



COMMONWEALTH of VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY
PERMIT

TO WITHDRAW GROUNDWATER
(FOR USE IN GROUNDWATER MANAGEMENT AREAS)

Permit Number: GW0005001
Effective Date: FEBRUARY 15, 2014
Expiration Date: FEBRUARY 15, 2024

Pursuant to Section 62.1-256 of the Ground Water Management Act of 1992 (Chapter 25, Title 62.1 of the Code of Virginia) and the Ground Water Withdrawal Regulation (9 VAC 25-610-10 et seq.), the STATE WATER CONTROL BOARD hereby authorizes

Permittee Town of West Point

Address 329 6th Street, P.O. Box 152

West Point, Virginia 23181-0152

Facility Town of West Point Public Water System

to withdraw and use groundwater in accordance with this permit and the application received May 07, 2010 and subsequently amended.

The permittee is authorized to withdraw 185,000,000 gallons per year.

The permittee shall comply with all requirements contained on this cover page, Part I - Permit Standards, Limitations, and Conditions, Part II - Special Conditions, the Ground Water Management Act of 1992 (Chapter 25, Title 62.1 of the Code of Virginia), and the Ground Water Withdrawal Regulation (9 VAC 25-610-10 et seq.). Nothing in this permit or this regulation shall be construed to relieve the permittee of the duty to comply with all applicable Federal and State statutes and regulations.

The permitted withdrawal will be used to supply potable water to a mixed community of industrial, commercial and residential groups that lie within the service area of the Town of West Point Water System in accordance with the usage patterns identified in the groundwater permit application. Other beneficial uses are not authorized by this permit.

Any non-compliance with permit conditions, the Ground Water Withdrawal Regulation 9 VAC 25-610-10 et seq. or the Ground Water Management Act of 1992 (Chapter 25, Title 62.1 of the Code of Virginia) is a violation of the regulation and law, and is grounds for enforcement action, permit termination, revocation, amendment, or denial of a permit renewal application.

By direction of the STATE WATER CONTROL BOARD, this Permit is granted by:

Signed 
For the STATE WATER CONTROL BOARD

Date 2/21/14

DRAFT

Part I
Permit Standards, Limitations and Conditions

1. The withdrawal of groundwater shall originate from the following withdrawal point(s):

<u>Owner Well Name/#</u>	<u>DEQ Well#</u>	<u>Depth</u>	<u>Aquifer</u>	<u>Latitude</u>	<u>Longitude</u>
WestPoint PW #1	150-025	375	U.P.	37°31'51.35"	76°47'49.45"
WestPoint PW #2	150-016	501	U.P.	37°33'24.20"	76°47'45.70"
WestPoint PW #3	150-156	725	U.P. & M.P.	37°32'42.37"	76°47'35.63"

U.P. – Upper Potomac Aquifer M.P. – Middle Potomac Aquifer.

2. Withdrawals from the well or well system are limited as follows:

In a calendar month: Total pumpage from these wells shall not exceed **15,416,667** gallons.

The permittee shall report any exceedance of this monthly withdrawal limit by fifth (5th) working day of the month following the month of exceedance.

3. Water use from each well and total system water use shall be recorded monthly and reported on forms provided by the Department of Environmental Quality (Department or DEQ) to the Groundwater Withdrawal Permitting Program by the tenth day of each January, April, July and October for the respective previous standard quarter. Records of water use shall be maintained by the permittee as required in Section 9 VAC 25-610-130 (F).
4. Permitted users shall install in-line totalizing flow meters to read gallons, cubic feet or cubic meters on each permitted well prior to beginning the permitted use. Meters shall be tested in accordance with American Water Works Association (AWWA) Manual M-6, "Water Meters - Selection, Installation, Testing, and Maintenance". Such meters shall produce volume determinations within plus or minus 10% of actual flows. A defective meter or other device must be repaired or replaced within 30 days. A defective meter is not grounds for not reporting withdrawals. During any period when a meter is defective generally accepted engineering methods shall be used to estimate withdrawals and the period during which the meter was defective must be clearly identified in groundwater withdrawal reports.
5. Each permitted well shall be equipped in a manner such that water levels can be measured during pumping and nonpumping periods without dismantling any equipment. Any opening for tape measurement of water levels shall have an inside diameter of 0.5 inches and be sealed by a removable plug or cap. The permittee shall provide a tap for taking raw water samples from each permitted well.
6. The permittee shall not place a pump or water intake device lower than the top of the uppermost confined aquifer that a well utilizes as a groundwater source or lower than the bottom of an unconfined aquifer that a well utilizes as a groundwater source.

7. Each well that is included in this groundwater withdrawal permit shall have affixed to the well casing, in a prominent place, a permanent well identification plate that records the DEQ well identification number, the groundwater withdrawal permit number, the total depth of the well and the screened intervals in the well, at a minimum. Such well identification plates shall be in a format specified by the Department and are available from the Department.
8. The Water Conservation and Management Plan (Plan) as described in the application received May 07, 2010 and subsequently amended is incorporated into this permit and included as Attachment A. Requirements in the Plan shall have the same effect as any condition contained in this permit and may be enforced as such. Records of activities conducted pursuant to the Plan shall be submitted to DEQ upon request.
9. This permit may be reopened for the purpose of amending the conditions of the permit to meet new regulatory standards duly adopted by the Board.
10. A new permit application must be submitted two hundred seventy (270) days before the expiration date of this permit.
11. A new permit application must be submitted two hundred seventy (270) days prior to any proposed modification to this permit which will result in an increase of withdrawal above permitted limits or violate the terms and conditions of this permit.
12. This permit may be reopened for amendment, transfer, or revocation as described in Part 6 of the Ground Water Withdrawal Regulation (9 VAC 25-610-290 through 9 VAC 25-610-340).
13. The permittee must notify the Department in writing and obtain staff approval of any change in the status, construction or pump setting of wells included in this permit. A revised GW-2 form must be submitted to the Department within 30 days in the event that the physical construction of a well is altered or the pump setting in the well is changed.
14. The permittee must notify the Department in writing of any change of contact person, address, or phone number that is contained in the application received May 07, 2010 and subsequently amended.
15. Upon presentation of credentials the Board or Department, or any duly authorized agent, shall have the power to enter, at reasonable times and under reasonable circumstances, any establishment or upon any property, public or private, located anywhere in the Commonwealth for the purposes of obtaining information, conducting surveys or inspections, or inspecting wells and springs to ensure compliance with any permits, standards, policies, rules, regulations, rulings and special orders which the Board or Department may adopt, issue or establish to carry out the provisions of the Ground Water Management Act of 1992 and the Ground Water Withdrawal Regulation.

Part II
Special Conditions

1. This permit includes withdrawals from three wells that were previously controlled by permit No. GW0005000. Two of the three wells were also formerly controlled by Certificate Nos. EV0020200 and EV0020300.
2. The Mitigation Plan as described in the application received May 07, 2010 and subsequently amended is incorporated into this permit and included as Attachment B. Requirement in the Mitigation Plan shall have the same effect as any condition contained in this permit and may be enforced as such.
3. This permit allows daily withdrawals consistent with the requirements and conditions of the Virginia Department of Health Waterworks Operation Permit (WWOP) #4101900. The permittee shall submit copies of WWOP and associated Engineering Description Sheets to DEQ within 30 days of an upgrade.
4. By January 10 of each year, the permittee shall submit an annual Water Conservation and Management Plan Status Report to the Department of Environmental Quality, Groundwater Withdrawal Permitting Program. The report shall include discussions as to the status (updates, successes and failures, future plans, etc.,) for the various objectives incorporated in the plan (Attachment A of this permit, Section II through VI) and make suggestions for changes as necessary to ensure water use rates are reduced or are being maximized.
5. The existing pump settings in the individual wells are as follows:

<u>Owner Well Name/#</u>	<u>DEQ Well#</u>	<u>Existing Pump Setting in ft. (bgl)</u>
WestPoint PW #1	150-025	206.7
WestPoint PW #2	150-016	264.1
WestPoint PW #3	150-156	210

Any change in the depth of pump settings in the well shall be submitted to the Department for approval as described in Part I, Condition 13 of the permit

6. The maximum pump setting depth in the wells is restricted as follows:

<u>Owner Well Name/#</u>	<u>DEQ Well#</u>	<u>Existing Pump Setting in ft. (bgl)</u>
WestPoint PW #1	150-025	320
WestPoint PW #2	150-016	350
WestPoint PW #3	150-156	360

The permittee shall not place a pump or water intake devise lower than the above maximum pump depths in these wells as explained in Part I, Condition 6 of the permit. The maximum pump settings may be adjusted if the basis used for estimating the depth of the top of the Upper Potomac Aquifer was incorrect. A minor amendment to this permit may be made to reflect the change.

7. A minor amendment to this permit must be made to include additional wells. Additional wells may be permitted under a minor amendment if the total withdrawal does not exceed the permitted amount contained in this permit, the withdrawal from all additional wells originates from the Middle Potomac Aquifer, and the location of the wells is approved by DEQ staff prior to construction. Additionally, a complete suite of geophysical logs (Spontaneous Potential, Single Point Resistance, 16/64 Short and Long Normal, Natural Gamma) shall be submitted to the DEQ Richmond Office prior to setting the pump intake. All geophysical logs and well completion reports shall be referenced by the DEQ well number.
8. This permit may be reopened, if the issuance of groundwater withdrawal permits required by the Ground Water Management Act of 1992 for existing permitted users indicates that the basis used for predicting compliance with regulatory drawdown criteria was inaccurate.

