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

July 19, 2016

Mansfield Board of Selectmen
6 Park Row
Mansfield, Massachusetts 02048

RE: Town of Mansfield
PWS ID# 4167000
Program: Water Management Act
Action: Final WMA Permit Amendment
Permit #9P2-4-27-167.01

Dear Selectmen:

Please find attached the following:

- Findings of Fact in Support of the Amended Permit and;
- Amended Water Management Act Permit # 9P2-4-27-161.01 for the Town of Mansfield, Massachusetts.

If you have questions concerning this letter, please contact Richard Friend at 617-654-6522 or e-mail him at richard.friend@state.ma.us.

Very truly yours,

Rebecca Weidman
Director, Division of Watershed Management
Bureau of Water Resources

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cc: Lee Azinheira, Mansfield DPW
Kurt Gaffney, Mansfield Water Dept.
Ecc: Tim Simmons, DFW
Michelle Cradock, DFG
Duane LeVangie, DEP
Jen Pederson, MWWA
Julia Blatt, Mass Rivers Alliance
Michele Drury, DCR
Bob Chapell, Woodard & Curran

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:

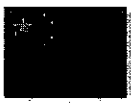
This document is important and should be translated immediately. If you need this document translated, please contact MassDEP's Diversity Director at the telephone numbers listed below.

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):

本文件非常重要，应立即翻译。如果您需要翻译这份文件，请用下面列出的电话号码与MassDEP的多样性总监联系。

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

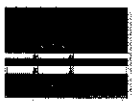
Dokiman sa-a se yon bagay enpòtan epi yo ta dwe tradui imedyatman. Si ou bezwen dokiman sa a tradui, tanpri kontakte Divèsite Direktè MassDEP a nan nimewo telefòn ki nan lis pi ba a.

6 Việt (Vietnamese):

Tài liệu này 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):

ឯកសារនេះគឺមានសារៈសំខាន់និងគួរត្រូវបានបកប្រែភ្លាម។ ប្រសិនបើអ្នកត្រូវបានបកប្រែឯកសារនេះសូមទំនាក់ទំនងឆ្មោតជានាយក MassDEP នៅលេខទូរស័ព្ទដែលបានរាយខាងក្រោម។



8 Kriolu Kabuverdianu (Cape Verdean):

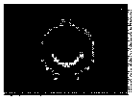
Es documento é importante e deve ser traduzido imidiatamente. Se bo precisa des documento traduzido, por favor contacta Director de Diversidade na MassDEP's pa es numero indicode li d'boche.

9 Русский язык (Russian):

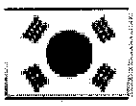
Этот документ является важным и должно быть переведено сразу. Если вам нужен этот документ переведенный, пожалуйста, свяжитесь с директором разнообразия MassDEP по адресу телефонных номеров, указанных ниже.

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. اذا كنت بحاجة الي هذه الوثيقة المترجمة، يرجى الاتصال مدير التنوع في **MassDEP** على أرقام الهواتف المدرجة أدناه.



11 한국어 (Korean):
이 문서는 중요하고 즉시 번역해야합니다. 당신이 번역이 문서가 필요하면 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 հետախուսահամարների թվարկված են ստորեւ.

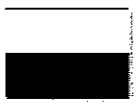
13 فارسی (Farsi (Persian):
این سند مهم است و باید فورا ترجمه شده است.
اگر شما نیاز به این سند ترجمه شده، لطفا با ما تماس تنوع مدیر **MassDEP** در شماره تلفن های ذکر شده در زیر.

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

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

16 Ελληνική (Greek):
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.

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



18 Język Polski (Polish):
Dokument ten jest ważny i powinien być natychmiast przetłumaczone. Jeśli potrzebujesz tego dokumentu tłumaczone, prosimy o kontakt z Dyrektorem MassDEP w różnorodności na numery telefonów wymienionych poniżej.

19 **हिन्दी** (Hindi):

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

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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

Findings of Fact in Support of Final Amended Permit Issuance
Water Management Permit #9P2-4-27-167.01
Town of Mansfield

The Department hereby amends the Water Management Permit #9P2-4-27-167.01 (the "Permit") in accordance with the Water Management Act (M.G.L. c. 21G). The Department makes the following Findings of Fact in support of the attached Final Amended Permit, and includes herewith its reasons for amending the Permit and for the conditions of approval imposed, as required by M.G.L. c. 21G, s. 11, and 310 CMR 36.00. The Permit is being amended since such action is necessary for the promotion of the purposes of M.G.L. c. 21G. The Department may modify, suspend or terminate the Permit, after notice and hearing, for violations of its conditions, of M.G.L. c. 21G, or of regulations adopted or orders issued by the Department, and when deemed necessary for the promotion of the purposes of the Water Management Act.

