were required to file a renewal application on or before February 28, 2015. SFFD filed a timely renewal application on February 25, 2015, to continue its municipal water withdrawal while the permit renewal review was ongoing. MassDEP published notice of the permit renewal application in the Environmental Monitor on March 25, 2015. No comments were received by the Western Regional Office of MassDEP. Note that the expiration date for all permits going forward in the Deerfield Basin will be February 28, 2032, 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 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* (<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 Deerfield Basin section of this document);
- Water needs forecasts for public water suppliers developed by the Department of Conservation and Recreation, Office of Water Resources (DCR), using a methodology reviewed and approved by the Massachusetts WRC;
- Water supply protection measures for public water supplies including Zone II delineations for groundwater sources, and wellhead and surface water protection measures as required by Massachusetts Drinking Water Regulations (310 CMR 22.00);
- Water conservation and performance standards reviewed and approved by the WRC in July 2006 and revised in June 2012 (<http://www.mass.gov/eea/docs/eea/wrc/water-conservation-standards-rev-june-2012.pdf>), 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 Deerfield Basin

This permit is being issued under the safe yield methodology adopted by the Department on November 7, 2014, and described in the regulations at 310 CMR 36.13. As of the date of issuance of this permit, the safe yield for the Deerfield Basin is 130.0 million gallons per day (MGD), and total registered and permitted withdrawals are 3.93 MGD, leaving 126.07 MGD potentially available. The maximum withdrawals that will be authorized in this permit, and all other permits currently under review by the Department within the Deerfield Basin, will be within the safe yield and may be further conditioned as outlined in the regulations.

Baseline Withdrawal Determination (310 CMR 36.03) for SFFD

MassDEP has determined that the Baseline withdrawal is equal to the registration volume of 0.21 mgd because its water demand did not exceed 0.21 mgd during the years of 2003 through 2005.

Findings of Fact for Permit Conditions in SFFD's Water Management Act Permit

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

Special Condition 1, Authorized Annual Average Withdrawal Volume: This permit authorizes the use of a withdrawal point (Well #2) from which previously registered withdrawals were not authorized. This condition reflects the total registered withdrawal volume of 0.21 million gallons per day (MGD). No withdrawal volume in excess of the registration volume (plus the additional 0.1 mgd allowed by the permitting threshold) is authorized by this renewed permit.

Per the Water Management Act regulations, 310 CMR 36.16(1)(b), persons with a registration for withdrawals within a water source (river basin), require a permit for withdrawals that exceed their registration by more than the threshold volume (100,000 gallons per day). Therefore, in the event that SFFD expects an increase in demand that would require additional withdrawals in excess of the permitting threshold, i.e. withdrawals in excess of 0.31 MGD in any year, SFFD must apply for and obtain a permit prior to making withdrawals in excess of 0.31 MGD. Should SFFD expect annual average daily volumes to exceed 0.31 mgd at any time in the near future it should contact the Department of Conservation and Recreation, Office of Water Resources to request that a Water Needs Forecast be prepared for use in its permit application. Additional permit conditions, including but not limited to mitigation, minimization, and Coldwater Fisheries Resource protection measures may be applicable to all permitted withdrawal volumes in excess of the 0.21 MGD registered volume (baseline).

Special Condition 2, Maximum Daily Withdrawals from Groundwater Withdrawal Points: This condition establishes the maximum authorized daily withdrawal volume for Well #2 and both Well #2 and Well #3 pumping together. The authorized maximum daily rate is based on the approved Zone II rate of each withdrawal point. The permit includes a maximum authorized daily withdrawal volume for Well #3, because both Well #2 and Well #3 were pumped together during the pumping test to determine Zone II delineation.

Well #02G was installed in 1990 without Department approval or any formal permitting process. The well is a gravel-packed well approximately 220 feet from an existing PWS source well (Well #1). The well was installed without Department oversight in an area of Colrain, MA. Subsequently, the Department determined that SFFD could not obtain complete ownership and full control of Zone I. The distance from the original source, Well #1, exceeds the distance required for considering Well #2 a replacement well for Well #1. Because Well #2 could not be considered a replacement well for new source approval and its Water Management Act registration, the Department required SFFD to complete the new source approval process and obtain a WMA permit for Well #2. Subsequently, the District installed a third well (Well #3) as a replacement to Well #1, less than 50 feet from Well #1 and within the approvable replacement well dimension. Well #3 has been added to the SFFD registration as a replacement source for Well #1.

