



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

September 23 , 2015

Paul Colby
Byfield Water District
P.O. Box 64
Byfield, MA 01922

RE: Byfield Water District– Parker River Basin
Town of Newbury
Program: Water Management Act
Action: FINAL Water Withdrawal Permit
Amendment X254702
Permit #9P2-3-16-205.01

Dear Mr. Colby:

Please find attached the following:

- Findings of Fact in Support of the Final Permit Amendment Decision; and,
- Final Water Management Act Modified Permit #9P2-3-16-205.01 for the Byfield Water District, Newbury, Massachusetts.

If you have any questions and would like to meet to discuss the final permit, please contact Richard Friend at 617-654-6522.

Sincerely,

Rebecca Weidman
Division of Watershed Management
Bureau of Water Resources

Enclosures

Cc: Parker River Watershed Council, 60 Island Street, Suite 211-E, Lawrence, MA 01840
Jennifer Pederson, Massachusetts Water Works Association, P.O. Box 1064, Acton, MA 01720 (email)

Y:\DWP\NERO\Newbury-Byfield WD-WMA Permit Amendment FINAL 9P231620501 09-23-2015.docx

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

English

This document is important and should be translated immediately.

Spanish

Este documento es importante y se debe traducir inmediatamente.

Portuguese

Este original é importante e deve ser traduzido imediatamente.

Italian

Questo documento è importante e dovrebbe essere tradotto immediatamente.

Greek

Αυτό το έγγραφο είναι σημαντικό και πρέπει να μεταφραστεί αμέσως.

French

Ce document est important et devrait être traduit immédiatement.

Chinese (traditional)

這個文件重要和應該立刻被翻譯。
这个文件重要和应该立刻被翻译。



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

Findings of Fact in Support of the FINAL Amended Permit Decision Water Management Permit #9P2-3-16-205.01

The Department of Environmental Protection ("MassDEP" or "the Department") has completed its review of the Byfield Water District's Water Management Act permit amendment application. This review was conducted in regard to the permit for the Byfield Water District ("BWD") to withdraw water from the Parker River Basin. The Department hereby **proposes to amend** the Water Management Permit #9P2-3-16-205.01 (the "Permit") in accordance with the Water Management Act (M.G.L. 21G). The Department makes the following Findings of Fact in support of the attached final 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 final permit is being issued since such action is necessary for the promotion of the purposes of MCL 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.

Byfield Water District's Water Withdrawal History

This final permit does not authorize an increase in water withdrawal volume. Byfield Water District's authorized withdrawal volume under its Water Management Act (WMA) Permit will continue to be an annual average daily volume of 0.17 million gallons per day (MGD) previously registered in the Parker River Basin. The final permit was prepared by MassDEP in response to a permit amendment application submitted by the Byfield Water District to add a new groundwater source, PW-5. Under the Water Management Act, permittees must obtain a permit amendment for new sources of supply. Byfield Water District did not apply to increase its annual authorized withdrawal rate above the 0.17 million gallons per day (MGD) registered rate; the application and final permit are only for the additional withdrawal point.

The Water Management Act

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

Among the minimum permit factors Section 7 requires is a determination by MassDEP that permitted water withdrawals are within the safe yield of the water source from which they are made. Section 2 of

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

MassDEP on the World Wide Web: <http://www.mass.gov/dep>

 Printed on Recycled Paper

the Act defines "safe yield" as: "the maximum dependable withdrawal that can be made continuously from a water source including ground or surface water during a period of years in which the probable driest period or period of greatest water deficiency is likely to occur; provided, however, that such dependability is relative and is a function of storage and drought probability."

For the purposes of the Water Management Program, MassDEP considers water sources to be the river basins delineated by the MA Water Resources Commission at 313 CMR 4.03. A map of the major river basins has been developed by the Department of Conservation and Recreation and can be viewed in their guidance document "A Guide to the Interbasin Transfer Act and Regulations" or at <http://www.mass.gov/eea/images/dcr/watersupply/intbasin-ipswichriver/basin.jpg>.

This final permit is being issued under the Safe Yield methodology adopted by MassDEP on November 7, 2014, and described in the Regulations at 310 CMR 36.13. The Department has used the methodology described in the Regulations to calculate the safe yield for each river basin.