ATTACHMENT A
Water Conservation & Management Plan

Water Conservation and Management Plan

I. INTRODUCTION

The Town of West Point (Town) is acutely aware of the need to conserve and manage effectively its valuable water resources. Every effort must be made to efficiently utilize currently available supplies, thus reducing the need for additional sources.

The following constitutes the Town's Water Conservation and Management Plan, which is designed to optimize the Town's existing water resources and to reduce its need for future additional water supplies.

II. WATER CONSERVATION DURING NORMAL CONDITIONS

The following outlines specific water conservation requirements during normal supply conditions. The following items are addressed:

- A. Flow Rates for Plumbing Fixtures . (These standards conform to the requirements of the Virginia Uniform Statewide Building Code, as amended).

The Town has implemented the Comprehensive Water Conservation Program as promulgated by the Commonwealth of Virginia via the Virginia Uniform Statewide Building Code. The Virginia Uniform Statewide Building code requirements are consistent with the Federal Energy Policy Act of 1992.

The Public Works Department (PW) staff will continue to work very closely with the inspections divisions to ensure that low flow devices and fixtures are utilized in new construction and renovations in existing structures. In addition, they will evaluate incentive programs to encourage existing households to retrofit their homes with low flow devices.

- B. Public Lavatories

Lavatories in restrooms of public facilities shall be equipped with standard valve or spring self-closing faucets having outlet devices which limit the flow rate to a maximum of 0.5 gallons per minute or self-closing metering valves which limit flow to 0.25 gallons per cycle.

- C. Continuous Flow Equipment

In all new construction and all repair or replacement of continuous flow devices, any water connector device or appliance requiring a continuous flow of five (5) gallons per minute or more, and not covered above, shall be equipped with a recycling system approved by the Department of Public Works.

- D. Leak Repairs

The owner of any residential unit, commercial or industrial establishment who is found to be an excessive user of water due to leakage from water lines or plumbing fixtures on the premises, and who fails to repair and stop such leakage during a reasonable period of time after notice by the PW, shall be subject to termination of service.

- E. Water Reuse Evaluation

In all new commercial or industrial construction, an evaluation for potential water reuse options will be conducted by the owner and the results submitted to the PW at the time the construction plans are submitted for approval. In all instances where it is determined by the PW to be technically feasible, such modifications will be incorporated into the design prior

to approval by the Town.

F. Waste of Water (General)

No person shall permit the water to run from any hydrant, meter, or fixture without proper care to prevent waste.

III. WATER CONSERVATION DURING EMERGENCY CONDITIONS

The Town agrees that the appropriate portions of the following restrictions will be implemented, and other restrictions may be implemented, whenever requirements for mandatory water use restrictions during water shortage emergencies are declared by the Director of the Department of Environmental Quality (DEQ).

Sections 10 of the Regional Water Supply Plan for Counties: Essex, King and Queen, King William, Mathews, and Middlesex, and Towns Tappahannock, Urbanna, and West Point outlines specific water conservation requirements during emergency supply and drought conditions.

IV. WATER REUSE OPTION - EVALUATION

There are currently no water reuse opportunities in the Town of West Point.

V. PUBLIC EDUCATION PROGRAM

A key factor in reducing excessive water use by the general public is the development of a comprehensive education program. It is extremely important to educate water consumers on the various aspects of the water industry including information on how drinking water is produced and why we need to conserve. By understanding the environment that water purveyors are faced with on a daily basis, the public will have a keener appreciation of water and the need to become directly involved in conservation activities.

In order to achieve this goal, the Town has selected the following items for the establishment of a comprehensive public education program:

- A. Bill Inserts - On a regular basis, inserts will be added to the outgoing water bills. These inserts will include water conservation techniques and leak detection strategies. This method can be useful in showing the consumer how water conservation is a “win-win” deal for both the water customer and PW. Consumers benefit by having lower water bills and the Town benefits by the preservation of its water resources.
- B. Brochures - During public events water conservation brochures and pamphlets will be available for public distribution. These same items will be available on a continuous basis at the PW office, the main entrance to the Town municipal buildings, and the libraries.
- C. Video Tapes - A variety of water conservation video tapes will be available from the Town, to be checked out by the public free of charge. These tapes can be used for classroom instruction in schools or for other types of public meetings.
- D. Water Conservation Hot Line - A telephone number will be available for residents to have their water conservation questions answered by a knowledgeable city employee. In addition, requests for information on various water conservation topics, speakers, or other personal contacts will be coordinated through this function.
- F. News Releases - Greater emphasis will be placed on keeping the public informed through news releases by the print media or through radio and television. This method of public education will not be used only during emergencies (i.e. drought) but on a regular basis to keep the public informed on water related issues. The Town has municipal access channels which will continue to be used on a regular basis to provide the public with this type of information, with water conservation being in the forefront.
- G. School Education - Programs will be available for presentation at local schools. These programs will be targeted to representative age groups and will be given by Town staff and assistance will be available to teachers who wish to develop their own water awareness program. Treatment plant tours are currently available as part of this program for elementary, middle and high school classes.
- H. Speaking Engagements – Town staff will be available for speaking engagements or

personal contacts. These individuals will work with local clubs and organizations to develop public awareness for the need to conserve water along with other topics related to the water supply industry.

VI. WATER LOSS REDUCTION PROGRAM

A. Water Loss Audit

At the beginning of each fiscal year (July 1), a water loss audit will be conducted by the Town to determine the volume and nature of lost and unaccounted for water (LAW) within the water supply system. This audit will encompass the main distribution system. The primary purpose of this audit is to identify sources of water demand on the system which would normally escape detection through normal metering practices. Examples of this type of demand are:

Fire Fighting	Main Flushing
Theft	Meter Errors
Main Breaks	Equipment Calibration
Tank Drainage	Leak Detection

Fire Fighting – Town Fire Departments will submit to the Customer Service Division, Department of PW, an estimate of all water used (i.e., fire fighting, hydrant flushing, etc.) on a monthly basis.

Main Flushing - All main flushing performed by PW (i.e., water quality improvement, construction, etc.) will require the submittal of an estimate of water consumption.

Theft - All incidents of observed theft will be reported to the Town Customer Service Division for appropriate action. At the time the theft is discovered, an estimate of the volume of stolen water will be determined by staff.

Main Breaks - All main breaks will require the reporting of the estimated volume of water lost.

Tank Draining - Storage or hydro-pneumatic tank draining will be reported.

Unmetered Service – The existing system is unmetered. Meters will be installed as part of the construction process for the proposed new system.

Leak Detection - PW will develop an ongoing leak detection program, which will have as its goal the complete survey of all distribution pipes and mains within the next five years.

Meter Errors - The Town currently replaces water meters on approximately a 15-year cycle, to insure meter accuracy.

All forms for reporting lost and unaccounted for loss will be maintained by the PW.

REGIONAL WATER SUPPLY PLAN
Phase II-III
Water Demand/ Demand Management/Drought
Response/Statement of Need

Including the Counties of:
Essex, King and Queen, King William, Mathews, and Middlesex
and the Towns of:
Tappahannock, Urbanna, and West Point

Prepared For:
Middle Peninsula Planning District Commission
P.O. Box 286
Saluda, Virginia 23149

Prepared by:
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PO Box 354
Montpelier, Virginia 23192

September 2009



**Middle Peninsula
Planning District Commission**

10.0 DROUGHT RESPONSE AND CONTINGENCY PLAN (9 VAC 25-780-120)

10.1 Introduction – System Characteristics That Affect Drought Response Planning

10.1.1 The Towns of Tappahannock, Urbanna, and West Point

Each of the three towns operate their own public water supply systems. Each system is served by deep wells and is therefore relatively buffered from the effects of drought. The aquifers that they rely on are recharged by the lateral movement of water within the confined aquifers, and the source of that water is typically assumed to be rainfall from tens, hundreds, or even thousands of years ago onto areas where the confined aquifers rise to the surface (aquifer recharge areas). Leakage between aquifers is an unquantifiable factor in the recharge equation.

These systems are unlikely to be affected by drought except or unless a period of extremely dry meteorological conditions causes increased use of the system for 1) lawn irrigation and 2) commercial hauling of water to relieve shallow wells systems or surface systems that have failed. Under those conditions, water use could potentially spike to exceed the pumping capacity of any one of the three systems. West Point is within the Eastern Virginia Groundwater Management Area, and therefore has a permitted limit on withdrawal of groundwater, while the other two towns are limited only by the capacity of equipment and infrastructure. Each of the three systems is a public water supply system permitted under the Virginia Department of Health regulations.

Drought Status and Conditions Requiring Action by the Towns

To trigger a drought watch the Towns should monitor regional meteorological conditions in order to anticipate when dry conditions indicate a coming increase in irrigation or in water hauling to relieve stressed users in the surrounding areas. In order to anticipate when a watch should be declared, the Towns should participate in a regionwide monitoring program operated by a centralized body such as the Planning District Commission staff. Upon notification of watch conditions, the Town utility operators should begin monitoring of daily water withdrawal rates to ensure that the water system storage is being adequately recharged through normal operation of the system pumps.