The amendment of this permit is in response to a request for reduced monitoring requirements by the Town of Mansfield Water Department (Mansfield), to the MA Water Resources Commission as part of their Interbasin Transfer Act approved in 2001. The Water Resources Commission approved the reduced monitoring on April 14, 2016.

The Permit Extensions

In November 2015, Mansfield submitted a 20-year permit renewal application for their Ten Mile Basin permit. The Permit Extension Act (PEA), 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 WMA permits by four years. Therefore, WMA permits for withdrawals in the Ten Mile Basin were extended to November 30, 2015. Pursuant to M.G.L. c. 30A, Section 13, and 310 CMR 36.18(7), Mansfield's amended Permit will continue in force and effect until the Department issues a decision on its renewal application. MassDEP has retained Mansfield's Ten Mile Basin renewal application on file and will deem it resubmitted prior to any Order to Complete or a Final Permit being issued by the Department. The Department expects to begin reviewing renewal applications in the Ten Mile Basin in 2017. Note that, in issuing this Amended Permit, the Department is not acting on Mansfield's renewal application.

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

Section 7 of the WMA requires that the Department issue permits that balance a variety of factors including:

- Reasonable protection of existing water uses, land values, investments and enterprises;
- 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.

Safe Yield in the Ten Mile Basin

Because Mansfield is not requesting to increase its withdrawal volume, amending this permit does not require an evaluation of safe yield. In fact, this Permit amendment decreases Mansfield's previously allocated withdrawals in the Ten Mile Basin, thus reducing the total allocated withdrawals in the Basin. Mansfield's permit, along with all others in the basin, is undergoing a 20 Year permit renewal that is expected to be completed over the next year. This review will include an evaluation of all allocated volumes in the Ten Mile Basin for compliance with Safe Yield.

Findings of Fact for Special Permit Conditions in Mansfield's Amended Water Management Act Permit

In issuing permits, the Department looks primarily at site-specific impacts and other issues specific to the system, such as impacts to nearby streams, wetlands, or other water users, justification of long-term demand projections, and the capacity of permitted withdrawal points. The special conditions are intended to ensure the efficient use of water and to mitigate the potential impact of withdrawals. The following Findings of Fact are intended to describe the rationale, and to provide additional detail, for each of the special conditions in the final permit. This Findings of Fact also explain any changes to Special Permit Conditions from prior Permits, when applicable. As noted above Mansfield's permits are undergoing a 20 Year Permit renewal that is expected to be completed over the next year. The renewal process will include a review and update of the Special Conditions of this permit.

Special Condition 1, Maximum Authorized Annual Average Withdrawal, reflects the total (registered plus permitted) annual average authorized withdrawal volume. Mansfield requested that the hydrologic monitoring required as part of its Interbasin Transfer Act approval be eliminated (Special Condition 3 of Mansfield's April 2001 permit), and that the permitted source (Morrison Well 10) not be pumped in August, September and October each year. Because of the reduction in pumping days at Well 10 and a review of recent usage from Well #10 and all other Mansfield Ten Mile sources, the allocated volume in the Ten Mile Basin permit was reduced from 573.05 MGY (1.57 MGD) to 365.00 MGY (1.00 MGD). Mansfield's actual Ten Mile basin withdrawals have been significantly below 1.00 MGD in recent years. On April 14, 2016, the Water Resources Commission approved the request to reduce the hydrologic monitoring requirements, based on the proposed operational changes in Mansfield.

Special Condition 2, Maximum Daily Withdrawals from Groundwater Withdrawal Point, reflects the MassDEP-approved Zone II maximum daily pumping rate for Mansfield's permitted well based on prolonged pumping tests. Withdrawals in excess of this maximum daily rate require approval from the Department.

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 Protection requirements have been met and are up to date as of the amendment of this permit.

Special Condition 5, Water Conservation requirements have not been changed from the permit issued in 2001. Some of the requirements are no longer applicable, for example outdoor water use restrictions have been in place for several years. When this permit is renewed in 2017, conservation conditions will

be updated to be consistent with other permit renewals and the revised regulations. Mansfield has met the 65 Residential Gallons per Capita Day (RGPCD) MA Water Conservation Standard (WCS) every year since 2008, and has met the 10% Unaccounted for Water (UAW) WCS every year since 2008 but one (2011 was 15%). The Water Conservation and Water Resources Management Plan Requirements in Attachment B are required as part of the Interbasin Transfer approved by the Massachusetts Water Resources Commission in 2001. Many of these requirements have been met. When the permit is renewed, the Town may apply to the WRC to remove the requirements in Attachment B which Mansfield has already complied with, for example requirements 3, 4, 5 and 6.