Special Condition 3, Zone II Delineation requirements have been met and no further delineations are required as a condition of this permit.

Special Condition 4, Wellhead and Surface Water Protection requirements have been met and are up to date as of the issuance of this permit. MassDEP reserves the right to require "best effort" in obtaining wellhead protection control measures.

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water for SFFD is unchanged at 65 gallons per capita per day. Permittees that cannot comply within the permit condition timeframe must meet Functional Equivalence requirements outlined in Attachment A. SFFD's 2016 RGPCD was 40 as reported in the 2016 ASR.

Special Condition 6, Performance Standard for Unaccounted for Water for SFFD remains unchanged from 10%. The UAW required for all 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 Attachment B. SFFD's UAW for the most recent three years has been:

2016	2015	2014
18%	14%	8%

Special Condition 7, Seasonal Limits on Nonessential Outdoor Water Use is based upon SFFD's Residential Gallons per Capita Day (RGPCD) for the preceding year, and shall be implemented according to either: 1) calendar triggered restrictions; or 2) streamflow triggered restrictions.

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

2. Streamflow triggered restrictions: Restrictions shall be implemented at those times when streamflow falls below designated flow triggers measured at an assigned, web-based, real-time U.S. Geologic Survey (USGS) stream gage from May 1st through September 30th. At a minimum, restrictions shall commence when streamflow falls below the trigger for three consecutive days. Once implemented, the restrictions shall remain in place until streamflow at the assigned USGS local stream gage meets or exceeds the trigger streamflow for seven consecutive days.

The basis for streamflow triggers is derived from Aquatic Base Flow (ABF) values calculated by the Sustainable Yield Estimator (SYE)¹ for simulated natural flow applied to the assigned local USGS stream gage. The two-tiered trigger values are based on flow levels that are protective of aquatic habitat for fish spawning during the spring bioperiod, designated with the June ABF; and protective flows for fish rearing and growth during the summer bioperiod, designated with the August ABF trigger. Protective flow levels are derived from index gage flow data which represent the least altered stream flows in Massachusetts, and are further described in the Department of Conservation and Recreation (DCR)² and USGS Index Reports³.

If SFFD selects the streamflow approach, it has been assigned the USGS local stream gage #01169000 – North River at Shattuckville. The local gage streamflow triggers at this site are 112 cubic feet per second (cfs) for May and June, and 38 cfs for July, August and September.

The Low-flow statistic being applied replaces the Massachusetts Drought Management Task Force Drought Declaration previously used to trigger more stringent restrictions on seasonal limits on nonessential outdoor water use. This value, referred to as the “7-day low-flow statistic”, is the median value of the annual 7-day low flows for the period of record for the North River at Shattuckville gage. The 7 day low-flow statistic for the North River at Shattuckville gage is 15 cfs and will limit non-essential outdoor watering to no more than 1 day per week as outlined in Special Condition #7. The 7 day low-flow statistic is expected to respond more quickly to low flow conditions in rivers and streams than did the Drought Management Task Force Drought Declaration.

Special Condition 8, Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the WRC in July 2006 and revised in June 2012. (<http://www.mass.gov/eea/docs/eea/wrc/water-conservation-standards-rev-june-2012.pdf>).

Special Condition 9, Reporting Requirements, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

Mitigation

SFFD’s baseline withdrawal rate is 0.21 mgd, based on its registration volume. This renewed permit authorizes SFFD to withdraw up to 0.21 mgd, and the permitting threshold of 0.1 mgd allows SFFD’s to withdraw up to 0.31 mgd without obtaining a permit, therefore no mitigation will be required until SFFD obtains a permit to increase its withdrawal volumes.