For the Town systems, a drought warning should be triggered in the event that the system pumping rate exceeds 80 percent of the Town's permitted system capacity for three consecutive months. VDH Water System Regulations 12 VAC 590-520 requires any system that exceeds this usage rate to initiate actions for expanding capacity or to demonstrate that use characteristics will not exceed the rated capacity. Under such warning triggers, the Towns would have a legitimate reason for requesting that citizens and businesses voluntarily cut back on water use. In addition to the system operation triggers, the Towns should include a provision for the Town Manager or Town Council to

declare a drought warning in response to conditions in adjacent jurisdictions, or upon a finding that such a warning is appropriate.

A drought emergency trigger for the Town systems would occur when the usage rate exceeded 90 percent of the Town's permitted system capacity for a three month period.

10.1.2 The Counties of Essex, King and Queen, King William, Middlesex, and Mathews

The five counties are served by a wider variety of water systems than the three towns. Water systems in the counties can be divided into the following general types:

- 1) Public or privately-owned and operated community systems – typically they are developed in deep aquifers, or in the highly productive shallow aquifers typical of the eastern portion of the Planning Region (Mathews County). In all cases, these systems tend to be very resilient during drought, either because the deep recharge is buffered from current surface conditions, or because the shallow aquifer is highly productive, reliable, and is not yet highly committed to competing uses.
- 2) Large self-supplied users relying on deep well systems – these tend to be industrial and commercial uses. These systems are, as above, buffered from the effects of meteorological conditions.
- 3) Large self-supplied users relying on surface waters, including farm ponds, tidal rivers, and smaller tributary streams. These systems are of moderate concern during drought conditions because they typically serve economic activities, primarily agricultural. The surface water sources that they rely on may be more highly regulated, but many withdrawals are “grandfathered” under the regulations as pre-existing uses.

Agricultural withdrawal from farm ponds is the least regulated of the surface water withdrawals, provided that the pond is developed off of any perennial flow waterways. These ponds rely on stormwater recharge and/or local water-table recharge. Where the recharge area is large enough, use of a farm pond as a source for irrigation waters poses little problem for other users, unless the recharge areas overlap.

Large withdrawals from rivers and streams, whether agricultural or for other purposes, are regulated in different ways. Withdrawals that were operating or approved before July 1, 1989, or which were installed between 1989 and 2007 and meet certain conditions, are permitted to continue in operation. In tidal rivers and streams (which predominate in the Regional Water Supply Planning Region), agricultural surface withdrawals less than 60 million gallons in a single month are exempt from the requirement for a Virginia Water Protection Permit (VWP), as are all surface withdrawals for non-consumptive purposes and withdrawals for consumptive purposes of less than 2 million gallons per day. Surface withdrawals from non-tidal rivers and streams are more stringently regulated through the VWP

process. For instance, the limit for exemption of agricultural withdrawals is one million gallons in a single month.

4) Small self-supplied users relying on ground or surface water. In the Planning Region, these users are predominately relying on wells, and often the wells are relatively shallow due to the expense of drilling deep wells. The shallow well systems are the most sensitive to drought due to relatively porous soils of the region and brackish waters in some of the adjacent waterways. Under dry conditions, moisture in the unconfined, surface aquifer may be rapidly depleted, and if proximate to brackish water, salt water intrusion may pose a further problem.

As with the Town systems discussed above, the community systems and self-supplied users that rely on deep wells are relatively buffered from the effects of drought. The aquifers that they rely on are recharged by the lateral movement of water within the confined aquifers, and the source of that water is assumed to be rainfall from tens, hundreds, or even thousands of years ago onto aquifer recharge areas. These systems are more likely to be affected by over-allocation/over-use of the aquifer than by drought. Due to the dissolved minerals in the confined aquifers, the water from these deep well systems is generally unsuitable for large-scale or long-term irrigation. Consequently, dry conditions do not necessarily increase pumping from the deep well systems.

Small-self-supplied users in the area require special consideration. While they are most susceptible to drought, they are 1) highly dispersed, and therefore not practical to monitor or enforce limits, and 2) well users are most likely to be aware of the potential for drought to affect water supply, and are largely self-regulating. Provided they are aware of the potential for dry conditions and the duration and intensity of drought, small self-supplied users are likely to curtail water use as a matter of necessity. Thus, while raising public awareness as a result of drought watch conditions is likely to be beneficial to small-self-supplied users in the Region, drought warning alerts and drought emergency alerts are likely to have little impact on water use by small self-supplied users.

Large self-supplied users of surface waters are the entities most likely to affect water sources of the area that are susceptible to drought. At the same time, the large users are most likely to be important sources of economic activity in the region (agriculture and industry), as well as highly motivated to retain the support of the communities within which they operate.

Drought Status and Conditions Requiring Action by the Counties

King William County has adopted a drought management ordinance to address water conservation and management in the county's publicly owned system (see Attachment 1, below). The King William ordinance provides for four "conditions," with Condition 1 roughly corresponding to the Drought Warning alert discussed herein, and the Conditions 2, 3, and 4 providing increasingly stringent control during periods corresponding to the Drought Emergency alert discussed herein. As the King William ordinance appears to achieve the intent of the Drought Response and Contingency Plan, we would recommend

retention of the ordinance and consideration of amendments to include the Drought Watch alert and to exercise additional controls over privately owned systems, as appropriate. An expanded version of the King William County Ordinance is provided in Appendix R that would address the implementation of the DRCP in each of the participating jurisdictions.

To trigger a drought watch each of the Counties should monitor regional meteorological conditions in order to anticipate when dry conditions indicate a coming increase in irrigation or in stressed well users. In order to anticipate when a watch should be declared, the Counties should participate in a regionwide monitoring program operated by a centralized body such as the Planning District Commission staff. Upon notification of watch conditions, the County staff should begin monitoring of daily water withdrawal rates in publicly owned systems, and should alert farmers, home-owners, and operators of private systems that dry conditions may be developing.

For the counties that do not operate publicly owned water systems, the Drought Watch and Drought Warning alerts serve a similar purpose in alerting private users and privately owned system operators to the need to anticipate drought conditions and voluntarily manage their resources according to system permit limits or system capacity and recharge characteristics. The counties will adopt three triggers for moving from a Drought Watch to a Drought Warning: the County Administrator will have the discretion to declare a drought warning for any community water system if: 1) local system conditions warrant, 2) if adjacent jurisdictions adopt a Drought Warning, or 3) in response to continued deterioration of meteorological conditions monitored by the regionwide monitoring program. Both public and private community water systems are subject to the VDH requirement for system expansion when water usage exceeds 80 percent of system capacity for three consecutive months. The County Administrator should consider a Drought Warning alert for users of any public or private community water system in consultation with the operator of that system, and only if the operator has no other recourse in addressing the immediate needs of the system's customers.

A Drought Emergency trigger for the counties with public or privately-owned systems would be sensitive to the conditions of the individual systems. Since community systems are 1) generally buffered from drought, or 2) controlled by withdrawal permits administered by State agencies, these systems are generally self-policing. The drought contingency ordinances will provide language that enables the County government to order mandatory restrictions on water use in response to specific conditions, such as when any system exceeds 90 percent of the VDH permitted capacity for 3 consecutive months. The County would intervene to declare a drought emergency for privately-owned systems if the private system operator was unable to restrict water usage when needed. However, we do not anticipate use of the drought emergency trigger under any but the most extraordinary circumstances.

10.2 Drought Response and Contingency Plan

In accordance with Water Supply Planning Regulations, Section 9 VAC 25-780-120, the following discussion presents a Drought Response and Contingency Plan (DRCP) as a component of the WSP.

In general, drought is a period of unusually dry weather (i.e., a deficit in precipitation received) that persists long enough to cause serious problems such as crop damage and/or water supply shortages. In more specific terms, drought is a measure of departure of precipitation from normal. Due to climatic differences, what might be considered a drought in one location of the country may not be a drought in another location.

The DRCP is focused on identifying drought conditions and implementing an appropriate response in order to maintain adequate water supplies in the Planning Region. The successful response to drought conditions in the Planning Region (i.e., implementation of the DRCP) largely depends upon public education and involvement.

There are three graduated stages of response to the onset of drought, including:

- **Drought Watch** Increase awareness in public and private sector
- **Drought Warning** Onset of drought is imminent
- **Drought Emergency** Significant drought event, contamination, equipment failure

The DRCP is applicable to all water supplies (i.e., public and privately owned community systems and self-supplied users) in the Planning Region. A committee of representatives from the Planning Region (to be discussed below) will monitor conditions for the pending onset of drought, and implement specific actions addressed in this DCRP. Following notification by the committee, local government administrators will have broad discretion to determine appropriate local responses to intensifying drought conditions. Self-supplied water users in the Planning Region will monitor their specific water supply characteristics for drought conditions and take appropriate actions. Public and privately-owned community systems will activate appropriate drought response measures for their own systems. Individual water sources may experience different levels of drought conditions due to local or regional variations in meteorological conditions (i.e., different water supplies respond differently to the local conditions). For example, surface water and groundwater sources react differently to drought conditions, with rivers and streams generally affected by the on-set of drought earlier than ground water, and ground water sources slower to recover when drought conditions lessen.

Local ordinances will be adopted by the jurisdictions that are party to the regional WSP in order to ensure implementation and enforcement of the DRCP (Appendix R).