Under Section 11 of the Act, MassDEP cannot issue permits when the combined registered and permitted allocated withdrawal volumes exceed the safe yield of the water source. As of the issuance date of this final permit, the total allocated withdrawal volumes do not exceed the safe yield for the Parker River basin. Under this permit the Parker River basin safe yield will continue to be higher than the combined allocated withdrawal volumes because the permit does not increase the District's total allocated withdrawals but only authorizes an additional withdrawal point from which to pump its registered volume.

Findings of Fact for the Performance Standards in Byfield's Water Management Permit

MassDEP has determined that there is documented evidence that water withdrawals and an increase in development and impervious area, combined with the out-of-basin export of wastewater, substantially contribute to low flow in the Commonwealth. These low flows impact the ability of rivers and tributaries to adequately serve all of the competing uses described in the Act. To better achieve the balance of competing water uses mandated by the Act, the MassDEP refers to the Water Conservation Standards adopted by the Water Resources Commission.

Specific performance standards are applied to new Water Management permits and to existing permits at the time they are amended, during 5-year permit review, or permit renewal. Consistent with Section 3 of the Act, the performance standards of 65 residential gallons per capita day or less and 10% or less of unaccounted for water, summer limits on withdrawals, and efforts to offset the impacts of increasing withdrawal volumes are based on the Massachusetts Water Conservation Standards approved by the Water Resources Commission. These performance standards were included in Byfield's Water Management Permit issued October 12, 2011 as part of a 5-year permit review.

Findings of Fact for Special Permit Conditions

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 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 some additional detail, for each of the special conditions in the final permit. This Findings of Fact also explains any changes to Special Permit Conditions from prior permits, when applicable.

Special Conditions 1, Maximum Authorized Annual Average Withdrawal Volume, reflects a registered volume of 0.17 million gallons per day (MGD) through the remainder of the term of the permit. BWD's withdrawals since 2011 have slightly exceeded their registered volume (0.185 MGD for 2014; 0.186 MGD for 2013; 0.184 MGD for 2012), which is well within the 0.10 mgd allowable exceedence above the registered volume.

Special Condition 2, Maximum Authorized Daily Withdrawals from each Withdrawal Point, authorizes daily withdrawal volumes from the Parker River Basin and limits the daily withdrawal volumes for the Forest St. Bedrock Well to 0.36 MGD and PW-5 to 0.161 MGD.

Special Condition 3, Ground Water Supply Protection, requires BWD to demonstrate it has used its Best Efforts (per 310 CMR 22.21(1)(d)) in encouraging the Town of Georgetown to amend its Water Supply Protection District to include the Byfield Zone II. For information and instructions on complying with the Best Effort Requirement please contact Catherine Sarafinas, Wellhead Protection Coordinator with the MassDEP Drinking Water Program, at 617-556-1070.

Special Condition 4, Performance Standard for Residential Gallons Per Capita Day Water Use requires that PWSs be at or below 65 gallons per capita per day. As reported in the 2014 Annual Statistical Report, the RGPCD for the Byfield Water District was 46 gallons per capita per day.

Special Condition 5, Performance Standard for Unaccounted for Water, requires that PWSs be at or below 10% UAW. As reported in the 2014 Annual Statistical Report, the UAW for the Byfield Water District was 10%.

Special Condition 6, Seasonal Limits on Nonessential Outdoor Water Use is based upon BWD's Residential Gallons per Capita Day (RGPCD) for the preceding year, and will 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 easier 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

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/>.

stream flows in Massachusetts, and are further described in the Department of Conservation and Recreation (DCR)² and USGS Index Reports³.

If BWD selects the streamflow approach, it has been assigned the USGS local stream gage of #01101000 –Parker River at Byfield. The local gage streamflow triggers at this site are 20 cubic feet per second (cfs) for May and June, and 6 cfs for July, August and September.

Should the reliability of flow measurement at the Parker 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.

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 "7-day low-flow statistic", is the median value of the annual 7-day low flows for the period of record for the Parker River gage. The 7 day low-flow statistic for the Parker River at Byfield gage is **0.48** cfs and will limit non-essential outdoor watering to no more than 1 day per week as outlined in Special Condition #6. 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.

