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Final Regulation
Agency Background Document

Agency name	State Water Control Board
Virginia Administrative Code (VAC) citation	9 VAC25-610
Regulation title	Ground Water Withdrawal Regulations
Action title	Amend the Ground Water Withdrawal Regulations
Date this document prepared	May 9, 2013

This information is required for executive branch review and the Virginia Registrar of Regulations, pursuant to the Virginia Administrative Process Act (APA), Executive Orders 14 (2010) and 58 (1999), and the *Virginia Register Form, Style, and Procedure Manual.*

Brief summary

Please provide a brief summary (no more than 2 short paragraphs) of the proposed new regulation, proposed amendments to the existing regulation, or the regulation proposed to be repealed. Alert the reader to all substantive matters or changes. If applicable, generally describe the existing regulation. Also, please include a brief description of changes to the regulation from publication of the proposed regulation to the final regulation.

The regulations are being amended to be more consistent with current administrative and application processing practices of other water permit program regulations. This is needed since the regulations have not been revised in over a decade and Board practices have changed. The application requirements for different types of permits and situations have been separated into different regulatory sections to provide more clarity concerning the requirements for complete applications. New sections have been added to address surface water and groundwater conjunctive use permits and supplemental drought relief permits. The water conservation and management plan section has been revised to specify the conservation measures and requirements that must be met, depending on the type of use of the groundwater. The regulations also now identify information to be provided to ensure that the need for the groundwater has been documented, and that alternatives to using groundwater have been investigated and considered. This change creates consistency in how groundwater and surface water withdrawals are justified. A section has been added that allows the Board to estimate an area of impact for mitigation of a small withdrawal based on available modeled information instead of requiring geotechnical investigations to occur. The regulations are also being revised to be consistent with current Board guidance concerning the 80% drawdown criteria evaluation. Additional permit conditions are being specified in the regulations

that will be applicable to all permits which will clarify the requirements that groundwater withdrawers must meet.

Since publication of the proposed, several changes have been made to the regulation. The changes can be found in sections 10, 80, 106, 108, 110 and 340.

Statement of final agency action

Please provide a statement of the final action taken by the agency including (1) the date the action was taken, (2) the name of the agency or board taking the action, and (3) the title of the regulation.

The State Water Control Board adopted the Groundwater Withdrawal Regulations (9VAC25-610-10) as final regulations on June 17, 2013.

Legal basis

Please identify the state and/or federal legal authority to promulgate this proposed regulation, including (1) the most relevant citations to the Code of Virginia or General Assembly chapter number(s), if applicable, and (2) promulgating entity, i.e., agency, board, or person. The identification should include a reference to the agency/board/person's overall regulatory authority, as well as a specific provision authorizing the promulgating entity to regulate this specific subject or program; and a description of the extent to which the authority is mandatory or discretionary.

The basis for this regulation is provided for in Section 62.1-256.8 of the Code of Virginia.

Purpose

Please explain the need for the new or amended regulation. Describe the rationale or justification of the proposed regulatory action. Detail the specific reasons it is essential to protect the health, safety or welfare of citizens. Discuss the goals of the proposal and the problems the proposal is intended to solve.

The proposed amendments are necessary to protect the health, safety or welfare of citizens in the Eastern Virginia Ground Water Management Areas in order to ensure the availability of ground water for current and future beneficial uses.

Ground water levels in parts of the coastal plain are declining to the point that they are nearing aquifer tops in a number of localities along the fall line. In addition, levels are declining generally throughout the rest of the coastal plain. The declines in ground water levels in the current Eastern Virginia Ground Water Management Area have created a situation in which many existing permitted users are unable to renew their withdrawal permits at permitted amounts when they exceed current use. Also, new or expanded applications are a challenge to permit. Withdrawing ground water to the point that it falls below the top of the aquifer can lead to subsidence or impair the aquifer's ability to store water in the future, potentially impacting the availability of ground water for existing users and severely compromising growth and development potential throughout the management area.

Over the years understanding of the coastal plain aquifer system has changed. In addition, there is a need to address what constitutes an adequate margin of safety and what technical criteria are defensible for determining whether or not to issue a permit and for what amounts.

Substance

Please identify and explain the new substantive provisions, the substantive changes to existing sections, or both where appropriate. A more detailed discussion is required under the "All changes made in this regulatory action" section.

The regulations are being amended to be more consistent with other water permit program regulations. This is needed since the regulations have not been revised in many years. The application requirements for different types of permits and situations have been separated into different regulatory sections to provide more clarity concerning the requirements for complete applications. Previously, different types of permits were listed in one section, making the regulations confusing and difficult to use.

Throughout the regulation, the term "ground water" has been changed to the term "groundwater" to be consistent with common usage and terminology of the USGS. The terms "amend", "amended", and "amendment" have been changed to the terms "modify", "modified", and "modification" throughout the regulation to be consistent with the use of these terms in other water permit programs.

Preapplication meetings are now required prior to submitting a permit application for a withdrawal. This will reduce the number of revisions it takes for the applicant to achieve a complete application and will reduce the number of re-reviews required to be conducted by agency staff. A provision has been added to the regulations that would allow the Board the ability to waive information from being resubmitted by applicants as part of a permit application. During the preapplication meeting, the applicant and the department will review the materials required to be submitted as part of the permitting process as well as the information that the department currently has on file. DEQ will then inform the applicant what information can be waived and what information must still be submitted. This will streamline the permitting process and eliminate the resubmission of information that the Board already has on file. New sections have been added to address surface water and groundwater conjunctive use permits and supplemental drought relief permits. Conjunctive use permits will address the balance between available surface water sources and the need to withdraw supplemental groundwater to meet water demand. A section has been added to the regulations to address the requirements for supplemental drought relief permits. Supplemental drought relief permits are permits to withdraw groundwater to meet human consumption after mandatory water use restrictions have been implemented.

The water conservation and management plan section has been revised to specify the conservation measures and requirements that must be met, depending on the type of groundwater use. This allows the Board to specify specific water conservation measures that must be addressed in water conservation and management plans for specific uses, eliminating the "one size fits all" approach. Due to the finite nature of the groundwater resource, conservation measures are required to be implemented through the development of water conservation and management plans. Conservation measures of high volume water consumers on municipal and non-municipal public water supplies shall be addressed in plans to ensure that conservation measures are being implemented and applied. Water conservation and management plans will become an enforceable part of the permit.

The regulations also now identify information to be provided to ensure that the need for the groundwater has been documented, and that alternatives to using groundwater have been investigated and considered. Previously there was limited information provided to applicants concerning their justification of need. This section of the regulations should provide more consistency for applicants concerning the information they provide to justify their need to withdraw groundwater. Projected demand information

developed as part of water supply plans developed to comply with 9 VAC 25-780 may be used to meet some of the justification of need requirements.

A section has been added to allow for the Board to estimate an area of impact of a small withdrawal based on information available instead of requiring geotechnical investigations to occur. Adding this approach will allow some applicants to accept a default area of impact in lieu of conducting geotechnical investigations. The geotechnical investigations add to the cost of applying for a groundwater withdrawal permit. Applicants will retain the ability to conduct geotechnical investigations in lieu of accepting the Board's default area of impact.

The regulations are also being revised to be consistent with current agency guidance concerning the 80% drawdown criteria evaluation. This change is needed because additional information concerning the geologic structure of the coastal plain aquifer system and its effects on evaluating withdrawal impacts have been discovered since the regulations were last updated.

For consistency, additional permit conditions are being specified in the regulations that will be applicable to all permits. These changes will provide the applicant with knowledge of minimum permit conditions that they will be required to comply with before they apply for a permit and will increase certainty to the regulated community.

Issues

Please identify the issues associated with the proposed regulatory action, including:
1) the primary advantages and disadvantages to the public, such as individual private citizens or businesses, of implementing the new or amended provisions;
2) the primary advantages and disadvantages to the agency or the Commonwealth; and
3) other pertinent matters of interest to the regulated community, government officials, and the public.

If the regulatory action poses no disadvantages to the public or the Commonwealth, please indicate.

The primary advantage to the public will be that these regulations manage groundwater resources in order to maintain resource availability for future Virginians. There may be financial savings and processing time benefits for some applicants. Withdrawers of greater than 300,000 gallons of water per month will be required to obtain a permit for this activity if they are not already permitted for such activity. Costs associated with obtaining a permit may be passed on to end users if the permittee is a public water supply. This would be a possible disadvantage to the public from managing the groundwater resource.

The primary advantage to the Commonwealth is that groundwater resources will be comprehensively managed. There are no disadvantages to the Commonwealth from managing the groundwater resource to maintain future availability.

With the expansion of the groundwater management area, which is established under a separate regulation, additional localities will be required to obtain groundwater withdrawal permits. These permits are issued based on demonstrated need for groundwater, require water conservation and mitigation of impacts, and specify maximum amounts of groundwater that may be withdrawn. All withdrawers of groundwater, unless exempted by statute, are required to obtain a permit, which places additional regulations on withdrawers of groundwater occurring within the management area.

Changes made since the proposed stage

Please describe all changes made to the text of the proposed regulation since the publication of the proposed stage. For the Registrar's office, please put an asterisk next to any substantive changes.

Section number	Requirement at proposed stage	What has changed	Rationale for change
10	Definition of "historic prepumping levels" and "human consumption"	The definition of historic prepumping levels has been removed. The definition of human consumption has been revised.	The term "historic prepumping levels" has been removed from the definition section since the term is no longer used in the regulations. The definition of "human consumption" has been modified in response to public comments. The term now provides more clarity concerning the ways in which water is used to support human life and health.
80	Required hard copies of final regulations to be mailed to localities in the groundwater management area	Copies of the final regulation may be sent by postal or electronic mail to localities in the groundwater management area.	Chapter 348 of the 2013 Acts of Assembly (HB2089) now allows information to be sent by postal or electronic delivery.
100	Requirements for the use of water saving equipment and processes were to be included in the water conservation and management plan for public water supplies and commercial and industrial users.	The plan must include practicable requirements concerning the use of water saving equipment and processes for public water supplies and commercial and industrial users.	The section was re-worded in response to comments. The reason for the plan remains the same--to reduce the amount of water withdrawn and/or decrease water demand.
106	Withdrawals from supplemental drought wells are evaluated for stabilized effects prior to being issued a permit.	The evaluation conducted for supplemental wells will not include an evaluation of the stabilized effects since these withdrawals are not continuous. The term "stabilized" has been removed from the regulation.	The evaluations conducted for continuous withdrawals and intermittent (supplemental) withdrawals are different. Previously the regulations used the term stabilized effected when describing the evaluation to be conducted. Due to the different evaluations that are conducted, the regulatory language was revised to clarify that supplemental drought relief wells will be evaluated differently than

			a base load demand since those withdrawals will not be continuous.
106	80% drawdown criteria	The 80% drawdown criteria is evaluated at the point that is 80% of the distance between the land surface and the top of the aquifer at the 1-foot drawdown contour.	The 80% drawdown criteria has been revised in response to comments and to conform to Board policy. Prior to this change, groundwater levels were being drawn down below regulatory levels outside the "half distance" measurement point. The result will eliminate a significant source of model error in evaluating the impact of groundwater withdrawals while continuing to protect the aquifers from becoming dewatered.
108	Geophysical evaluation	The term "geophysical evaluation" is being replaced with the term "geophysical investigation."	This terminology change eliminates redundancy of terminology within the same sentence.
110	Term "viable"	"Viable" has been replaced with term "practical"	The term "practicable" is a defined term in many water regulations and the term "viable" is not defined. This change clarifies the expectation on the applicant.
110	80% drawdown criteria	The 80% drawdown criteria is evaluated at the point that is 80% of the distance between the land surface and the top of the aquifer at the 1-foot drawdown contour.	The 80% drawdown criteria has been revised in response to comments and to conform to Board policy. Prior to this change, groundwater levels were being drawn down below regulatory levels outside the "half distance" measurement point. The result will eliminate a significant source of model error in evaluating the impact of groundwater withdrawals while continuing to protect the aquifers from becoming dewatered.
110	Factors the board may consider certain items when evaluating an application.	The board shall consider certain items when evaluating an application. Additional items such as public benefit and prior public investment in existing facilities shall	Significant investments have been made by the public in order to provide public water service. This change provides more

		be considered.	certainty to the regulated community concerning which mitigating factors will be included in the evaluation of the application.
340	80% drawdown criteria	The 80% drawdown criteria is evaluated at the point that is 80% of the distance between the land surface and the top of the aquifer at the 1-foot drawdown contour.	The 80% drawdown criteria has been revised in response to comments and to conform to Board policy. Prior to this change, groundwater levels were being drawn down below regulatory levels outside the "half distance" measurement point. The result will eliminate a significant source of model error in evaluating the impact of groundwater withdrawals while continuing to protect the aquifers from becoming dewatered.
340	Reasons for permit denial	Removal from the regulations the ability to deny a permit for failure to implement a water conservation and management plan in a previously permitted withdrawal.	This criteria was removed from the proposed regulations. Issues with a permit holder not implementing a water conservation and management plan will be handled through compliance and enforcement staff during the term of the permit.