10.2.1 Purpose of the DRCP

The purpose of the DRCP is as follows:

- To provide a contingency plan to manage water supplies during drought conditions and emergency conditions (declared drought emergency, contamination event or equipment failure);
- To assist water suppliers to deliver a cost effective, adequate, safe and reliable supply of high quality water;
- To establish a programmed response for each drought stage (discussed below) that will reduce water consumption with the least adverse impact on the residents and businesses of the Planning Region.
- To provide a mechanism for responding to non-meteorological related emergencies (contamination of water source, equipment failure) may result in the need to restrict water use until water service is restored.

10.2.2 Regulations and Enforcement Mechanisms for Water Conservation

Each of the local jurisdictions party to this WSP has or will adopt a local ordinance supporting the DRCP presented herein (an example ordinance is presented in Appendix R). The DRCP is enforceable through these local drought response ordinances, and through the Commonwealth's Water Supply Planning Regulations (Section 9 VAC 25-780-120). The Code of Virginia (Code), Section 15.2-923, allows localities to restrict nonessential use of ground water during times of water shortages or water emergencies (agricultural use is exempted), and Section 15.2-924 gives localities the power to restrict water use in certain systems for the prevention of or the duration of a water supply emergency.

10.3 Overview of Drought Monitoring and Response

The following discussion presents an overview of the Middle Peninsula DRCP process. A schematic diagram is presented in Figure 10-1, to illustrate the following procedural outline. Table 10-1, following Figure 10-1, summarizes the correlation between drought conditions and DRCP-based drought stages (termed Drought Watch, Drought Warning and Drought Emergency). Table 10-2 summarizes actions available for local use to respond to each drought stage.

The terms "Regional Drought Monitoring Committee", "drought stage", and a discussion on local monitoring will be introduced in more detail after this initial overview.

DRCP implementation will proceed according to the following outline:

- The Regional Drought Monitoring Committee (RDMC) will monitor the VDEQ's *Drought Monitor*, a web-based resource, in order to alert local jurisdictions to the onset of drought watch conditions. Thereafter, locally designated managers will monitor specific system conditions to determine successive stages of drought alert. Each drought alert stage triggers specific actions by local governments.
- Local water system managers monitor individual source(s) for system characteristics and system drought conditions, and consult with local government

administrators to identify appropriate drought alert conditions. As appropriate, system operators implement specific actions to mitigate drought stress on the water supply.

- Regional and local drought conditions are monitored and communicated in the Planning Region until the RDMC confirms from *Drought Monitor* that all areas of the Planning Region may return to normal water use conditions.

Drought response actions are described below and in Table 10-2, and enforced through local ordinances adopted pursuant to the Code of Virginia.

10.3.1 Introducing the Regional Drought Monitoring Committee (RDMC)

The Regional Drought Monitoring Committee (RDMC) for the Planning Region is tasked with monitoring regional drought conditions using DEQ web-based information to initiate drought response implementation. The RDMC will be comprised of one representative designated from each of the local jurisdictions party to this WSP.

The objectives of the RDMC are as follows:

- Monitor monthly or weekly (if required) regional drought conditions using DEQ's Drought Monitor website (discussed below);
- Provide notifications to jurisdictional managers of the Planning Region of drought watch conditions;
- Provide information to water suppliers and public regarding drought conditions and response methods;
- Identify when regional drought conditions have attenuated sufficiently to justify a return to normal water supply conditions.

10.3.2 Introducing Drought Stages

The Governor's Executive Order #39 (issued December 13, 2002) established the Virginia Water Supply Initiative, requiring the Commonwealth's Drought Coordinator to develop a formal drought assessment and response plan. As a result, the Drought Response Technical Advisory Committee was convened in 2003. This committee is chaired by the VDEQ and is supported by the Virginia Drought Monitoring Task Force (DMTF). The DMTF has responsibility for monitoring drought conditions in the Commonwealth. The DMTF produces the *Drought Monitor*, an Internet-based service available at the following URL:

<http://www.deq.state.va.us/watersupplyplanning/drought.php>

The *Drought Monitor* uses a multi-index drought classification system, for low-to-high severity categories D0 through D4. Table 10-1 summarizes the drought classification system used by the *Drought Monitor*, and correlates to drought stages identified in this DRCP (Watch, Warning, Emergency).

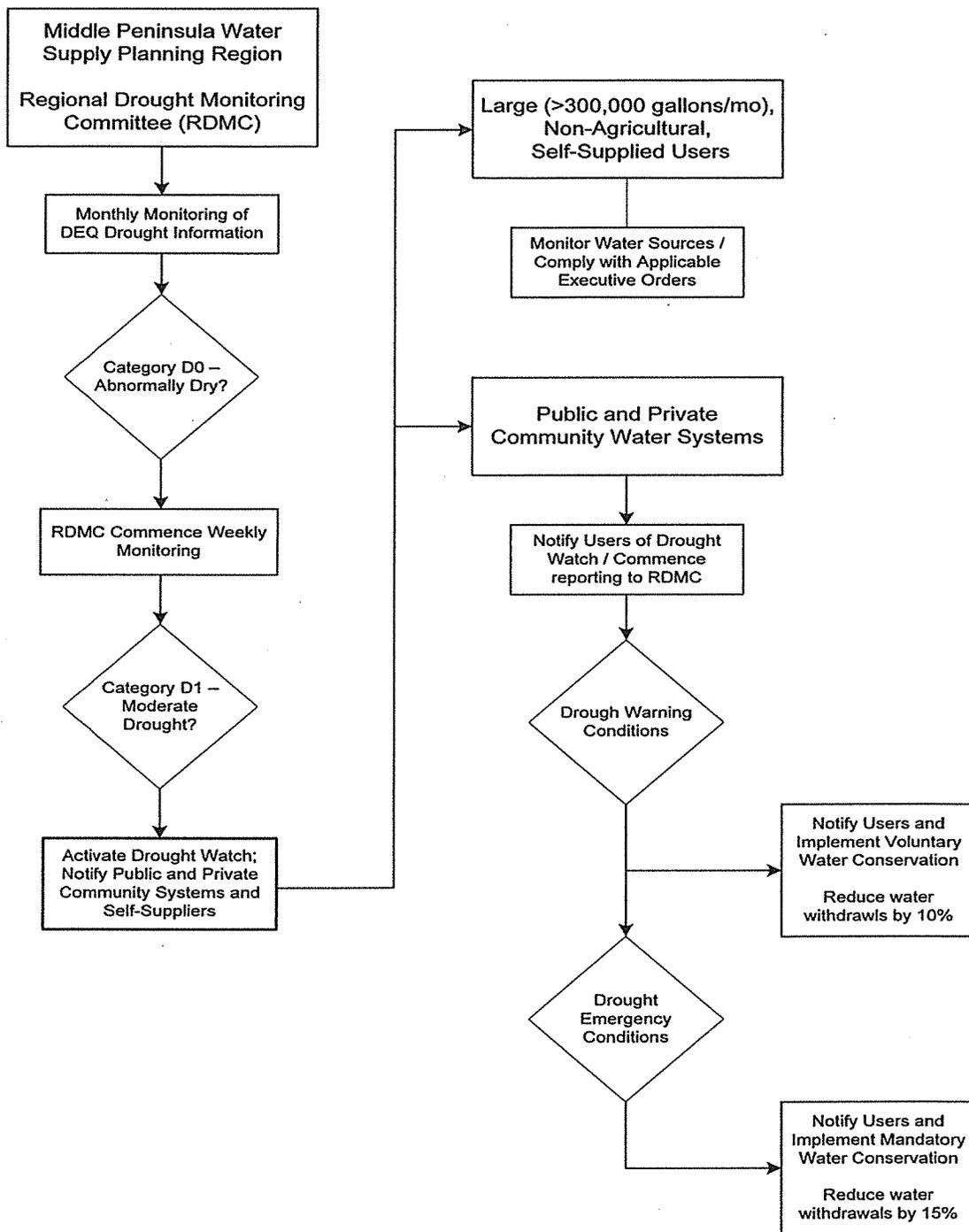


Figure 10-1: Schematic Representation of Drought Monitoring and Response Procedures (regional and local applications)

In addition to regional monitoring for drought conditions by the RDMC, individual water supplies should monitor for local drought conditions at their supply location(s) because on-set and dissipation of drought may be highly localized.

Table 10-1. Drought Categories Determined by VDEQ Drought Monitoring and Corresponding Drought Stages for the DRCP

DEQ Drought Monitor Category	Description	Possible Impacts	DRCP Drought Stages
D0	Abnormally Dry	Going into drought: short-term dryness slowing planting, growth of crops or pastures. Coming out of drought: some lingering water deficits; pastures or crops not fully recovered	
D1	Moderate Drought	Some damage to crops, pastures; streams, reservoirs, or wells low, some water shortages developing or imminent; public alerted to possible water shortages	Drought Watch Determined on a regional basis by RDMC from VDEQ Drought Monitor
D2	Severe Drought	Crop or pasture losses likely; water shortages common; voluntary water-use restrictions requested	Drought Warning Determined by individual systems from local drought monitoring
D3 and D4	Extreme Drought	Major crop/pasture losses; widespread water shortages or restrictions; water-use restrictions imposed	Drought Emergency Determined by individual systems from local drought monitoring
	Exceptional Drought	Exceptional and widespread crop/pasture losses; shortages of water in reservoirs, streams, and wells creating water emergencies	

10.3.3 Introducing Local Drought Monitoring in the Planning Region

The DRCP implementation initially functions along parallel tracks, with the RDMC monitoring regional drought conditions, and local water suppliers monitoring their own source(s). When climate conditions lead to local or regional D1 Category (Drought Watch) conditions, the RDMC and local sources begin weekly monitoring, and work together to initiate notifications and implement appropriate actions.