¹ Archfield, S.A., Vogel, R.M., Steeves, P.A., Brandt, S.L., Weiskel, P.K., and Garabedian, S.P., 2010, The Massachusetts Sustainable-Yield Estimator: A decision-support tool to assess water availability at ungaged stream locations in Massachusetts: U.S. Geological Survey Scientific Investigations Report 2009–5227, 41 p. plus CD-ROM. See <http://pubs.usgs.gov/sir/2009/5227/>

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

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

Minimization

Permittees with groundwater sources in subbasins having August net groundwater depletion (August NGD) of 25% or greater are required to develop a plan to minimize the impacts of their withdrawals. However, because all of SFFD's groundwater sources are in areas where the value for August net groundwater depletion is minimal (2.8%), SFFD is not required to prepare a Minimization Plan.

Coldwater Fish Resource Protection

Coldwater Fish Resource Protection was incorporated into the Water Management Regulations in November 2014. MassDEP consulted with Massachusetts Department of Fish and Game about the CFR near SFFD's wellheads and determined that optimization of its source withdrawals could be ruled out as both sources are adjacent to one another in the same subbasin (#16021) along the North River. Therefore no CFR protection conditions are included in this permit.

General Permit Conditions – contains general requirements applicable to all WMA permittees.

In the event of any conflict or ambiguity between the preceding Findings and the permit, the permit language shall control.



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WATER WITHDRAWAL PERMIT RENEWAL

#9P103268.01

Shelburne Falls Fire District

This renewal of Permit #9P103268.01 is approved pursuant to the Massachusetts Water Management Act (WMA) for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This permit conveys no right in or to any property.

PERMIT NUMBER: 9P103268.01 **RIVER BASIN:** Deerfield

PERMITTEE: Shelburne Falls Fire District
9 Williams Street
Shelburne Falls, MA 01370

EFFECTIVE DATE: October 20, 2017

EXPIRATION DATE: February 28, 2032

TYPE AND NUMBER OF WITHDRAWAL POINTS: Groundwater: 1 Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

AUTHORIZED WITHDRAWAL POINTS:

Table 1: Withdrawal Point Identification	
Source	Source Code
Well #2	1268000-02G

SPECIAL CONDITIONS – PERMIT #9P1-03-268.01

1. 1. Authorized Annual Average Withdrawal Volume

This permit authorizes Shelburne Falls to withdraw water from the Deerfield River Basin at the rate of 0.21 MGD previously authorized under Water Management Act Registration #1-03-268.01 and described below in Table 2. The authorized volume is expressed both as an annual average daily withdrawal rate (million gallons per day or mgd), and as a total annual withdrawal volume (million gallons per year or mgy) for each period of the permit term.

Per Water Management Act regulations, 310 CMR 36.16(1)(b), for persons with a registration for withdrawals within a water source (river basin), a withdrawal of more than the threshold volume (100,000 gallons per day) in excess of a registered volume requires a permit. Should Shelburne Falls anticipate making withdrawals in excess of 0.31 MGD in any year, Shelburne Falls must obtain a permit for all withdrawals in excess of the 0.21 mgd authorized in Registration #1-03-268.01 prior to taking withdrawals that exceed the 0.31 mgd threshold.

The Department of Environmental Protection (MassDEP) 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: Authorized Withdrawal Volumes				
Permit Periods	Total Raw Water Withdrawal Volumes			
	Permit		Registration + Permit	
	Daily Average (mgd)	Total Annual (mgy)	Daily Average (mgd)	Total Annual (mgy)
10/20/2017 to 2/28/2023	0.0	0.0	$0.21 + 0.0 = 0.21$	76.65
3/1/2023 to 2/29/2028	0.0	0.0	$0.21 + 0.0 = 0.21$	76.65
3/1/2028 to 2/28/2032	0.0	0.0	$0.21 + 0.0 = 0.21$	76.65

2. Maximum Daily Withdrawals from Groundwater Withdrawal Points

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

Table 3: Maximum Daily Withdrawal Rates from the Authorized Groundwater Withdrawal Points		
Source	Source ID	Maximum Daily Rate (MGD)
Well #2	1268000-02G	0.31
Combined Wells #2 and #3 (registered)	1268000-02G and 1268000-03G	0.455

3. Zone II Delineation

Department records show that all of the Shelburne Falls Fire District's sources have approved Zone II delineations, therefore, no further Zone II work is required.

4. Wellhead and Surface Water Protection

Department records show that SFFD has satisfied the "Best Effort" requirement for protecting its source water.

