



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

DEVAL L. PATRICK
Governor

TIMOTHY P. MURRAY
Lieutenant Governor

IAN A. BOWLES
Secretary

LAURIE BURT
Commissioner

September 14, 2009

Lunenburg Water District
P.O. Box 375
Lunenburg, MA 01462

Attention: Fran McNamara

RE: Town: **Lunenburg**
Permittee: Lunenburg Water District
PWS ID # 2162000
WMA Permit #9P2-2-11-162.01
Transmittal # X229724
Action: Draft Permit Amendment
And 5-Year Review

Dear Mr. McNamara:

Please find attached document:

- Draft Water Management Act Permit Amendment for Lunenburg Water District for an additional withdrawal location in the Nashua River Basin.
- Findings of Fact in Support of the Draft Permit Decision.

The signature on this cover letter indicates formal issuance of the attached document. Due to your request for expedited review of the permit application, we request that you review and provide any comments you may have by **September 21, 2009**. MassDEP anticipates issuing the final permit on September 30, 2009. If you have any questions and would like to meet prior to issuance of the final permit, please contact me at (508) 767-2827 or Barbara Kickham at (508) 767-2724.

Sincerely,

Marielle Stone
Section Chief
Drinking Water Program

Cc: Duane LeVangie, WMA Program Coordinator, Boston
NRWA, 592 Main St., Groton, MA 01450
Lunenburg Board of Selectmen, 17 Main St., Lunenburg, MA 01450
MWWA, via email

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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.

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。



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Findings of Fact in Support of *Draft* Permit Decision
Lunenburg Water District
Water Management Permit # 9P2-2-11-162.01

The Massachusetts Department of Environmental Protection (“MassDEP”) has completed its review of the Lunenburg Water District’s (Lunenburg’s) Water Management Act (WMA) permit amendment application to add a new withdrawal point, the Keating Well Site, to the existing permit in the Nashua River Basin. No additional withdrawal volumes are granted by this permit amendment.

In response to your application for a permit amendment to add a withdrawal location in the Nashua River Basin, and after reviewing the information that you have provided, MassDEP hereby approves the Water Management Act permit #9P2-2-11-162.01 in accordance with the Water Management Act (M.G.L. 21G). MassDEP makes the following Findings of Fact in support of the attached permit amendment, and includes herewith its reasons for approving the permit and for conditions of approval imposed, as required by M.G.L. c21G, s.11, 310 CMR 36.26 and 310 CMR 36.00.

Lunenburg Water District Withdrawal History

Lunenburg is permitted under the Water Management Act to withdraw 0.54 million gallons per day (MGD) through February 28, 2014. Review of water use projections and conditions on permits in the Nashua River basin for the next 20 year basin cycle will commence prior to end of the current permit time frame. Three of Lunenburg’s existing sources, Wells 1, 2, and 4 are registered withdrawal locations and will be added to the attached permit. Wellfield 5 and the Hickory Hills Well, were permitted in November 1995. The following permit amendment provides authorization to add the Keating Well Site as an additional withdrawal location.

The Water Management Act

The Act requires that MassDEP 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,

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hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and

- Reasonable economic development and job creation.

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 and conditions have been identified 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 MassDEP has applied these performance standards and conditions in Lunenburg's permit.

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

As required by MGL c 21G, s 11 and 310 CMR 36.00, the MassDEP 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.

The performance standards of 65 gallons per day or less for residential per capita water use and 10% or less of unaccounted for water, summer limits on withdrawals, and efforts to offset the impacts of increasing withdrawal volumes are consistent with the Massachusetts *Water Conservation Standards* approved by the Water Resources Commission in July 2006. These standards can be found at:

http://www.mass.gov/Eoeea/docs/eea/water/water_conservation_standards.pdf

MassDEP 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 2008 for Massachusetts were 62 RGPCD, and 14.5% UAW. While these performance standards represent the minimum standards required for compliance with the Permit, MassDEP believes that through the implementation of all the terms and conditions of Water Management permits, municipalities can meet the performance standards for RGPCD and UAW.