Drought Stages and Corresponding Actions

Drought Stage	Actions
Drought Watch	<p>RDMC weekly monitoring of Drought Monitor website. RDMC to notify public, community, and self-suppliers of Drought Watch via newspaper, public service announcements, and other available means. Request for voluntary reductions in non-essential water use.</p> <p>Community systems to commence weekly monitoring for system stress; notify customers of Drought Watch status.</p> <hr/> <p>PDC Resource Commitment: Staff serves as organizing and information resource for local RDMC members; staff monitors DEQ/USGS drought alerts; if a Drought Watch is declared, PDC leads the regional public information effort.</p> <p>Local Resource Commitment: Locality designates a RDMC member.</p>
Drought Warning	<p>Voluntary Water Use Reduction. Public and privately-owned community water systems monitor system conditions for signs of stress in maintaining adequate water storage/pressure. System operators will consult with jurisdictional administrator regarding need to declare a Drought Warning. Jurisdiction Administrator has broad authority to declare a Drought Warning either for entire jurisdiction or for individual systems, depending on varying conditions. System operators request/ implement voluntary reductions in non-essential water use. Goal for systems under Drought Warning is a 10% reduction in water usage.</p> <p>Non-essential water uses include:</p> <ul style="list-style-type: none"> Water to wash streets, sidewalks, walkways, driveways, parking lots, service station aprons, and other hard surfaced areas, buildings, and structures, except as required for safety; Water to wash automobiles, trucks, trailers, and other mobile equipment, except as required to meet air quality standards or for safety; Watering shrubbery, trees, lawns, grass, and other vegetation, except for new plantings and active use facilities such as school playing fields; Water from fire hydrants for construction purposes or any purpose other than fire suppression, public emergencies, or clearing water lines; Water to fill or refill swimming pools; Storage facilities to be filled during non-peak times for fire flow; Customers not served drinking water in restaurant unless requested. <p>15% increase in water rates for high consumption may be required by certain systems.</p> <hr/> <p>PDC Resource Commitment: Staff receives monthly reports from system operators and maintains database; staff provides information as requested by RDMC members and local officials.</p> <p>Local Resource Commitment: Staff support to Administrator for consultation with system operators; RDMC member serves as regional liaison; locality publishes public notices of alert levels.</p>
Drought Emergency (Includes non-drought emergencies)	<p>Mandatory Water Use Reduction. Public and privately-owned community water systems monitor system conditions for signs of stress in maintaining adequate water storage/pressure. System operators may consult with jurisdiction Administrator regarding need to declare a Drought Emergency. Jurisdiction Administrator has broad authority to declare a Drought Emergency either for entire jurisdiction or for individual systems, depending of varying conditions. System operators implement mandatory reductions in non-essential water usage. Goal for systems under a Drought Emergency is 15% reduction in water usage.</p> <p>Public community water systems may introduce rate increases; privately-owned community</p>

	systems require customer reductions according to customer agreements/contracts.
	PDC Resource Commitment: Staff receives monthly reports from system operators and maintains database; staff provides information as requested by RDMC members and local officials.
	Local Resource Commitment: Staff support to Administrator for consultation with system operators; RDMC member serves as regional liaison; locality publishes public notices of alert levels. Locality responsible for enforcement actions, if appropriate.

10.4 DRCP Implementation

The previous section provided an overview of the DRCP, and introduced the RDMC, drought stages and local drought stage conditions. The following section provides detailed information on implementing drought response for the Planning Region. The following discussion is also supported by the schematic process diagram for the DRCP drought monitoring and response implementation, which was presented in Figure 10-1.

The DRCP will monitor regional and local drought conditions monthly (increasing to weekly under DO Category “Abnormally Dry” conditions), and then work with local officials to respond to three stages of drought conditions (Drought Watch, Drought Warning and Drought Emergency). Each stage triggers increasingly strong response measures to be implemented as water supply and/or demand conditions.

Public and privately-owned community water system providers in the Planning Region are responsible under the DRCP to monitor their water source(s), and implement actions as appropriate to meet the target water withdrawal goals.

The DRCP includes voluntary and mandatory water reduction strategies. Water Supply Regulation 9 VAC 25-780-120 established a goal of 5-10% reduction in water use by voluntary reduction (Drought Watch, Drought Warning) and 10-15% reduction by mandatory reduction (Drought Emergency).

Voluntary water use reductions (Drought Watch and Drought Warning) rely on community goodwill to attempt to comply with the provisions. The Drought Warning stage allows publicly owned and operated systems to impose increased water rates if determined to be appropriate by the locally-elected governing body.

Mandatory water-use reductions (Drought Emergency) have enforceable limits placed on certain types of water use, and may carry even higher fees for water use in some systems. Local ordinances adopted to enforce the DRCP will allow jurisdictions to assess penalties for violation of the DRCP Drought Emergency stage. This is also supported by the Code of Virginia, Section 15-2-924.

10.4.1 Category D0 (Abnormally Dry Conditions)

When monthly RDMC monitoring of regional drought conditions indicates that all or part of the planning region falls under Category D0 (Abnormally Dry) conditions (Table 10-1), the RDMC will commence weekly monitoring of the DEQ *Drought Monitor* website.

10.4.2 Drought Watch (Category D1 Moderate Drought Conditions)

Upon determination by the RDMC that Moderate Drought (Category D1) conditions are declared for all or part of the planning region, the RDMC will notify jurisdictional administrators and initiate regional Drought Watch actions (Table 10-2).

1. The RDMC will contact local water suppliers in the Planning Region (see red line on Figure 10-1) to notify them of the Drought Watch condition and request appropriate response actions. The individual water suppliers will begin weekly monitoring of their water source characteristics to evaluate stress on the system and determine whether the source is being affected by drought.
2. The RDMC will implement public notification to alert the Planning Region of Drought Watch Conditions. A public notice will be published on two consecutive weeks in all local newspapers in the Planning Region, and in a newspaper of regional distribution. A notice will also be placed on jurisdictional websites, and public service emails will be sent, indicating that Drought Watch conditions are in effect, and requesting voluntary water use reductions.

The successful response to drought conditions largely depends upon public education and involvement. The Virginia Water Resources Research Center conducted a study on the effectiveness of various water reduction strategies during the state-wide drought in 2002, which supports the conclusion that strong public education and program enforcement are critical to successful water use reductions during drought (VWRRC, 2006):

Overall reductions in residential water-use ranged from 0-7% for voluntary restrictions and from 0-22% for mandatory restrictions. The observed differences were statistically attributed to information efforts for voluntary restrictions and both information and enforcement efforts for mandatory restrictions. These water reductions are estimated after accounting for the influence of other explanatory factors such as weather conditions, seasonal variation, and demographic characteristics.

The RDMC may also consider the following additional public notification processes: utility bill inserts, publications placed at public locations, information on jurisdictional websites, public service emails, and public service announcements in the local media. Further, specific actions for public notification of drought occurrence, and education on drought mitigation, may be implemented by jurisdictions and water service providers, as these entities will have the most up-to-date methods for communicating to water customers.

If a public or privately owned community water system determines that their source well(s) are sufficiently stressed to trigger the Drought Watch criterion, the supplier will inform the RDMC and will initiate Drought Watch actions, including voluntary water withdrawal reductions.

10.4.3 Drought Warning (Category D2 Severe Drought Conditions)

After drought watch conditions have been established for the Water Supply Planning Region, Public and Privately-owned System Operators will initiate close watch on their source wells to monitor stress on recharge rates or mechanical operating characteristics. If system conditions indicate the need to reduce water usage, the system operator will consult with the local government administrator (County Administrator/Town Manager) to determine the issuance of a drought warning alert. Drought warnings may be declared by the jurisdictions' administrative executive in consultation with the elected officials of the jurisdiction. Drought warnings may be issued for all or portions of any jurisdiction as required by, and at the discretion of the local government administrator. The goal of the Drought Warning alert is to reduce water usage in affected systems by 10 percent.

Required actions include notification of water customers of the affected public or private water systems of the Drought Warning, and requesting voluntary reduction in the following non-essential water uses:

- Water to wash down streets, sidewalks, walkways, driveways, parking lots, service station aprons, tennis courts, other hard surfaced areas, buildings, and structures, except as required for safety concerns;
- Water to wash automobiles, trucks, trailers, and any other type of mobile equipment, except where required to meet air quality standards;
- Watering of shrubbery, trees, lawns, grass, plants, and other vegetation (requested reductions do not apply to locations using treated wastewater effluent for irrigation). Watering of new plantings and active use facilities such as playing fields would be allowed;
- Water from fire hydrants for construction purposes or any purpose other than fire suppression or other public emergency;
- Water to fill or refill swimming pools;
- Customer not served drinking water in restaurant unless requested.

Further water reduction strategies include urging customers to restrict outdoor watering with sprinklers or irrigation systems between 10 am and 6 pm, and to request alternate-day use schedules based on last digit of residential or commercial address:

- Odd-number addresses - Tuesday, Thursday and Saturday
- Even-number addresses - Wednesday, Friday and Sunday
- Watering by hand (with cans, wands, hand-held hoses) is acceptable any day of the week.

