



COMMONWEALTH OF MASSACHUSETTS
EXECUTIVE OFFICE OF ENVIRONMENTAL AFFAIRS
DEPARTMENT OF ENVIRONMENTAL PROTECTION
SOUTHEAST REGIONAL OFFICE
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Lieutenant Governor

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Secretary

ARLEEN O'DONNELL
Commissioner

January 18, 2007

Ralph M. Marks
Bourne Water District
P.O. Box 1447
Pocasset, MA 02559

RE: BOURNE – BRP/WMA
PWS ID # 4036000
Water Management Act
Permit #9P422036.01
Transmittal #W088309

Dear Mr. Marks,

Attached please find:

- Findings of Fact in Support of Permit #9P-4-22-036.01, and
- WMA Permit #9P-4-22-036.01 for the Bourne Water District.

The signature on this cover letter indicates formal issuance of the attached document.

If you have any questions regarding this information, please contact Leslie O'Shea at (508) 946-2837 or via e-mail at leslie.o'shea@state.ma.us.

Very Truly Yours,

Richard J. Rondeau, Chief
Drinking Water Program
Bureau of Resource Protection

Y:\DWP Archive\SERO-Bourne – WMA – FINAL PERMIT 9P422036.01-2007-01-18

ecc: Duane LeVangie, MassDEP
Scott Michaud, Cape Cod Commission

cc: Board of Water Commissioners, Bourne Water District

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

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

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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。

Findings of Fact in Support of Permit Issuance Water Management Permit # 9P-4-22-036.01

The Department of Environmental Protection (the Department) hereby issues the Bourne Water District a permit to withdraw water in accordance with the Water Management Act, Massachusetts General Law (MGL) Chapter 21G.

This permit supersedes the previous WMA Permit #9P-4-22-036.01 issued to Bourne Water District on February 1, 1992.

FINDINGS OF FACT

As required by MGL Chapter 21G, §11 and 310 CMR 36.00, the Department makes the following Findings of Fact in support of Bourne Water District's permit and includes herewith its reasons for approving the permit and for imposing the conditions of approval.

The Water Management Act requires the Department to issue permits that balance a variety of factors including:

- Reasonable protection of existing water uses, land values, investments and enterprises;
- Reasonable conservation consistent with efficient water use;
- Reasonable protection of public drinking water supplies, water quality, wastewater treatment capacity, waste assimilation capacity, groundwater recharge areas, navigation, hydropower resources, water-based recreation, wetland habitat, fish and wildlife, agriculture, flood plains; and
- Reasonable economic development and job creation.

To achieve the balance of competing water uses mandated by the Act, the Department has adopted the *Water Management Policy For Permit and Permit Amendment Applications and 5-Year Reviews*, Effective Date: April 2, 2004 (the Policy) and the *Guidance Document for Water Management Act Permitting Policy*, Effective Date: January 17, 2006 (Guidance), which can be found at:

<http://www.mass.gov/dep/water/laws/policies.htm#wmgt>.

The Policy and Guidance identify the Performance Standards to be applied to new Water Management permits, and existing permits at the time they are modified or amended.

In applying the Performance Standards the Department relies upon the determinations of relative stress established in the Massachusetts Water Resources Commission (WRC) report, *Stressed Basins in Massachusetts* (approved December 13, 2001). The Department also reviews other available research, including reports by the United States Geological Society (USGS), the Department's Water Quality Assessment Reports and other pertinent reports available for specific river basins.

Bourne Water District's sources are located in the Cape Cod Basin, which is an unassessed basin.

The map of stressed basins can be reviewed at:

<http://www.mass.gov/dep/water/laws/policies.htm#wmgt>

The Performance Standards for unassessed basins are:

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

The Department believes these standards are reasonable based on studies and data developed throughout the country, the 1996 AWWA Leak Detection and Water Accountability Committee report on water accountability (AWWA Journal; July 1996; pp. 108-111), and the fact that the 2004 average values for Massachusetts Public Water Suppliers were 67 RGPCD, and 13% UAW. Further, the Department believes that through effective water conservation and implementation of the WMA Permit conditions, Permittees may be able to reduce RGPCD below 80 gpd and UAW below 15%.

However, in areas that experience seasonal changes in population, as is the case in many Cape Cod communities, calculation of an accurate RGPCD is difficult and has not been standardized to date. The Department is currently evaluating methods to achieve this.

The Guidance provides implementation and enforcement guidelines, including:

- timelines for compliance with the Performance Standards;
- procedures and requirements for Permittees who fail to comply with the Performance Standards within those timelines.

