



COMMONWEALTH OF MASSACHUSETTS  
EXECUTIVE OFFICE OF ENERGY & ENVIRONMENTAL AFFAIRS  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
**Central Regional Office**, 627 Main Street, Worcester, MA 01608

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Governor

TIMOTHY P. MURRAY  
Lieutenant Governor

IAN A. BOWLES  
Secretary

ARLEEN O'DONNELL  
Commissioner

July 3, 2007

Matthew E. Pearson, Manager  
Grafton Water District  
P.O. Box 537  
44 Millbury Street  
Grafton, MA 01519

RE: Town: Grafton  
PWS: Grafton Water District  
PWS ID: 2110000  
WMA Permit: 9P4-2-12-110.04  
Program: Water Management Act  
Activity #: MassDEP Trans# W035331  
Action: Final Permit Amendment  
& 5 Year Review

Dear Mr. Pearson:

Please find attached, the following:

1. Findings of Fact in Support of Final Permit Decision
2. Final Water Management Act Permit Amendment, #9P4-2-12-110.04, in the Blackstone River Basin issued to the Grafton Water District.

If you have any questions regarding the permit, please contact Barbara Kickham at (508) 767-2724 or Susan Connors at (508) 767-2701.

Very truly yours,

Marielle Stone  
Drinking Water Chief  
Bureau of Resource Protection

Cc: MassDEP-DWP-CERO Correspondence File Copy  
MassDEP-DWP-CERO Water Management Act Program File Copy  
Duane LeVangie, WMA Manager, MassDEP-Boston  
Board of Water Commissioners, Grafton Water District, P.O. Box 537, 44 Millbury Street, Grafton, MA 01519  
Grafton Board of Health, 30 Providence Road, Grafton, MA 01519  
Grafton Board of Selectman, 30 Providence Road, Grafton, MA 01519  
Russ Cohen, Riverways, 251 Causeway Street, Suite 400, Boston, MA 02114  
Todd Richards, MassWildlife, 1 Rabbit Hill Road, Westborough, MA 01581  
Peter Coffin, Blackstone Headwaters Coalition, 414 Massasoit Road, Worcester, MA 01604  
Donna Williams, MassAudobon, 414 Massasoit Road, Worcester, MA 01604  
Blackstone River Watershed Association, 271 Oak Street, Uxbridge, MA 01569

File Name: Y:\DWP Archive\CERO\Grafton WD-9P4212110.04-Final WMA Permit-2007-07-03  
W:\WS\DW Program Files\WMA Program files\Permits\Blackstone\Grafton WD-9P4212110.04-Final WMA Permit-2007-07-03

**This information is available in alternate format. Call Donald M. Gomes, ADA Coordinator at 617-556-1057.**

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**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.*

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*Este original é importante e deve ser traduzido imediatamente.*

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*Questo documento è importante e dovrebbe essere tradotto immediatamente.*

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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。



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**Findings of Fact in Support of Permit Decision**  
**Water Management Act Permit Amendment and 5-Year Review Permit**  
**RE: Water Management Permit 9P4-2-12-110.04**  
**Grafton Water District ("District")**

The Massachusetts Department of Environmental Protection (the "Department" or "MassDEP") has completed the 5-year review of Grafton Water District's (the "District's") permit in the Blackstone River Basin pursuant to the Water Management Act (WMA), M.G.L. ch. 21G. This compliance review is conducted to insure that the terms of the permit and the goals of the Water Management program are being met. In response to The District's application for an amended permit to withdraw water from the proposed Lake Ripple Well in the Blackstone River Basin, and after having completed the regulatory notice and review and the information that The District has provided, MassDEP hereby amends the Water Management Act Permit #9P4-2-12-110.04 (the "Permit") in accordance with the Act.