Permittees will be required to meet the 65 residential gallons per capita day (RGPCD) and 10% unaccounted-for-water (UAW) performance standards within 5 years of receiving their renewed permit. MassDEP will consider any permittee that has been unable to meet the 65 RGPCD or 10% UAW performance standard within 5 years of receiving its permit, but who is complying with the Water Conservation requirements included in the permit, who has implemented the required limits on nonessential outdoor water use, and who is making reasonable efforts to finance, implement and enforce a MassDEP-approved compliance plan to be achieving functionally equivalent compliance with the performance standards. The permittee will not be subject to Civil Administrative penalties by MassDEP provided they continue to make reasonable efforts to implement and enforce the compliance plan.

Because permittee's circumstances vary, a permittee may present an analysis of the cost effectiveness of implementing certain conservation measures required by the MassDEP and offer alternative measures. Any analysis must explicitly consider environmental impacts and must produce environmental benefits. MassDEP will allow Permittees to:

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

MassDEP will review permittees' detailed, written cost effectiveness analysis to determine whether unique circumstances make specific Best Management Practices (BMPs) less cost-effective than alternatives, or not feasible for a particular PWS when developing the compliance plan.

Findings of Fact for Special Permit Conditions

In issuing permits, MassDEP 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.

Special Condition 1, Maximum Authorized Annual Average Withdrawal Volume, reflects the permitted withdrawal volume of 0.54 MGD from March 1, 2009 through February 28, 2014. The authorized withdrawal volume is based on water use projections prepared by the Department of Conservation and Recreation, Office of Water Resources. These projections will be reviewed prior to the end of the 20 year basin cycle for the Nashua River in 2014 as part of the permit renewal process.

Baseline withdrawal is the volume withdrawn in compliance with the Act during the calendar year 2005 or the average volume withdrawn in compliance with the Act from 2003 to 2005, whichever is highest. Lunenburg's Baseline is 0.48 MGD, the average withdrawal volume for 2003 through 2005. Water use above the 0.48 MGD Baseline for Lunenburg will require offsets if feasible. Lunenburg's withdrawal volume, as reported on the Annual Statistical Reports (ASRs), was within the permitted volume of 0.51 MGD from 2005 through 2008. Lunenburg's water use was above its Permitted volume in 2002 and 2004; however, the exceedances were reportedly due to leaks associated with upgrades to the municipal sewers and were within the threshold volume of an additional 0.1 MGD.

Special Condition 2, Maximum Authorized Daily Withdrawal Volume, reflects the maximum daily withdrawal rates by source, according to MassDEP approved Zone II rates. The Wells 1, 2, and 4 were registered withdrawal locations and are now included in Lunenburg's

permit. Well 1 (Source Code ID # 2162000-01G) is approved to pump a maximum of 0.18 MGD, Well 2 (Source Code ID # 2162000-02G) is approved to pump 0.11 MGD, Well 4 (Source Code ID # 2162000-04G) is approved to pump 0.29 MGD, Wellfield 5 (Source Code ID # 2162000-05G) is approved to pump 0.4 MGD, and Hickory Hills Well (Source Code ID # 2162000-06G) is approved to pump 0.72 MGD and the Keating Well Site (Source Code ID # 2162000-0AG) is approved to pump 1.44 MGD.

Special Condition 3, Zone of Contribution Delineations, requirement has been met, including the Keating Well Site, and no further work is required at this time.

Special Condition 4, Water Supply Source Protection, addresses the “Best Effort” requirements to meet the Drinking Water Program regulations for groundwater protection. Lunenburg Water District must satisfy MassDEP’s “Best Effort” requirement for the Zone II for the Keating Well Site in the Towns of Lunenburg and Shirley. Lunenburg must make a Best Effort in encouraging the Town of Lunenburg to pass a zoning bylaw prohibiting the use of floor drains in Zone IIs. Alternately the Lunenburg Board of Health can pass its own regulation prohibiting floor drains in Zone IIs.