Water Withdrawals that Exceed Baseline Withdrawal Volumes (formerly Special Condition #7).

This condition has been removed from your permit to remain consistent with the revised Water Management Act Regulations (310 CMR 36.00) promulgated on November 7, 2014. Offsets (now referred to as mitigation) are only required when withdrawals above baseline are requested. The Byfield Water District is not seeking an increase above their existing 0.17 mgd registered withdrawal volume, thus no mitigation is required.

Special Condition 7, Requirement to Report Raw and Finished Water Volumes, ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.

Special Condition 8, Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission in July 2006 and revised in 2012.

The summary of permit conditions above as part of the Department's findings of fact is not intended to, and should not be construed as, modifying any of the Permit conditions. In the event of any ambiguity between the summary and the actual permit conditions, the Permit language shall be controlling.

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.



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

Final Water Withdrawal Permit M.G.L. c. 21G

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

PERMIT NUMBER: 9P2-3-16-205.01 **RIVER BASIN:** Parker

PERMITTEE: Byfield Water District
P.O. Box 64
Byfield, MA 01922

ISSUANCE DATE: September 1, 1998

AMENDMENT DATE: September 23, 2015

PERMIT EXPIRATION DATE: February 28, 2019*

*The Permit Extension Act, which was created by Section 173 of Chapter 240 of the Acts of 2010 and amended by Sections 74 and 75 of Chapter 238 of the Acts of 2012 extended the permit for an additional four years.

TYPE AND NUMBER OF WITHDRAWAL POINTS:

Groundwater: 2 Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

Table 1: Withdrawal Source Identification

Source Name	Source ID Code
Forest St. Bedrock Well #5	3205001-04G
PW-5	3205001-TBD

This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057. TDD Service - 1-800-298-2207.

MassDEP on the World Wide Web: <http://www.mass.gov/dep>

Printed on Recycled Paper

SPECIAL PERMIT CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Byfield Water District (BWD) to withdraw water from the Parker River Basin at the rate described below in Table 2. The permitted 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 five-year period of the permit term. The volume reflected by this rate is in addition to the 0.17 MGD previously registered to the BWD through the Water Management Act Program.

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

Table 2: Maximum Authorized Withdrawal Volumes

5-Year Periods		Total Raw Water Withdrawal Volumes			
		Permit		Permit + Registration	
		Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
Period One Years 1-5	9/1/1998 to 2/29/2000	0	0	0.17	0.17
Period Two Years 6-10	3/01/2000 to 2/28/2005	0	0	0.17	0.17
Period Three Years 11-15	3/01/2005 to 2/28/2010	0	0	0.17	0.17
Period Four Years 16-20*	3/01/2010 to 2/28/2019	0	0	0.17	0.17

*An additional four years have been added under the Permit Extension Act, Section 173 of Chapter 240 of the Acts of 2010, and as amended by Sections 74 and 75 of Chapter 238 of the Acts of 2012.

2. Maximum Daily Withdrawals Rates from Withdrawal Points

Withdrawals from the following sources are not to exceed the approved maximum daily rate listed in Table 3 without advance approval from the Department.

Table 3: Maximum Daily Withdrawals Rates from Withdrawal Points

Name	Point ID Code	Daily Rate (MGD)
Forest St. Bedrock Well	3205001-04G	0.36
PW-5	3205001-TBD	0.161

3. Ground Water Supply Protection

BWD must demonstrate it has used its Best Efforts (per 310 CMR 22.21(1)(d)) in encouraging the Town of Georgetown to amend its Water Supply Protection District to include the Byfield Zone II. To meet compliance with the Best Effort Requirement, documentation of your best efforts must be submitted to MassDEP. For information and instructions on complying with the Best Effort

Requirement please contact Catherine Sarafinas, Wellhead Protection Coordinator with the MassDEP Drinking Water Program, at (617) 556-1070.

The Best Effort Requirement will need to be repeated, at MassDEP's direction, for WMA water withdrawal permit reviews or amendments; new source approvals (including replacement wells); monitoring waiver applications; Zone II re-delineations; and Sanitary Survey stipulations, until the Town of Georgetown adopts the appropriate controls.