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

SFFD's performance standard for residential gallons per capita day (RGPCD) is 65 gallons or less. SFFD shall be in compliance with this performance standard by December 31, 2019, or, if SFFD does not meet the standard, shall be in compliance with the functional equivalence requirements (Appendix A).

6. Performance Standard for Unaccounted for Water

SFFD'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. SFFD shall be in compliance with this performance standard by December 31, 2020 or, if SFFD does not meet the standard, shall be in compliance with the functional equivalence requirements (Appendix B).

Nothing in the permit shall prevent a permittee who meets the 10% performance standard from demonstrating compliance with the UAW performance standard by developing and implementing a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs*.

Permittees meeting the Performance Standard for Unaccounted for Water through implementation of a water loss control program based on AWWA M36 annual water audits and guidance shall continue to report UAW annually as required in the Annual Statistical Report for public water suppliers.

7. Seasonal Limits on Nonessential Outdoor Water Use

SFFD shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in Table 4. SFFD shall be responsible for tracking streamflow and recording and reporting when streamflow triggered restrictions are implemented. See Table 4 **Instructions for Accessing Streamflow Website Information**.

SFFD shall also document compliance with the seasonal limits on nonessential outdoor water use in its Annual Statistical Report (ASR), and shall indicate in the ASR if it anticipates implementing calendar or streamflow triggered restrictions during the next year.

Restricted Nonessential Outdoor Water Uses

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

- irrigation of lawns via sprinklers or automatic irrigation systems;
- washing of vehicles, except in a commercial car wash or as necessary for operator safety; and

- washing of exterior building surfaces, parking lots, driveways or sidewalks, except as necessary to apply surface treatments such as paint, preservatives, stucco, pavement or cement.

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

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

Permittee shall notify its customers of the restrictions and penalties for violating 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 to customers shall include the following:

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

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

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

Table 4 Nonessential Outdoor Water Use Restrictions

SFFD shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in below. To the extent feasible, all summer outdoor water use should take place before 9 am and after 5 pm when evaporation and evapotranspiration rates are lower.

Restrictions for Permittees meeting the 65 RGPCD Standard for the preceding year

RGPCD \leq 65 as reported in the ASR and accepted by MassDEP

Calendar Triggered Restrictions	<p>Nonessential outdoor water use is restricted to:</p> <ul style="list-style-type: none"> a) seven (7) 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 #01169000 – North River at Shattuckville, MA falls below 15 cfs for three (3) consecutive days. <p>Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at the gage meets or exceeds 15 cfs for seven (7) consecutive days.</p>
Streamflow Triggered Restrictions	<p>Nonessential outdoor water use is restricted to:</p> <ul style="list-style-type: none"> a) seven (7) days per week before 9 am and after 5 pm when USGS stream gage #01169000 – North River at Shattuckville, MA falls below: <ul style="list-style-type: none"> • May 1 – June 30: 112 cfs for three (3) consecutive days • July 1 – September 30: 38 cfs for three (3) consecutive days b) one (1) day per week before 9 am and after 5 pm when USGS stream gage #01169000 – North River at Shattuckville, MA falls below 15 cfs for three (3) consecutive days. <p>Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.</p>

Restrictions 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	<p>Nonessential outdoor water use is restricted to:</p> <ul style="list-style-type: none"> 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 #01169000 – North River at Shattuckville, MA falls below 15 cfs for three (3) consecutive days. <p>Once streamflow triggered restrictions are implemented, they shall remain in place until streamflow at the gage meets or exceeds 15 cfs for seven (7) consecutive days.</p>
Streamflow Triggered Restrictions	<p>Nonessential outdoor water use is restricted to:</p> <ul style="list-style-type: none"> a) two (2) days per week before 9 am and after 5 pm when USGS stream gage #01169000 – North River at Shattuckville, MA falls below: <ul style="list-style-type: none"> • May 1 – June 30: 112 cfs for three (3) consecutive days • July 1 – September 30: 38 cfs for three (3) consecutive days b) one (1) day per week before 9 am and after 5 pm when USGS stream gage #01169000 – North River at Shattuckville, MA falls below 15 cfs for three (3) consecutive days. <p>Once implemented, the restrictions shall remain in place until streamflow at the gage meets or exceeds the trigger streamflow for seven (7) consecutive days.</p>