If appropriate, the Drought Warning stage allows water suppliers to implement higher water rates for excess use. Normal water rates should apply for consumption up to 12,000 gallons per billing cycle. Rates may be increased by 15% for consumption above 12,000 gallons per dwelling unit during any one billing cycle.

Increasing water rates has been found to reduce water-use (VWWRC, 2006). However, water use reduction stimulated by fee increases will likely not be observed for one or two months due to the billing cycle. Prompt and thorough advertising of a Drought Warning or Drought Emergency stage, and increased water rates, are important for expediting the rate at which customers begin reducing water use.

10.4.4 Drought Emergency

When monitoring of public and privately-owned systems indicates severe stress on the system, potentially leading to an inability to maintain pumping rates, system operators may request that the jurisdictional administrator institute a Drought Emergency. The Drought Emergency response target is to reduce water withdrawals by 15%.

Following consultation with local elected officials, jurisdictional administrators are authorized to require mandatory reduction or cessation in the following non-essential water use for affected public or privately-owned systems:

- Water to wash down streets, sidewalks, walkways, driveways, parking lots, service station aprons, tennis courts, other hard surfaced areas, buildings, and structures, except as required for safety concerns;
- Water to wash automobiles, trucks, trailers, and any other type of mobile equipment, except where required to meet air quality standards;
- Watering of shrubbery, trees, lawns, grass, plants, and other vegetation (exception: customers may water first-year foundations, trees and shrubs up to two hours a day by a hand-held or soaker hose, and new planting of grass within the first 30 days up to one hour a day by any means; restrictions do not apply to locations using treated wastewater effluent for irrigation);
- Water from fire hydrants for construction purposes or any purpose other than fire suppression or other public emergency;
- Water to fill or refill swimming pools;
- Customers not served drinking water in restaurant unless requested.
- Watering of athletic fields, courts, etc. is prohibited
- Water leaks on customers' piping shall be repaired within three (3) business days after notification by the water system operator.
- All businesses, institutions and government entities shall prominently display, at their entrances and at each restroom and shower, signs indicating the current water emergency.

Further mandatory water reduction strategies include restricting outdoor watering with sprinklers or irrigation systems between 10 am and 6 pm, and requiring alternate-day use schedules based on last digit of residential or commercial address:

- Odd-number addresses - Tuesday, Thursday and Saturday
- Even-number addresses - Wednesday, Friday and Sunday

The Drought Emergency stage allows public water systems to implement higher water rates for excess use, if appropriate. Normal rates may be increased by 30% for consumption above 12,000 gallons per billing cycle. Amendments to water rates and penalties for violating the DRCP Drought Emergency stage will be enforceable under local jurisdictional ordinance, and in general through the Code of Virginia governing water saving and water supply emergency ordinances. Violations of required actions under the Drought Emergency stage may result in penalties to the customers of publicly-owned water systems being assessed under local the ordinance (see below):

- First offense: Written warning;
- Second offense: \$50 fine;
- Third offense: \$100 fine;
- Fourth offense: \$250 fine and water service suspension.

The Drought Emergency stage for privately-owned community systems requires that the system operators demonstrate that they are complying with the water system capacity requirements set forth by the Virginia Department of Health Waterworks Regulations (12 VAC5-590-520 and 12 VAC5-590-690). The Department of Health Waterworks Regulations require system operators to demonstrate effective reductions in use or to pursue the development of additional capacity when withdrawals exceed 90 percent of the system's permitted capacity during a stated period of time. Failure of customers of privately-owned water systems to participate in the reductions required to meet the systems' target reductions shall be subject to penalties set forth in the customers' agreements/contract with the private water supplier.

As noted above, if localized drought conditions impact public or privately-owned water systems to the extent that the individual supply Drought Emergency criterion is met, the system operator will contact the RDMC and implement Drought Emergency response actions for their system.

10.4.5 State of Emergency

In some cases, the mandatory non-essential water use restrictions may not be sufficient to protect the supplies of an individual public water works. When a water source becomes so depleted or otherwise compromised as to threaten public health and safety, it may become necessary to ration water within that system in order to assure that water is available to support essential uses. Rationing water is a more severe measure than merely banning non-essential uses of water. Under rationing, each water user is allotted a given amount of water, based on a method of allotment developed by the local government. Generally, it will be based upon a percentage of previous usage or on a specific daily quantity per household. Rationing is more likely to have some effect on welfare than mandatory non-essential use restrictions, because industrial and commercial uses may be curtailed or eliminated to assure an adequate supply is available for human consumptive uses.

The decision to ration water will typically be made by the governing body of the locality, with significant input from the RDMC. Staff in each locality affected will work closely with residents where water rationing is required to assure that all available State resources are effectively used to support these highly stressed water supply systems. The Virginia Department of Emergency Management (VDEM) is the first point of contact for waterworks or local governments who decide to ration water. VDEM will coordinate the Commonwealth's response and assistance to localities that are under a state of emergency.

10.4.6 Considerations for Agricultural Water Sources

Historically, agricultural use has not posed a problem for the region's water supplies. Under both Code of Virginia Section 15.2-923 and Section 15.2-924, water used for agricultural purposes is exempted from regulation by local governments. Permitted limits for agricultural withdrawal from tidal and non-tidal waterways are defined by Virginia Code Section 9 VAC 25-210-60 et seq.

10.5 Exemptions

Upon implementation of a Drought Emergency stage, an appeals board (Board) will be established by any jurisdiction that initiates mandatory restrictions. The Board will consist of the locally-elected governing body or a Board appointed by the locally elected governing body. The jurisdiction attorney, or legal counsel designated by the jurisdiction, will serve as legal counsel to the Board. The Board shall be empowered to review applications for exemptions from the provisions of the mandatory water use reductions, increased fees and/or penalties, on a case-by-case basis and, if warranted, to make equitable adjustments to such provisions. The Board shall also be empowered to establish regulations governing the granting of temporary exemptions applicable to all or some of the uses of the water supply as set forth. The Board shall, in deciding applications, balance economic and other hardships to the applicant resulting from the imposition of water use restrictions or allocations against the individual and cumulative impacts to the water supply resulting from the granting of exemptions. Individual applications shall be decided by the board within two (2) weeks of receipt of an application in proper form and containing all necessary information.

Water customers who are engaged in activities in which water use is essential for public health, such as health care facilities (including but not limited to hospitals, minor emergency centers, health care practices, nursing homes, and convalescent centers), will be exempt from the mandatory water use reductions and increased water rates imposed under the DRCP.

Commercial and industrial customers who require water as a major and essential part of their day-to-day operations will be exempt from mandatory water use reductions and increased water rates imposed under the DRCP provided that they have satisfactorily completed, submitted, and received approval for an exemption from the Board.

10.6 Declaring Reduction of DRCP Drought Stages

As drought conditions dissipate, water suppliers will progress through reduced drought stages until finally returning to “normal” water use conditions. The RDMC will have responsibility for monitoring regional conditions and alerting localities to reduce drought stage designation, and ultimately a determination of normal water supply conditions.

Individual water source conditions will take precedence over RDMC declarations for reducing drought response, as the local weather and system conditions are critical to water supply replenishment, more so than regional or state-wide drought conditions. The local water suppliers will continue weekly monitoring of supply characteristics, and will contact the RDMC to notify of improving water supply conditions, indicating reduced stresses to water supply conditions.

10.7 Non-Climate Related Water Emergency Response

Non-meteorological emergencies (contamination of water source, equipment failure) may result in declaration of a Drought Emergency stage by any public or privately-owned community water system, or if the impact is on a regional basis, the local government administrator. Appropriate response actions will be followed in order to mandate water use restrictions until water service is restored.

10.8 Periodic Review and Update DRCP

In accordance with Water Supply Planning Regulations, Section 9 VAC 25-780-120, the regional WSP must be reviewed and updated by the participating jurisdictions every five (5) years. The DRCP component of the WSP (herein) will likewise be reviewed and updated for conditions at the current time in the region.

In particular, this review will focus on any required modifications in triggering criteria to reflect changed conditions. Population growth and increasing water demand may increase a water supplier’s vulnerability to drought. Major additions of new water sources or improvements to water system facilities may significantly reduce vulnerability.

The update process also helps ensure that the Planning Region jurisdictions are familiar with the plan and encourages “post event” reviews of the plan to identify and correct any problems that may have arisen during an implementation.

10.9 Local Drought Management Ordinances

At the time of preparation of the WSP, King William County was the only jurisdiction in the Planning Region that had an ordinance to address drought contingency and response. The DRCP will serve as an overall drought mitigation plan for the Planning Region. A proposed Water Conservation Ordinance for implementing the Drought Response and Contingency Plan is presented in Appendix R.

ATTACHMENT B
Mitigation Plan

Attachment I

Mitigation Plan

DEQ GROUND WATER WITHDRAWAL PERMIT # GW0005001

TOWN OF WEST POINT WATER SYSTEM

WEST POINT, VIRGINIA

INTRODUCTION

On May 7, 2010, The Town of West Point Public Works Department (Town) submitted a Ground Water Withdrawal Permit Application to the Virginia Department of Environmental Quality (DEQ) to withdraw ground water. Ground water withdrawals associated with this permit will be utilized to provide a potable water supply for the Town's public drinking water system.

The purpose of this Mitigation Plan is to provide existing ground water users a method to resolve claims that may arise due to the impact of the withdrawal from the West Point Wells #1, #2, and #3.