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

BWD's performance standard for residential gallons per capita day (RGPCD) is 65 gallons. BWD shall report its RGPCD water use annually in its Annual Statistical Report (ASR) and document compliance with this performance standard in its ASR for 2015 and each year thereafter.

BWD shall report its RGPCD and the calculation used to derive that figure as part of its ASR including, without limitation, the source of the data used to establish the service population and the year in which this data was developed. See Appendix A for additional information on the requirements if the performance standard for RGPCD is not met.

5. Performance Standard for Unaccounted for Water

BWD's performance standard for unaccounted for water (UAW) is 10% of overall water withdrawal. BWD shall report its UAW annually in its Annual Statistical Report (ASR) and document compliance with this performance standard in its ASR for 2015 and each year thereafter.

BWD shall report its UAW and the calculation used to derive that figure as part of its ASR. See Appendix B for additional information on requirements if the performance standard for UAW is not met.

6. Nonessential Outdoor Water Use

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

In its Annual Statistical Report (ASR), BWD shall document compliance with the summer limits on nonessential outdoor water use annually and indicate whether it anticipates implementing calendar triggered restrictions or streamflow triggered restrictions during the next year. Nothing in this permit shall prevent the Permittee from implementing water use restrictions that are more restrictive than those set forth in this permit.

Table 4 Seasonal Limits on Nonessential Outdoor Water Use

<p>Byfield Water District 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.</p>	
<p>Restrictions for Permittees meeting the 65 RGPCD Standard for the preceding year RGPCD < 65 as reported in the ASR and accepted by MassDEP</p>	
<p>Calendar Triggered Restrictions</p>	<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 01101000 – Parker River at Byfield, MA falls below 7-day the low-flow statistic 0.48 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 0.48 cfs for seven (7) consecutive days.</p>
<p>Streamflow Triggered Restrictions</p>	<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 01101000 – Parker River at Byfield, MA falls below: <ul style="list-style-type: none"> • May 1 – June 30: 20 cfs for three (3) consecutive days • July 1 – September 30: 6 cfs for three (3) consecutive days b) one (1) day per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below the 7-day low-flow statistic 0.48 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>
<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</p>	
<p>Calendar Triggered Restrictions</p>	<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 01101000 – Parker River at Byfield, MA falls below the 7-day low-flow statistic 0.48 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 0.48 cfs for seven (7) consecutive days.</p>
<p>Streamflow Triggered Restrictions</p>	<p>Nonessential outdoor water use is restricted to:</p> <ul style="list-style-type: none"> b) two (2) days per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below: <ul style="list-style-type: none"> • May 1 – June 30: 20 cfs for three (3) consecutive days • July 1 – September 30: 6 cfs for three (3) consecutive days c) one (1) day per week before 9 am and after 5 pm when USGS stream gage 01101000 – Parker River at Byfield, MA falls below the 7-day low-flow statistic 0.48 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

Streamflow information is available at the USGS National Water Information System (NWIS): Web Interface. The USGS NWIS default shows Massachusetts streamflows in real time, i.e., the most recent, usually quarterly hourly, reading made at each USGS stream gage.

Seasonal Limits on Nonessential Outdoor Water Use are implemented when the mean daily streamflow falls below the designated trigger. The mean daily flow is not calculated until after midnight each day when the USGS computes the hourly data into a mean daily streamflow. As a result, permittees must use the mean daily streamflow from the preceding day when tracking streamflows.

Mean daily streamflow gage readings are available at the USGS NWIS Web Interface at <http://waterdata.usgs.gov/ma/nwis/current/?type=flow>.

- Scroll down to gage # #01101000 –Parker River at Byfield
- 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.

Water Uses Restrictions

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 means of automatic sprinklers outside the hours of 9 am to 5 pm; and
- irrigation of gardens, flowers and ornamental plants by means of a hand-held hose or drip irrigation systems; and
- irrigation of lawns by means of a hand-held hose only.

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 limited fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

Public Notice of Water Use Restrictions

BWD shall notify its customers of the restrictions and the consequences of failing to adhere to the restrictions.