Special Conditions 6, Wetlands Monitoring and Invasive Species Control In consultation with the Water Resources Commission, the MA Department of Fish and Game and MA Department of Conservation and Recreation, vegetative monitoring has been reduced from 5-year to 10-year intervals, hydrologic monitoring has been eliminated, and annual invasive species control and reporting has been added. The revised wetlands monitoring and invasive species control conditions will also be included in the renewed permit expected to be issued in 2017. On April 14, 2016, the Water Resources Commission approved the reduced vegetative monitoring as a condition of the Interbasin Transfer Act approval.

Special Condition 7, Inter-Agency Coordination requires that Mansfield coordinate and communicate with other state agencies, including sending copies of annual invasive species control reports and ten-year vegetative survey reports to MADCR and MA Department of Fish and Game.

Special Condition 8, Requirement to Report Raw and Finished Water Volumes is to assure that the information necessary to evaluate compliance with other permit conditions is accurately reported.

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.

Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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

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

This amended permit is issued pursuant to the Massachusetts Water Management Act for the sole purpose of authorizing the withdrawal of a volume of water as stated below and subject to the following special and general conditions. This permit conveys no right in or to any property beyond the right to withdraw the volume of water for which it is issued.

PERMIT NUMBER: 9P2-4-27-167.01 **BASIN:** Ten Mile

PERMITTEE: Town of Mansfield
6 Park Row
Mansfield, MA 02048

EFFECTIVE DATE: July 19, 2016

EXPIRATION DATE: November 30, 2015[1]

USE: Public Water Supply

DAYS OF OPERATION: 273 (No withdrawal August 1 – October 31)

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

AUTHORIZED WITHDRAWAL POINTS

Table 1: Withdrawal Point Identification

Source Name	PWS Source ID
Morrison Well No. 10	4167000-12G

[1] Mansfield's most recent 20-year permit was set to expire on November 30, 2011. In 2010, the permit was extended for 2 years, to November 30, 2013, by Section 173 of the Chapter 240 of the Acts of 2010, (Permit Extension Act). In 2012, the Permit Extension Act was amended by Chapter 238 of the Acts of 2012, and this permit was extended an additional 2 years to November 30, 2015. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), the amended permit will continue in force and effect until the Department issues a decision on Mansfield's renewal application.

SPECIAL CONDITIONS

1. **Maximum Authorized Annual Average Withdrawal**
This permit authorizes the Town of Mansfield to withdraw water from the Ten Mile River Basin at the rate described in Table 2 below. The volume reflected by this rate is in addition to the 0.59 MGD previously authorized to Mansfield under WMA Registration #427167.01. The permitted rate is expressed both as an average daily withdrawal rate (million gallons per day or MGD), and as a total annual withdrawal (million gallons per year or MGY) for each five-year period of the permit term.

Table 2: Authorized Raw Water Withdrawal Rates

	Permit*		Registration + Permit*	
Permit Period	Daily Average (MGD)	Total Annual* (MGY)	Daily Average (MGD)	Total Annual* (MGY)
12/01/2006 to 11/30/2015**	0.41	149.65	0.59 + 0.41 = 1.00	365.00

* Well No. 10 shall not be used from August 1 to October 31 each year unless there is an Emergency Declaration issued by MassDEP.

** The original expiration date for this permit was November 30, 2011. In 2010, the permit was extended for 2 years, to November 30, 2013, by Section 173 of the Chapter 240 of the Acts of 2010, (Permit Extension Act). In 2012, the Permit Extension Act was amended by Chapter 238 of the Acts of 2012, and this permit was extended an additional 2 years to November 30, 2015. Pursuant to M.G.L. c. 30A, § 13, and 310 CMR 36.18(7), this amended permit will continue in force and effect until the Department issues a decision on the renewal application submitted on November 24, 2015.

2. **Maximum Authorized Daily Withdrawal Rates**
Withdrawals from the individual source are not to exceed the approved maximum daily rate listed below without specific advance written approval from the Department.