The Bourne Water District has submitted a BRP WM03 permit application requesting a 0.12 MGD (million gallons per day) increase in authorized volume. In 2004, Bourne Water District absorbed the South Sagamore Water District by an act of the Legislature under MGL Chapter 135 of the Acts of 2004. Bourne has requested the permit increase to supply the demand of the South Sagamore service area. The 0.12 MGD is equal to the water needs forecast approved by the WRC for the South Sagamore service area through 2010.

The Department has completed both the review of the permit application and, in conjunction, the 5-Year compliance review of Bourne Water District's existing permit in the Cape Cod Basin. Bourne Water District's WMA permit has been conditioned to reflect the increase in authorized volume, as well as the standards of the WMA policy. Based on review of the file and the results of the wetlands inspections, the requirement for monitoring adjacent to Well #6 has been deleted as a permit condition.

Findings of Fact for Specific Permit Conditions

Special Conditions 1, Authorized Withdrawal Volumes: this permit authorizes Bourne Water District withdraw 288.35 MGY (million gallons per year), or an average of 0.79 MGD (million gallons per day), for the period of January 18, 2007 through November 30, 2010.

This permitted volume is in addition to Bourne Water District's Registered volume.

Summary of Barnstable Fire District's WMA Authorizations	
WMA Authorization	Volume Authorized
WMA Registration #4-22-036.02	0.73 MGD (266.45 MGY)
WMA Permit #9P2-4-22-036.01	0.79 MGD (288.35 MGY)
Total WMA Authorization	1.52 MGD (554.80 MGY)

In 2005, Bourne Water District's average daily withdrawal from the Cape Cod Basin was 1.46 MGD.

Bourne Water District has an agreement to purchase water from the Upper Cape Regional Water Supply Cooperative. Bourne Water District's overall water use, whether through withdrawal from its own registered and permitted sources and/or from a purchase of water from the Upper Cape Cooperative, is limited to the volumes authorized in this condition.

Special Condition 2, Maximum Authorized Daily Withdrawal Rates: reflect the approved Zone II rates for each permitted well in the basin. Withdrawals in excess of these maximum daily rates require approval from the Department.

Special Condition 3, Zone of Contribution Delineations: notes the Department's approval of Bourne Water District's Zone II delineations; no additional delineations are required as a condition of this permit.

Special Condition 4, Wellhead Protection: notes the approval of Bourne Water District's wellhead protection program; no additional wellhead protection work is required as a condition of this permit.

Special Condition 5, Performance Standard for Residential Gallons Per Capita Day Water Use: as noted above, Bourne Water District's standard for RGPCD is 80 gpd (gallons per day) or less. Bourne Water District reported an RGPCD of 75 gpd for the year ending 2005.

As noted above, in areas that experience seasonal changes in population, as is the case in most Cape Cod communities, calculation of an accurate RGPCD is difficult and has not been standardized to date.

Special Condition 6, Performance Standard for Unaccounted for Water: as noted above, Bourne Water District's standard for UAW is 15% or less. Bourne Water District reported an UAW of 9.6% for year ending 2005.

Special Condition 7, Water Conservation Requirements: incorporates the Water Conservation Standards for the Commonwealth of Massachusetts approved by the WRC in July 2006.

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

Special Condition 9, General Permit Conditions: outlines the general conditions applicable to all WMA Permittees.

The Department's Findings of Fact and summary of Permit Conditions are not intended to, and should not be construed as, modifying any of the Permit conditions. In the event of any conflict or ambiguity between the Findings of Fact and the Permit, the Permit language shall control.

WATER WITHDRAWAL PERMIT
MGL c 21G

This permit is approved pursuant to the Massachusetts Water Management Act (WMA) 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: 9P-4-22-036.01 **RIVER BASIN:** Cape Cod

PERMITTEE: Bourne Water District

EFFECTIVE DATE: January 18, 2007*

EXPIRATION DATE: November 30, 2010

*This Permit supersedes WMA Permit #9P-4-22-036.01 issued to Bourne Water District on February 1, 1992.

TYPE AND NUMBER OF WITHDRAWAL POINTS: Groundwater: 2
Surface Water: 0

USE: Public Water Supply

DAYS OF OPERATION: 365

AUTHORIZED WITHDRAWAL POINTS:

Table 1: Withdrawal Point Identification	
Source	Source Code
Well #5	4036000-05G
Well #6	4036000-06G

SPECIAL CONDITIONS – PERMIT #9P-4-22-036.01

1. Authorized Annual Average Withdrawal Volume from the Cape Cod Basin

This permit authorizes the Bourne Water District to withdraw water from the Cape Cod Basin at the rate described in Table 2 below. The volume reflected by this rate is in addition to the 0.73 MGD previously authorized to the Bourne Water District under WMA Registration #422036.02 for withdrawal from the Cape Cod Basin. The permitted volume is expressed both as an 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 (Department) will use the raw water withdrawal volume from all authorized withdrawal points to assess compliance with the registered and permitted withdrawal volumes.