- For calendar-triggered restrictions, customers shall be notified by April 15th each year.
- For streamflow-triggered restrictions, when streamflow at the assigned USGS local stream gage falls below a streamflow trigger for three consecutive days, customers shall be notified as soon as possible, but within three days of implementing the restrictions.

Notice to customers shall include the following:

- A detailed description of the restrictions and penalties for violating the restrictions;
- The need to limit water use, especially 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 Water Use Restrictions Form at <http://www.mass.gov/dep/water/approvals/wmgforms.htm#conserve>.

Notice to customers and MassDEP need not be provided if BWD has already implemented water use restrictions that conform to the applicable restrictions and those restrictions are still in force.

7. Requirement to Report Raw and Finished Water Volumes

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

8. Water Conservation Requirements

At a minimum, BWD shall implement the following conservation measures and shall be in compliance with these measures on or before the dates indicated below. Many of these requirements have existed in earlier versions of BWD's Water Management Act permit. BWD is also already implementing some of the water conservation requirements. Compliance with the water conservation requirements shall be reported to the Department upon request or by the date of the next Review/Renewal of the permit, unless otherwise noted below.

Table 5: Minimum Water Conservation Requirements	
System Water Audits and Leak Detection	
1.	At a minimum, conduct a full leak detection survey every three years. The first full leak detection survey shall be completed no later than 3 yrs from the date of the last documented leak detection survey.
2.	Perform a leak detection survey of the entire distribution system within one year whenever the percentage of unaccounted for water 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, BWD shall submit to the Department for its review a report detailing the leak detection 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> .
4.	BWD shall have repair reports available for inspection by the Department. BWD shall establish a schedule for repairing leaks that is at least as stringent as the following: <ul style="list-style-type: none">- Leaks of 3 gallons per minute or more shall be repaired within 3 months of detection.

Table 5: Minimum Water Conservation Requirements	
<ul style="list-style-type: none"> - Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible. - Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway. <p>Leaks shall be repaired in accordance with BWD's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. BWD shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.</p>	
Metering	
1.	Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2.	BWD 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 <u>AWWA Manual M6 – Water Meters</u> , by the next permit renewal date (February 28, 2019).
3.	BWD shall have an ongoing program to inspect individual service meters to ensure that all service meters accurately measure the volume of water used by your 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 BWD's annual water budget to calibrate, repair, or replace meters as necessary.
Pricing	
1.	Maintain a water pricing structure that includes the full cost of operating the water supply system. Evaluate rates 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.	BWD 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.	BWD 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.	Municipal buildings. Byfield Water District has documented that all municipal buildings have been retrofitted with water saving devices.
Industrial and Commercial Water Conservation	
1.	BWD shall review the use records for its industrial, commercial and institutional water users and develop an inventory of the largest water users. BWD shall develop and implement an outreach program designed to inform and (where appropriate) work with its largest industrial, commercial and institutional water users on ways to reduce their water use by the next permit renewal date (February 28, 2019). Such outreach plans can include, but are not limited to: information on water audits, meter sizing, water reuse, low-flow plumbing fixtures, mandatory outdoor water use restrictions, suggestions for contacting trade associations for process specific information on water use reductions, and information on contacting the Executive Office of Environmental Affairs Office of Technical Assistance for Toxics Use Reduction (OTA) which offers a range of assistance and information to help facilities improve water use efficiency and reduce wastewater discharge. OTA can be contacted at (617) 626-1060 or at www.mass.gov/envir/ota .
2.	Upon request by the Department, BWD shall report on industrial, commercial and institutional water conservation including the results of its review of water use records for industrial, commercial and institutional water users, the inventory of the largest water users, copies of any outreach materials distributed to industrial, commercial and institutional water users, and to the extent practical, a summary of water use reductions or savings that have resulted. Upon receipt of this report, the Department will take whatever action it deems appropriate to promote the interests of the Water Management Act, including without limitation requiring BWD to take additional actions to reduce industrial, commercial and institutional water use.