Instructions for Accessing Streamflow Website Information
<p>If the Permittee chooses Streamflow Triggered Restrictions, the Permittee shall be responsible for tracking streamflows and recording and reporting to MassDEP when restrictions are implemented.</p>
<p>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.</p> <p>Seasonal Nonessential Outdoor Water Use Restrictions 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.</p> <p>Mean daily streamflow gage readings are available at the USGS NWIS Web Interface at http://waterdata.usgs.gov/ma/nwis/current/?type=flow.</p> <ul style="list-style-type: none"> • Scroll down to gage #01169000 – North River at Shattuckville, 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 “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.
<p>SFFD 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.</p>

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

8. Water Conservation Requirements

At a minimum, SFFD shall implement the following conservation measures forthwith and shall be in compliance with these measures on or before September 1, 2018. Compliance with the water conservation requirements shall be reported to the Department upon request, unless otherwise noted below.

Table 5: Minimum Water Conservation Requirements
Leak Detection
1. At a minimum, conduct a full leak detection survey every three years. See also Special Condition 7.
2. Conduct leak detection of the entire distribution system within one year whenever the percentage of UAW increases by 5% or more (for example an increase from 3% to 8%) over the percentage reported on the ASR for the prior calendar year. Within 60 days of completing the leak detection survey, submit to the Department a report detailing the survey, any leaks uncovered as a result of the survey or otherwise, dates of repair and the estimated water savings as a result of the repairs.
3. Conduct field surveys for leaks and repair programs in accordance with the <u>AWWA Manual 36</u> .

Table 5: Minimum Water Conservation Requirements

4. SFFD shall have repair reports available for inspection by the Department. SFFD shall establish a schedule for repairing leaks that is at least as stringent as the following:
 - o Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection.
 - o Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible.
 - o 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 SFFD's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. SFFD shall have water use regulations in place that require property owners to expeditiously repair leaks on its property.

Metering

1. Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2. SFFD 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. SFFD 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. SFFD shall maintain a water pricing structure that includes the full cost of operating the water supply system. SFFD 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. SFFD shall not use decreasing block rates. Decreasing block rates which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40 Section 39L.

Residential and Public Sector Conservation

1. SFFD shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code.
2. Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.
3. SFFD shall recommend that water savings devices are installed in all municipal buildings as they are renovated, and shall recommend water conserving fixtures and landscaping practices are incorporating into the design of new municipal capital projects.

Industrial and Commercial Water Conservation

1. SFFD shall ensure water conservation practices in all development proposals, particularly low flow devices and water-wise landscaping practices.

Public Education and Outreach

1. SFFD shall continue to implement its water conservation and education efforts designed to educate the District's water customers on ways to conserve water. Without limitation, SFFD's plan may include the following actions:
 - o Include in bill stuffers and/or bills, a work sheet to enable customers to track water use and conservation

Table 5: Minimum Water Conservation Requirements	
	<p>efforts and estimate the dollar savings;</p> <ul style="list-style-type: none"> ○ Public space advertising/media stories on successes (and failures); ○ Conservation information centers perhaps run jointly with electric or gas company; ○ Speakers for community organizations; ○ Public service announcements; radio/T.V./audio-visual presentations; ○ Joint advertising with hardware stores to promote conservation devices; ○ Use of civic and professional organization resources; ○ Special events such as Conservation Fairs; ○ Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and ○ Provide multilingual materials as needed.
2.	Upon request of the Department, the SFFD 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.
3.	SFFD shall implement the water conservation elements of its "Emergency Plan" as submitted in its renewal application or as updated with written approval by MassDEP.

9. Reporting Requirements

SFFD 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)

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

1. **Duty to Comply** The Permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance** The Permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw water so as not to impair the purposes and interests of the Act.
3. **Entry and Inspections** The Permittee or the Permittee's agent shall allow personnel or authorized agents or employees of the Department to enter and examine any property over which Permittee has authority, title or control, for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.
4. **Water Emergency** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by the Department pursuant to M.G.L. c. 21G, §§ 15-17, M.G.L. c. 111, § 160, or any other enabling authority.
5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.33.

