



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

Western Regional Office • 436 Dwight Street, Springfield MA 01103 • 413-784-1100

DEVAL L. PATRICK
Governor

RICHARD K. SULLIVAN JR.
Secretary

TIMOTHY P. MURRAY
Lieutenant Governor

KENNETH L. KIMMELL
Commissioner

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

PERMIT NUMBER: 9P2-1-06-214.01 **RIVER BASIN:** Connecticut

PERMITTEE: City of Northampton Public Works
125 Locust Street
Northampton, MA 01060

ISSUANCE DATE: April 8, 1996

MODIFICATION DATE: April 6, 2011

EXPIRATION DATE: November 30, 2015

NUMBER OF WITHDRAWAL POINTS: 3

Groundwater: 0
Surface Water: 3

USE: Public Water Supply

DAYS OF OPERATION: 365

LOCATION(S): **Table 1: Withdrawal Point Identification**

Withdrawal Point Name	PWS Source ID Code
Mountain Street Reservoir	1214000-01S
Francis Ryan Reservoir	1214000-02S
West Whately Reservoir	1214000-03S

SPECIAL PERMIT CONDITIONS

1. Maximum Authorized Average Withdrawal Volume

This permit authorizes the City of Northampton Department of Public Works (NDPW) to withdraw water from the Connecticut River Basin at the rate described below in Table 2. The daily average withdrawal volume reflected by this rate is in addition to the 3.96 million gallons per day previously authorized to NDPW under Water Management Act Registration #106214.01 for withdrawal from the Connecticut River Basin. The permitted volume is expressed both as a daily average 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The Department of Environmental Protection (MassDEP) bases these withdrawal volumes on the raw water withdrawn from the authorized withdrawal points, and will use the raw water amount to assess compliance with the registered and permitted withdrawal volumes.

Table 2: Maximum Authorized Withdrawal Volumes

5-Year Periods		Total Raw Water Withdrawal Volumes			
		Permit		Permit + Registration	
		Daily Average (MGD)	Total Annual (MGY)	Daily Average (MGD)	Total Annual (MGY)
Period Three Years 11-15	12/1/2003 to 11/30/2008	0.81	295.65	4.77	1,741.05
Period Four Years 16-20	12/1/2008 to 11/30/2013	0.84	295.65	4.77	1,741.05
Period Five Years 21-22	12/1/2014 to 11/30/2015	0.84	295.65	4.77	1,741.05

NDPW’s baseline withdrawal for the purpose of triggering “Special Condition 1. Water Withdrawals that Exceed Baseline Withdrawal Volumes” is 3.96 mgd, or 1,445.4 mgy.

2. Maximum Authorized Daily Withdrawals from each Withdrawal Point

The maximum authorized daily withdrawal is 6.5 MGD, based on the Mountain Street Water Treatment Plant capacity. The Mountain Street Water Treatment Plant capacity was approved in a letter from MassDEP dated December 27, 2004.

3. Firm Yield of Surface Water Supplies

Based on the *Analysis of Safe Yield*, Metcalf & Eddy, Inc., October 1995, the firm yield of the three reservoir sources, operating together, is 5.04 MGD¹.

¹ Firm Yield is an average annual volume concept and is usually analogous to safe yield. Daily variation in demand, reservoir storage, and PWS operation results in an actual day-to-day withdrawal greater than or less than the average annual withdrawal limit. Special Condition 1 of this permit limits the average annual withdrawal to less than the system safe yield because PWS demand is below the system firm yield. This special condition limits the maximum daily withdrawal volume to less than the Northampton Water Treatment Plant capacity.

4. Water Supply Source Protection

Surface Water Protection

MassDEP records indicate that NDPW has a MassDEP-approved surface water supply protection plan and has implemented all required zoning and non-zoning controls in accordance with the requirements of 310 CMR 22.20C.

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

NDPW's performance standard for residential gallons per capita day (RGPCD) is 65 gallons. NDPW shall be in compliance with the performance standard by December 31, 2010. NDPW shall report its RGPCD water use annually in its Annual Statistical Report (ASR), and document compliance with this performance standard in its ASR for 2010 and each year thereafter. As part of its ASR submittals, NDPW shall report its RGPCD and the method of calculation used to derive that value 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.