Until both Lunenburg and Shirley, towns covered by Lunenburg’s Zone II for the Keating Well Site, passes Wellhead Protection requirements that fully satisfy the regulations, MassDEP’ Best Effort requirement must be met for new source approval (including replacement wells); monitoring waiver applications; WMA water withdrawal permit reviews or amendments; Zone II re-delineations; and Sanitary Survey stipulations.

Special Condition 5, Wetland and Groundwater Monitoring, annual water level monitoring must be conducted in the vicinity of the Keating Well Site to evaluate potential impacts to Tophet Swamp.

Special Condition 6, Performance Standard for Residential Gallons Per Capita Day Water Use, discussed previously. As reported in the 2008 Annual Statistical Report, the RGPCD for Lunenburg was 61.

Special Condition 7, Performance Standard for Unaccounted for Water, discussed previously. As reported in the 2008 Annual Statistical Report, Lunenburg’s unaccounted-for-water was 8%.

Special Condition 8, Nonessential Outdoor Water Use, to be implemented based upon 1) a calendar approach, or 2) a streamflow approach:

- 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 baseline reference for designated streamflow triggers is near natural flows measured at USGS Index Gage sites which are the least-altered gages in southern New England¹. Two-tiered streamflow triggers measured in cubic feet per second per square mile (cfsm) are derived from Aquatic Base Flow (ABF) values based on minimum flows that are protective of habitat for fish spawning during the spring bioperiod, and for fish rearing and growth during the summer bioperiod. ABF values for USGS index gages were calculated and presented in the index streamflow report by the Massachusetts Department of Conservation and Recreation.²

If Lunenburg selects the streamflow approach, it has been assigned the USGS local stream gage of **01096500 - Nashua River at E. Pepperell, MA**. The USGS Index Gage associated with your local gage is 01096000- Squannacook River near W. Groton. The index gage has a June ABF stream value of 0.98 cfsm and an August ABF value of 0.38 cfsm. These index cfsm units translate to your local gage streamflow triggers as 426 cubic feet per second (cfs) for May and June, and 165 cfs for July, August and September.

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

Drought triggered restrictions are incorporated into the seasonal limits on outdoor water use as outlined in Special Condition 8. Times of low streamflow and drought do not always coincide, but both low streamflow and drought conditions can have adverse effects on water supplies, natural resources and aquatic life. **Please note that many communities impose drought-based outdoor water use restrictions before the Massachusetts Drought Management Task Force declares a Drought Advisory** because drought conditions can begin to impact local water supplies before a regional advisory is declared.

Should Lunenburg meet the 65 RGPCD performance standard, the system will be allowed to continue its existing on-going water conservation efforts, with, at a minimum, restrictions on nonessential outdoor water use between the hours of 9:00 AM and 5:00 PM when streamflow at the Nashua River Gage falls below the identified trigger.

Nothing in this permit is intended to prevent communities from implementing water use restrictions that are more restrictive than those set forth in this permit.

¹ 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.

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.

Should Lunenburg continue to meet the 65 RGPCD performance standard, the system will be allowed to continue its existing on-going water conservation efforts, with, at a minimum, restrictions on nonessential outdoor water use between the hours of 9:00 AM and 5:00 PM when streamflow at the Nashua River Gage falls below the identified trigger.

Restrictions shall also be implemented when a Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force. Restrictions would cease when the Drought Status returns to Normal.

Special Condition 9, Water Withdrawals that Exceed Baseline Withdrawal Volumes, Baseline withdrawal is the volume withdrawn in compliance with the Act during the calendar year 2005, the average volume withdrawn in compliance with the Act from 2003 to 2005, or the registered volume, whichever is highest. Lunenburg's Baseline is 0.48 MGD, the average withdrawal volume between 2003 and 2005.

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

Special Condition 11, Water Conservation Requirements, incorporates the Water Conservation Standards for the Commonwealth of Massachusetts reviewed and approved by the Water Resources Commission in July 2006.

The summary of permit conditions above as part of MassDEP'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.