The Department makes the following Findings of Fact in support of the attached amended permit, and includes herewith its reasons for modifying the permit and for the conditions of approval imposed, as required by M.G.L. c.21G, s. 11 and 310 CMR 36.00. A draft permit was issued to the Grafton Water District on June 23, 2006. A site visit to the Follette Street well was conducted September 6, 2006. In attendance were representatives from MassDEP, MassWildlife (Riverways), and the Grafton Water District.

In response to the draft permit, the Grafton Water District requested an alternative to the existing streamflow monitoring plan (Special Condition #5), such as a streamflow trigger to shut off the Follette Street well. The District is of the opinion that no impact to Cronin Brook has occurred even at pumping rates as high as 1.0 MGD. The Department's has determined that the data submitted by the District, is inconclusive to with regards to the impact of groundwater withdrawals from the Follette St. Well on stream discharge in Cronin Brook. The final permit was revised to balance the request of the District with the need to protect streamflow in Cronin Brook. In lieu of streamflow monitoring, water levels in and around Cronin Brook will be recorded.

### **Grafton Water District's Withdrawal History**

Grafton Water District has a registration for an average annual daily withdrawal volume of 0.60 million gallons per day (MGD) and includes three wells (Worcester Street G.P. Well, East Street G.P. Well #2 and East Street G.P. Well #3). A Water Management Act Permit was issued May 30, 1997 in order to increase authorized withdrawal volumes and to add a withdrawal point (Follette Street Well). The permit authorizes an additional system wide average annual daily withdrawal of 0.93 MGD through February 28,

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2009 above the registered volume for a total authorization of 1.53 MGD. The District has reported annual withdrawals below their combined registered and permitted volumes.

A Water Management Act Permit Amendment was submitted to MassDEP in order to add the Lake Ripple Well to the existing permit. The amendment provides the authority to withdraw water from a new source without increasing the overall withdrawal volume. The Lake Ripple Well has been approved through MassDEP's New Source Approval Process in a letter June 6, 2003. The Grafton Water District has not applied for, nor received, an approval to construct this source (BRP WS 20). Furthermore, the Grafton Water District does not own nor control the 400-foot Zone I radius for the Lake Ripple Well. The current permit approval for the Source Final Report is valid for 5 years until June 6, 2008. After that time the Grafton Water District may be required to reapply for this permit and must comply with the terms and conditions of the source approval process that are in place at that time. At a minimum this will require collection of samples for water quality testing under some limited pumping conditions and re-evaluation of potential sources of contamination and impacts to sensitive receptors.

### **The Water Management Act**

The Act 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.

To better achieve the balance of competing water uses mandated by the Act, the Department has adopted the "Water Management Policy For Permit and Permit Amendment Applications and 5-Year Review, Effective Date: April 2, 2004" and the "Guidance Document for Water Management Act Permitting Policy, Effective Date: January 17, 2006". The Policy, WMA Policy #: BRP/ DWM/DW/P04-1, and Guidance, Guidance #BRP/DWM/DW/G05-01, can be found on the Department's web site at <http://www.mass.gov/dep/water/laws/policies.htm#wmgt>. The Policy and Guidance identify specific Performance Standards and conditions to be applied to new Water Management permits and to existing permits at the time they are amended, during 5-year permit review or permit renewal. The Department has applied these Performance Standards and conditions in The District's permit.

### **Findings of Fact for the Performance Standards in Grafton Water District's Water Management Permit**

As required by MGL c 21G, s 11 and 310 CMR 36.00, the Department makes the following Findings of Fact in support of the Permit, and includes herewith its reasons for approving the Permit and for imposing the conditions of approval.

In applying the Performance Standards in Water Management permits, the Department relies primarily upon the determinations of relative stress established the Water Resources Commission's (WRC) Stressed Basins Report approved December 13, 2001. The Department also reviews other available research, such as reports by the United States Geological Survey, MassDEP's Watershed Water Quality Assessment Reports, and any other pertinent reports available for specific river basins.