Public comment

Please summarize all comments received during the public comment period following the publication of the proposed stage, and provide the agency response. If no comment was received, please so indicate.

A summary of comments is provided in this document. DEQ received a total of 163 comments on the proposed amendments from 36 organizations and individuals.

The following technical comments were received on the proposal.

Commenter	Comment	Agency response
Thomas Shepperd, Jr. , Chairman, Hampton Roads	9VAC25-610-10, the proposed definition for "Human Consumption" in the draft regulation is too narrow. It does not include toilet flushing, washing clothes, medical needs, etc.	In response to comments, the definition of "human consumption" in the proposed regulations has been modified. The definition of "human consumption" has been modified to read "Human

Planning District Commission	The regulation should continue to use the definition of "Human consumptive use" in the existing regulations: *"Human consumptive use" means the withdrawal of groundwater for private residential domestic use and that portion of ground water withdrawals in a public water supply system that support residential domestic uses and domestic uses at commercial and industrial establishments.*	consumption means the use of water to support human survival and health, including drinking, bathing, showering, cooking, dishwashing, and maintaining hygiene."
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	When the available supply of groundwater is not sufficient to meet all requests, meeting the demands of public water systems should be the highest priority. 9 VAC25-610-110 E should be revised as follows: *When proposed uses of groundwater are in conflict or available supplies of groundwater are not sufficient to support all those who desire to use them, the board shall prioritize the evaluation of applications in the following manner:* *1. Applications for public water systems shall be given the highest priority;* *2. Should there be conflicts between applications for public water systems, applications will be evaluated in order based on the date that said applications were considered complete; and* *3. Applications for all uses, other than public water systems, will be evaluated following the evaluation of proposed public water systems' uses.*	§ 62.1-263 of the Code of Virginia establishes "human consumption" as the highest priority of water usage when there is insufficient groundwater for all users. The regulations must be consistent with statutory language and requirements. No change has been made to the referenced section.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	9VAC25-610-110 F.2 should be revised to ensure that public water systems have enough water to serve existing customers and to protect the health and safety of those communities. The following language is suggested: *The board shall reissue a permit to any public water supply user for an annual amount no less than the portion of the permitted withdrawal that was used by said system during any consecutive 12 month period occurring in the previous term of the permit.*	The Commonwealth has had three different programs designed to reduce groundwater level declines in the coastal aquifers since the 1950s: the Uniform Well Capping Law, the Groundwater Act of 1973, and the Ground Water Management Act of 1992. During the implementation of these programs, public system groundwater use continued to grow and aquifer heads continued to decline. The most recent analysis by the U.S. Geological Survey (USGS) indicates that the aquifer system appears to be over-allocated to be used sustainably over the long term. Guaranteeing any particular groundwater use, including public water system use, will not result in improved aquifer

		conditions. This request is inconsistent with the purpose and intent of the Ground Water Management Act of 1992.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	If the criterion for evaluating permits is revised, public water systems should be grandfathered under the criterion used to approve the original permit. We are not making this point with respect to new or expanded applications, only those systems and withdrawals existing at the time this regulation is adopted.	The Code of Virginia at § 62.1-254, acknowledges what has been known for some time, i.e. that existing use of the coastal aquifer system is causing declining groundwater levels, subsidence, and salt water intrusion. The most recent state and federal analysis of the sustainability of the aquifer indicate that these impacts will continue to increase for several generations or more at current levels of use. The Groundwater Act of 1973 was essentially a period of grandfathering where existing users were allowed to continue to withdraw based on the existing capacity. During the 20 year life of that statute, groundwater levels continued to decline. With the Ground Water Management Act of 1992, grandfathering of existing users was eliminated for that very reason. It would be inappropriate for the Board to grandfather anyone, especially now that conditions have not improved.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	Existing public water systems should not be required to raise pumps because the Potomac aquifer has been redefined as one aquifer, instead of three aquifers. Also, the pump setting requirements should be based on the depth and position of the well screen rather than on which aquifers are utilized as a groundwater source. 9VAC25-610-110 D.3.c should be revised with the following language: *i) The applicant demonstrates that no pumps or water intake devices are placed lower than the top of the uppermost confined aquifer with a well screen in order to prevent dewatering of a confined aquifer, loss of inelastic storage, or damage to the aquifer from compaction.* *ii) Public water systems with wells screened in the Potomac Aquifer may continue to operate with pumps set below the top of the Potomac Aquifer if those operational settings were approved in their permits prior to the Potomac Aquifer classification as one aquifer instead of three aquifers (Upper Potomac, Middle Potomac, and Lower Potomac).*	The redefining of the Potomac Aquifer based on current science will result in the raising of pumps over a permittee's 10 year permit term and may have a significant impact on yield for some users, Current pump settings are directly related to continuing losses of elastic and inelastic storage and compaction.

Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	If a public water system requests a renewal of a permit with the same conditions as its existing permit, the system should be guaranteed that the renewal will not be denied based on new evaluation of water level impacts. 9VAC25-610-110 F should be revised with this additional paragraph: *The board shall not conduct or consider technical evaluations of the 80% criteria for reapplications if the applicant is a public water system.*	The most recent analysis by the USGS indicates that the aquifer system appears to be over-allocated to be used sustainably over the long term. Guaranteeing any particular groundwater use or excluding the use from technical analysis, including public water system use, will not result in improved aquifer conditions. This request is inconsistent with the purpose and intent of the Ground Water Management Act of 1992.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	Public water systems should be granted renewals of permits with the same conditions as its existing permit regardless of the availability of surface water for purchase. 9VAC25-610-102 "Evaluation of need for withdrawal and alternatives" should be revised with this additional paragraph: *F. The board shall not consider requiring public water systems to purchase surface water in lieu of renewing a groundwater withdrawal permit.*	This proposal is a disincentive to long-term reliance solely on groundwater. To manage the aquifer system sustainably, all groundwater users will need to reduce their reliance on groundwater over time. All alternative sources must continue to be evaluated as part of each permit cycle, including the purchase of surface water, water reuse and other potential alternative sources of supply.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	The technical evaluation of proposed withdrawals should be based on predicted water levels at the end of the proposed permit term instead of evaluating the "stabilized effects" of proposed withdrawals. A transient model simulation should be used instead of a steady state simulation to estimate water level and head changes caused by a proposed withdrawal. A steady state simulation could represent impacts that are expected to occur 50 years or longer after the permit would expire. 9VAC25-610-110 D. 3. h should be revised with the following language: *The board's technical evaluation demonstrates that the effects from the proposed withdrawal in combination with the effects of all existing lawful withdrawals at the end of the permit term will not lower water levels, in any confined aquifer that the withdrawal impacts, below a point that represents 80% of the distance between the historical prepumping water levels in the aquifer and the top of the aquifer.*	The Board defines the term "stabilized effects" more broadly than the commenter and we do not feel that its use is inconsistent with transient model simulations. It is not consistent with statutory intent to limit the evaluation of impacts to the permit term when it is well known that impacts from authorized withdrawals do, in fact, continue for many years beyond the permit term impacting future use of the resource. We do agree that the simulation period needs to be technically defensible and reasonably related to measurable aquifer system impacts from the proposed withdrawals. This can be done by analyzing the drawdown curve and determining the break point at which significant impacts are no longer occurring.
Thomas Shepperd, Jr. , Chairman,	Compliance with the 80% drawdown criteria should be based on the calibration limit of a technically sound	The comment is accurate if it is addressing the limitations of the RASA model that will be replaced with the

Hampton Roads Planning District Commission	groundwater model. 9VAC25-610 D.3.h should be revised by adding the following paragraphs: *(1) Compliance with the 80% drawdown criterion for new applications will be determined at the model's minimum drawdown contour based on the predicted effects of the proposed withdrawal. The model's minimum drawdown contour is defined as the calibration limit of the specific groundwater model or assessment methodology used for the technical evaluation.* *(2) Compliance with the 80% drawdown criterion for permit renewals will be determined at the points that are halfway between the proposed withdrawal site and the model's minimum drawdown contour based on the predicted effects of the proposed withdrawal. The model's minimum drawdown contour is defined as the calibration limit of the groundwater model used for the technical evaluation.*	adoption of these regulatory amendments. The new VCPM model's calibration is technically suitable with the one foot drawdown contour measuring point for the 80% criterion. It is important to note that the estimated calibration error for the VCMP includes the entire lateral and vertical extent of the model. The way that the model error works is that in areas like the existing management area where the highest monitoring resolution is located, the accuracy is far better than its total margin for error. Therefore it isn't a technically valid comparison to use the average total model error as the basis for determining validity of the drawdown contour. The use of the half distance point to measure the 80% drawdown was borrowed from the Code of Maryland. It was assumed at that time that the aquifer properties of the Maryland coastal plain aquifer system would be very similar to that of the aquifer system in Virginia. Over the last two decades, our analysis, and that of the USGS, of sediment samples, aquifer testing results, and application of the groundwater flow models have clearly demonstrated that much of the Virginia system behaves differently than the Maryland system. In the Maryland portion of the system, the majority of head declines from a withdrawal are seen within the first half of the total area of impact. In Virginia, significant drawdowns occur outside this half distance causing water levels to fall below regulatory levels specified for aquifer protection. The regulations have been modified in response to comments concerning the 80% drawdown criteria. Compliance with the 80% drawdown criteria will be determined at the points where the predicted one foot drawdown contour is predicted for the proposed withdrawal. In addition, a significant source of model error—the pre-pumping head—has been eliminated in favor of the land surface.
Thomas Shepperd, Jr. , Chairman, Hampton Roads	The "area of impact" should be defined according to the calibration of the model used for the analysis. 9VAC25-610-10 should include the following definition:	The comment is accurate if it is addressing the limitations of the RASA model that will be replaced with the adoption of these regulatory amendments. The new VCP model's

Planning District Commission	*"Area of impact" means the model's minimum drawdown contour based on the predicted effects of the proposed withdrawal. The model's minimum drawdown contour is defined as the calibration limit of the groundwater model used for the technical evaluation.*	calibration is technically suitable with the one foot drawdown contour measuring point for the 80% criterion. It is important to note that the estimated calibration error for the VCPM includes the entire lateral vertical extent of the model. The way that the model error works is that in areas like the existing management area where the highest monitoring resolution is located, the accuracy is far better than its margin for error. Therefore it isn't a technically valid comparison to use the average total model error as the basis for determining validity of the drawdown contour. The regulations have been modified in response to comments concerning the 80% drawdown criteria. Compliance with the 80% drawdown criteria will be determined at the points where the predicted one foot drawdown contour is predicted for the proposed withdrawal. In addition, a significant source of model error—the pre-pumping head—has been eliminated in favor of the land surface.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	Permit terms should be extended from the current 10 year term to 30 years to match the financing periods for water infrastructure investments. However, withdrawal amounts should be limited to projected demands for 15 years. This would align permit terms with the financing needs for infrastructure. 9VAC25-610-106 D.13 and 9VAC25-610-40 A. 10 in the draft regulations should be modified with the following language: *Groundwater withdrawal permits shall be effective for a fixed term not to exceed 30 years.*	§ 62.1-266 of the Code of Virginia specifies that permit terms shall not exceed ten years. The Board is not authorized to amend the regulations in a manner inconsistent with the statute or to issue a permit for a term exceeding ten years.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	If the permit term is extended beyond 10 years, the permitted withdrawal amounts should be limited to the projected water demands in the next 15 years. Groundwater should not be obligated to a permittee fifteen to thirty years before it is needed. Paragraph A.1 should be created in Section 610-102 Evaluation of need for withdrawal and alternatives. The following language is suggested: *Groundwater withdrawal permits shall be based on projected water demands for no more than 15 years from the date of the permit issuance, even if the permit term exceeds 15 years.*	§ 62.1-266 of the Code of Virginia specifies that permit terms shall not exceed ten years. The Board is not authorized to issue a permit for a term exceeding ten years or to change its regulations in a manner inconsistent with this statutory limitation.

Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	The Virginia Coastal Plain (VCP) groundwater model should be used to manage the Coastal Plain Aquifer System instead of the RASA model currently in use. The VCP model should be adopted because it produces more accurate predictions of groundwater elevations. The VCP model includes information that was not available when the RASA model was developed such as the groundwater density distribution along the saltwater interface near the Atlantic Ocean, domestic self-supplied withdrawals below the reporting threshold, the Chesapeake Bay Impact Crater, and recognition of a single Potomac aquifer.	The Board concurs.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	9VAC25-610-104 "Surface water and groundwater conjunctive use systems" in the draft regulations does not accomplish the goal of giving water providers the flexibility to maximize the available water resources with fewer restrictions than Drought Relief Permits. Suggests that the Conjunctive Use Permit category be eliminated. Permits should be issued as either a Production Well Permit or a Drought Relief Permit.	The conjunctive use permit allows the applicant more flexibility than drought relief permits. Drought relief permits are to be used to only withdraw groundwater needed for human consumption needs where conjunctive use permits are available for all permitted uses. Both drought relief and conjunctive use permits are identified and authorized by statute. It would be inconsistent with the statute to eliminate a class of permits.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	Drought Relief Permits for public water systems should not be limited to permitted withdrawals that only support human consumptive use. The definition of "Supplemental drought relief well" in 9VAC25-610-10 should be revised with the following language: *"Supplemental drought relief well" means a well permitted to withdraw a specified amount of groundwater to meet human consumptive use needs during declared drought conditions, or other declared water supply emergency, after mandatory water use restrictions have been implemented. Permits for public water systems should be permitted to withdraw groundwater to meet the needs of all consumers after mandatory water use restrictions have been implemented.*	§ 62.1-265 of the Code of Virginia states "The Board shall issue groundwater withdrawal permits for supplemental drought relief wells for the amount of groundwater needed annually to meet human consumption needs…" Allowing public water systems to withdraw groundwater to meet the needs of all consumers would be inconsistent with statutory requirements.
Thomas Shepperd, Jr. , Chairman,	The impacts of drought relief wells should be evaluated under conditions that more closely match the past	The Board concurs that drought relief permits should be modeled differently than base demands. Drought relief is by

Hampton Roads Planning District Commission	operations of drought relief wells in Virginia. The impacts should be evaluated with a transient model assuming the proposed maximum rate and withdrawal amount for two years, followed by eight years at the minimum maintenance withdrawals, and repeated if the permit term is extended beyond 10 years. This approach is based on the historical use of emergency wells in the Virginia Coastal Plain.	its nature episodic and transient and the modeling analysis should reflect how the wells are used. While there is merit to the specific modeling recommendation made by the commenter, current drought averages may not be reasonable for the next generation of permittees. The frequency of years considered "drought years" has increased during the last decade and it is not clear if this is a short term aberration or the new "normal" climatic condition. The most recent drought relief permits issued were evaluated using transient model simulations.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	The draft regulations states that the 80% criterion will be evaluated based on the stabilized effects of the proposed withdrawal. Drought wells are rarely pumped for more than a year and almost never pumped continuously. The aquifer system is sluggish to respond to pumping stresses so using a transient model instead of a steady state model is a more accurate way to simulate the impacts of drought relief withdrawals. 9VAC25-610-106 G. 6 should be revised with the following language: *The board's technical evaluation demonstrates that the effects from the proposed withdrawal amounts pumped at the maximum rate for two years followed by the withdrawal of any minimum amounts required for maintenance for eight years in combination with the effects of all existing lawful withdrawals will not lower water levels, in any confined aquifer that the withdrawal impacts, below a point that represents 80% of the distance between the historical prepumping water levels in the aquifer and the top of the aquifer.*	The Board concurs that drought relief wells should not be evaluated as continuous base demand withdrawals. While there is merit to the specific modeling recommendation made by the commenter, current drought averages may not be reasonable for the next generation of permittees. The frequency of years considered "drought years" has increased during the last decade and it is not clear if this is a short term aberration or the new "normal" climatic condition. The most recent drought relief permits issued were evaluated using transient model simulations. A regulatory amendment is not necessary to achieve the stated purpose.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	The "area of impact" should be based on the same assumptions used in the technical evaluation of the proposed withdrawal. 9VAC25-610-108 D should be revised as follows: *Mitigation plans for supplemental drought relief permits shall address the area of impact associated with the maximum groundwater withdrawal allowed by such permits assuming the proposed maximum rate and*	The Commonwealth has experienced extended multi-year droughts historically, and in some cases, these droughts have persisted beyond 2 years. The extended drought period of the 1960s is the most recent example. While this drought did not affect Hampton Roads significantly, it remains the drought of record for portions of the northern coastal plain. The Board believes that evaluating the resource impact on a transient basis is

	withdrawal amount for two years followed by eight years at the minimum maintenance withdrawals.	consistent with actual operations and current scientific understanding of system response. Resource impacts of another year or more would be expected to be transient as well. However, impacts to existing self supplied users, such as individual homeowners, could occur with multi-year sustained pumping during an unusual drought period. When an impact to the wells of these users is possible under a withdrawal permit, it is reasonable for the Board to be conservative even if the impact to these users may not be probable.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	The regulation should address Aquifer Storage Recovery (ASR) wells. Include the following definition in the regulations- "Aquifer Storage Recovery Well" injects drinking water into the aquifer system and stores more water in the system than it withdraws. e) Aquifer Storage Recovery wells should not be required to have a mitigation plan because by definition more water has been injected than withdrawn from the aquifer system. Any and all impacts experienced during a withdrawal cycle are temporary by definition and by operational constraints.	ASR can be done now under current law with coordination with other state and federal permit programs. This proposed change would not result in greater use of ASR or change the fact that multiple permits by multiple agencies would be needed. The issue is better addressed as part of a more comprehensive effort to address this specific issue. The need for a mitigation plan is still appropriate due to the potential water quality changes that could result in the wells of other users from ASR activities.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	Do not require ASR wells to have a Groundwater Withdrawal Permit, but make them comply with DEQ reporting requirements for withdrawals. The EPA Underground Injection Control Program would regulate injection of water at ASR wells.	A VPA permit from the Board would still be required and this would not change. A groundwater withdrawal permit is appropriately required if the ASR operation is associated with a system that also includes a groundwater withdrawal.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	Allow ASR well owners to withdraw a maximum of 70% of the volume of water that has been injected into the aquifer system or up to 95% of the injected water, as long as the utility can effectively demonstrate that the withdrawn water above the 70% point is predominantly injected water (by water quality analysis) and not native water.	ASR can be done now under current law with coordination with other state and federal permit programs. This can be addressed through DEQ guidance to determine appropriate specific numbers.
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning	Allow ASR well owners to withdraw water up to a maximum rate of four times the average daily injection rate based on the previous 12 months.	ASR can be done now under current law with coordination with other state and federal permit programs. This can be addressed through DEQ guidance to determine appropriate specific numbers.

District Commission		
Thomas Shepperd, Jr. , Chairman, Hampton Roads Planning District Commission	Aquifer Storage Recovery wells should not be required to have a mitigation plan because by definition more water has been injected than withdrawn from the aquifer system. Any and all impacts experienced during a withdrawal cycle are temporary by definition and by operational constraints.	The need for a mitigation plan may still be appropriate due to the potential water quality changes in the wells of other users that could result from ASR activities. If a homeowner's well began to see high levels of metals, fluoride or arsenic, after injection activities began, there is a likelihood that this was the result of the injection as these are commonly seen issues. That user should expect to have their well replaced or a filtration system installed by the injector.
Jeff Howeth, J. L. Howeth P.C.	Would like the term small water systems, used in Mr. Kudlas' presentation at the beginning of the Warsaw, Virginia hearing to be defined so that the regulated community would know who would be able to use the default area of impact calculations.	Mr. Kudlas used the term "small water system" to describe those groundwater withdrawals that are detailed in section 108 of the proposed amendments. This is a new section of the regulation that is being added to address those withdrawals that modeling indicates has an area of impact of less than 12 square miles. Systems with areas of impact that are smaller than 12 square miles withdraw less than 10 million gallons per year. The applicant may choose to accept the area of impact without conducting geophysical investigations, without incurring costs to conduct geophysical evaluations.
Curtis Consolvo, GeoResources, Inc.	Encourages the regulations to contain more creativity on how the technical evaluations are being conducted. There should be a means by which the results may be challenged. The regulations should have an avenue for challenging the results. For both those that have aquifer tests and for those that do not have aquifer tests.	Applicants have the opportunity to challenge or appeal decisions of the Board. Applicants may present additional information to support technical evaluations of groundwater conditions and the need for aquifer testing on a case by case basis.
Curtis Consolvo, GeoResources, Inc.	DEQ regulates the Potomac aquifer as a single aquifer, not three separate aquifers. Geologists consider this an "aquifer system." There are different characteristic in some areas of the aquifers. There are distinct water qualities and quantities. There should be a means by which the applicant can present information to show that the area the well is installed in is not impacting other areas in the aquifer system.	Applicants have the opportunity to appeal decisions of the Board. Applicants may present additional information to support technical evaluations of groundwater conditions related to specific geophysical and hydrological attributes.
Wanda Thornton, Brit McMillan, A-NPDC	Clarify that the 80% drawdown criteria is evaluated over the area of impact, not an area the withdrawal impacts. Revise 9VAC25-610-110 D 3 h to	The regulations have been modified in response to comments concerning the 80% drawdown criteria. Compliance with the 80% drawdown criteria will be

	read *"in any confined aquifer that is within the area of impact of the withdrawal."* This would clarify the point of compliance.	determined at the points where the one foot drawdown contour is predicted for the proposed withdrawal.
Wanda Thornton, Brit McMillan, A-NPDC	Use of the 1 foot drawdown to define the area for compliance greatly exceeds the accuracy of all current numerical models used to evaluate withdrawals in the coastal plain. The RMSE for the most current model is 3.6 feet, and this level of accuracy deviates throughout the coastal plain. The 1/2 distance in the current regulations compensated for this accuracy. Changing the area of impact to evaluate the 80% criterion to an amount consistent with the accuracy of the model is scientifically defensible.	The comment is accurate if it is addressing the limitations of the RASA model that will be replaced with the adoption of these regulatory amendments. The new VCP model's calibration is technically suitable with the one foot drawdown contour measuring point for the 80% criterion. It is important to note that the estimated calibration error for the VCPM includes the entire lateral and vertical extent of the model. The way that the model error works is that in areas like the existing management area where the highest monitoring resolution is located, the accuracy is far better than its total margin for error. Therefore it isn't a technically valid comparison to use the average total model error as the basis for determining validity the drawdown contour.
Wanda Thornton, Brit McMillan, A-NPDC	Use of stabilized drawdown to evaluate a 10 year withdrawal has the potential to over predict the area of impact. This is particularly true for episodic withdrawals (drought relief, irrigation). Impacts from individual withdrawals would be better represented as transient simulations	The Board concurs that permits for episodic demands should be modeled differently than base demands. The modeling analysis should reflect how the wells are used and should be transient simulations. We do agree that the simulation period needs to be technically defensible and reasonably related to measurable aquifer system impacts from the proposed withdrawals. This can be done by analyzing the drawdown curve and determining the break point at which significant impacts are no longer occurring.
Wanda Thornton, Brit McMillan, A-NPDC	Suggests treating smaller withdrawal differently to minimize resources needed to permit small withdrawals. Suggests general permit process could be used or other streamlined permit process. Define a small withdrawer (300,000 gal. per month to 3 million gal. per month), create shorter forms, reduce testing requirements, while maintaining mitigation requirements. This would reduce processing times and encourage smaller withdrawals.	A general permit will not be developed and included in the regulations at this time. Even though the beneficial uses may be similar, withdrawals of the same volume do not always result in similar impacts and therefore does not correlate to the use of general permits in other regulatory programs. For example, in some parts of the coastal plain, a 3 million gallon per day groundwater withdrawal would represent a multi-county area of impact.
Wanda Thornton, Brit McMillan,	Withdrawals from the water table aquifer are managed similarly to those from the confined aquifer, even	The Board does encourage more use of the water table aquifer but there is not statutory authorization to require it.