6. Performance Standard for Unaccounted for Water

NDPW's performance standard for unaccounted for water (UFW) is 10% of overall water withdrawal. NDPW shall be in compliance with the performance standard by December 31, 2010. NDPW shall report its UFW annually in its ASR and document compliance with this performance standard in its ASR for 2010 and each year thereafter. As part of its ASR submittals, NDPW shall report the calculation used to derive that figure. See Appendix B for additional information on requirements if the performance standard for UFW is not met.

7. Limits on Nonessential Outdoor Water Use

NDPW shall limit nonessential outdoor water use, as defined in Appendix C of this permit, during the summer months as outlined below.

NDPW shall implement and enforce the required restrictions starting no later than May 1, 2009, and shall document its compliance with the limits on nonessential outdoor water use annually in its ASR for 2009, and each year thereafter.

NDPW has documented its the legal ability to implement and enforce mandatory water use restrictions required by this permit.

Nothing in this permit shall prevent NDPW from implementing water use restrictions stricter than those set forth in this permit condition.

Table 3A: Limits on Nonessential Outdoor Water Use When RGPCD is 65 or Below (based on the previous year's RGPCD as reported on the ASR and accepted by MassDEP)	
Action Trigger	Required Water Use Restrictions
<p>Drought Advisory or higher declared by the Massachusetts Drought Management Task Force. See: http://www.mass.gov/dcr/waterSupply/rainfall/drought.htm</p>	<ul style="list-style-type: none"> • No nonessential outdoor water use between 9 a.m. and 5 p.m. • Restrictions must be implemented and remain in place until drought level is returned to "Normal".
<p>In addition, when RGPCD is below 65 for the previous year, NDPW must choose one of the following options:</p>	
<p>Streamflow Trigger Option</p> <ul style="list-style-type: none"> • At a minimum, implement restrictions whenever stream flow falls below a mean daily streamflow of 0.50 cubic feet per second per square mile (cfsm) for three (3) consecutive days between May 1st and September 30th. • Stream flow shall be measured at the USGS streamgage #01171500 – Mill River at Northampton. At USGS stream gage #01171500, 0.50 cfsm is equal to 26.3 cubic feet per second (cfs). • Readings for USGS stream gage 01171500 can be accessed at: <p>http://waterdata.usgs.gov/ma/nwis/uv/?site_no=01171500</p>	<ul style="list-style-type: none"> • No nonessential outdoor water use between 9 a.m. and 5 p.m. • Once implemented, the restrictions shall remain in place until streamflow at USGS stream gage 01171500 meets or exceeds 0.50 cfsm (26.3 cfs) for seven (7) consecutive days. • See Appendix C for more detailed instructions on accessing mean daily streamflows.
<p>Calendar Trigger Option</p> <ul style="list-style-type: none"> • For ease of implementation, communities with RGPCD below 65 may choose to implement calendar based restrictions that, at a minimum, will be in place during times of low streamflow, e.g., water restrictions in place from May 1 through September 30. 	<ul style="list-style-type: none"> • No nonessential outdoor water use between 9 a.m. and 5 p.m.

Table 3B: on Limits Nonessential Outdoor Water Use When RGPCD is Above 65 (based on the previous year's RGPCD as reported on the ASR and accepted by MassDEP)	
Action Trigger	Required Water Use Restrictions
Drought Advisory or higher declared by the Massachusetts Drought Management Task Force. See: http://www.mass.gov/dcr/waterSupply/rainfall/drought.htm	<ul style="list-style-type: none"> • Nonessential outdoor water use allowed one day per week before 9 a.m. and after 5 p.m. • Restrictions must be implemented and remain in place until drought level is returned to "Normal".
In addition, when RGPCD is above 65 for the previous year, NDPW must choose one of the following options:	
Streamflow Trigger Option <ul style="list-style-type: none"> • At a minimum, implement restrictions whenever stream flow falls below a mean daily streamflow of 0.50 cubic feet per second per square mile (cfs) for three (3) consecutive days between May 1st and September 30th. • Stream flow shall be measured at the USGS stream gage #01171500 – Mill River at Northampton. At USGS stream gage #01171500, 0.50 cfs is equal to 26.3 cubic feet per second (cfs). • Readings for USGS stream gage 01171500 can be accessed at: http://waterdata.usgs.gov/ma/nwis/uv/?site_no=01171500 	<ul style="list-style-type: none"> • Nonessential outdoor water use allowed one day per week before 9 a.m. and after 5 p.m. • Once implemented, the restrictions shall remain in place until streamflow at USGS stream gage 01171500 meets or exceeds 0.50 cfs (26.3 cfs) for seven (7) consecutive days. • See Appendix C for more detailed instructions on accessing mean daily streamflows.
Calendar Trigger Option May 1 through September 30	<ul style="list-style-type: none"> • Nonessential outdoor water use allowed two days per week before 9 a.m. and after 5 p.m.