The District's sources are located in the portion of the Blackstone River Basin, which has been identified as low stress by the Water Resources Commission. The map of stressed basins can be reviewed at the following link: <http://www.mass.gov/dep/water/resources/stresmap.htm>. The policy established the following performance standards for all permittees that withdraw water from low stressed river basins:

1. Residential gallons per capita day water use (RGPCD) of 80 gallons or less;
2. Unaccounted for water (UAW) of 15% or less; and

The standards set forth above shall hereinafter be referred to collectively as the "Basin Performance Standards." The reporting requirements added in the Permit are intended to standardize the information submitted to the Department to assess compliance with the Permit and the Basin Performance Standards. The Permit contains a requirement that these performance standards be met within two years following issuance of the permit. Grafton Water District met both of these performance standards for the majority of this review period based on the information contained within your Annual Statistical Reports. Failure to meet these standards in the future will require implementation of additional water conservation measures and may result in an enforcement action by MassDEP. The Department is concerned about the high residential water use of approximately 94 RGPCD in 2003 in the Grafton Water District. The modifications required in Special Condition 8 have been included to meet the minimum standards required by the Massachusetts Water Resources Commission. The Department encourages the District to promote water conservation through implementation and enforcement of outdoor water use restrictions, encourage use of moisture sensors for automatic sprinklers, discourage use of private irrigation wells, and increased public education concerning water conservation.

The performance standards of 80 gallons per day or less for residential per capita water use and 15% or less for unaccounted for water are taken from the Water Resources Commission performance standards for effective water conservation for public water suppliers. The Department believes these standards are reasonable based on studies and data developed throughout the country, the 1996 AWWA Leak Detection and Water Accountability Committee report on water accountability (AWWA Journal; July 1996; pp. 108-111) and the fact that the average values in 2004 for Massachusetts were 67 RGPCD, and 13% UAW. Furthermore, the District has maintained average values of approximately 75 RGPCD and 8% UAW for the years 2001 through 2005. While these performance standards represent the minimum standards required for compliance with the Permit, the Department believes that they are reasonable standards for effective water conservation and that through the implementation of all the terms and conditions of Water Management permits, permittees can exceed the performance standards for RGPCD and UAW.

The Guidance provides implementation and enforcement guidelines for permitting. It establishes:

- timelines for compliance with the performance standards;
- procedures and requirements for permittees that fail to document compliance with the performance standards within those timelines;

### **Findings of Fact for Specific Permit Conditions**

In issuing permits in the Blackstone River Basin, the Department looked 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.

**Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume**, reflects the registered withdrawal volume of 0.60 MGD and a permitted increase of 0.93 MGD for a total authorized withdrawal of 1.53 MGD through February 2009. The District's actual withdrawal has been consistently below authorized withdrawal (1.15 MGD in 2005, 1.19 MGD in 2004, 1.04 MGD in 2003 and 1.00 MGD in 2002). The authorized withdrawal volumes in Special Condition #1, are based upon the population and water needs forecasts prepared by the Department of Environmental Management (now, the Department of Conservation and Recreation) as part of the ongoing river basin planning project, and were authorized conditional upon completion of the treatment system for the Follette Street Well.

**Special Condition 2, Maximum Authorized Daily Withdrawals From Each Withdrawal Point**, reflects the volume of groundwater withdrawal expressed as a daily rate for each source, according to the Department approved Zone II rates. The Permit includes the Zone II approved rate for the Worcester Street Well (2110000-02G), East St. #2 Well (2110000-03G), East St. #3 Well (2110000-04G), Follette Street Well (2110000-05G), and Lake Ripple (2110000-0AG).

**Special Condition 3, Zone II Delineations**, requirement has been met and no further delineations are required as a condition of this Permit.

**Special Condition 4, Wellhead Protection**, discusses the Best Effort requirements necessary to meet the Wellhead Protection regulations, 310 CMR 22.21 for the Follette Street Well for that portion of the Zone II which extends into the Towns of Milbury and Sutton.