A-NPDC	though the water table aquifer is more readily recharged. Encourage the use of the water table aquifer by allowing a simpler permit process, similar to a general permit to encourage the use of the water table aquifer	There is little consensus among stakeholders on how best to address this issue.
Wanda Thornton, Brit McMillan, A-NPDC	Aquifer Storage and Recovery (ASR) should be included more fully in the regulations. Suggest addressing ASR by adding the concept of a "water balance" basis whereby the operator can withdraw up to 80% of the water that was previously pumped into the aquifer. This would encourage ASR and potentially significantly increase the recharge of the aquifer.	ASR can be done now under current law with coordination with other state and federal permit programs. This can be addressed through DEQ guidance to determine appropriate specific numbers.
Va. Manufacturer's Assoc.	Section 9 VAC 25-610-94 refers to "reapplication for a current permitted withdrawal." This language is confusing. Is this in essence a permit renewal? If so, permit renewal is the term that should be used. For permit renewals that do not seek to expand the withdrawal amount, there are a number of items specified in this section that are not applicable. The evaluation in the case of permit renewal applications should be more focused on actual water usage (to determine whether there is a need for the full permitted amount) and the impact of that usage.	The term "reapplication" is used in the regulation to indicate that allocations are not guaranteed as long as water levels continue to decline. In common usage, the term "renewal" has the connotation that the use can continue indefinitely without increasing levels of water efficacy and conservation. This was the concept that was the foundation of the Groundwater Act of 1973, which was unsuccessful at maintaining groundwater levels. The Ground Water Management Act of 1992, required ongoing conservation to continue to reduce use over time.
Mission H2O	9VAC25-610-94 refers to "reapplication for a current permitted withdrawal." This language is confusing. This appears to be describing a permit renewal. Consider revising the terminology to "permit renewal."	The term "reapplication" is used in the regulation to indicate that allocations are not guaranteed as long as water levels continue to decline. In common usage, the term "renewal" has the connotation that the use can continue indefinitely without increasing levels of water efficacy and conservation. This was the concept that was the foundation of the Groundwater Act of 1973, which was unsuccessful at maintaining groundwater levels. The Ground Water Management Act of 1992, required ongoing conservation to continue to reduce use over time.
Mission H2O	The Groundwater Withdrawal Regulations contain duplicative requirements of the water supply planning regulation. The duplicative requirements should be waived or the regulation should allow for the applicant to cross reference the previously submitted documentation.	The intent of this provision was to mirror the language in the VWP program that allows the use of demand information developed for the water supply plan to be used in the surface water withdrawal permit process. In addition, the language should provide an incentive for water users and localities to work more closely

		together on water supply planning to ensure efficient and coordinated implementation of local or regional water supply planning goals. At the preapplication meeting that is now required by 9VAC25-610-85, the applicant and the department will review the materials required to be submitted as part of the permitting process as well as the information that the department currently has on file. This will streamline the permitting process and eliminate the resubmission of information that the Board already has on file.
Mission H2O	9VAC25-610-94 4 states that the Board can waive certain application requirements if it has access to "substantially identical information that remains accurate and relevant to the permit application." It is unclear how the waiver process will work. Renewal applications should be exempted from some information requirements or required to submit them only if anything has changed. This also applies to 9VAC25-610-96 C.	At the preapplication meeting that is now required by 9VAC25-610-85, the applicant and the department will review the materials required to be submitted as part of the permitting process as well as the information that the department currently has on file. This will streamline the permitting process and eliminate the resubmission of information that the Board already has on file.
Va. Manufacturer's Assoc.	Many of the components in the water withdrawal permit application are duplicative of analyses a locality is required to develop as part of its water supply plan. Where the applicant has already made a submission pursuant to 9 VAC 25-780 et seq., the requirements of 9 VAC 25-610-94. 2.h, j, and k should be waived. Although 9 VAC 25-61-94.4 states that the Board can waive certain application requirements if it has access to "substantially identical information that remains accurate and relevant to the permit application," it is unclear how the waiver process will work. Rather, renewal applicants should be exempted from some of the information requirements or required to submit them only if anything has changed. The same comment applies to 9 VAC 25-610-96.C. Where possible, the permit renewal process should be streamlined and simplified.	Applicants typically argue that the analysis conducted to comply with surface or groundwater withdrawal permitting is developed to a greater degree of detail than information developed for the water supply plan analyses. At the preapplication meeting that is now required by 9VAC25-610-85, the applicant and the department will review the materials required to be submitted as part of the permitting process as well as the information that the department currently has on file. DEQ will then inform the applicant what information can be waived and what information must still be submitted. This will streamline the permitting process and eliminate the resubmission of information that the Board already has on file.
Va. Manufacturer's Assoc.	9 VAC 25-610-100.B states that water conservation plans must be consistent with local and regional water supply plans in the applicant's geographic area. This is not appropriate,	The intent of this provision is to ensure that local water conservation plans are not in conflict with those for an individual permittee. An example we have seen is that a locality's water supply plan says its

	particularly for industrial and agricultural withdrawers whose information and future plans may not be captured in those plans, which are prepared by localities. There may be conflicts between the entities preparing the plans and the entities using the water in the area. Those conflicts will likely be resolved at the state level, rather than in the local and regional plans.	intent for reducing water demand and is to reduce the use of groundwater during critical periods. DEQ has seen applications for community water systems that state their intent is to promote the use of groundwater for residential irrigation. These goals are inconsistent and are not likely to result in effective management of the use or conserve groundwater.
Va. Manufacturer's Assoc.	Throughout 9 VAC 25-610-100 there are requirements relating to evaluation of water reuse options, including a requirement that "water shall be reused in all instances where reuse is practicable." "Practicable" is defined at 9 VAC 25-610-10 as "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." There may be situations where reuse is technically and financially feasible, but the regulatory program is not in place to allow it. There may also be situations where reuse is technically and economically feasible but the industrial process requires food grade quality in the water used and thus reuse is not a workable option. Finally, there may be situations in which reuse is not an option because it will deplete a return flow needed downstream. This phrase should be deleted. If the economics of reuse work, the applicant will consider reuse on its own merits. Requiring an evaluation of potential reuse options is sufficient, especially as reuse should be evaluated as part of the alternative analysis required by 9 VAC 25-610-106.	By establishing the practicability standard, applicants will have clear criteria that they will be required to document. The current process has proven to be insufficient for providing any meaningful analysis and documentation of alternatives to groundwater use by applicants, especially reuse. The return flow issue is addressed in the final Water Reuse Regulation.
Va. Manufacturer's Assoc.	Water conservation and management plans required by 9 VAC 25-610-100 should not become an enforceable part of the groundwater withdrawal permit. The permit term is 10 years; during this time period changes may occur or new information may become available which leads to changes in the water conservation and management plan. Moreover, some of those plans may call for measures that are beyond the withdrawers	The Water Conservation and Management Plan is an enforceable part of the permit and always have been. However, in practice, Water Conservation and Management Plans have not consistently been implemented by applicants and have not resulted in greater water use efficiency over time. This change makes it clear that DEQ will consider the implementation a compliance/enforcement issue. Changes may be made to the plan to update

	control, particularly where the withdrawer does not have the ability to implement or enforce local ordinances. This section should be modified to require the development and submission of a water conservation and management plan, and the resubmission of such plan if changes to the plan are made during the permit term.	conservation measure being implemented that increases the amount of groundwater conserved by making a minor modification to the permit. If these plans were not an enforceable part of the permit, the Board would be unable to ensure that permitted groundwater withdrawers are implementing measures to reduce their demand on groundwater.
Va. Manufacturer's Assoc.	Sections 9 VAC 25-610-110.D.3.(a) - (f) appear redundant of the application requirements. Before an application is deemed complete, all of this information must be provided. It seems unnecessary to list it here, given that the regulation already states that the Board's determination will be based on a complete application that includes all of this information.	9VAC25-110 D 3 a.- f. lists specific criteria that must be demonstrated to meet certain requirements. Previous sections do list application requirements; however this section focuses on the evaluation conducted by the board prior to permit issuance. No changes have been made to the regulation.
Va. Manufacturer's Assoc.	Section 9 VAC 25-610-140.A.12 relates to well identification plates. There should be some flexibility in how the identification information is provided for groundwater wells. As long as the well identification number is provided in a permanent, legible fashion, there should not be any other requirement. There have been significant costs and logistical difficulties in obtaining and maintaining the well identification plates required in the current regulation.	The Board previously allowed applicants to identify wells through their own permanent marking system. This resulted in a number of problems for DEQ staff when visiting sites and trying to identify wells in the field. Often, identification is lost, mislabeled, or renamed over time. Greater standardization should improve this situation. It is not clear to the Board what the referenced costs refer to.
Western Tidewater Water Authority	Public Water Supplies should receive highest priority. Recommends revising 9VAC25-610-110 E. 1. by replacing "human consumptive use" with "public water supplies," as follows: 1. Applications for public water supplies shall be given the highest priority; 2. Should there be conflicts between applications for public water supplies, applications will be evaluated in order based on the date that said applications were determined complete by the board; and 3. Applications for all uses, other than public water supplies, will be evaluated following the evaluation of proposed public water supplies' uses.	The regulations have been structured to prioritize human consumption as the highest use for groundwater. § 62.1-263 of the Code of Virginia specifies that when proposed uses of groundwater are in conflict or when available supplies of groundwater are insufficient for all who desire to use them, preference should be given to human consumption, over all others. Public water systems provide water for human consumption; however these systems also may provide water for other uses that are not related to human consumption. The regulations have been modified in response to comments concerning public water supplies. The definition of human consumption has been modified to further clarify the ways water is used for human consumption. 9VAC25-110 D 4