Table 3: Individual Source Maximum Daily Withdrawal Rates

Source Name	PWS Source ID	Approved Maximum Daily Rate (MGD)
Morrison Well No. 10	4167000-12G	0.99

3. **Zone II Wellhead Protection Delineations**
Department records show that Morrison Well No. 10 (4167000-12G) has a Zone II delineation approved on May 5, 2001. No further Zone II work is required as a condition of this permit.

4. **Wellhead Protection** Department records show that Mansfield has implemented municipal controls that comply with Wellhead Protection Regulations at 310 CMR 22.21(2).

5. **Water Conservation Requirements**
Attachment B of this permit contains the Water Conservation and Water Resources Management Plan Requirements specified in the June 8, 2000 Water Resources Commission (WRC) Decision of the Town of Mansfield's Interbasin Transfer application for the Morrison Well #10.

The Department has accepted the Town of Mansfield's Water Conservation Plan as a permit condition. The minimum water conservation standards are as follows:

Metering

- 100 percent metering with all meters of proper size and accuracy to measure water flow to within 5 percent, including public buildings and facilities.
- Public water suppliers must have an ongoing program to test all meters over 10 years old with funds included in the annual water department budget to recalibrate, repair or replace meters as needed.
- Master meters must be calibrated annually.

Leak Detection A full leak detection survey is to be conducted every two years.

Leak Repair

- Suppliers must have repair reports available for inspection by the Department.
- Leaks are to be fixed as soon as possible but in no event shall any leak remain un-repaired more than seven (7) days after detection.

Pricing

Supplier shall take steps to ensure that water supply system operations are fully funded by water supply system revenues. The pricing system should reflect the full cost of supplying water, including but not limited to:

- Administrative costs
- staff salaries, benefits, insurance and pension costs
- distribution system operation, maintenance and repair, including leak detection and repair costs and metering costs
- pumping costs and utilities
- treatment costs
- capital replacement costs, capital depreciation and debt service
- any costs associated with water conservation programs and public education programs
- watershed or wellhead purchase and/or protection costs and land acquisition
- emergency planning
- enforcement of the building code and/or local regulations

Plumbing

- Public water suppliers ensure enforcement of the March 1, 1989 plumbing code for new construction and building rehabilitation where installation of water saving devices and low flow toilets is required.
- Public buildings must be retrofitted with water saving devices (faucet aerators, low flow shower heads and toilet displacement bottles/dams).
- If residential consumption is over 65 gallons per capita per day, a program must be implemented to make retrofit devices (faucet aerators, low flow shower heads and toilet displacement bottles/dams) available to customers at cost.

Education Develop and implement a public education program which emphasizes:

- all the costs of providing water
- that investments in efficiency and conservation will provide consumers with long-term savings
- the environmental benefits of reducing water demand
- Bill stuffers with water conservation tips or water saving messages should be included at least annually with customers' water bills, or as a separate mailing.

Outdoor Water Use

The Department encourages the adoption of a Water Use Restriction Bylaw. To help you accomplish that goal; the Department has attached its Model Bylaw for Water-Use Restrictions. You should consult with Town Counsel to discuss the specifics of adopting the Bylaw. Outdoor water use restriction can typically range from odd-even lawn watering schedules to a complete ban on all outdoor water use. Any restrictions should be coupled with an aggressive local education program to make consumers A) aware of the water use restrictions and penalties for violation and B) knowledgeable about the shortfall in the water supply system and the need for water conservation.

6. **Wetlands Monitoring and Invasive Species Control**

Hydrologic monitoring of the wetlands adjacent to the Morrison Well #10 is no longer required. Vegetative monitoring shall occur on a ten-year interval starting in 2023, with a report submitted to state agencies by February 28, 2024. Requirements for the wetlands vegetative monitoring plan are found in Attachment A of this permit.

Should vegetative monitoring reveal negative alteration of wetlands, the Department may amend this permit pursuant to 310 CMR 36.29 to include conditions to restrict pumping, and/or include conditions, to mitigate the negative impacts attributable to the withdrawal.

Mansfield shall be responsible for the elimination of invasive species from the swamp. Such species include, but are not restricted to glossy buckthorn (*Frangula alnus*), purple loosestrife (*Lythrum salicaria*), Asiatic bittersweet (*Celastrus orbiculata*), and the native common reed (*Phragmites australis*). Mansfield shall control/remove glossy buckthorn each year and submit to the state agencies by February 28 of each year an annual report summarizing invasive species control activities. The applicant shall be responsible for identifying and obtaining any required permits that may be necessary in order to implement said plan.