**Special Condition 5, Cronin Brook Water Level Monitoring:** Cronin Brook has been identified by the Massachusetts Division of Fisheries and Wildlife (MassWildlife) as Coldwater Fishery Resource. Wild brook trout were captured by MassWildlife in the vicinity of the Follette Street well in 2001, but there was a lack of larger fish (greater than 4") in the sample. According to the findings of the Eastern Brook Trout Joint Venture (<http://www.brookie.org/site/pp.asp?c=liKVL3POLvF&b=1558555>), this species is undergoing a decline throughout its native range (Maine to Georgia, including Massachusetts) due to habitat degradation. Brook trout are also a Species in Greatest Need of Conservation (SGCN) identified in the Massachusetts Comprehensive Wildlife Conservation Strategies (CWCS) document developed by MassWildlife ([http://www.mass.gov/dfwele/dfw/cwcs/dfw\\_cwcs.htm](http://www.mass.gov/dfwele/dfw/cwcs/dfw_cwcs.htm)) and has consequently been highlighted as a species for which habitat needs to be protected. Brook trout are particularly sensitive to a wide range of habitat alterations, including but not limited to changes in the natural flow regime. MassWildlife concludes that if the frequency, magnitude or duration of low flow events were to increase in Cronin Brook, the coldwater fishery could be jeopardized. For example, if Cronin Brook were to dry up for an hour in August (leaving only isolated pools), year classes of wild brook trout could be lost. If the brook were to dry up for an entire day, those isolated pools might not be able to sustain the coldwater fishery (or any other fishery).

A proposed stream monitoring plan, submitted by Dufresne-Henry, Inc. (now Stantec, Inc.), was approved by MassDEP and attached to Grafton's WMA permit issued May 30, 1997 as Special Condition 5. The permit condition states "The Department requires that the results of the monitoring be submitted annually by December 31 of each year". The Department has received one report submitted February 2004 for monitoring conducted in 2003. The Department gave the District verbal approval to increase the pumping rate at the Follette Street Well, however on-going monitoring was still a requirement. Annual monitoring was required so that a thorough review of the possible correlation between stream discharge in Cronin Brook and pumping rates/volumes at the Follette Street well could be analyzed with respect to the natural variation in stream discharge and precipitation from year to year at a single site. The Department has reviewed the results of the 2003 stream flow monitoring. Our review of the data summary indicates it is inconclusive to determine if the groundwater withdrawal from the Follette St.

Well impacts stream discharge in Cronin Brook. The report states “dramatic increases in stage and discharge are clearly correlated to rainfall”. The report states there was a rise in stage height during an extended period of pumping from 15 July to 17 July 2003, however 0.29 inches of rain was recorded at the nearest NOAA weather station in Worcester, MA on 16 July. It is reasonable to assume that the rise in stage height (~0.05 feet) was due to precipitation and the rise may have been limited due to the extended pumping. This assumption is supported because of the more significant rise in stage height (~0.2 feet) on 18 July when 0.39 inches of rain was recorded. This rise (four times the 18 July rise) occurred during a short pumping period that followed a 24-hour period of zero pumping. Additionally the presumed rise in stage height between 15 and 17 July is less than the reported accuracy of the datalogger, therefore it should be determined that the stage height during that period was stagnant.

The District’s response (submitted March 2006) to the Department’s Order to Complete, the District states “actual physical observations of the stream (Cronin Brook) for the last 5 – 8 years has shown no reason to continue this monitoring”. However, the monitoring report for Cronin Brook shows stream discharge at or near zero in August and September 2003.

Monitoring was conducted in 2003 and the average daily withdrawal for the Follette Street Well that year was 0.47 MGD. The District has requested that the maximum daily withdrawal rate for the Follette Street well be increased to 1.03 MGD. As the requested withdrawal rate is more than twice the current rate, MassDEP requires two additional years of water level monitoring data at the present rate. MassDEP will review all monitoring data in order to make determination on a withdrawal rate increase at the Follette Street well.