6. **Duty to Report** The Permittee shall submit annually, on a form provided by the Department, a certified statement of the withdrawal. Such report is to be received by the Department by the date specified by the Department. Such report must be submitted as specified on the report form.
7. **Duty to Maintain Records** The Permittee shall be responsible for maintaining withdrawal and all other records as specified by this permit.
8. **Metering** Withdrawal points shall be metered. Meters shall be calibrated annually. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.
9. **Right to Amend, Suspend or Terminate** The Department 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 the Department. Any person aggrieved by this decision may request an adjudicatory hearing as described herein and in accordance with the procedures described at 310 CMR 36.37. Any such request must be made in writing, by certified mail or hand delivered and received by the Department within twenty-one (21) days of the date of receipt of this permit. The hearing request, including proof of payment of the filing fee, must be mailed to:

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

No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail, or delivered by hand to the local water resources management official in the community in which the withdrawal point is located; and for any person appealing this decision, who is not the applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

CONTENTS OF HEARING REQUEST

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

FILING FEE AND ADDRESS

The Department's fee transmittal form, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

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

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

EXEMPTIONS

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

WAIVER

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

Deirdre Doherty, Section Chief
Drinking Water Program
Bureau of Water Resources

Date

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

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

If the permittee fails to document compliance with the RGPCD performance standard in its 2019 Annual Statistical Report (ASR), or in any ASR thereafter, then the permittee must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall include, at a minimum:

1. A description of the actions taken during the prior calendar year to meet the performance standard;
2. An analysis of the cause of the failure to meet the performance standard;
3. A description of the actions that will be taken to meet the performance standard which must include, at a minimum, at least one of the following:
 - a) a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
 - b) a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets), or
 - c) the adoption and enforcement of an ordinance, by-law or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems;and may include, without limitation, the following:
 - d) the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
 - e) a program that provides rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
 - f) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction include water saving devices and low water use appliances;
 - g) the adoption and enforcement of an ordinance, by-law or regulation to require that all new construction minimize lawn area and/or irrigated lawn area, maximize the use of drought resistant landscaping, and maximize the use of top soil with a high water retention rate;
 - h) the implementation of a program to encourage the use of cisterns or rain barrels for outside watering;
 - i) the implementation of monthly or quarterly billing.
4. A schedule for implementation; and
5. An analysis of how the planned actions will address the specific circumstances that resulted in the failure to meet the performance standard.

If the permittee is already implementing one or more of these programs, it must include in its RGPCD plan the continued implementation of such program(s), as well as implementation of at least one additional program. All programs must include a public information component designed to inform customers of the program and to encourage participation in the program.

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

If a RGPCD plan is required, the permittee must:

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

Appendix B – Functional Equivalence with the 10% Unaccounted for Water Performance Standard

MassDEP will consider PWS permittees who cannot meet the 10% UAW performance standard to be functionally equivalent, and in compliance with their permit, if they have an on-going program in place that ensures “best practices” for controlling water loss. The water loss control program will be based on annual water audits and guidance as described in the AWWA/IWA *Manual of Water Supply Practices – M36, Water Audits and Loss Control Programs* (AWWA M36).

If, as of December 31, 2020, the permittee fails to document compliance with the Unaccounted for Water performance standard (UAW of 10% or less for 2 of the 3 most recent years throughout the permit period), then the permittee shall develop and implement a water loss control program following the *AWWA M36 Water Audits and Loss Control Programs* within 5 full calendar years.

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

A PWS permittee may choose to discontinue the water loss program implementation if UAW, as reported on the ASR and approved by 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: Permittees who do not have MassDEP approved Water Loss Control Programs in place by 6th calendar year after 2020 will be required to implement the MassDEP UAW Water Loss Control Measures outlined below:

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

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

- Reasons why specific measures are not cost effective because the cost would exceed the costs of alternative methods of achieving the appropriate standard;
- Alternative specific conservation measures that would result in equal or greater system-wide water savings or equal or greater environmental benefits than the conservation measures included in the MassDEP UAW Functional Equivalence Plan; and
- When applicable, an analysis demonstrating that implementation of specific measures will cause or exacerbate significant economic hardship.