Table 5: Minimum Water Conservation Requirements

Public Education and Outreach

1. Continue to implement BWD's Water Conservation Education Plan. BWD's Water Conservation Education Plan shall be designed to educate BWD's water customers of ways to conserve water. Without limitation, BWD's plan may include the following actions:
 - Include in bill stuffers and/or bills, a work sheet to enable customers to track water use and conservation efforts and estimate the dollar savings;
 - Public space advertising/media stories on successes (and failures);
 - Conservation information centers perhaps run jointly with electric or gas company;
 - Speakers for community organizations;
 - Public service announcements; radio/T.V./audio-visual presentations;
 - Joint advertising with hardware stores to promote conservation devices;
 - Use of civic and professional organization resources;
 - Special events such as Conservation Fairs;
 - Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and
 - Make multilingual materials available as needed.
2. Upon request of the Department, BWD 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.

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 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 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 36.37.
6. **Duty to Report** The permittee shall complete and submit annually, on a form provided by the Department, all of the information required by said form including, without limitation, a certified statement of the withdrawal. Such report shall be received by the Department by the date specified on the form each year. Such report must be mailed or hand delivered to:

Department of Environmental Protection
Water Management Program
One Winter Street, 5th Floor
Boston, MA 02108

7. **Duty to Maintain Records** The permittee shall maintain withdrawal records and other information in sufficient detail to demonstrate compliance with this permit.
8. **Metering** All withdrawal points included within the permit shall be metered within one year of the date of issuance of the permit. Meters shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.

APPEAL RIGHTS AND TIME LIMITS

This permit is a decision of the Department. Any person aggrieved by this decision may request an adjudicatory hearing under the provisions of MGL c 30A. Any such request must be made in writing, by certified mail and received by the Department within twenty-one (21) days of the date of receipt of this permit. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail or delivered by hand to the local water resources management official in the city or town in

which the withdrawal point(s) 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 hearing request, together with a valid check, payable to the Commonwealth of Massachusetts in the amount of \$100 must be mailed to:

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

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

EXEMPTIONS

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

WAIVER

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.

Issuance Date: 9/23/15

By: Rebecca Weidman
Rebecca Weidman
Division of Watershed Management
Bureau of Water Resources
1 Winter Street
Boston, MA 02108

Appendix A – Residential Gallons Per Capita Day

I. Compliance Plan Requirement

If BWD fails to document compliance with the RGPCD performance standard in its 2015 ASR, or in any ASR thereafter, then BWD must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall:

- a. meet the requirement set forth below in Section II;
- b. include measures to be implemented to meet the performance standard; and
- c. include the schedule for implementing such measures.

The filing of a RGPCD Plan shall not constitute a return to compliance, nor shall it affect the Department's authority to take action in response to BWD's failure to meet the performance standard.

If a RGPCD Plan is required, BWD must:

- a. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD Plan annually at the time it files its ASR; and
- b. continue to implement the RGPCD Plan until it complies with the performance standard and such compliance is documented in BWD's ASR for the calendar year in which the standard is met.

II. Contents of a Residential Gallons Per Capita Day Compliance Plan

At a minimum, all RGPCD Compliance Plans must include a detailed:

- a. description of the actions taken during the prior calendar year to meet the performance standard;
- b. analysis of the cause of the failure to meet the performance standard;
- c. description and schedule of the actions that will be taken to meet the performance standard; and
- d. analysis of how the actions described in c. will address the specific circumstances that resulted in the failure to meet the performance standard.

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

At a minimum, all RGPCD Plans for failure to meet the RGPCD performance standard must include implementation of at least one of the following residential conservation programs:

- a. a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
- b. a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets); or
- c. the adoption and enforcement of an ordinance, bylaw or regulation to require the installation of moisture sensors or similar climate related control technology on all automatic irrigation systems.

If BWD 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.

Without limitation, RGPCD Plans for failure to meet the RGPCD performance standard may include the following actions in addition to those outlined in the paragraph above:

- a. the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
- b. a program that provides rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
- c. the adoption and enforcement of an ordinance, bylaw or regulation to require that all new construction include water saving devices and low water use appliances;
- d. the adoption and enforcement of an ordinance, bylaw 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;
- e. the implementation of a program to encourage the use of cisterns or rain barrels for outside watering; and
- f. the implementation of monthly or quarterly billing.