7. **Inter-Agency Coordination**
The Department will coordinate its review of all information required to be submitted through this permit with other state environmental agencies and the Water Resources Commission. The Town of Mansfield shall submit to the Department a copy of all information it may be required to submit to other agencies as part of the Interbasin Transfer Approval. This requirement shall include any pre-operation baseline information. The Department will consult and coordinate with the Water Resource Commission prior to making changes or modifications to this permit.

8. **Requirement to Report Raw and Finished Water Volumes**
Mansfield shall report on its ASR the raw water volumes and finished water volumes for the entire water system. Raw water volumes for individual water withdrawal points shall be reported on the ASR.

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 the Department to enter and examine any property 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 MGL c 21G ss 15-17, MGL c 150 ss 111, 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 records in sufficient detail to assess compliance with the conditions of 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 this 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 city or town (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.

Rebecca Weidman
Rebecca Weidman, Director
Division of Watershed Management
Bureau of Water Resources

July 19, 2016
Date

ATTACHMENT A

Wetland Hydrology Monitoring Guidance for Water Withdrawal Permit Compliance
Massachusetts Department of Environmental Protection
Bureau of Resource Protection, Wetlands and Waterways Program

Note: (see Glossary for **bolded** words/phrases)

Preamble

Wetland plant community structure and composition and the formation of hydric soils are driven by the presence and characteristics of wetland hydrology [per *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (FICWD 1989) Part II, Section 2.0];

Monitoring of resource areas under the jurisdiction of the Massachusetts Department of Environmental Protection (the Department) for compliance with Water Management Act (as implemented at 310 CMR 36.00) Water Withdrawal Permits shall be conducted at the discretion of the Department whenever it is determined that the operation of a proposed public water supply well may have an adverse impact on **wetland hydrology**. Monitoring shall focus on investigating the potential for a drop in the **apparent water table** within the substrate of vegetated wetlands due to the affects of a public water supply well on groundwater elevation. The Department will review the results of the monitoring and at the conclusion of the five (5)-year compliance review determine if the wetland hydrology monitoring plan should be continued, revised, or discontinued.

The following standards and basic techniques shall be employed in the design and implementation of a document to be referred to as a "Wetland Hydrology Monitoring Plan". A draft "Wetland Hydrology Monitoring Plan" shall be submitted to the Department prior to implementation. The Department reserves the right to modify the plan in order to assure compliance with a Water Withdrawal Permit. A "Wetland Hydrology Monitoring Report" detailing the findings of the preceding calendar year must be submitted to the Department annually.

Standards and Basic Techniques

Define the Study Area

1. With the input of the Department, define the geographic extent of the study area. Unless otherwise instructed, the study area shall consist of all jurisdictional vegetated wetlands [see 310 CMR 10.00] within the **zone of influence** of the proposed wellhead.

2. Describe each distinct wetland plant community within the study area relative to its US Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) classification and Dominance Type [see *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin, et al 1979)]. Most critical in this inventory is a description of the water regime modifier. The water regime modifier is to be initially determined from an analysis of evidence found on-site and collateral data (see below), and is a long-term descriptor of wetland hydrology within the plant community. Additional to the water regime modifiers listed in Cowardin, there is one (1) specifically adopted for the northeastern United States by the USFWS' NWI Regional Wetland Coordinator. This is the "seasonally flooded/saturated" water regime modifier ("**E**" on NWI maps). It is defined as follows:

    - "Floods (sic: technically **inundated**) most years for two weeks or more during growing season and remains saturated near the surface for most of the growing season" ["NWI Maps Made Easy: A User's Guide to National Wetlands Inventory Maps of the Northeast Region" (Smith 1991)].

3. Delineate wetland plant community boundaries on a **site plan**. The resultant **map units** (polygons) shall be labeled with the appropriate NWI **alphanumeric classification** and Dominance Type.

Collection of Wetland Hydrology Data

4. Establish at least one (1) "**observation plot**" within each distinct map unit (polygon). Base the plot position

and dimensions on criteria in *Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act* [MADEP 1995] (see Chapter 2, page 11 and elsewhere). At a minimum, there shall be four (4) observation plots for a given study area.

5. Color photographs captured from a fixed location and angle shall be taken as a visual record of each observation plot.

6. Photointerpret high-resolution aerial photography in order to refine the water regime modifier assigned to each map unit. Aerial photography from a number of different years should be interpreted. Reliable wetland photointerpretation can only be achieved using leaf-off photography, preferably color-infrared. The applicant is advised to consult **"Methods to Determine the Hydrology of Potential Wetland Sites" [US Army Corps of Engineers WRP Technical Note HY-DE-4.1, January 1998]** for *general* guidelines. For additional information on wetland aerial photointerpretation techniques and standards contact the Department's Massachusetts Wetlands Inventory or visit the NWI's homepage [http://www.nwi.fws.gov/].