Predicted drawdown of water levels due to the withdrawal(s) from the aquifer(s) are shown in the attached figure(s).

Modeled impacts, as shown on the attached maps, extend beyond the boundary of the West Point Wells #1, #2, and #3 facilities. Due to these findings, the Town recognizes that there will be a rebuttable presumption that water level declines that cause adverse impacts to existing ground water users within the area of impact are due to this withdrawal. Claims may be made by ground water users outside this area; however, there is a rebuttable presumption that the Town has not caused the adverse impact. The Town

proposes this plan to mitigate impacts to existing users and excludes impacts to wells constructed after the effective date of this permit.

CLAIMANT REQUIREMENTS

To initiate a claim, the claimant must provide written notification of the claim to the following address:

Walt Feurer, Director of Public Works
Town of West Point
P.O. Box 152
West Point, VA 23181-0152

The claim must include the following information: (a) a deed or other available evidence that the claimant is the owner of the well and the well was constructed and operated prior to the effective date of the permit; (b) all available information related to well construction, water levels, historic yield, water quality, and the exact location of the well sufficient to allow the Town to locate the well on the claimant's property; (c) the reasons the claimant believes that the Town's withdrawal has caused an adverse impact on the claimants well(s).

CLAIM RESOLUTION

The Town will review any claim within **five (5) business days**. If the Town determines that no rebuttal will be made and accepts the claim as valid, the Town will so notify the claimant and will implement mitigation within **thirty (30) business days**. If the claim is not accepted as valid, the Town will notify the claimant that (a) the claim is denied or (b) that additional documentation from the claimant is required in order to evaluate the claim. Within **fifteen (15) business days** of receiving additional documentation from the claimant, the Town will notify the claimant (a) that the Town agrees to mitigate adverse impacts or (b) the claim is denied. If the claim is denied, the claimant will be notified that the claimant may request the claim be evaluated by a three

(3) member committee. This committee will consist of one (1) representative selected by the Town, one (1) representative selected by the claimant, and one (1) representative mutually agreed upon by the claimant and the Town.

Any claimant requesting that a claim be evaluated by the committee should provide the name and address of their representative to the Town. Within **five (5) business days** of receipt of such notification, the Town will notify the claimant and claimant's representative of the identity of the Town's representative and instruct the representatives to select a third representative within **ten (10) business days**. Representatives should be a professional engineer or hydrogeologist with experience in the field of ground water hydrology. The Town agrees to reimburse the members of the committee for reasonable time spent, at a rate prevailing in the area for experts in the above listed fields, and for direct costs incurred in administering the plan. The claimant may, at his or her option, choose to provide the reimbursement for the member of the committee selected by the claimant and up to half of the reimbursement for the mutual representative.

Within **ten (10) business days** of selection of the third representative, the committee will establish a **reasonable deadline** for submission of all documentation it needs to evaluate the claim. Both the claimant and the Town will abide by this deadline.

Within **fifteen (15) business days** of receipt of documentation, the committee will evaluate the claim and reach a decision by majority vote. The committee will notify the claimant regarding its decision to (a) deny or (b) approve the claim. If the claim is approved, the Town will mitigate the adverse impacts **within thirty (30) business days** of making the decision or as soon as practical. If the claim is denied by the committee, the Town may seek reimbursement from the claimant for the claimant's committee representative and one half of the 3rd representative on the committee.

If a claimant within the indicated area of impact indicates that they are out of water, the Town will accept the responsibility of providing water for human consumptive needs within **seventy-two (72) hours** and to cover the claim review period. The Town

reserves the right to recover the cost of such emergency supply if the claim is denied by the Town or found to be fraudulent or frivolous.

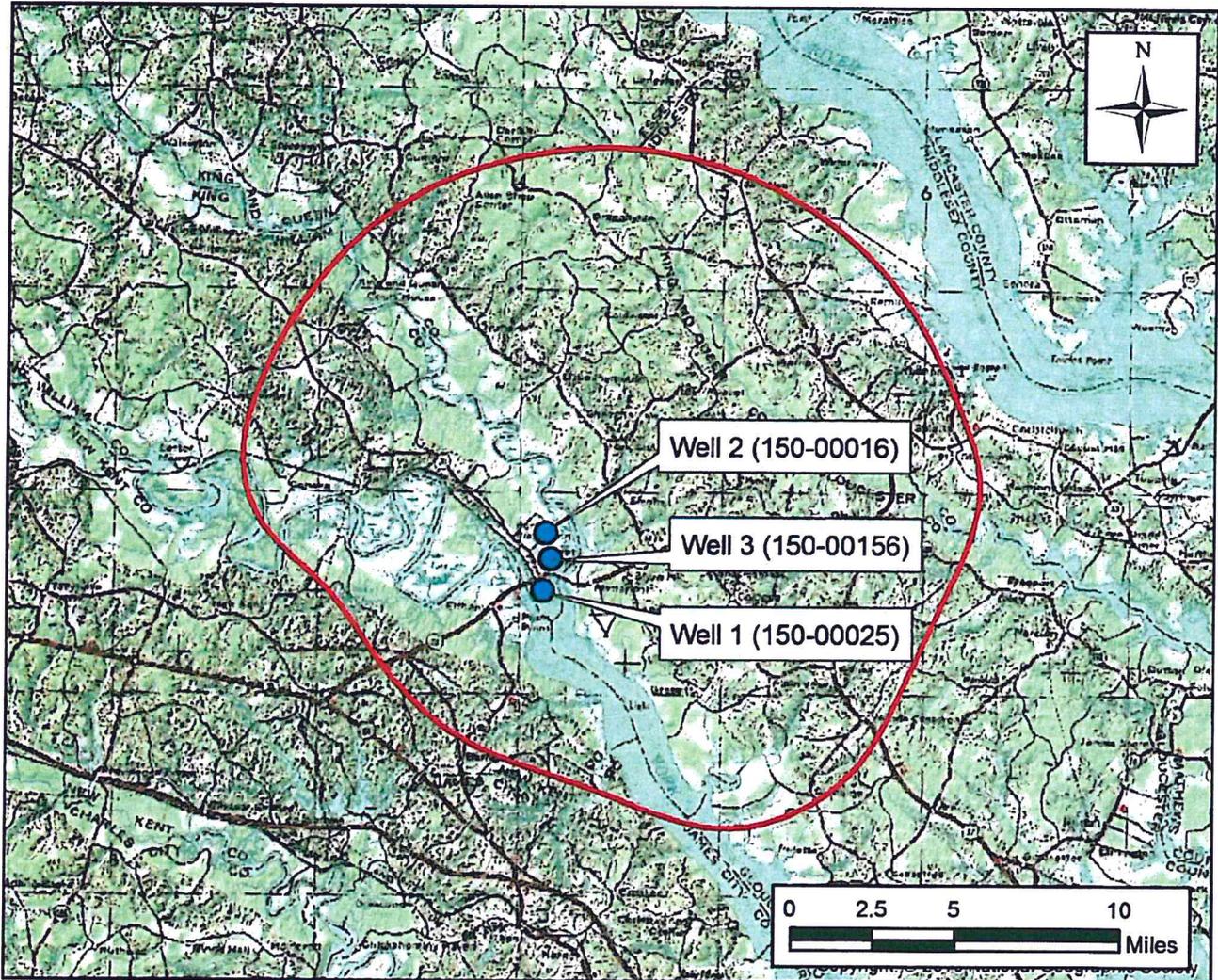
If the Town denies a claim and the claimant elects to proceed with the three (3) member committee, the Town will continue the emergency water supply at the claimants request during the committee's deliberations, but reserves the right to recover the total costs of emergency water supply in the case that the committee upholds the denial of the claim. Similarly, the Town reserves the right to recover costs associated with the claim process if a claim is found to be fraudulent or frivolous.

If it is determined by the committee or shown to the committee's satisfaction that a well operating under a mitigation plan similar to the Town's Plan other than those owned and operated by the Town has contributed to the claimed adverse impact, the Town's share of the costs associated with mitigation will be allocated in proportion to its share of the impact. Such a determination shall be made by the committee after notification of the third party well owner, giving the third party well owner opportunity to participate in the proceedings of the committee.

PLAN ADMINISTRATION

Nothing in the Plan shall be construed to prevent the Department of Environmental Quality Staff from providing information needed for resolution of claims by the committee.