Appendix B – Unaccounted for Water

UAW is defined as the residual resulting from the total amount of water supplied to a distribution system as measured by master meters, minus the sum of all amounts of water measured by consumption meters in the distribution systems, and minus confidently estimated and documented amounts used for certain necessary purposes.

Examples of UAW include, but are not limited to: leakage, meter inaccuracies (unless they fall under the category of adjustment per results of source meter calibration described in the ASR), errors in estimation of stopped meters, unauthorized hydrant openings, illegal connections, data processing errors, and undocumented fire fighting uses.

Examples of uses that can be confidently estimated and documented in writing include storage tank overflow and drainage; water main flushing and flow testing; fire fighting; bleeding or blow-offs; sewer and stormwater system flushing; and cleaning and street cleaning. Generally, leakage is considered to be UAW, however, individual water main breaks can be discounted on a case-by-case basis. Any adjustment in the calculation of UAW made as a result of confidently estimated uses shall be documented as required in the ASR.

I. Compliance Plan Requirement

If BWD fails to document compliance with the UAW performance standard in its 2015 ASR, or in any ASR thereafter, then BWD must file with that ASR an Unaccounted for Water Compliance Plan (UAW Plan) which shall:

- a. meet the requirements set forth below in Section II;
- b. include measures to be implemented to meet the performance standard; and
- c. include the schedule for implementing such measures.

The filing of a UAW Plan shall not constitute a return to compliance, nor shall it affect the Department's authority to take action in response to BWD's failure to meet the performance standard.

If a UAW Plan is required, BWD must:

- a. submit information and supporting documentation sufficient to demonstrate compliance with its UAW Plan annually at the time it files its ASR; and
- b. continue to implement the UAW Plan until it complies with the performance standard and such compliance is documented in BWD's ASR for the calendar year in which the standard is met.

II. Contents of an Unaccounted for Water Compliance Plan

BWD has the choice to file a UAW Plan with measures tailored to the specific needs of its water supply system (Individualized UAW Plan) or a UAW Plan that includes Best Management Practices (BMP UAW Plan).

At a minimum, all UAW Plans must include a detailed:

- a. description of the actions taken during the prior calendar year to meet the applicable performance standard;
 - b. analysis of the cause of the failure to meet the performance standard;
 - c. description and schedule of the actions that will be taken to meet the performance standard;
- and

- d. analysis of how the actions described in c. will address the specific circumstances that resulted in the failure to meet the performance standard.

UAW Plans may be amended to revise the actions that will be taken to meet the performance standard. Amended UAW Plans must include the information set forth in the paragraph above.

Individualized UAW Compliance Plan

Without limitation, Individualized UAW Compliance Plans for failure to meet the UAW performance standard may include any of the actions set forth in the BMP UAW Compliance Plan below.

BMP UAW Compliance Plan

At a minimum, all BMP UAW Plans for failure to meet the UAW performance standard must include all of the following actions:

- a. within one year of filing the UAW Plan, complete a water audit and leak detection survey of the entire system and submit completed audit and survey to the Department;
within one year of completing the audit and leak detection survey, conduct sufficient repairs to reduce by 75% (by water volume) all leaks detected in the survey; and
within one year of completing such repairs, conduct additional repairs of leaks detected in the survey as may be necessary to reduce permittee's UAW to 10% or less;
- b. implementation of a program that ensures the inspection and evaluation of all water meters and, as appropriate, the repair, replacement and calibration of water meters in accordance with the following schedule:
 - Large Meters (2" or greater) - within one year of filing the BMP UAW Plan;
 - Medium Meters (1" or greater and less than 2") - within two years of filing the BMP UAW Plan;
 - Small Meters (less than 1") - by the next permit renewal date (February 28, 2017);
 - implementation of monthly or quarterly billing by the next permit renewal date (February 28, 2017); and
- c. within one year of filing the UAW Plan, implementation of a water pricing structure that achieves sufficient revenues to pay the full cost of operating the system including, without limitation, the costs of repairs under paragraph a., the costs of meter repairs, replacements and calibrations under paragraph b., the costs of employees and equipment, and ongoing maintenance and capital costs.