Calendar Trigger Option

If NDPW chooses the Calendar Trigger option, then NDPW shall notify its customers each year by April 15th of the restrictions and the consequences for failing to adhere to the restrictions. Notice must include:

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

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>

Stream Flow Trigger Option

If NDPW chooses the Stream Flow Trigger option, when streamflow falls below 0.50 cfs (26.3 cfs) at USGS stream gage 01171500 for three (3) consecutive days, NDPW shall notify its customers as soon as possible, and in any event no more than three days after implementation, of the restrictions and the consequences for failing to adhere to the restrictions. Notice must include:

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

Notice that restrictions have been put in place shall be filed 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 NDPW has already implemented water use restrictions that conform to the applicable restrictions and those restrictions are still in force.

Should the reliability of flow measurement at USGS stream gage 01171500 be so impaired as to question its accuracy, NDPW may request MassDEP's review and approval for the trigger mechanism to be transferred to another gage. MassDEP reserves the right to require use of a different gage.

8. Water Withdrawals that Exceed Baseline Withdrawal Volumes

NDPW's baseline withdrawal volume (Baseline) is 3.96 mgd or 1,445.4 mgy, the registered volume, because the average water use for the years 2003, 2004, and 2005 is less than the registered volume.

Beginning with calendar year 2010, the first time water withdrawals for a calendar year exceed the Baseline, NDPW shall perform an Offset Feasibility Study to evaluate options for offsetting increased water use. If NDPW's water use remains above the Baseline volume for greater than one year, NDPW shall implement offsets if feasible as determined by MassDEP. NDPW shall report its water withdrawal volumes annually in its ASR.

If NDPW is required to perform an Offset Feasibility Study (Study), NDPW 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 NDPW files a subsequent ASR indicating that withdrawals for a calendar year again have exceeded its Baseline, then NDPW 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.

9. Water Conservation Requirements

At a minimum, NDPW shall implement the following conservation measures forthwith and shall be in compliance with these measures on or before November 30, 2013. MassDEP recognizes that NDPW is currently implementing a number of these requirements. Compliance with the water conservation requirements shall be reported to MassDEP upon request or by November 30, 2013, 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 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, NDPW 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.	NDPW shall have repair reports available for inspection by MassDEP. NDPW 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. <p>Leaks shall be repaired in accordance with NDPW's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. NDPW shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.</p>
Metering	
1.	Calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2.	NDPW 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 November 30, 2013.
3.	NDPW 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 NDPW's annual water budget to calibrate, repair, or replace meters as necessary.
Pricing	
1.	Establish a water pricing structure that includes the full cost of operating the water supply system by the next November 30, 2013. 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

Table 5: Minimum Water Conservation Requirements	
	impacts, watershed protection) - into prices.
2.	NDPW 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.	NDPW shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code.
2.	Meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.
3.	Municipal buildings <ul style="list-style-type: none"> • By January 1, 2010, submit to MassDEP a status report detailing which municipally owned public buildings in the NDPW'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 November 30, 2013. • On or before November 30, 2013, NDPW 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 November 30, 2013 deadline for completing the retrofits, may with MassDEP's approval, be exempted from this condition based on the schedule of work. The status report required above should identify those buildings and schedule for repairs/demolition.</p>	
Industrial and Commercial Water Conservation	
1.	NDPW shall review the use records for its industrial, commercial and institutional water users and develop an inventory of the largest water users. NDPW 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 November 30, 2013. 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 Energy and 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, NDPW 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 NDPW to take additional actions to reduce industrial, commercial and institutional water use.
Lawn and Landscape	
1.	Adopt a water use restriction bylaw, ordinance or regulation by May 1, 2010, 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. NDPW's Water Conservation Education Plan shall be designed to educate NDPW's water customers of ways to conserve water. Without limitation, NDPW'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;

Table 5: Minimum Water Conservation Requirements

<ul style="list-style-type: none">• 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, NDPW 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

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

GENERAL PERMIT CONDITIONS (applicable to all permittees)

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date 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, 5 th 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 NDPW fails to document compliance with the RGPCD performance standard in its 2010 ASR, or in any ASR thereafter, then NDPW 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 MassDEP's authority to take action in response to NDPW's failure to meet the performance standard.