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DRAFT WATER WITHDRAWAL PERMIT
MGL c 21G

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

PERMIT NUMBER: 9P2-2-11-162.01 **RIVER BASIN:** Nashua

PERMITTEES: Lunenburg Water District

ISSUANCE DATE: November 9, 1995

AMENDED DATE: *Draft 2009*

EXPIRATION DATE: February 28, 2014

NUMBER OF WITHDRAWAL POINTS: 6
 Groundwater: 6

USE: Public Water Supply

DAYS OF OPERATION: 365

LOCATION: Table 1: Withdrawal Point Identification

Source Name	PWS Source ID Code
Well 1	2162000-01G
Well 2	2162000-02G
Well 4	2162000-04G
Wellfield 5	2162000-05G
Hickory HillsWell	2162000-06G
Keating Well Site	2162000-0AG

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SPECIAL CONDITIONS

1. Maximum Authorized Annual Average Withdrawal Volume

This permit authorizes the Lunenburg Water District (Lunenburg) to withdraw water from the Nashua River Basin at the rate described below in Table 2. The volume reflected by this rate is in addition to the 0.29 million gallons per day previously authorized to Lunenburg under Water Management Act Registration #211162.01 for withdrawal from the Nashua River Basin. 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 Department of Environmental Protection (MassDEP) bases these withdrawal volumes on the raw water volume from the authorized withdrawal points, and will use the raw water amount to assess compliance with the registered and permitted withdrawal volumes. Lunenburg’s baseline withdrawal for the purpose of triggering “Special Condition 8, Water Withdrawals that Exceed Baseline Withdrawal Volumes” is 0.48 MGD, or 175.2 MGY.

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	6/20/1996 to 2/28/1999	0.15	54.75	0.44	160.6
Period Two Years 6-10	3/1/1999 to 2/29/2004	0.19	69.35	0.48	175.2
Period Three Years 11-15	3/1/2004 to 2/28/2009	0.22	80.3	0.51	186.15
Period Four Years 16-20	3/1/2009 to 2/28/2014	0.25	91.25	0.54	197.1

2. Maximum Authorized Daily Withdrawals From Each Withdrawal Point

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

Table 3: Maximum Daily Withdrawal Rate

Name	PWS Source ID Code	Maximum Daily Rate (MGD)
Well 1	2162000-01G	0.18
Well 2	2162000-02G	0.11
Well 4	2162000-04G	0.29
Wellfield 5	2162000-05G	0.4
Hickory HillsWell	2162000-06G	0.72
Keating Well Site	2162000-0AG*	1.44 *

* The final Source Code ID will be assigned when your source is approved to activate. The rate will be finalized with Zone II approval and may vary from this draft permit.

3. Zone of Contribution Delineations

MassDEP records indicate that Lunenburg’s permitted groundwater sources, Wells 1, 2, 4, Wellfield 5, Hickory Hills Well, and the Keating Well Site have approved Zone II delineations. No further Zone II work is required as a condition of this permit.

4. Water Supply Source Protection

Lunenburg Water District must demonstrate its “Best Effort”, as stated in 310 CMR 22.21(1)(d), in encouraging the Town of Lunenburg to adopt land use controls, which meet the Drinking Water Regulations for wellhead protection compliance 310 CMR 22.21(2). The land use controls must include prohibition of floor drains in the Zone II of your wells via a Board of Health regulation or a Zoning Bylaw to be in compliance with the Drinking Water Regulations. Lunenburg’s Wellhead Protection Overlay District and Zoning Bylaws do not currently meet the Drinking Water Regulations; however we are aware you are in the process of revising both. Best Effort letters and any changes to the map or final text of the control measures as adopted by the Town of Lunenburg must be submitted to the Wellhead Protection Program in Boston **before** Lunenburg Water District receives final approval to place the Keating Well Site in operation.

Until the Town of Lunenburg passes wellhead protection requirements that satisfy the regulations for the land covered by the Zone II’s, MassDEP’ Best Effort requirement must be met by the Lunenburg Water District for each of the following: new source approval (including replacement wells); monitoring waiver applications; WMA water withdrawal permit reviews or amendments; Zone II re-delineations; and Sanitary Survey stipulations.