**Special Condition 6, Performance Standard for Residential Gallons Per Capita Day Water Use,** discussed previously.

**Special Condition 7, Performance Standard for Unaccounted for Water,** discussed previously.

**Special Condition 8, Water Conservation Requirements,** incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the WRC in October 1992.

**Special Condition 9, Requirement to Report Raw and Finished Water Volumes,** ensures that the information necessary to evaluate compliance with the conditions included herein is accurately reported.



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**WATER WITHDRAWAL PERMIT**  
**MGL c 21G**

This 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:** 9P4-2-12-110.04      **RIVER BASIN:** Blackstone

**PERMITTEE:** Grafton Water District  
 44 Millbury Street  
 Grafton, MA 01519

**EFFECTIVE DATE:** May 30, 1997

**AMENDED DATE:** July 3, 2007

**EXPIRATION DATE:** February 28, 2009

**NUMBER OF WITHDRAWAL POINTS:** 5  
 Groundwater: 5  
 Surface Water: 0

**USE:** Public Water Supply

**DAYS OF OPERATION:** 365

**LOCATION(S):**

**Table 1. Withdrawal Point Identification**

| Well Name        | PWS Source ID Code |
|------------------|--------------------|
| Worcester Street | 2110000-02G        |
| East Street #2   | 2110000-03G        |
| East Street #3   | 2110000-04G        |
| Follette Street  | 2110000-05G        |
| Lake Ripple      | 2110000-0AG*       |

\*The final PWS Source ID Code will be assigned when the water quality sampling plan and the final on-line approval letter are issued. The Lake Ripple Well is an approved source, for which the Grafton Water District has not applied for, nor received, an Approval to Construct a Source >70 GPM (BRP WS 20). The Grafton Water District must own or control the 400-foot Zone I radius prior to receiving an approval to construct.

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

**SPECIAL CONDITIONS**

**1. Maximum Authorized Annual Average Withdrawal Volume:**

This permit authorizes the withdrawal of water, on average over a calendar year, at the rates described below (Table 2). The volumes reflected are in addition to the 0.60 million gallons per day (mgd) previously registered to the Grafton Water District (“District”) under Water Management Act registration #212110.04. The permitted volume is expressed in millions of gallons, both as an average daily withdrawal rate per year and as a total annual withdrawal volume for each five-year period of the permit term.

The Department will use the raw water withdrawal volume from all authorized withdrawal points 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 Two<br>Years 8-10    | 5/22/1997 to<br>2/28/1999 | 0.71                               | 259.15             | 1.31                  | 478.15             |
| Period Three<br>Years 11-15 | 3/1/1999 to<br>2/28/2004  | 0.85                               | 310.25             | 1.45                  | 529.25             |
| Period Four<br>Years 16-20  | 3/1/2004 to<br>2/28/2009  | 0.93                               | 339.45             | 1.53                  | 558.45             |

**2. Maximum Authorized Daily Withdrawals From Each Withdrawal Point**

Withdrawals from individual withdrawal points are not to exceed the approved daily volume listed below (Table 3) without specific advance written approval from the Department. The authorized maximum daily volume is the approved rate of each source. In no event shall the combined withdrawals from the individual withdrawal points exceed the withdrawal volumes authorized above in Special Condition 1.

**Table 3: Maximum Authorized Withdrawal Volumes**

| Well Name     | PWS Source ID Code | Maximum Daily Rate MGD) |
|---------------|--------------------|-------------------------|
| Worcester St. | 2110000-02G        | 1.01                    |
| East St. #2   | 2110000-03G        | 0.61                    |
| East St. #3   | 2110000-04G        | 1.01                    |
| Follette St.  | 2110000-05G        | 0.44*                   |
| Lake Ripple   | 2110000-0AG        | 0.864                   |

\* The District has requested an increase in the Maximum Authorized Withdrawal Volume from 0.44 MGD to 1.03 MGD. Approval from the Department is required prior to a rate increase. MassDEP will review all monitoring data before making a determination on a withdrawal rate increase at the Follette Street well. Special Condition 5 outlines the minimum requirements for monitoring withdrawal impacts to Cronin Brook.