		has also been modified to state that the board shall consider the public benefit of the withdrawal as well as prior public investments in existing facilities for withdrawal, transmission, and treatment of groundwater. The statute does not authorize further prioritization.
Western Tidewater Water Authority	Recommends revising the first sentence of 9VAC25-610-120 to include the following express acknowledgment of the unique responsibilities of municipal groundwater permittees providing public water supplies: The board shall evaluate all applications for groundwater withdrawals for public water supplies as described in 9VAC25-610-110, and shall apply the criteria in that section so as to insure the protection of public water supplies and the preservation of existing public water supply groundwater withdrawals.	In response to comments, 9VAC25-110 D 4. has been modified to require the Board to examine the public benefit of the groundwater withdrawal, as well as prior public investments to existing facilities for withdrawal, transmission, and treatment of groundwater.
Western Tidewater Water Authority	The term "human consumption" should be defined broadly. Recommends revising the definition of "Human consumption" to read "Human consumption" means the use of water to support human survival and health, including drinking, bathing, showering, cooking, dishwashing, and maintaining oral hygiene."	In response to comments, the definition of "human consumption" in the proposed regulations has been modified. The definition of "human consumption" has been modified to read "Human consumption means the use of water to support human survival and health, including drinking, bathing, showering, cooking, dishwashing, and maintaining hygiene."
Mission H2O	The regulation includes a definition of "human consumption" and identifies priority of uses. The Code of Virginia already includes such definition and priorities. The language of the regulation should be identical to that of the Code, or should be removed as redundant of the language already in the code.	In response to comments, the definition of "human consumption" in the proposed regulations has been modified. The definition of "human consumption" has been modified to read "Human consumption means the use of water to support human survival and health, including drinking, bathing, showering, cooking, dishwashing, and maintaining hygiene."
Western Tidewater Water Authority	Permitted Public Water Supply Withdrawals Should Be Preserved Upon Renewal. Recommends the following revisions to 9VAC25-610-110 D. Replace the existing subsection 3.a. with the following new subsection 3.a. using the newly defined term "practicable," as opposed to the vague term "viable," as follows: 3.a. The applicant demonstrates that no other sources of water supply,	The Board agrees that the proposed change in 9VAC25-610-110 D.3.a, changing "viable" to "practicable" is an improvement. The Board also concurs with the recommended addition in 9VAC25-610-110 D.4.h. The Board does support the change of "may" to "shall" in 9VAC25-610-110 D.4 The Board does not support the change proposed for 9VAC25-610-110 D.4.a, as

	including reclaimed water, are practicable. Revise subsection 4., as follows, to direct require that the board to consider the enumerated factors: 4. The board shall also take the following factors into consideration when evaluating a groundwater withdrawal permit application or reapplication, or special conditions associated with a groundwater permit: Revise subsection 4.a., as follows, to require that the board give due consideration to the nature of the proposed withdrawal and give due weight to public water suppliers, as follows: a. The nature of the use of the proposed withdrawal, taking into account whether the proposed withdrawal is for the public benefit as a public water supply, regardless of whether such withdrawal is used in connection with any surface water supply; Add a new subsection at 4.h. and drop the former subsection 4.h. to a new subsection 4.i., as follows: h. Prior public investments in existing facilities for the withdrawal, transmission and treatment of groundwater; i. Other factors that the board deems appropriate.	it confuses the public benefit stated in the statute (§ 62.1-254) which is "to conserve, protect, and beneficially utilize the groundwater of the Commonwealth" through reasonable control to ensure public health, safety and welfare. We can think of no better way to ensure the future availability of the groundwater resources of the Commonwealth than by ensuring that surface waters are used when available to reduce the overall groundwater demands. Existing uses are expected to result in continued groundwater level declines and the proposed language eliminates the incentive to diversify water supply sources and reduce reliance on the aquifers.
Western Tidewater Water Authority	In order to give due consideration to the importance of public water supply, withdrawals and the associated investment of public funds, revise 9VAC25-610-110 F., as follows: 1. The board shall consider all criteria in subsection D of this section prior to issuing or reissuing a groundwater permit. Existing permitted withdrawal amounts shall not be the sole basis for determination of the appropriate withdrawal amounts when a permit is reissued; provided, however, that the board shall give special consideration to prior public investments in existing facilities for the withdrawal, transmission and treatment of groundwater.	Cost is one factor in the analysis of the suitability of a particular groundwater withdrawal. The Board believes that cost is a mitigating factor and is properly evaluated consistent with the change recommended to add new language regarding costs to 9VAC25-610-110.D.4.d.
Western Tidewater	Permit terms should be extended to 30 years to coincide with typical water	§ 62.1-266 of the Code of Virginia specifies that permit terms shall not

Water Authority	infrastructure investment financing periods.	exceed ten years. The State Water Control Board is not authorized to issue a permit for term exceeding ten years or to change its regulations in a manner inconsistent with this statutory limitation. No change has been made to the regulations in response to this comment.
Mission H2O	The current groundwater permitting system addresses permit applications as they are submitted, instead of evaluating water withdrawals as a whole. The permitting process should encourage users of the same water source to work together to develop a plan for how best to meet the water needs in the area in the future. Reviewing permit applications in tandem would allow for a more comprehensive and collaborative approach to data gathering and resource management. Encourages DEQ to consider changing the regulations to allow for more meaningful collaboration among water users.	Given the physics of the coastal aquifer system and the typical multi-jurisdictional impacts of most industrial and municipal withdrawals, this proposal may represent an opportunity for greater optimization of the resource through greater coordination of pumping by permittees. The Surface Water Management Area Act, § 62.1-242 et seq. of the Code of Virginia, is based on a similar concept, acknowledging that during times that water use would have an unacceptable negative impact on the resource, all users must coordinate and collectively agree to operational limits. The concept needs greater refinement as it pertains to groundwater and more consultation with stakeholders to be practicable. Additional statutory authority may be warranted as well.
Mission H2O	9VAC25-610-94 lists items that are not applicable to permit renewals that are not seeking to expand the withdrawal amount. The review of the application should focus more on actual water usage and the impact of that water usage.	9VAC25-610-94 discusses items that are necessary to evaluate the groundwater withdrawal. The permit term for a withdrawal is ten years. Information may have changed concerning the groundwater withdrawal and this is an opportunity to verify that the information remains the same. The review of the application will focus on water usage, justification of need, and the impact of the groundwater withdrawal, as well as any alternatives available to groundwater withdrawal.
Mission H2O	Many components of the water withdrawal permit application are duplicative of the analysis a locality is required to develop as part of its water supply plan. Where the applicant has already made a submission pursuant to 9VAC25-780 et seq., the requirements of 9VAC25-610-92 2. h, j, and k should be waived.	At the preapplication meeting that is now required by 9VAC25-610-85, the applicant and the department will review the materials required to be submitted as part of the permitting process as well as the information that the department currently has on file. This will streamline the permitting process and eliminate the resubmission of information that the Board already has on file.
Mission H2O	It is not appropriate to require water conservation plans to be consistent with local and regional water supply plans in the applicant's geographical area, particularly for industrial and	The intent of this provision is to ensure that local water conservation plans are not in conflict with those for an individual permittee. An example we have seen is that a locality's water supply plan says its

	agricultural withdrawers whose information and future plans may not be captured in the plans prepared by localities. (9VAC25-610-110 B)	intent for reducing water demand and is to reduce the use of groundwater during critical periods. DEQ has seen applications for community water systems that state their intent is to promote the use of groundwater for residential irrigation. These goals are inconsistent and are not likely to result in effective management of the use or conserve groundwater.
Mission H2O	Throughout 9 VAC 25-610-100 there are requirements relating to evaluation of water reuse options, including a requirement that "water shall be reused in all instances where reuse is practicable." "Practicable" is defined at 9 VAC 25-610-10 as "available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes." There may be situations where reuse is technically and financially feasible, but the regulatory program is not in place to allow it. There may also be situations where reuse is technically and economically feasible but the industrial process requires food grade quality in the water used and thus reuse is not a workable option. Finally, there may be situations in which reuse is not an option because it will deplete a return flow needed downstream. This phrase should be deleted. If the economics of reuse work, the applicant will consider reuse on its own merits. Requiring an evaluation of potential reuse options is sufficient, especially as reuse should be evaluated as part of the alternative analysis required by 9 VAC 25-610-106.	By establishing the practicability standard, applicants will have clear criteria that they will be required to document. The current process has proven to be insufficient for providing any meaningful analysis and documentation of alternatives to groundwater use by applicants, especially reuse. The return flow issue is addressed in the final Water Reuse Regulation.
Mission H2O	Water conservation and management plans required by 9VAC25-610-100 should not be an enforceable part of the groundwater withdrawal permit. 9VAC25-610-100 should require the development and submission of a water conservation and management plan, and the resubmission of such plan if changes to the plan are made during the permit term.	Water Conservation and Management Plans are required to be developed and implemented when a permit is issued. It is already an enforceable part of the permit. If an applicant fails to implement the water conservation and management plan, the applicant is not in compliance with their permit. The Water Conservation and Management Plan section of the proposed regulations has been re-structured to allow the applicant to develop a plan based on their water use. The change is simply a clarification

		of an existing requirement. The regulations have also been changed in 9 VAC25-340 to no longer state that non-compliance with a water conservation and management plan for a previously permitted withdrawal is a reason to deny a permit for a groundwater withdrawal.
Mission H2O	9VAC25-610-100 B 1 requires the use of water saving equipment by all water users. This requirement is burdensome and impossible in many instances to implement. Some water providers do not have control over the development and/or enforcement of local ordinances.	This section of the regulation has been re-written. "Where practicable, the plan should require the use of water saving equipment and processes…".
Mission H2O	In 9VAC25-610-100 B 1, the sentence "These requirements shall assure that the most practicable use is made of groundwater" does not make sense in light of the definition of "practicable" found in 9VAC25-610-10. Suggest rewriting the sentence to read: "Where practicable, the plan should require the use of water saving equipment and processes for all water users including technological, procedural or programmatic improvements to the facilities and processes to decrease the amount of water withdrawn or to decrease water demand. The goal of these requirements is to assure the most efficient use of groundwater.	The Board concurs with this change.
Mission H2O	The requirement of 9VAC25-610-102 to conduct an evaluation of need for the withdrawal and alternatives should be waived where such an analysis has already been completed as part of the water supply planning process.	When such analysis has previously been conducted, this information may be waived by the Board. The contents of the analysis conducted for the water supply plan should be discussed at the preapplication meeting.
Mission H2O	Section 9VAC25-610-110 D 3 (a) – (f) appear redundant of the application requirements. It appears unnecessary to list here, given that the regulation already states that the Board's determination will be based on a complete application that includes all of this information.	9VAC25-110 D 3 a.- f. lists specific criteria that must be demonstrated to meet certain requirements. Previous sections do list application requirements; however this section focuses on the evaluation conducted by the board prior to permit issuance. No changes have been made to the regulation.
Mission H2O	Section 9VAC25-610-140 A 12 relates to well identification plates. There should be some flexibility in how the identification information is provided for groundwater wells. As long as the identification number is provided in a permanent, legible fashion, there should not be any other requirements. There have been significant costs and	The Board previously allowed applicants to identify wells through their own permanent marking system. This resulted in a number of problems for DEQ staff when visiting sites and trying to identify wells in the field. Often, identification is lost, mislabeled, or renamed over time. Greater standardization should improve this

	logistical difficulties in obtaining and maintaining well identification plates required in the current regulation.	situation. It is not clear to the Board what the referenced costs refer to.
Mission H2O	Failure to implement a water conservation and management plan should not be a ground for denying a permit application (9VAC25-610-340 A 4.) Such requirement is impossible for entities with withdrawal permits that do not have the ability to control and/or enforce local ordinances.	Water Conservation and Management Plans are required to be developed and implemented when a permit is issued. It is an enforceable part of the permit. If an applicant fails to implement the water conservation and management plan, the applicant is not in compliance with their permit and this issue is more appropriately addressed through enforcement of an existing permit. 9VAC25-340 A has been revised to remove failure to implement a Water Conservation and Management Plan as a reason the board may deny issuance of a permit.

In addition to technical comments, other comments were received pertaining to the following subjects: support for the regulations; opposition to the regulations; requests for additional public comment opportunities; water reuse; permit processing; economic concerns; currently permitted withdrawals; and data availability. The following is a summary of the comments received on these topics as well as the response to comments. The entire list of comments as well as responses begins on page 36 of this document.

Support for proposed regulations

Comments were received in support of the proposed regulations. The commenters agreed that the regulations are important and are beneficial to protecting the groundwater resource.

Response: The Board appreciates the commenter's support for the regulation.

Property rights/water rights/ impacts to well use at single family homes/ government control of groundwater / general opposition to the regulation

Some commenters were concerned that these regulations would limit withdrawals of groundwater from wells of individual single family homes, or that the regulations would require individuals to connect to public water supplies. Other commenters were concerned that the regulations placed restrictions on individual property owners and limited their property rights. Commenters suggested that there was no need for oversight of groundwater usage, or that such usage should be managed by local governments.