5. Wetland and Groundwater Monitoring

Lunenburg Water District shall implement a plan, beginning in 2010, to monitor wetlands and groundwater near Tophet Swamp. The monitoring of wetlands and groundwater in the vicinity of the Keating Well Site prior to placing the well(field) in operation is intended to provide a baseline set of data on water level fluctuations. Although Keating Sand & Gravel

has reportedly been operating a well at that location since 1987, no metered records were maintained. The monitoring plan shall include the following:

- Bi-weekly water level monitoring between May 1 and September 30; piezometers PZ-1, PZ-3, PZ-5, and PZ-6 and monitoring wells 1-09, 3-09, 5-09, 6-09; and one staff gage in Bow Brook.
- Collection of pressure transducer/data logger data for one month during the low flow season, nominally August, from 1-09 and 5-09;
- The monitoring will continue after the Keating Well Site is placed on-line for a minimum of three years before MassDEP will consider a reduction in the monitoring plan.
- Water level elevation data will be provided to MassDEP as hydrographs and in tabular format by December 31st each year.

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

Lunenburg's performance standard for residential gallons per capita day (RGPCD) is 65 gallons. Lunenburg shall be in compliance with the performance standard by **December 31, 2011**. Lunenburg shall report its RGPCD water use annually in its Annual Statistical Report (ASR) and document compliance with this performance standard in its ASR for **2011** and each year thereafter. See Appendix A for additional information on the requirements if the performance standard for RGPCD is not met. Lunenburg 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.

7. Performance Standard for Unaccounted for Water

Lunenburg's performance standard for unaccounted for water (UAW) is 10% of overall water withdrawal. Lunenburg shall be in compliance with the performance standard by **December 31, 2011**. Lunenburg shall report its UAW and the calculation used to derive that figure, annually in its Annual Statistical Report (ASR). Lunenburg shall document compliance with this performance standard in its ASR for **2011** and each year thereafter. See Appendix B for additional information on requirements if the performance standard for UAW is not met.

8. Nonessential Outdoor Water Use

Lunenburg shall limit nonessential outdoor water use through mandatory restrictions from May 1st through September 30th as outlined in Table 4 below.

Lunenburg shall be responsible for tracking streamflows and drought advisories and recording when restrictions are implemented if streamflow triggered restrictions are implemented. See [Accessing Streamflow and Drought Advisory Website Information](#) in Table 3 for instructions.

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

Nothing in this permit shall prevent Lunenburg from implementing water use restrictions that are more restrictive than those set forth in this permit.

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 lawns, gardens, flowers and ornamental plants by means of a hand-held hose.

Water uses NOT subject to mandatory restrictions are those required:

- for health or safety reasons;
- by regulation;
- for the production of food and fiber;
- for the maintenance of livestock; or
- to meet the core functions of a business (for example, irrigation by golf courses as necessary to maintain tees, greens, and limited fairway watering, or irrigation by plant nurseries as necessary to maintain stock).

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.