### **3. Zone of Contribution (Zone II or Zone III) Delineations**

Department records show that all of Grafton Water District's wells (2110000-02G, -03G, -04G, -05G, and -0AG) have Department approved Zone II delineations. Therefore, no further Zone II work is required as a condition of this permit.

### **4. Wellhead Protection**

The Department is in receipt of Floor Drain Regulations adopted by the Grafton Board of Health on February 1, 2006. Department records show that all of Grafton Water District's wells (-02G, -03G, -04G, -05G, and -0AG) have met the Department's Wellhead Protection Requirements for the Zone II areas that lie within the Town of Grafton. Grafton Water District is also required to demonstrate "Best Effort", 310 CMR 22.21(1)(d), in encouraging Millbury and Sutton to adopt land use controls which meet 310 CMR 22.21(2) for the portion of the Zone II of the Follette St. Well (-05G) that extends into those communities within 6 months of the date of this permit.

### **5. Cronin Brook Water Level Monitoring**

Monitoring of Cronin Brook in accordance with the Cronin Brook Hydrologic Monitoring Plan dated April 8, 1997 and revised April 22, 2003, prepared by Dufresne-Henry, Inc. and approved by Kenneth Simmons, Ph.D. of the Massachusetts Division of Fisheries & Wildlife, shall be modified with respect to the comments listed below. The Department requires that the results of the monitoring be submitted annually by December 31 of each year, to the Department's Central Regional Office, Water Management Program, 627 Main Street, Worcester, MA 01608.

The Department has reviewed Dufresne-Henry's report on stream gage monitoring of Cronin Brook submitted February 2004. Our review of the data summary indicates it is inconclusive to determine if the groundwater withdrawal from the Follette St. Well impacts stream discharge in Cronin Brook. Given that Cronin Brook is a Coldwater Fishery Resource the Department has determined that it requires a high level of protection. Water quantity as well as water quality are essential to maintaining the health of the stream.

The Department requires you to continue monitoring the stream annually in accordance with the following plan:

1. Annual water level measurements from Cronin Brook shall be collected with a pressure transducer and data logger once per hour in the months of June, July, August and September beginning in 2007. The measurements shall be collected at the nearest location of the brook to the well. Measurements will not be required from October to May.
2. Collect water levels in available monitoring wells on a weekly basis.
3. Continue to present water level data from Cronin Brook in graphic format with precipitation and pumping periods and/or volume data clearly defined.
4. Please list screen depths for monitoring wells included in the monitoring plan in future submittals.

### **6. Performance Standard for Residential Gallons Per Capita Day Water Use**

Grafton Water District's Performance Standard for Residential Gallons Per Capita Day (RGPCD) is 80 gallons. The District shall be in compliance with the Performance Standard by December 31, 2008. The District shall report its RGPCD water use annually in its Annual Statistical Report (ASR)

and document compliance with this Performance Standard in its ASR for 2008 and each year thereafter.

The District shall report the calculation used to derive the RGPCD 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.

#### **7. Performance Standard for Unaccounted for Water**

Grafton Water District's Performance Standard for Unaccounted for Water (UAW) is 15% of overall water withdrawal. The District shall be in compliance with the Performance Standard by December 31, 2008. The District shall report its UAW annually in its Annual Statistical Report (ASR) and document compliance with this Performance Standard in its ASR for 2008 and each year thereafter.

The District shall report the calculation used to derive the UAW as part of its ASR. UAW is defined as the difference between water pumped or purchased and water that is metered or confidently estimated. UAW shall include, without limitation, water that cannot be accounted for due to meter problems, unauthorized hydrant openings, unavoidable leakage, recoverable leakage, illegal connections, stand pipe overflows, and fire protection where it cannot be confidently estimated. The need for water main flushing and the use of water in construction or meter calibration shall be metered or estimated as appropriate to assist in determining actual demand. Volumes flushed to waste shall be reported on the District's ASR. See Appendix B for additional information on requirements if the Performance Standard for UAW is not met.