Table 2: Authorized Withdrawal Volumes – Cape Cod Basin					
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 2-5	2/1/1992 to 11/30/1995	0.38	138.70	1.11	405.15
Period Two Years 6-10	12/1/1995 to 11/30/2000	0.60	219.00	1.33	485.45
Period Three Years 11-15	12/1/2000 to 11/30/2005	0.64	233.60	1.37	500.05
Period Four Year 16	12/1/2005 to 1/17/2007	0.67	244.55	1.40	511.00
Period Four Years 17-20	1/18/2007 to 11/30/2010	0.79	288.35	1.52*	554.80*

- Bourne Water District’s overall water use, whether through withdrawal from its own registered and permitted sources, and/or from a purchase of water from the Upper Cape Regional Water Supply Cooperative, is limited to the volumes authorized in this condition.

* Volume noted is in effect only if no change to registered volume occurs after the January 1, 2008 date of expiration of all WMA Registrations.

2. Maximum Daily Withdrawal Rates from the Authorized Cape Cod Basin Withdrawal Points

Withdrawals from Bourne Water District’s permitted Cape Cod Basin sources are not to exceed the approved maximum daily rates listed in Table 3 below without advance approval from the Department.

Table 3: Maximum Daily Withdrawal Volume	
Source	Maximum Daily Rate
Well #5 - 4036000-05G	700 gpm (1.01 MGD)
Well #6 - 4036000-06G	700 gpm (1.01 MGD)

3. Zone II Delineation

Department records show that all of Bourne Water District's sources, both registered and permitted, have approved Zone II delineations, therefore, no further Zone II work is required.

4. Wellhead Protection

Department records indicate that all of Bourne Water District's sources, both registered and permitted, meet the requirements of 310 CMR 22.21(2), therefore, no further wellhead protection work is required.

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

Bourne Water District's performance standard for residential gallons per capita day (RGPCD) is 80 gallons or less.

Bourne Water District's RGPCD shall be reported in its Annual Statistical Report (ASR), along with the calculation used to derive the RGPCD, the source of the data used to establish the service population and the year in which this data was developed.

Appendix A provides the additional requirements if the Performance Standard for RGPCD is not met in any year.

6. Performance Standard for Unaccounted for Water

Bourne Water District's Performance Standard for Unaccounted for Water (UAW) is 15% or less of overall water withdrawal.

Bourne Water District's UAW shall be reported in its Annual Statistical Report (ASR), along with the calculation used to derive the UAW.

Appendix B provides the additional requirements if the Performance Standard for UAW is not met in any year.

7. Water Conservation Requirements

At a minimum, Bourne Water District shall implement the following conservation measures forthwith and shall be in compliance with these measures on or before the end date of this permit, November 30, 2010. The Department recognizes that Bourne Water District is currently implementing a number of these requirements. Compliance with the water conservation requirements shall be reported to the Department upon request, unless otherwise noted below.

Table 5: Minimum Water Conservation Requirements

Table 5: Minimum Water Conservation Requirements	
Leak Detection	
1.	At a minimum, Bourne Water District shall conduct leak detection of the entire system every three years.
2.	Bourne Water District shall conduct leak detection of the entire distribution system within one year whenever the percentage of UAW 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, Bourne Water District shall submit to the Department a report detailing the 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.	Bourne Water District shall conduct field surveys for leaks and repair programs in accordance with the <u>AWWA Manual 36</u> .
4.	<p>Bourne Water District shall have repair reports available for inspection by the Department. Bourne Water District shall establish a schedule for repairing leaks that is at least as stringent as the following:</p> <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 Bourne Water District's priority schedule including leaks up to the property line, curb stop or service meter, as applicable. Bourne Water District shall have water use regulations in place that require property owners to expeditiously repair leaks on their property.</p>
Metering	
1.	Bourne Water District shall calibrate all source and finished water meters at least annually and report date of calibration on the ASR.
2.	Bourne Water District reports its system is 100% metered. All water distribution system users shall have properly sized service lines and meters that meet AWWA calibration and accuracy performance standards as set forth in <u>AWWA Manual M6 – Water Meters</u> , by the permit end date of November 30, 2010.
3.	Bourne Water District 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 Bourne Water District's annual water budget to calibrate, repair, or replace meters as necessary.