Response: State law directs the State Water Control Board to adopt regulations for groundwater withdrawals that are 300,000 gallons per month or greater. This is due to the potential impacts that the groundwater withdrawals may have on aquifers, and the fact that impacts from a single withdrawal can impact multiple other localities. Groundwater aquifers extend throughout the coastal plain and do not stop at jurisdictional or property boundaries. Localities have not been authorized to manage groundwater under the Code of Virginia. That authority is granted to the Board. This regulation does not impact single family wells since the withdrawals from these wells are below 300,000 gallons per month.

Requests to extend comment period/ additional hearing/ comments on reg. process

Requests were received to extend the comment period and to hold an additional public hearing in the proposed expanded area during the evening. One commenter complained that their local paper was not used to publicize the hearing.

Response: An additional hearing was held in January 2013 in the evening in Warsaw and the comment period was extended until January 30, 2013. The public comment period lasted 100 days instead of the typical 60 days, and there were three hearings held on the proposals. The hearings were advertised in 4 major daily newspapers throughout the Virginia Coastal Plain. Additionally, localities and planning district commissions were contacted individually by the agency to make them aware of these proposed regulations. Notices were placed in the Virginia Register, on the Virginia Regulatory Town Hall website and were emailed to registered users of the town hall website. Mailings were also sent to interested parties on the State Water Control Board's mailing list. Members of the House of Delegates Agriculture, Chesapeake and Natural Resource Committee, the Senate Agriculture, Conservation and Natural Resources Committee, and Members of the State Water Commission were also notified concerning the proposed regulations. DEQ significantly exceeded the minimum required by law.

Water reuse comments

Commenters supported the use of water reuse to decrease demand for groundwater withdrawals. Some commenters stated that industrial and agricultural sectors should be using water reuse practices to reduce groundwater withdrawal demands. Comments were received concerning the content of the Water Reuse regulations.

Response: The Board supports the use of alternative sources of supply to reduce groundwater use, including the greater use of wastewater re-use when practicable. The amendments to the regulations include revisions to address water reuse. Applications for new and expanded withdrawals as well as permits that are being reapplied for must include a water conservation and management plan. The regulations now specifically require water reuse options to be discussed and water reused when practicable. “Practicable” means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project goal.

Requiring the purchase of reuse water by industrial and agricultural users can negatively impact the viability of those economic sectors due to the up-front costs of infrastructure. In addition, groundwater use is free to all beneficial users, including agriculture and industry.

A separate regulation sets forth water requirements for water reuse projects and those regulations are not open for public comment at this time.

Comments on permit processing and requirement to obtain a permit

Comments were received concerning the delays projects would encounter while waiting for a groundwater withdrawal permit to be issued. Some commenters requested the threshold for requiring a permit to be modified in the regulations.

Response: Permits for historical withdrawers of groundwater that become regulated as a result of expansion of the groundwater management area will be handled differently than new permits or for permits for current withdrawals in a groundwater management area. Historical permits will be issued without technical studies being required. Historical permits will be issued for withdrawals based on documented amounts of groundwater previously withdrawn.

Previously delays were experienced by those seeking groundwater withdrawal permits due to delays in groundwater modeling being conducted. Operational changes have been made to the program to focus on the reviews of the permits. Often delays are caused by inadequate applications or wells that were not construct properly. The regulations have been revised to include more detail concerning the content of applications for withdrawals. DEQ has requested funding for additional staff to write groundwater permits.

In response to comments concerning revisions to the threshold for requiring a groundwater withdrawal permit, Virginia Code section 62.1-259 establishes the 300,000 gallon per month threshold for needing to obtain a permit. The Board is unable to modify the regulations to allow more groundwater to be withdrawn without a groundwater withdrawal permit. Each withdrawal is viewed independently by well or well system and is independent of the amount of land a groundwater withdrawer owns. The 300,000

gallons per month threshold is the minimum amount of groundwater that requires a permit not a per parcel limit. Many withdrawers of groundwater seek to withdraw millions of gallons of groundwater per month and the withdrawal amount is not limited by the size of the property. The size of the property has no impact on how the withdrawal affects the aquifer.

Economic concerns

Comments were received concerning the economic analysis conducted by the Department of Budget and Planning for this regulation. Concern was expressed by a commenter that the regulations prevent businesses from expanding because of greatly increased and continuous costs of compliance with these regulations. A commenter was also concerned that the cost of complying with these regulations would be passed on to end users.

Response: The economic analysis is conducted by the Department of Planning and Budget. Businesses in the current groundwater management area have been able to comply with these requirements while expanding their businesses. These businesses have implemented water conservation programs and water reuse and recycling programs to minimize their demand for groundwater usage.

Comments concerning permitted withdrawals

Comments were submitted concerning groundwater withdrawals that are currently permitted.

Response: Comments are accepted on individual groundwater withdrawals prior to individual permits being issued. Public comment periods are held prior to issuance of groundwater withdrawal permits and concerns with individual permits should be submitted during the public comment period associated with each permit. This allows concerns with specific withdrawals to be addressed prior to withdrawal permits being issued.

Data availability

Comments questioned the availability of information concerning aquifers in the groundwater management area.

Response: The DEQ and the Unites States Geological Survey (USGS) manage nearly 400 monitoring wells throughout the Commonwealth. This includes 225 wells in the coastal plain aquifer system. Groundwater levels are sampled every 15 minutes at 45 of these wells. Many of these wells have been sampled since at least the 1970s. While the resolution of monitoring wells in the Northern Neck and Middle Peninsula is less than that of the current GWMAs, the wells in the proposed expanded area show very similar trends in aquifer level declines. These results are from actual monitoring of groundwater levels in monitoring wells and are not modeled trends.

All changes made in this regulatory action

Please list all changes that are being proposed and the consequences of the proposed changes. Describe new provisions and/or all changes to existing sections.

Current section number	Proposed new section number, if applicable	Current requirement	Proposed change and rationale
Throughout			The term "ground water" is being changed

regulations			to the term "groundwater" to be consistent with common usage and terminology established by USGS.
10		Definitions	Additional definitions were added to the regulations, including definitions of "agricultural use", "human consumption", "practicable", and "supplemental drought relief well". These additional definitions were added for clarity. In response to comments, the definition of human consumption was revised. The definition of historical prepumping head is being removed since the term is no longer used in the regulations.
80		Declaration of groundwater management area	Citations included in this section are being revised to current references to state statute. The final regulations may be mailed by postal or electronic means to localities within the groundwater management area.
	85	Preapplication meeting	This section establishes a requirement for a preapplication meeting to occur prior to an application being submitted for a groundwater withdrawal. It also outlines the purpose of the meeting and issues to be discussed.
90		Application for a permit	This section has been amended to exclusively address historical withdrawals in a groundwater management area withdrawing prior to July 1, 1992. Previously multiple types of permits were described in this section. Each type of permit now has its own section of the regulation where application requirements are discussed. A detailed list of items needed for an application to be complete is identified in the section. The Board also has the ability to not require submission of information if it has access to substantially identical information that remains accurate and relevant to the permit application.
	92	Application for a permit by existing users when a groundwater management area is declared or expanded on or after July 1, 1992.	This section has been added to address existing users when a groundwater management area is declared or expanded on or after July 1, 1992. A detailed list of items needed for an application to be complete is identified in the section. The board also has the ability to not require submission of information if it has access to substantially identical information that remains accurate and relevant to the permit application.
	94	Application for a new permit, expansion of an existing withdrawal or reapplication for a current	This section has been added to address new permits, expansion of an existing withdrawal or reapplication for a current permitted withdrawal. A detailed list of

		permitted withdrawal.	items needed for an application to be complete is identified in the section. The Board also has the ability to not require submission of information if it has access to substantially identical information that remains accurate and relevant to the permit application.
	96	Duty to reapply for a permit	These requirements were previously found in Section 90, however with the reorganization of the regulations, the duty to reapply requirements were moved to a stand alone section. Additionally a requirement has been added to allow for information submitted as part of a previous application that continues to be accurate to be referenced as part of the permit application. Language has also been added to allow for permits to be administratively continued if a complete application is filed in a timely manner.
	98	Incomplete or inaccurate applications	This section allows the Board to return an incomplete application to an applicant and suspend processing of the application 180 days after an applicant is notified of a deficiency and fails to correct the deficiency.
100		Water conservation and management plans	The regulations now specify requirements for water conservation and management plans depending on the water use. This section provides more details to applicants concerning the specific items to be addressed in water conservation and management plans. Water Conservation and Management plans are an enforceable part of the permit.
	102	Evaluation of need for withdrawal and alternatives.	The regulations now identify specific information to be provided with the application to demonstrate the need for the groundwater requested and also requires alternative water supplies to be discussed.
	104	Surface water and groundwater conjunctive use systems	This section addresses the use of groundwater to supplement surface water supplies. It includes specific requirements for public water supplies and non-public water supplies to assist with demonstrating the amount of groundwater needed to supplement surface water sources during seasonal variations and demand changes.
	106	Supplemental drought relief wells	Applicants requiring groundwater during periods of drought may request a permit to withdraw groundwater to meet human consumption needs. This section details all of the information needed as part of a complete application and the permit requirements that the withdrawal will be subject to, as well as the evaluation that will

			be conducted in conjunction with evaluating the requested withdrawal. The 80% drawdown criteria has been revised to be consistent throughout the regulation.
	108	Estimating area of impact for qualifying groundwater withdrawals	This section streamlines the permit process for smaller withdrawals in cases where the Board estimates the area of impact to be less than 12 square miles. The applicant may accept the estimated area of impact or may choose to conduct a geophysical investigation to determine the area of impact. The area of impact is used to determine the area in which the applicant is responsible for mitigating impacts to other users.
110		Evaluation criteria for permit applications	Citations have been updated in this section. The section now clarifies the reason pumps are required to be placed no 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. The 80% drawdown criteria has been modified to be consistent with current agency guidance which removes the evaluation occurring at the point that is halfway between the proposed withdrawal site and the predicted one foot drawdown contour. Human consumption is also specified as the highest priority use for groundwater withdrawals. Additional items the board shall consider when evaluating a withdrawal application have been included in the regulation. This includes the public benefit of the withdrawal as well as the prior public investments made related to groundwater withdrawals.
120		Public water supplies	Citations have been updated in this section
130		Conditions applicable to all groundwater permits	This section has been updated to be consistent with the requirements placed on other types of water permits. These conditions are now consistent with other water regulations.
140		Establishing applicable standards, limitations or other permit conditions	The permit conditions have been updated to clarify the requirements of the permit. Screened intervals of the wells authorized for use by the permit are to be specified and the permit shall prohibit withdrawals from wells not authorized in the permit. The section also reiterates as a permit condition that pumps are required to be placed no 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. Permits may require implementation of water conservation and management plans.
150		Signatory requirements	This section has been updated to be consistent with the requirements placed on other types of water permits.
160		Draft permit	This section has been updated to clarify that a decision is made to deny a permit, not an application.
170		Application for a special exception.	The section is being modified to allow the Board to return an incomplete application for a special exception to the applicant. This same ability is provided to the Board for applications for a withdrawal in a previous section.
220		Establishing applicable standards, limitations or other special exception conditions	Citations have been updated in this section
240		Draft special exception	This section has been updated to clarify that a decision is made to deny a special exception, not an application.
250		Public notice of permit or special exception action and public comment period	The section has been updated to be consistent with the requirements placed on other types of water permits.
260		Public access to information	This section has been updated to be consistent with the requirements placed on other types of water permits.
270		Public comments and public hearing	This section has been updated to be consistent with the requirements placed on other types of water permits and public notice requirements.
280		Public notice of hearing	This section has been updated to be consistent with the requirements placed on other types of water permits and public notice requirements. The costs of public notice of the hearing shall be paid by the applicant.
Part IV		Permit and Special Exception Modification, Revocation and Denial	Throughout this part the terms "amend," "amended" and "amendment" have been replaced with the terms "modify", "modified" and "modification" which are terms commonly utilized in other water permit regulations.
300		Causes for revocation	The section has been modified to remove the requirement for a holder of a permit or special exception to agree to or request the revocation. The Board has the authority to revoke a permit or special exception after public notice occurs.
330		Minor modification	A requirement for the agreement between the current and future permit holder to be notarized has been added. This provides certainty that both parties are aware of the pending transfer of the permit. The section

			also clarifies that the transfer notice must specify which party will be liable for compliance with the permit. The actual transfer date must be provided to the Board after the transfer occurs.
340		Denial of a permit or special exception	Specific reasons for denying a permit or special exception have been added to the regulations. This provides the applicant more certainty concerning reasons why the application may be denied. More details concerning the legal rights of the applicant are provided in this section. The 80% drawdown criteria has been revised to be consistent throughout the regulation.
400		Evaluation of regulation	This section is being repealed since it is no longer applicable. Evaluations of regulations are conducted as specified by governor's executive orders.