West Point Public Water System Area of Impact - Aquia Aquifer



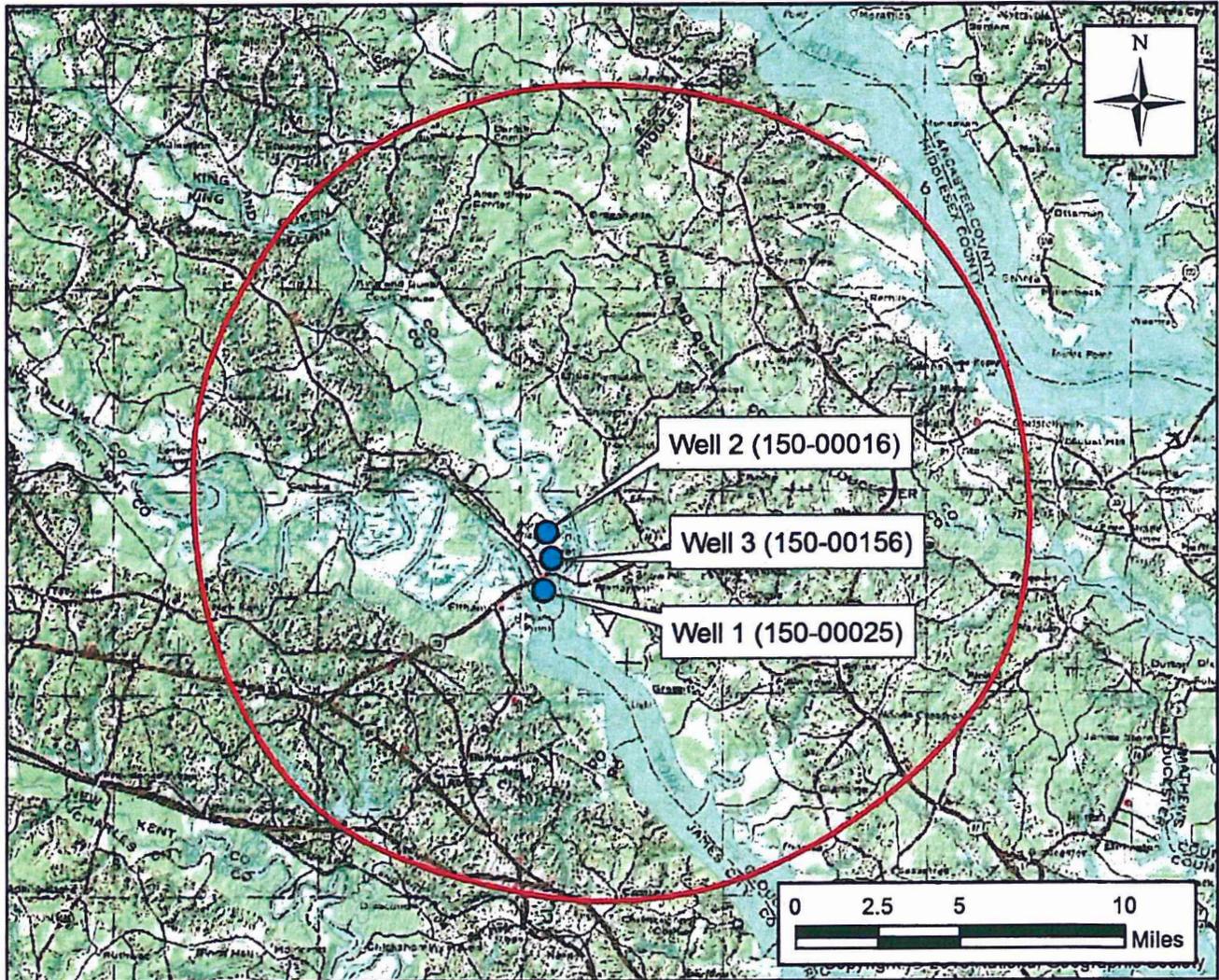
- West Point Water System Wells
- Area of Impact

Simulated drawdown at or exceeding one foot in the Aquia aquifer resulting from a 185,000,000 gallon per year (506,849 gpd) withdrawal from the Upper and Middle Potomac aquifers. The Virginia Coastal Plain Model developed by the USGS was used to simulate drawdown.

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Surface and Ground Water Supply Planning August 23, 2013



West Point Public Water System Area of Impact - Upper Potomac Aquifer



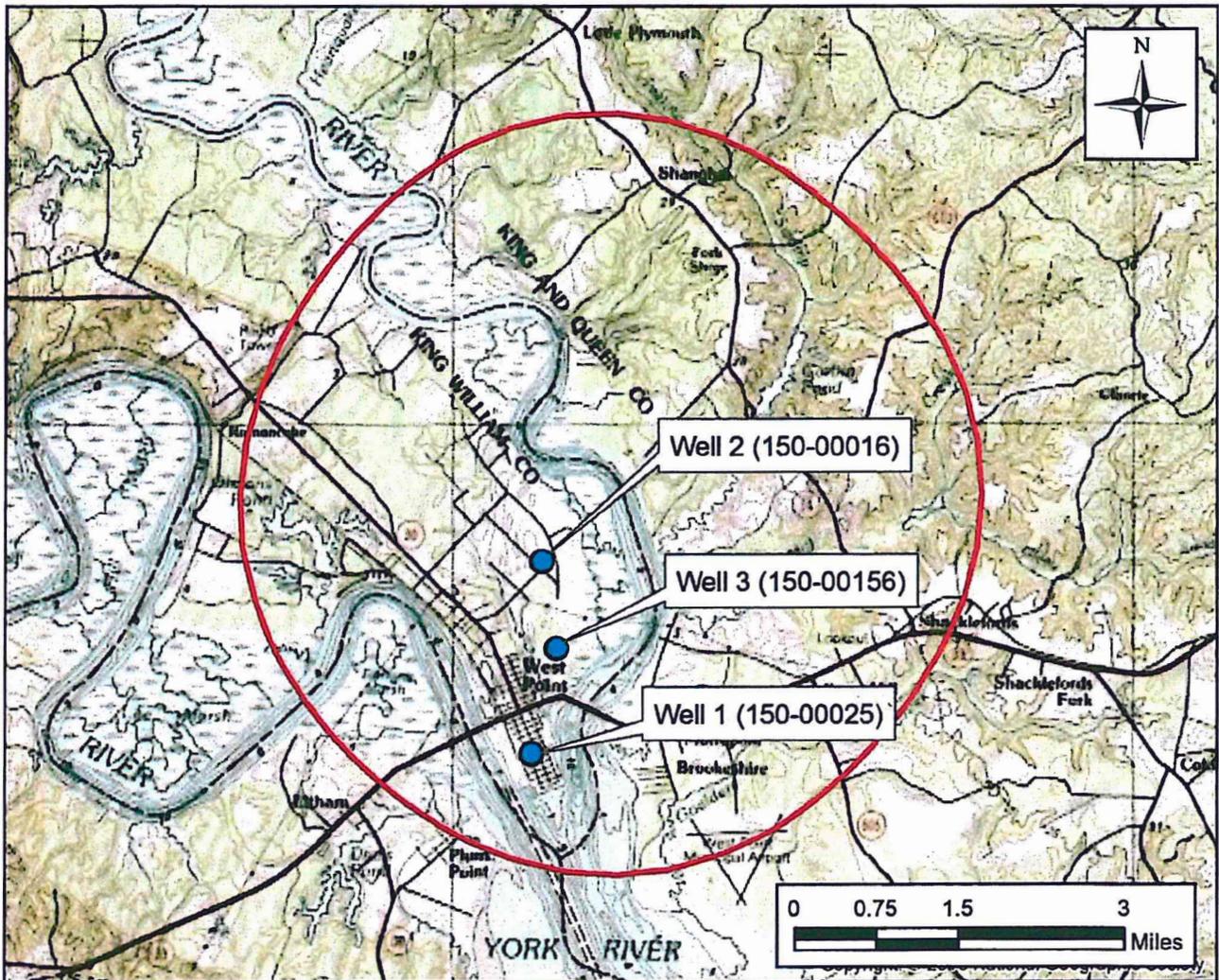
- West Point Water System Wells
- Area of Impact

Simulated drawdown at or exceeding one foot in the Upper Potomac aquifer resulting from a 185,000,000 gallon per year (506,849 gpd) withdrawal from the Upper and Middle Potomac aquifers. The Virginia Coastal Plain Model developed by the USGS was used to simulate drawdown.

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Surface and Ground Water Supply Planning August 23, 2013



West Point Public Water System Area of Impact - Middle Potomac Aquifer



● West Point Water System Wells

○ Area of Impact

Simulated drawdown at or exceeding one foot in the Middle Potomac aquifer resulting from a 185,000,000 gallon per year (506,849 gpd) withdrawal from the Upper and Middle Potomac aquifers. The Virginia Coastal Plain Model developed by the USGS was used to simulate drawdown.

Technical Evaluation performed by Aquaveo, LLC for the Virginia DEQ, Office of Surface and Ground Water Supply Planning August 23, 2013





COMMONWEALTH OF VIRGINIA
DEPARTMENT OF ENVIRONMENTAL QUALITY

Quarterly Ground Water Withdrawal Report

Name of Facility **West Pont Public Water System**
 Owner **Town of West Point**
 Address **P. O. Box 152**
West Point, VA 23181
 County/City **King William County**

Name of Operator _____
 Position/Title _____
 Signature _____
 Date _____ Phone _____
Permit #GW0005001
 (New Permit Application Due – June 5, 2023)

Month of _____ 19_____

Owner Well Number	DEQ Well Number	Present Reading	Previous Reading	Flow Multiplier	Total Gallons
Well #1 373810077000501	150-025				
Well #2 373323076474601	150-016				
Well #3 373323076474603	150-156				
Total Gallons (this month)					

Month of _____ 19_____

Owner Well Number	DEQ Well Number	Present Reading	Previous Reading	Flow Multiplier	Total Gallons
Well #1 373810077000501	150-025				
Well #2 373323076474601	150-016				
Well #3 373323076474603	150-156				
Total Gallons (this month)					

Month of _____ 19_____

Owner Well Number	DEQ Well Number	Present Reading	Previous Reading	Flow Multiplier	Total Gallons
Well #1 373810077000501	150-025				
Well #2 373323076474601	150-016				
Well #3 373323076474603	150-156				
Total Gallons (this month)					
Total Gallons (this quarter)					