Table 4: Nonessential Outdoor Water Use

<p>Permittees meeting the 65 RGPCD standard for the preceding year (as reported in the ASR and accepted by MassDEP) must implement either:</p>
<p>1. Calendar Triggered Restrictions from May 1st through September 30th No nonessential outdoor water use from 9 am - 5 pm</p>
<p>2. Streamflow Triggered Restrictions from May 1st through September 30th No nonessential outdoor water use from 9 am - 5 pm whenever:</p> <p>a) Streamflow at the assigned USGS local stream gage, 01096500 Nashua River at East Pepperell, falls below the following designated flow triggers for three (3) consecutive days:</p> <ul style="list-style-type: none"> • May 1st through June 30th: 426 cfs (based on minimum flows that are protective of habitat for fish spawning during the spring bioperiod), and • July 1st through September 30th: 165 cfs (based on minimum flows that are protective of habitat for fish rearing and growth during the summer bioperiod). <p>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 (7) consecutive days; or</p> <p>b) A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force.</p>
<p>Permittees NOT meeting the 65 RGPCD standard for the preceding year (as reported in the ASR and accepted by MassDEP) must implement either:</p>
<p>1. Calendar Triggered Restrictions from May 1st through September 30th</p> <p>a) Nonessential outdoor water use is allowed TWO DAYS per week before 9 am and after 5 pm; and</p> <p>b) Nonessential outdoor water use is allowed ONE DAY per week whenever A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force.</p>
<p>2. Streamflow Triggered Restrictions from May 1st through September 30th Nonessential outdoor water use is allowed ONE DAY per week before 9 a.m. and after 5 p.m. whenever:</p> <p>a) Streamflow at the assigned USGS local stream gage (01096500 Nashua River at East Pepperell) falls below the following designated flow triggers for three (3) consecutive days:</p> <ul style="list-style-type: none"> • May 1st through June 30th: 426 cfs (based on minimum flows that are protective of habitat for fish spawning during the spring bioperiod), and • July 1st through September 30th: 165 cfs (based on minimum flows that are protective of habitat for fish rearing and growth during the summer bioperiod). <p>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 (7) consecutive days; or</p> <p>b) A Drought Advisory or higher is declared by the Massachusetts Drought Management Task Force.</p>

Table 4 Continued: Nonessential Outdoor Water Use

Instructions for Accessing Streamflow and Drought Advisory 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 #01096500 Nashua River at East Pepperell.
- 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.

Drought Advisory information is available at the Massachusetts Department of Conservation and Recreation (DCR) Drought Status Website at <http://www.mass.gov/dcr/waterSupply/rainfall/drought.htm>.

- Under “Drought Status Reports”, click on “drought map” on the right-hand side of the page. The color coded map displays the six drought regions in Massachusetts. Restrictions are implemented when a Drought Advisory, Watch, Warning or Emergency is announced through the DCR website.

Public Notice of Water Use Restrictions

Lunenburg 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 Lunenburg has already implemented water use restrictions that conform to the applicable restrictions and those restrictions are still in force.

9. Water Withdrawals that Exceed Baseline Withdrawal Volumes

Lunenburg's baseline withdrawal volume (Baseline) is 0.48 MGD or 175.2 MGY, the average withdrawal volume between 2003 and 2005.

Lunenburg shall perform an Offset Feasibility Study the first time its water withdrawals for a calendar year exceed its Baseline, beginning with calendar year **2011**. Lunenburg shall report its water withdrawal volumes annually in its ASR.

If Lunenburg is required to perform an Offset Feasibility Study (Study), Lunenburg shall:

- Within 60 days of the filing of an ASR indicating that a Study is required, submit a Study Scope of Work to MassDEP for approval;
- Within 6 months of MassDEP's approval of the Study Scope of Work, submit the completed Study to MassDEP for approval;
- MassDEP's approval of the Study Scope of Work and the completed Study will be presumed if MassDEP does not issue a written approval or denial of such submission within 60 days of the date submitted to MassDEP for approval.

If Lunenburg files a subsequent ASR indicating that withdrawals for a calendar year again have exceeded its Baseline, then Lunenburg shall:

- Implement the results of the Study;
- Document such implementation annually at the time it files its ASR; and
- Continue to implement the results of the Study as long as withdrawals exceed Baseline.

10. Requirement to Report Raw and Finished Water Volumes

Lunenburg 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.

11. Water Conservation Requirements

At a minimum, Lunenburg shall implement the following conservation measures forthwith and shall be in compliance with these measures on or before February 28, 2014, the permit renewal date. MassDEP recognizes that Lunenburg is currently implementing a number of these requirements. Compliance with the water conservation requirements shall be reported to MassDEP upon request or by February 28, 2014, 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, Lunenburg shall submit to MassDEP 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.	Lunenburg shall have repair reports available for inspection by MassDEP. Lunenburg 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. - Leaks of less than 3 gallons per minute at hydrants and appurtenances shall be repaired as soon as possible. - Leaks of less than 3 gallons per minute shall be repaired in a timely manner, but in no event more than 6 months from detection, except that leaks in freeway, arterial or collector roadways shall be repaired when other roadwork is being performed on the roadway. Leaks shall be repaired in accordance with Lunenburg’s priority schedule including leaks up to the property line, curb stop or service meter, as applicable. Lunenburg shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.
Metering	
1.	Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2.	Lunenburg 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 permit renewal date (February 28, 2014).
3.	Lunenburg 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 Lunenburg’s annual water budget to calibrate, repair, or replace meters as necessary.