Regulatory flexibility analysis

Please describe the agency's analysis of alternative regulatory methods, consistent with health, safety, environmental, and economic welfare, that will accomplish the objectives of applicable law while minimizing the adverse impact on small business. Alternative regulatory methods include, at a minimum: 1) the establishment of less stringent compliance or reporting requirements; 2) the establishment of less stringent schedules or deadlines for compliance or reporting requirements; 3) the consolidation or simplification of compliance or reporting requirements; 4) the establishment of performance standards for small businesses to replace design or operational standards required in the proposed regulation; and 5) the exemption of small businesses from all or any part of the requirements contained in the proposed regulation.

One alternative that was discussed with the GW RAP for inclusion in the regulations was a streamlined permit process. Since permits expire every 10 years, applicants are required to reapply for permits. A provision has been added to the regulations that would allow the Board the ability to not require information to be submitted by applicants as part of a permit application if the Board already has the same information in their possession and the information has not changed over the course of the permit. For example, if a completed GW-2 form was previously submitted for a well and the well had not been changed, the Board could waive the requirement for the applicant to resubmit the identical information as part of the permit application. This information would be discussed at a preapplication meeting that is held to assist the applicant with submitting a complete application. These changes will benefit all applicants, including those that are small businesses.

The Board considered alternative regulatory methods including 1) the establishment of less stringent compliance or reporting requirements; 2) the establishment of less stringent schedules or deadlines for compliance or reporting requirements; and 3) the consolidation or simplification of compliance or reporting requirements. The amount of groundwater withdrawn is required to be reported on an annual basis by a separate regulation and revisions to these requirements were not considered since it is essential to monitor the withdrawals from aquifers throughout the state since groundwater is a finite resource. In addition this data is used to calibrate the model used for evaluation of impacts to the aquifer system from withdrawals.

In developing the proposed regulations, the Board considered alternative regulatory methods for small businesses. Small businesses that withdraw greater than 300,000 gallons of groundwater per month are subject to the same requirements as other businesses that withdraw 300,000 gallons of groundwater per month due to the impact groundwater withdrawals have on aquifer levels. The proposed regulation does include revisions to the water conservation and management plan requirements. These changes provide more details to applicants concerning the specific items to be addressed in water conservation and management plans. These changes should assist all groundwater withdrawers, including small businesses, with implementing water conservation and management plans based on their specific groundwater use.

Family impact

Please assess the impact of the proposed regulatory action on the institution of the family and family stability including to what extent the regulatory action will: 1) strengthen or erode the authority and rights of parents in the education, nurturing, and supervision of their children; 2) encourage or discourage economic self-sufficiency, self-pride, and the assumption of responsibility for oneself, one's spouse, and one's children and/or elderly parents; 3) strengthen or erode the marital commitment; and 4) increase or decrease disposable family income.

This regulation will have no affect on the institution of the family and family stability.

Acronyms and Definitions

Please define all acronyms used in the Agency Background Document. Also, please define any technical terms that are used in the document that are not also defined in the "Definition" section of the regulations.

GWMA- Ground Water Management Act
USGS- Unites States Geological Survey

Support for proposed regulations

Comments were received in support of the proposed regulations. The commenters agreed that the regulations are important and are beneficial to protecting the groundwater resource.

Commenter	Comment	Agency response
Frank Fletcher, citizen	Believes that water shortages and well interference will occur if there is no management of the groundwater.	The Board agrees with this statement.
Mr. Frank Fletcher, Ph.D., citizen	Supports new laws and regulations that have as their goal the utilization of alternative water sources to meet water supply demands.	The Board appreciates the commenter's support of the proposed regulations.
Barbara Jacocks, Richmond Regional Planning District Commission	Supports revisions of Groundwater Regulations to better manage the resource.	The Board appreciates the commenter's support of the proposed regulations.
Barbara Jacocks, Richmond Regional Planning District Commission	It is extremely important to ensure an adequate water supply to public water systems; such supply could be endangered in the future by the limited proposed definition of human consumptive use. Failure to prioritize public water systems could encourage a more sprawling, unpermitted development pattern near areas with a strained or limited public water system.	The regulations have been structured to prioritize human consumption as the highest use for groundwater. § 62.1-263 of the Code of Virginia specifies that when proposed uses of groundwater are in conflict or when available supplies of groundwater are insufficient for all who desire to use them, preference should be given to human consumption, over all others. Public water systems provide water for human consumption; however these systems also may provide water for other uses that are not related to human consumption. The regulations have been modified in response to comments concerning public water supplies. The definition of human consumption has been modified to further clarify the ways water is used for human consumption. 9VAC25-110 D 4 has also been modified to state that the board shall consider the public benefit of the withdrawal as well as prior public

		investments in existing facilities for withdrawal, transmission, and treatment of groundwater. The statute does not authorize further prioritization.
Gayl Fowler, citizen	Sees the benefit of limiting the withdrawals of groundwater to protect residents. It is a tool that protects communities from having large industries locate in their community and start withdrawing large amounts of groundwater which would impact the local aquifers. Without this tool, communities are unable to protect their water supply. Groundwater management makes sense to their community.	DEQ agrees that the withdrawals of groundwater in the coastal plain need to be managed in order to protect all users for the long term.

Property rights/water rights/ impacts to well use at single family homes/ government control of groundwater / general opposition to the regulation

Some commenters were concerned that these regulations would limit withdrawals of groundwater from wells of individual single family homes, or that the regulations would require individuals to connect to public water supplies. Other commenters were concerned that the regulations placed restrictions on individual property owners and limited their property rights. Commenters suggested that there was no need for oversight of groundwater usage, or that such usage should be managed by local governments.

State law directs the State Water Control Board to adopt regulations for groundwater withdrawals that are 300,000 gallons per month or greater. This is due to the potential impacts that the groundwater withdrawals may have on aquifers, and the fact that impacts from a single withdrawal can impact multiple other localities. Groundwater aquifers extend throughout the coastal plain and do not stop at jurisdictional of property boundaries. This regulation does not impact single family wells since the withdrawals from these wells are below 300,000 gallons per month. The following comments were submitted by citizens. The Board's response is provided for each comment.

Commenter	Comment	Agency response
Mr. Tom Feigum, Middlesex Co. resident	Believes that the regulation of water will cause those in the management area to be unable to obtain water without paying a high premium for water. Believes it will destroy property value, and will require relocation of citizens to cities where water can be provided by the government.	Groundwater has been regulated on the Eastern Shore and in rural areas south of the James River since 1970s. The negative impacts described by the commenter have not happened in these areas over the last 40 years.

Mr. Tom Feigum, Middlesex Co. resident	Water rights were not addressed by the 13 original states. Regulating groundwater may be a tougher decision than the Commonwealth is ready to address.	The Commonwealth has been regulating groundwater in some form since the 1950s. Virginia court decisions have generally followed the "American Rule" which states that a property owner has a right to reasonable use of groundwater provided the impact does not extend beyond the borders of his own property.
Betty Lucas, citizen	States DEQ wishes to take control of the water supply of local residential well users (currently proposed at 300,000 gallons per month), another uncompensated assault on private property rights.	These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Pat Roth, citizen	Opposed to the Groundwater Withdrawal Regulations. Does not believe that this program will benefit Essex County. Believes that this program is capturing personal water supplies.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the public health, safety and welfare of all Virginians. These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Stan Balderson, citizen	Opposed to the Groundwater Withdrawal Regulations. Does not believe that this program will benefit Essex County. Believes that this program is capturing personal water supplies.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the public health, safety and welfare of all Virginians. These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
William Lucas, citizen	Opposed to expansion of Groundwater management area to include Essex county or Tappahannock.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the

		public health, safety and welfare of all Virginians.
William Lucas, citizen	States Essex County and Tappahannock do not have and will not have a ground water shortage now or in the foreseeable future. Submitted a graph from the Middle Peninsula Planning District Commission Regional Water Supply Plan demonstrating Essex County Water Usage and current amount available.	Expansion of the groundwater management area will allow for comprehensive management of the resource. Current estimates indicate that groundwater is being withdrawn from the aquifers at unsustainable rates. If changes are not made to the usage of groundwater, this will lead to the eventual depletion of the groundwater resource. Not including the additional localities in the management area will exclude them from receiving mitigation protection provided to those localities within the management area.
John Paul Jones, citizen	Has a private well and he strongly opposes the proposed expansion of the Eastern Virginia Ground Water Management Area and the proposed Amendments to the Groundwater Withdrawal Regulations.	These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Shirley Jones, citizen	I urge you to stop this Agenda 21 control of our water supplies. We have perfectly good wells and we do not need any control of Regional Commission's interference anywhere in our state.	These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Catherine Crabill, citizen	More evidence of Sustainable Development's UN AG21 water control initiative. VA LEADERS must stop this DEQ government control of water use in VA. PLEASE HELP and delay or STOP the actions of Middle Peninsula Planning District Commissions attempts to make everyone dependent on MUNICIPAL costly water! Save our wells that work fine at our expense!	These regulations do not eliminate anyone's right to a well or force anyone to connect to municipal supplies. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Andrea Clark, citizen	Does not support (Section 9 VAC 25-610) to remove the right for citizens to have a well, thereby controlling and	These regulations do not remove the right of an individual to have a well. They apply to groundwater

	restricting our water use in the Commonwealth.	withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Bowman Davis, citizen	Does not support one such initiative that will usurp our current right to have a water well for our personal use on our own private property and force us onto public water service.	These regulations do not require citizens to connect to a public water source nor do they eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Cary Nunnally, citizen	Opposed to the Groundwater management regulations.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the public health, safety and welfare of all Virginians.
Dale Swanson, citizen	Does not support initiatives depleting an individual's right to have a well in order for the DEQ or Middle Peninsula Planning District Commission to control water use in VA.	These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Dave Rector, citizen	Believes this regulation would deprive private community well owners and private residential well owners of control of their own water usage	These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
June Byrd, citizen	Does not support the Groundwater Management Regulations. Does not believe that counties that have private well water should be regulated.	These regulations do not require citizens to connect to a public water source nor do they eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Jane Stuczynski,	Does not support initiatives depleting an individual's right to have a well in order	These regulations do not eliminate anyone's right to a well. These

citizen	for the DEQ or Middle Peninsula Planning District Commission to control water use in VA.	regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Jane Stuczynski, citizen	Opposed to government control of water rights.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the public health, safety and welfare of all Virginians.
Sharon Slaughter, citizen	Does not believe DEQ has an authority over water usage on private property.	The Ground Water Management Act of 1992 (§62.1-254 thru 62.1-270 of the Code of Va.) establishes criteria for regulations concerning the withdrawal of groundwater. These regulations are consistent with state law. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are not regulated by this regulation. Large withdrawals, in conjunction with other large withdrawals, can have adverse impacts on the aquifers and sustainable groundwater supplies. Regulating all large withdrawals within the coastal plain will benefit all users.
Sharon Slaughter, citizen	Opposed to any DEQ regulation concerning water usage at any level in Matthews County.	The Ground Water Management Act of 1992 (§62.1-254 thru 62.1-270 of the Code of Va.) establishes criteria for regulations concerning the withdrawal of groundwater. These regulations are consistent with state law. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are not regulated by this regulation. Large withdrawals, in conjunction with other large withdrawals, can have adverse impacts on the aquifers and sustainable groundwater supplies. Regulating all large withdrawals within the coastal plain will benefit all users.