Table 5: Minimum Water Conservation Requirements

Table 5: Minimum Water Conservation Requirements	
<i>Pricing</i>	
1.	Bourne Water District shall maintain a water pricing structure that includes the full cost of operating the water supply system. Evaluate rates at a minimum 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.	Bourne Water District shall not use decreasing block rates. Decreasing block rates which charge lower prices as water use increases during the billing period, are not allowed by M.G.L. Chapter 40 Section 39L.
<i>Residential and Public Sector Conservation</i>	
1.	Bourne Water District shall meet the standards set forth in the Federal Energy Policy Act, 1992 and the Massachusetts Plumbing Code.
2.	Bourne Water District shall meter or estimate water used by contractors using fire hydrants for pipe flushing and construction.
3.	By January 1, 2008, Bourne Water District shall submit to the Department a report detailing which municipally owned public buildings within the District'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 not been retrofitted. By January 1, 2009, Bourne Water District shall demonstrate to the Department's satisfaction that a "Best Effort" was made by the Bourne Water District to have the Town of Bourne retrofit its municipally owned public buildings within the District's service area.
<i>Industrial and Commercial Water Conservation</i>	
1.	Bourne Water District shall review the use records for its industrial, commercial and institutional water users and develop an inventory of the largest water users. Bourne Water District 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 end date of November 30, 2010. 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). OTA offers a range of assistance and information to help facilities improve water use efficiency and reduce wastewater discharge. OTA can be contacted at (617) 626-1060 or at www.mass.gov/envir/ota .
2.	Upon request by the Department, Bourne Water District shall report on industrial, commercial and institutional water conservation including the results of its review of water use records for industrial, commercial and institutional water users, the inventory of the largest water users, copies of any outreach materials distributed to industrial, commercial and institutional water users, and to the extent practical, a summary of water use reductions or savings that have resulted. Upon receipt of this report, the Department will take whatever action it deems appropriate to promote the interests of the Water Management Act, including without limitation requiring Bourne Water District to take additional actions to reduce industrial, commercial and institutional water use.

Table 5: Minimum Water Conservation Requirements

<i>Lawn and Landscape</i>
1. Bourne Water District shall continue to implement and enforce its water use ordinance as necessary.
<i>Public Education and Outreach</i>
1. Bourne Water District shall develop and implement a Water Conservation Education Plan designed to educate the District's water customers on ways to conserve water. Without limitation, Bourne Water District'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• Provide multilingual materials as needed.
2. Upon request of the Department, Bourne Water District shall report on its public education and outreach effort, including a summary of activities developed for specific target audiences, any events or activities sponsored to promote water conservation and copies of written materials.

8. Reporting Requirements

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

9. General Permit Conditions (applicable to all Permittees)

No withdrawal in excess of 100,000 gallons per day over the registered volume (if any) shall be made following the expiration of this permit, unless before that date the Department has received a renewal permit application pursuant to 310 CMR 36.00.

1. **Duty to Comply** The Permittee shall comply at all times with the terms and conditions of this permit, the Act and all applicable State and Federal statutes and regulations.
2. **Operation and Maintenance** The Permittee shall at all times properly operate and maintain all facilities and equipment installed or used to withdraw up to the authorized volume so as not to impair the purposes and interests of the Act.

3. **Entry and Inspections** The Permittee or the Permittee's agent shall allow personnel or authorized agents or employees of the Department to enter and examine any property for the purpose of determining compliance with this permit, the Act or the regulations published pursuant thereto, upon presentation of proper identification and an oral statement of purpose.
4. **Water Emergency** Withdrawal volumes authorized by this permit are subject to restriction in any water emergency declared by the Department pursuant to MGL c 21G ss 15-17, MGL c 150 ss 111, or any other enabling authority.
5. **Transfer of Permits** This permit shall not be transferred in whole or in part unless and until the Department approves such transfer in writing, pursuant to a transfer application on forms provided by the Department requesting such approval and received by the Department at least thirty (30) days before the effective date of the proposed transfer. No transfer application shall be deemed filed unless it is accompanied by the applicable transfer fee established by 310 CMR 36.37.
6. **Duty to Report** The Permittee shall submit annually, on a form provided by the Department, a certified statement of the withdrawal. Such report is to be received by the Department by the date specified by the Department. Such report must be mailed or hand delivered to the address specified on the report form.
7. **Duty to Maintain Records** The Permittee shall be responsible for maintaining withdrawal records as specified by this permit.
8. **Metering** Withdrawal points shall be metered. Meters shall be calibrated annually. Meter shall be maintained and replaced as necessary to ensure the accuracy of the withdrawal records.