#### **8. Water Conservation Requirements**

At a minimum, Grafton Water District shall implement the following conservation measures forthwith (Table 4) and shall be in compliance with these measures on or before the next 5 Year Review of this permit. Compliance with the water conservation requirements shall be reported to the Department upon request or at the time of Permit Renewal unless otherwise noted below.

**Table 4: Minimum Water Conservation Requirements**

| <b>System Water Audits and Leak Detection</b> |  |
|---|--|
| 1.  | At a minimum, conduct a full leak detection survey every three years. The first full leak detection shall be completed no later than December 31, 2008.  |
| 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, The District 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 <i>AWWA Manual 36</i> .   |
| 4.  | <p>The District shall have repair reports available for inspection by the Department. The District shall establish a schedule for repairing leaks that is at least as stringent as the following:</p> <ul style="list-style-type: none"> <li>- Leaks of three (3) gallons per minute or more shall be repaired within three (3) months of detection.</li> <li>- Leaks of less than three (3) gallons per minute at hydrants and appurtenances shall be repaired as soon as possible.</li> <li>- Leaks of less than three (3) gallons per minute shall be repaired in a timely manner, but in no event more than six (6) months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other road work is being performed on the roadway.</li> </ul> <p>Leaks shall be repaired in accordance with the District’s priority schedule including leaks up to the service meter. However, in the event that the landowner is unwilling or unable to repair leaks between the property line and the service meter in accordance with the District’s schedule, The District shall repair such leaks within seven (7) days of obtaining either: (1) the written consent of the landowner; or (2) a warrant authorizing access to the property to make the necessary repair. The District shall exercise best efforts to obtain the written consent of the landowner or a warrant authorizing access to the property to make the necessary repair.</p> |
| 5.  | If the difference between the quantity of the raw water entering each treatment plant and the quantity of the finished water entering the distribution system from each treatment plant exceeds 5%, the District shall submit to the Department for its review and approval a scope of work and schedule for conducting a water audit of the treatment plant by December 31 <sup>st</sup> of the year following the exceedance. The scope of work for the water audit shall provide for a comprehensive evaluation of the operations of the treatment plant and include a schedule for completing the evaluation. The District shall conduct the water audit in accordance with the scope of work and schedule approved by the Department. Within 60 days of completing the water audit of the treatment plant, the District shall submit to the Department for its approval a report documenting the results of the water audit, the recommended actions to save water during the treatment process, and the schedule for implementing the recommended actions. The District shall implement such actions as approved by the Department and in accordance with the schedule approved by the Department.   |
| <b>Metering</b>                               |  |
| 1.  | Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.  |
| 2.  | The District 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 <i>AWWA Manual M6 – Water Meters</i> , by the next 5 year review date (November 30, 2009).   |

**Table 4 Continued: Minimum Water Conservation Requirements**

| <b>Metering continued</b>                           |  |
|---|--|
| 3.  | The District shall implement 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 the District’s annual water budget to calibrate, repair, or replace meters as necessary.   |
| <b>Pricing</b>                                      |  |
| 1.  | The District must continue to implement 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.  | The District 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.   |
| <b>Residential and Public Sector Conservation</b>   |  |
| 1.  | The District 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.  | <p>Municipal buildings</p> <ul style="list-style-type: none"> <li>• By January 1, 2008, submit to the Department a status report detailing which municipally owned public buildings in the service area of the District have been retrofitted with water saving devices (faucet aerators, low flow shower heads and low flow toilets) and which of those buildings have yet to be retrofitted, along with a schedule to complete the retrofitting by January 1, 2013.</li> <li>• On or before January 1, 2013, Grafton Water District shall ensure that all the municipally owned public buildings in their service area are retrofit, or demonstrate to the Department’s satisfaction that a “Best Effort” was made by the District to get the Town to make those retrofits. By January 1, 2013, the District shall also notify the Department in writing on the status of completing this condition.</li> <li>• Note municipally owned public buildings that may be scheduled for rehab or demolition after the January 1, 2013 deadline for completing the retrofits, may with the Department’s approval, be exempted from this condition based on the schedule of work. Status report required above should identify those buildings and schedule for repairs/demolition.</li> </ul> |
| <b>Industrial and Commercial Water Conservation</b> |  |
| 1.  | The District shall review the use records for its industrial, commercial and institutional water users and develop an inventory of the largest water users. The District shall continue to implement an outreach program designed to inform and (where appropriate) work with its industrial, commercial and institutional water users on ways to reduce their water use. 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 <a href="http://www.mass.gov/envir/ota">www.mass.gov/envir/ota</a> .   |