7. Analyze other collateral data sources to further refine the assignment of water regime modifiers. Tabulate data on mapped soil series [US Department of Agriculture, Natural Resources Conservation Service county soil surveys], Massachusetts Wetlands Inventory Program mapping classifications, NWI map alphanumeric codes, Federal Emergency Management Agency Flood Insurance Rate Maps, hydrogeomorphic classification, etc.

8. Establish a shallow monitoring well adjacent to a representative portion of each observation plot. The shallow monitoring wells shall be constructed, installed, and operated in accordance with **"Installing Monitoring Wells/Piezometers in Wetlands" [US Army Corps of Engineers WRP Technical Note HY-IA-3.1, August 1993]**. Record water table levels on a monthly basis during the growing season of each sampling year. Record evidence of capillary fringe saturation, or at least describe its influence on the root zone. Establish a staff gauge at the well location in order to record surface inundation in terms of depth *and* duration. Estimate the areal extent of surface inundation for areas of mound-and-pool microtopography within each observation plot. Also record source(s) of wetland hydrology on site (ponding, overbank flooding, interception of groundwater table, sheet flow from surrounding upland, seep, etc.).

9. Provide a description of standard indicators of wetland hydrology within each observation plot using approved US Army Corps of Engineers indicators. These include: visual observation of inundation; visual observation of soil saturation; watermarks; drift lines; sediment deposits; drainage patterns within wetlands; oxidized channels (rhizospheres) associated with living roots and rhizomes; water-stained leaves; surface scoured areas; and morphological plant adaptations. [see *Corps of Engineers Wetlands Delineation Manual* (Department of the Army, Waterways Experiment Station, Environmental Laboratory, Technical Report Y-87-1, 1987); and *Federal Manual for Identifying and Delineating Jurisdictional Wetlands* (Federal Interagency Committee for Wetland Delineation 1989)].

Collection of Supportive Collateral Data

10. Identify soils within each observation plot using *Field Indicators for Identifying Hydric Soils in New England* [NEIWPCC (Version 2, 1998) or later version]. Analysis of soil profiles should specifically reference hydrologic characteristics included within the technical definition of hydric soils, natural soil drainage classes, and high water table/flooding data specific to the soil series encountered [see *Hydric Soils of New England* (Tiner and Veneman 1987)].

11. Prepare a description of the plant community within each observation plot using Section I of the "DEP Bordering Vegetated Wetland (310 CMR 10.55) Delineation Field Data Form" (Appendix G). Determine through scientific literature search and/or professional experience the water regime affinity(ies) of the particular wetland plant communities found within the observation plots. Compare or contrast these affinities with the water regime modifier initially assigned to each observation plot, and offer an explanation of any discrepancies observed. Identify vascular plants to the species level. Scientific nomenclature should follow the most recent classification found within *The Vascular Plants of Massachusetts: A County Checklist*

(Sorrie & Somers 1999). Wetland Indicator Categories should follow the *1995 Supplement to the List of Plant Species that Occur in Wetlands: Northeast (Region 1)* (Tiner, et al. 1995). Identify bryophytes to the appropriate genus. The plant community data collected on Appendix G's shall be solely used to characterize the general ecology and hydrology of each observation plot. Said data is not intended for use in statistical change analysis of the plant community.

12. The applicant shall determine the acidity (pH) of free water within at least one (1) of the established observation plots during the initial baseline data collection. This measurement shall be used to confirm the NWI water chemistry modifier assigned to each plot.

13. Compare data collected to climatological data from a station as close as possible to the observation plot. Climatological anomalies should be accounted for within the data analysis. The applicant is advised to consult the US Department of Agriculture, Natural Resources Conservation Service, National Water and Climate Center, WETS Tables for additional climatological data. See (http://www.nrcs.usda.gov/water/w_clim.html)

14. Within each observation plot, trees and shrubs shall be identified. Data for each tree will include species, location within plot, **diameter at breast height (dbh)**, height and general condition. Data for shrubs, which occur in clusters, will include species, location within plot, approximate number of stems in each cluster, overall height, and general condition. Percent cover for trees and shrubs will be estimated.