Table 5 Continued: Minimum Water Conservation Requirements	
Pricing	
1.	Establish a water pricing structure that includes the full cost of operating the water supply system by the permit renewal date (February 28, 2014). 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.	Lunenburg 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.	Lunenburg 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"> • By January 1, 2011, submit to MassDEP a status report detailing which municipally owned public buildings in the Lunenburg's service area 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, 2015. • On or before January 1, 2015, Lunenburg shall ensure that all municipally owned public buildings in the service area are retrofitted. <p>Note municipally owned public buildings that may be scheduled for rehab or demolition after the January 1, 2015 deadline for completing the retrofits, may with MassDEP'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.</p>
Industrial and Commercial Water Conservation	
1.	Lunenburg shall review the use records for its industrial, commercial and institutional water users and develop an inventory of the largest water users. Lunenburg 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 permit renewal date (February 28, 2014). 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 MassDEP, Lunenburg 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, MassDEP will take whatever action it deems appropriate to promote the interests of the Water Management Act, including without limitation requiring Lunenburg to take additional actions to reduce industrial, commercial and institutional water use.

Table 5 Continued: Minimum Water Conservation Requirements
Lawn and Landscape
1. Adopt a water use restriction bylaw, ordinance or regulation by May 1, 2011 , to provide authority to implement and enforce water use restrictions required by Special Condition #7.
Public Education and Outreach
1. Develop and implement a Water Conservation Education Plan. Lunenburg's Water Conservation Education Plan shall be designed to educate Lunenburg's water customers of ways to conserve water. Without limitation, Lunenburg's plan may include the following actions: <ul style="list-style-type: none">• 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 MassDEP, Lunenburg 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.

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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 MassDEP 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 MassDEP 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 MassDEP 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 MassDEP approves such transfer in writing, pursuant to a transfer application on forms provided by MassDEP requesting such approval and received by MassDEP at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
6. **Duty to Report** The permittee shall complete and submit annually, on a form provided by MassDEP, all of the information required by said form including, without limitation, a certified statement of the withdrawal. Such report shall be received by MassDEP by the date specified on the form each year. Such report must be mailed or hand delivered to:

Department of Environmental Protection
Drinking Water Program
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 MassDEP. 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 MassDEP within twenty-one (21) days of the date of receipt of this permit. No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail or delivered by hand to the local water resources management official in the city or town in which the withdrawal point(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 MassDEP.

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 MassDEP 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

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

Appendix A – Residential Gallons Per Capita Day

I. Compliance Plan Requirement

If Lunenburg fails to document compliance with the RGPCD performance standard in its **2011** ASR, or in any ASR thereafter, then Lunenburg 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 an RGPCD Plan shall not constitute a return to compliance, nor shall it affect MassDEP's authority to take action in response to Lunenburg's failure to meet the performance standard.

If an RGPCD Plan is required, Lunenburg 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 Lunenburg'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 Lunenburg 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 Lunenburg fails to document compliance with the UAW performance standard in its **2011** ASR, or in any ASR thereafter, then Lunenburg 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 MassDEP's authority to take action in response to Lunenburg's failure to meet the performance standard.

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

II. Contents of an Unaccounted for Water Compliance Plan

Lunenburg 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 MassDEP;
- b. 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
- c. 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;
- d. 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") - within three years of filing the BMP UAW Plan
- e. implementation of monthly or quarterly billing within three years of filing the BMP UAW Plan; and
- f. 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.