If a RGPCD Plan is required, NDPW 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 NDPW'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 NDPW 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

UFW 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 UFW 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 UFW, however, individual water main breaks can be discounted on a case-by-case basis. Any adjustment in the calculation of UFW made as a result of confidently estimated uses shall be documented as required in the ASR.

I. Compliance Plan Requirement

If NDPW fails to document compliance with the UFW performance standard in its 2010 ASR, or in any ASR thereafter, then NDPW must file with that ASR an Unaccounted for Water Compliance Plan (UFW 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 UFW Plan shall not constitute a return to compliance, nor shall it affect MassDEP's authority to take action in response to NDPW's failure to meet the performance standard.

If a UFW Plan is required, NDPW must:

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

II. Contents of an Unaccounted for Water Compliance Plan

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

At a minimum, all UFW 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.

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

Individualized UFW Compliance Plan

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

BMP UFW Compliance Plan

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

- a. within one year of filing the UFW Plan, complete a water audit and leak detection survey of the entire system and submit completed audit and survey to MassDEP;
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 UFW to 10% or less;
- b. implementation of a program that ensures the inspection and evaluation of all water meters and, as appropriate, the repair, replacement and calibration of water meters in accordance with the following schedule:
 - Large Meters (2" or greater) - within one year of filing the BMP UFW Plan
 - Medium Meters (1" or greater and less than 2") - within two years of filing the BMP UFW Plan
 - Small Meters (less than 1") – within three years of filing the BMP UFW Plan.
- c. implementation of monthly or quarterly billing within three years of filing the BMP UFW Plan; and
- d. within one year of filing the UFW 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.

Appendix C – Summer Limits on Withdrawals

I. Nonessential Outdoor Water Use

As stated in Special Condition #7, “nonessential outdoor water use” includes uses that are not required:

- a. for health or safety reasons;
- b. by regulation;
- c. for the production of food and fiber;
- d. for the maintenance of livestock; or
- e. 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).

Examples of **nonessential** outdoor water uses include:

- irrigation of lawns,
 - except by means of a hand-held hose outside the hours of 9AM and 5PM;
- washing of vehicles other than by means of a commercial car wash,
 - except as necessary for operator safety; and
- washing of exterior building surfaces, parking lots, driveways or sidewalks,
 - except as necessary to apply paint, preservatives, stucco, pavement or cement.

Examples of **acceptable** outdoor water uses outside the hours of 9 AM and 5 PM include:

- irrigation to establish a new lawn during the months of May and September;
- irrigation of public parks and recreational fields;
- irrigation of lawns, gardens, flowers, and ornamental plants via hand held hoses only.

II. Accessing Mean Daily Streamflows for the #01171500 – Mill River at Northampton Streamgage Via the USGS Website

The USGS Steamflow website default shows Massachusetts streamflows in real time, i.e., the most recent periodic, usually quarterly hourly, reading made at each USGS stream gauge. This real-time data can vary widely over the course of a day and is not used to trigger the Water Management Permit Summer Limits on Withdrawals.

To trigger the Summer Limits on Withdrawals, MassDEP relies on the mean daily streamflows. The mean daily cannot be calculated until after midnight each day when USGS computes the hourly data into a mean daily streamflow.

Go to <http://waterdata.usgs.gov/ma/nwis/current/?type=flow> for daily mean streamflow data at the #01171500 – Mill River at Northampton streamgage. If you need assistance navigating the USGS web site to find the mean daily streamflow, contact Tom Lamonte, Water Management Program staff hydrologist at the MassDEP Boston Office at (617) 292-5532, or Water Management Act Program staff at the Western Regional Office at (413) 755-2270.