Data Analysis

15. The applicant will provide a complete and thorough description of wetland hydrology at each observation plot. The synthesis of this data will lead to a long-term "model" of the wetland hydrology at the observation plot. Once established, detected changes within the observation plot may be measured against the model, and significant changes illuminated for further analysis.

16. Potential sources of bias should be identified. Is there a potential for a significant change in the rate of evapotranspiration within the observation plot over time? (e.g., is the observation plot subject to disturbance; increasing levels of canopy shading over time; are there components of the plot's plant community that are recognized early and mid-successional species?) Does the observation plot exhibit evidence of past land use practices (plow layer, foundation species such as *Vinca minor*, tree stumps, etc.)? Is there any evidence of plant pathology or extensive herbivory that could lead to a shift in plant community (eastern tent caterpillars, fungal diseases, gypsy moth infestation, etc.)?

17. A control observation plot is not recommended unless stringent and defensible means of eliminating and/or accounting for bias are undertaken. As a result, analysis of generated data will need to be strongly tied to the model established for wetland hydrology, and observed sources of bias should still be fully explored.

18. Analysis of hydrologic shift based upon correlations between wetland indicator status and water regime affinity is discouraged, unless supportive scientific literature indicates *species-specific* correlations [see *National List of Plant Species that Occur in Wetlands* (Reed 1988)].

19. ***The Department will rely heavily upon data generated from #8 in order to assess and respond to any detrimental impact to the study area. Scientifically relevant observances of wetland hydrology generated from the analysis at #8 that are not related to climatological or other natural phenomena shall be considered linked to the operation of the public water supply well, and will be just cause for Departmental review and/or manipulation of data collection protocol and/or well operation until such time as wetland hydrology has been returned to normal parameters. If, in the opinion of the Department, the sampling procedure detailed at #8 is deemed to be insufficient to elucidate such change, the Department reserves the right to modify #8 accordingly.***

20. The applicant shall include a thorough analysis of the data within the annual draft and final "Wetland Hydrology Monitoring Reports" and any plans, summaries, etc. submitted to the Department. This shall be accomplished using standard and defensible scientific principles, and shall consider the sum total of

collected data being submitted, the model for wetland hydrology developed by the applicant for the study area, and an analysis of observed or expected sources of bias which may compromise the data set. Submittals to the Department of raw or summarized data without principled analysis shall be considered insufficient.

21. For each observation plot, the applicant will analyze both the total number of individuals/clusters of each species of tree and shrub as well as construct ratios of total number of trees and shrubs of a given species to all other species encountered. In addition, the applicant shall develop the ratio of live stems to dead stems for each species. During each successive monitoring period (no less than every 5 years) the applicant shall analyze whether the ratios between species and/or between live and dead stems have changed. If a change is observed, the applicant shall use appropriate statistical methods to determine whether the change is significant or whether it is within the variation expected for the data collected.

Mitigation

22. Once per growing season the study area shall be inspected for the presence/absence of non-native and/or **noxious** invasive plant species, including but not restricted to glossy buckthorn (*Rhamnus frangula*), purple loosestrife (*Lythrum salicaria*), Asiatic bittersweet (*Celastrus orbiculata*), and the native common reed (*Phragmites australis*). If any activity [as defined at 310 CMR 10.04 (Activity)] performed by the applicant, whether permitted or otherwise, is demonstrated or may be directly linked to the establishment and/or population increase of non-native and/or noxious invasive plant species within the study area, the applicant shall be responsible for the elimination of that species. The applicant shall alert the Department in a timely manner when non-native and/or noxious species are first documented within the study area, and upon such notice will consult with the Department's Wetlands and Waterways Program to develop an eradication/control plan. Said plan shall be submitted to the Department for review and acceptance. The applicant shall be responsible for identifying and obtaining any required permits that may be necessary in order to implement said plan.

Glossary

Alphanumeric Classification A letter-numeral code which is used to abbreviate NWI classifications. Refer to the collar of NWI maps or to the NWI homepage [http://www.nwi.fws.gov/] for details.

(Apparent) Water Table "The upper surface of ground water or that level below which the soil is saturated with water. It is at least 6 inches thick and persists in the soil for more than a few weeks" (emphasis added) [**Corps of Engineers Wetlands Delineation Manual** (Department of the Army, Waterways Experiment Station, Environmental Laboratory, Technical Report Y-87-1, 1987)]

Diameter at breast height (dbh) The width of a tree trunk as measured at breast height (4.5 feet above the ground). [*Delineating Bordering Vegetated Wetlands Under the Massachusetts Wetlands Protection Act* (MADEP 1995)]

Map Unit A single polygon (or symbol, linear feature, etc.) on a map whose boundary encloses a homogenous cover type or other thematic category.