**Table 4 Continued: Minimum Water Conservation Requirements**

| <b>Industrial and Commercial Water Conservation continued</b> |   |
|---|---|
| 2.  | Upon request by the Department, the District 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 the Town to take additional actions to reduce industrial, commercial and institutional water use.   |
| <b>Lawn and Landscape</b>                                     |   |
| 1.  | Adopt a water use restriction bylaw, ordinance or regulation by May 1, 2008, to provide authority to implement and enforce water use restrictions required by Special Condition #8.   |
| <b>Public Education and Outreach</b>                          |   |
| 1.  | Continue to implement a Water Conservation Education Plan. The District’s Water Conservation Education Plan shall be designed to educate the District’s water customers of ways to conserve water. Without limitation, the District’s plan may include the following actions: <ul style="list-style-type: none"> <li>• 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;</li> <li>• Public space advertising/media stories on successes (and failures);</li> <li>• Conservation information centers perhaps run jointly with electric or gas company;</li> <li>• Speakers for community organizations;</li> <li>• Public service announcements; radio/T.V./audio-visual presentations;</li> <li>• Joint advertising with hardware stores to promote conservation devices;</li> <li>• Use of civic and professional organization resources;</li> <li>• Special events such as Conservation Fairs;</li> <li>• Develop materials that are targeted to schools with media that appeals to children, including materials on water resource projects and field trips; and</li> <li>• Make multilingual materials available as needed.</li> </ul> |
| 2.  | Upon request of the Department, the District shall report on its public education and outreach effort, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials.   |

**9. Requirement to Report Raw and Finished Water Volumes**

Grafton Water District 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.

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**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 36.37.
6. **Duty to Report** The permittee shall submit annually, on a form provided by the Department, a certified statement of the withdrawal, such report to be received by the Department by January 31st of each year. Such report must be mailed or hand delivered to:

Department of Environmental Protection  
Drinking Water Program  
Water Management Program  
One Winter Street, 6 th Floor  
Boston, MA 02108
7. **Duty to Maintain Records** The permittee shall be responsible for maintaining monthly withdrawal records.
8. **Metering** The withdrawal point(s) included within this permit are metered and shall be calibrated annually. 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. 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 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.

**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.**

## **Appendix A – Residential Gallons Per Capita Day**

### **I. Compliance Plan Requirement**

If Grafton fails to document compliance with the RGPCD Performance Standard in its 2008 ASR, or in any ASR thereafter, then Grafton 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 Grafton's failure to meet the Performance Standard.

If a RGPCD Plan is required, Grafton 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 Grafton'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 Grafton 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**

### **I. Compliance Plan Requirement**

If Grafton fails to document compliance with the UAW Performance Standard in its 2008 ASR, or in any ASR thereafter, then Grafton 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 Grafton's failure to meet the Performance Standard.

If a UAW Plan is required, Grafton 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 Grafton's ASR for the calendar year in which the standard is met.

### **II. Contents of an Unaccounted for Water Compliance Plan**

Grafton 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 15% 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 5 year Review date (November 30, 2009);
  - c. implementation of monthly or quarterly billing by the next 5 Year Review date (November 30, 2009); and
  - d. 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.