APPEAL RIGHTS AND TIME LIMITS

This permit is a decision of the Department. Any person aggrieved by this decision may request an adjudicatory hearing. Any such request must be made in writing, by certified mail and received by the Department within twenty-one (21) days of the date of receipt of this permit.

No request for an appeal of this permit shall be validly filed unless a copy of the request is sent by certified mail, or delivered by hand to the local water resources management official in the community in which the withdrawal point is located; and for any person appealing this decision, who is not the applicant, unless such person notifies the permit applicant of the appeal in writing by certified mail or by hand within five (5) days of mailing the appeal to the Department.

CONTENTS OF HEARING REQUEST

310 CMR 1.01(6)(b) requires the request to include a clear and concise statement of the facts which are the grounds for the request and the relief sought. In addition, the request must include a statement of the reasons why the decision of the Department is not consistent with applicable rules and regulations, and for any person appealing this decision who is not the applicant, a clear and concise statement of how that person is aggrieved by the issuance of his 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 municipality (or municipal agency), county, district of the Commonwealth of Massachusetts, or a municipal housing authority.

WAIVER

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

Appendix A – Residential Gallons Per Capita Day

I. RGPCD Compliance Plan Requirement

If Bourne Water District fails to document compliance with the RGPCD performance standard in any year's ASR, then Bourne Water District must file with that ASR a Residential Gallons Per Capita Day Compliance Plan (RGPCD Plan) which shall:

1. meet the requirement set forth below in Section II;
2. include measures to be implemented to meet the performance standard, and
3. include the schedule for implementing such measures.

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

If a RGPCD plan is required, Bourne Water District must:

1. submit information and supporting documentation sufficient to demonstrate compliance with its RGPCD plan annually at the time it files its ASR, and
2. continue to implement the RGPCD plan until it complies with the performance standard and such compliance is documented in Bourne Water District'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:

1. description of the actions taken during the prior calendar year to meet the performance standard;
2. analysis of the cause of the failure to meet the performance standard;
3. description and schedule of the actions that will be taken to meet the performance standard, and
4. 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:

1. a program that provides water saving devices such as faucet aerators and low flow shower heads at cost;
2. a program that provides rebates or other incentives for the purchase of low water use appliances (washing machines, dishwashers, and toilets), or
3. 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 Bourne Water District 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:

1. the use of an increasing block water rate or a seasonal water rate structure as a tool to encourage water conservation;
2. a program that provides rebates or other incentives for the installation of moisture sensors or similar climate related control technology on automatic irrigation systems;
3. 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;
4. 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;
5. the implementation of a program to encourage the use of cisterns or rain barrels for outside watering, and
6. the implementation of monthly or quarterly billing.

Appendix B – Unaccounted for Water

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. UAW Compliance Plan Requirement

If Bourne Water District fails to document compliance with the UAW performance standard in its 2008 ASR, or in any year's ASR thereafter, then Bourne Water District must file with that ASR a UAW Compliance Plan (UAW Plan) which shall:

1. meet the requirements set forth below in Section II;
2. include measures to be implemented to meet the performance standard, and
3. include the schedule for implementing such measures.

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

If a UAW plan is required, Bourne Water District must:

1. submit information and supporting documentation sufficient to demonstrate compliance with its UAW plan annually at the time it files its ASR, and
2. continue to implement the UAW plan until it complies with the performance standard and such compliance is documented in Bourne Water District's ASR for the calendar year in which the standard is met.

II. Contents of an UAW Compliance Plan

Bourne Water District 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:

1. description of the actions taken during the prior calendar year to meet the applicable performance standard;
2. analysis of the cause of the failure to meet the performance standard;
3. description and schedule of the actions that will be taken to meet the performance standard, and
4. 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:

1. within one year of filing the UAW plan, complete a water audit and leak detection survey of the entire system and submit completed audit and survey to the Department;
2. 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 Bourne Water District's UAW to 10% or less;
3. implementation of a program that ensures the inspection and evaluation of all water meters and, as appropriate, the repair, replacement and calibration of water meters in accordance with the following schedule:
 - Large Meters (2" or greater) - within one year of filing the BMP UAW plan
 - Medium Meters (1" or greater and less than 2") - within two years of filing the BMP UAW plan
 - Small Meters (less than 1") - by the permit end date of November 30, 2010;
4. implementation of monthly or quarterly billing by the permit end date of November 30, 2010, and
5. 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.