Noxious Plant Species Typically, an indigenous species of plant that, due to human-induced causes, out-competes other native species within a given habitat; and thus reduces the biodiversity and other functions provided by that habitat. Common reed (*Phragmites australis*) in disturbed salt marsh habitat is an example.

Observation Plot A circular boundary placed horizontally on the substrate of a wetland within a relatively homogenous plant community, and used to collect various ecological data. An imaginary cylinder projects vertically both in the upward and downward directions. Ecological parameters (typically plant community

composition/structure; soil characteristics; and evidence of surficial and sub-surface hydrology) are sampled within the confines of this cylinder.

Pit-and-Mound Microtopography A wetland substrate composed of elevated mounds of unconsolidated material and/or rock fragments interspersed with deeper pools. The pools are typically much wetter on average than the mounds. The mounds often support the majority of woody plant species within pit-and-mound wetlands.

Site Plan A large-scale map of a small area. For the purpose of the "Wetland Hydrology Monitoring Plan", a site plan shall include: a scale bar, a compass rose, the zone of influence or other demarcation of the study area, location of all wells (both public water supply and research, existing and proposed) within the study area, resource area map units, location and identifying code of each observation plot, topographic contours, man-made surfaces.

Wetland hydrology "...all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season. Areas with evident characteristics of wetland hydrology are those where the presence of water has an over-riding influence on characteristics of *vegetation* and *soils* due to anaerobic and reducing conditions, respectively" (emphasis added) [*Corps of Engineers Wetlands Delineation Manual* (Department of the Army, Waterways Experiment Station, Environmental Laboratory, Technical Report Y-87-1, 1987)]. Included within this concept are the following categories:

Flooded "A condition in which the soil surface is temporarily covered with water from any source, such as streams overflowing their banks, runoff from adjacent or surrounding slopes, inflow from high tides, or any combination of sources."

Inundation "A condition in which water from any source temporarily or permanently covers a land surface." (flooding + ponding)

Ponded "A condition in which water stands in a closed depression. Water may be removed only by percolation, evaporation, and/or transpiration."

Saturated "A condition in which all easily drained voids (pores) between soil particles in the root zone are temporarily or permanently filled with water to the soil surface at pressures greater than atmospheric."

Zone of Influence "...a lowering (drawdown) of water levels in an area around the well" ...caused by... "(t)he withdrawal of water by a well" ["Guidelines for Delineation of Wellhead Protection Areas" EPA 440/6-87-010]

END OF ATTACHMENT A

ATTACHMENT B
Water Conservation and Water Resources Management Plan Requirements
Town of Mansfield, Morrison Well #10

The following are the Water Conservation and Water Resources Management Plan Requirements as outlined in the June 8, 2000 Water Resources Commission (WRC) Decision of the Town of Mansfield's Interbasin Transfer application for the Morrison Well #10.

1. The Town must continue to perform leak detection surveys every two years. Records of leaks found and repaired must be maintained and made available to WRC staff upon request for two years after completion of each survey. Future leak detection surveys and repairs should be carried out in a manner similar to the Massachusetts Water Resources Authority's leak detection regulations (360 CMR 12.00).

2. The Town must conduct a water audit of its water supply system, including public facilities, and furnish the water audit report to the WRC. The Town must commit to conducting a water audit of its system every 3-5 years.

3. The Town must implement a program to aggressively promote conservation by its industrial, commercial and institutional water users. This program should include regular contact with these users to promote water conservation. The plan for this program shall be provided to the WRC for approval.

4. The Town must provide documentation that it has completed the meter downsizing program.

5. The Town must submit a scope of the local water resources management plan and timeline for completion to the WRC for review. The timeline should include dates that the draft and final reports will be submitted to the WRC for review, comment and approval.

   This plan must conform with the local water resources management plan outline found in Appendix B of the Interbasin Transfer Act Performance Standards, approved by the WRC in August 1999. The plan must include strategies to reduce peak demand and incorporate the Water System Management Action Plan that the Town is in the process of developing. In addition, to address concerns raised by the Bungay Associates, Inc. during review of the Interbasin Transfer Application, the local water resources management plan should take a comprehensive approach to managing all of Mansfield's wells located in the Ten Mile River basin, in order to minimize impacts to the flowage rights claimed by the home owners. The Town should work with the North Attleborough National Salmon Hatchery and the Bungay Associates, Inc. to address these concerns.

END OF ATTACHMENT B