Ted Williams, citizen	DEQ should discourage any initiatives regulating/restricting residential well use where such use already exists and meets health codes.	The Ground Water Management Act of 1992 (§62.1-254 thru 62.1-270 of the Code of Va.) establishes criteria for regulations concerning the withdrawal of groundwater. These regulations are consistent with state law. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are not regulated by this regulation. Large withdrawals, in conjunction with other large withdrawals, can have adverse impacts on the aquifers and sustainable groundwater supplies. Regulating all large withdrawals within the coastal plain will benefit all users.
Ted Williams, citizen	Requests that DEQ act to block attempts at charging non-user fees and penalties to those who did not ask for municipal water/sewer and do not want it.	This regulation does not address user fees that localities charge for municipal water or sewer services provided to residents. The Board does not have the authority to regulate fees imposed by localities.
Tricia Stall, citizen	Does not support initiatives depleting an individual's right to have a well in order for the DEQ or Middle Peninsula Planning District Commission to control water use in VA.	These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Frank Fletcher, citizen	The Groundwater Management amendments are not threats to individual property rights. A property owner does not hold title to the groundwater below his property. The property owner has the legal right to reasonable use of the resource. These amendments do not take away property rights. Essex Co. does not manage its groundwater.	The Board agrees with this statement.
Ms. Trudy Feigum, Middlesex Co. resident	Believes these proposed regulations remove governance from elected officials in Middlesex County and places more governance in the hands of	The goal of the regulations is to manage groundwater so that it is available to all citizens of the Commonwealth. The stated goal of

	faceless government employees.	the General Assembly in 1992, based on the science of the time, was that "unrestricted use" was negatively impacting the quantity and quality of groundwater. The public benefit stated in the statute (§ 62.1-254) is "to conserve, protect, and beneficially utilize the groundwater of the Commonwealth" through reasonable control to ensure public health, safety and welfare. Governance of groundwater use is not an authority that the General Assembly has delegated to Virginia localities.
Mr. Tom Feigum, Middlesex Co. resident	Opposes the proposed regulations. Give more thinking to the proposal, to make sure it serves the needs of the taxpayer, not the need of government.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the public health, safety and welfare of all Virginians.
Betty Lucas, citizen	Opposed to amendments of the Groundwater withdrawal regulations.	The regulations have not been revised in over a decade and need to be updated as groundwater levels continue to decline. Retaining the regulations in their current form would not be protective to the groundwater aquifers.
Betty Lucas, citizen	States DEQ has historically done nothing to protect the water supply from high users, and currently has no plan as seen in the reopening of the Franklin Mill.	DEQ works with permitted withdrawals to evaluate the need for groundwater withdrawals, to identify alternative water supplies, to reduce water usage, eliminate water loss, and identify opportunities for water reuse.
Betty Lucas, citizen	States DEQ has no proposed viable alternative to responsible long-term water usage, instead planning to limit private property use as a means of restricting local business and residential growth.	DEQ works with permitted withdrawals to evaluate the need for groundwater withdrawals, to identify alternative water supplies, to reduce water usage, eliminate water loss, and identify opportunities for water reuse. This regulation only regulates withdrawals of 300,000 gallons per month; therefore it does not regulate wells that serve single families.

Betty Lucas, citizen	States DEQ's plan will create "Water Wars" among Americans, with the associated partisan "winners and losers" approach, rather than solving potential problems with successful methods already employed in a number of states, most notably in Florida for the past 50 years.	Due to the interconnectivity of the aquifers, impacts from groundwater withdrawals are being seen outside of the groundwater management area. All users of the groundwater resource should be held to the same standards for approving groundwater withdrawals.
Betty Lucas, citizen	Concerned that the larger users of groundwater are causing private well owners to be regulated.	The cumulative withdrawals of all users, including individuals, are causing groundwater levels to decline. These regulations do not eliminate anyone's right to a well. These regulations apply to groundwater withdrawals of 300,000 gallons of water per month. Individual single family wells are exempted by this regulation.
Betty Lucas, citizen	Concerned that larger users of water, such as the West Point Paper Mill are not using surface water, or filtering or reusing water instead of withdrawing groundwater.	DEQ works with permitted withdrawals to evaluate the need for groundwater withdrawals, to identify alternative water supplies, to reduce water usage, eliminate water loss, and identify opportunities for water reuse. All of these issues were addressed prior to issuing a groundwater withdrawal permit to the West Point Paper Mill.
Jean Casanave, citizen	Opposed to the Groundwater management regulations.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the public health, safety and welfare of all Virginians.
Dave Rector, citizen	Opposed to the Groundwater management regulations.	The goal of the regulation is to manage groundwater for all users so that the resource will be protected for the long-term. This supports the public health, safety and welfare of all Virginians.
Bernie Buchanan, citizen	Suggests that the decisions made concerning groundwater usage be made using facts, not political pressures.	Information on impacts to aquifers, available alternative water sources, and the need for groundwater usage are all considered when permit

		applications are being evaluated.
Stan Balderson, citizen	Suggests that the decisions made concerning groundwater usage be made using facts, not political pressures.	Information on impacts to aquifers, available alternative water sources, and the need for groundwater usage are all considered when permit applications are being evaluated.
Bernie Buchanan, citizen	Richmond and Hampton Roads need to address their own wasteful groundwater problems without making other areas become regulated.	Groundwater withdrawals in the current groundwater management area have received permits for their withdrawals. Prior to approvals being received for groundwater withdrawals, information on impacts to aquifers, available alternative water sources, water reuse, and water conservation measures and the need for groundwater usage are all considered. This has assisted with managing the groundwater resource for future generations. Withdrawals occurring outside of the management area have not undergone these evaluations. Richmond does not use groundwater as a water source.
Stan Balderson, citizen	Richmond and Hampton Roads need to address their own wasteful groundwater problems without making other areas become regulated.	Individual localities are not authorized to control groundwater resources. State law directs the State Water Control Board to regulate groundwater withdrawals of 300,000 gallons per month. Groundwater withdrawals in the current groundwater management area have received permits for their withdrawals. Prior to approvals being received for groundwater withdrawals, information on impacts to aquifers, available alternative water sources, water reuse, and water conservation measures and the need for groundwater usage are all considered. This has assisted with managing the groundwater resource for future generations. Withdrawals occurring outside of the management area have not undergone these evaluations. Richmond does not use groundwater

		as a water source.
Bernie Buchanan, citizen	Require all high volume users of groundwater to stop withdrawing water and immediately require sole use of potable waters. Require them to use treated wastewater treatment plant waters. Utilize river or creek waters and require this water to be treated, tested, and replenished upon its usage.	Current water demands cannot be met by available surface water sources or treated wastewaters without a significant cost. Groundwater withdrawals are needed to supply citizens with water. Many localities withdraw large amounts of groundwater to meet the consumption needs of citizens.
Stan Balderson, citizen	Require all high volume users of groundwater to stop withdrawing water and immediately require sole use of potable waters. Require them to use treated wastewater treatment plant waters. Utilize river or creek waters and require this water to be treated, tested, and replenished upon its usage.	Current water demands cannot be met by available surface water sources or treated wastewaters without a significant cost. Groundwater withdrawals are needed to supply citizens with water. Many localities withdraw large amounts of groundwater to meet the consumption needs of citizens.

Requests to extend comment period/ additional hearing/ comments on reg. process

Requests were received to extend the comment period and to hold an additional public hearing in the proposed expanded area. An additional hearing was held in January 2013 in the evening in Warsaw and the comment period was extended until January 30, 2013. The public comment period lasted 100 days instead of the typical 60 days, and there were three hearings held on the proposals. The hearings were advertised in 4 major daily newspapers throughout the Virginia Coastal Plain. Additionally, localities and planning district commissions were contacted individually by the agency to make them aware of these proposed regulations. Notices were placed in the Virginia Register, on the Virginia Regulatory Town Hall website and were emailed to registered users of the town hall website. Mailings were also sent to interested parties on the State Water Control Board's mailing list. Members of the House of Delegates Agriculture, Chesapeake and Natural Resource Committee, the Senate Agriculture, Conservation and Natural Resources Committee, and Members of the State Water Commission were also notified concerning the proposed regulations.

Commenter	Comment	Agency response
Mr. Tom Feigum, Middlesex Co. resident	Middlesex Co. news paper not listed as the paper in which publication occurred of meetings. Found out about public hearing at Middle Peninsula PDC meeting less than 2 weeks ago.	The hearings were advertised in 4 major daily newspapers throughout the Virginia Coastal Plain. Additionally, localities and planning district commissions were contacted individually by the agency to make them aware of these proposed regulations. Notices were placed in the Virginia Register, on the Virginia Regulatory Town Hall website and

		were emailed to registered users of the town hall website. Mailings were also sent to interested parties on the State Water Control Board's mailing list. Members of the House of Delegates Agriculture, Chesapeake and Natural Resource Committee, the Senate Agriculture, Conservation and Natural Resources Committee, and Members of the State Water Commission were also notified concerning the proposed regulations.
Mr. Tom Feigum, Middlesex Co. resident	Questioned timing of hearing-complained about time of day meeting held. Concern with needing to defend their property rights. Fails to see anyone in attendance at the meeting reflecting his rights as a taxpayer.	The agency scheduled a third public hearing for Warsaw, VA, to be held in the evening, and extended the comment period until January 30, 2013. This allowed citizens the opportunity to attend a meeting in person to submit their comments in lieu of submitting them in writing.
Mr. Matt Walker, Middlesex Co. Administrator	Requested DEQ to hold an additional hearing in either Warsaw or Tappahannock in order to hold a meeting in the center of the proposed new boundaries of the groundwater management area.	The agency scheduled a third public hearing for Warsaw, VA, that was held in the evening, and extended the comment period until January 30, 2013.
Mr. Matt Walker, Middlesex Co. Administrator	Requested DEQ/Water Board to consider expanding the comment period to March or April to allow more time for public comment and avoid conflicts with the holidays.	The agency typically schedules 60 days for public comment and this regulation has had 100 days with the extension to January 30, 2013.
Bowman Davis, citizen	Requests the current hearings to be extended and allow more input from the citizens, and to explain how such a proposal will do serious harm to them, their families and their progeny.	The public comment period began October 22, 2012 and extended until January 30, 2013 as a result of an additional hearing being scheduled. Three hearings were held to allow the public the opportunity to comment on the proposed regulations. The comment period for a proposal is normally 60 days. The comment period for this regulation was 100 days, with the majority of the comment period occurring prior to the start of the 2013 Virginia General Assembly session. The public has had ample time to comment of the

		regulations and additional hearings will not be held.
Dale Swanson, citizen	Requests the public comment period be extended until after session ends.	The public comment period began October 22, 2012 and was originally scheduled to end January 11, 2013. The comment period was extended until January 30, 2013 as a result of an additional hearing being scheduled. The comment period for a proposal is normally 60 days. The comment period for this regulation was 100 days, with the majority of the comment period occurring prior to the start of the 2013 Virginia General Assembly session. The public has had ample time to comment of the regulations and the comment period will not be extended.
Tricia Stall, citizen	Requests the public comment period be extended until after session ends.	The public comment period began October 22, 2012 and was originally scheduled to end January 11, 2013. The comment period was extended until January 30, 2013 as a result of an additional hearing being scheduled. The comment period for a proposal is normally 60 days. The comment period for this regulation was 100 days, with the majority of the comment period occurring prior to the start of the 2013 Virginia General Assembly session. The public has had ample time to comment of the regulations and the comment period will not be extended.

Water reuse comments

Commenters supported the use of water reuse to decrease remand for groundwater withdrawals. The amendments to the regulations include revisions to address water reuse. Applications for new and expanded withdrawals as well as permits that are being renewed must include a water conservation and management plan. The regulations now specifically require water reuse options to be discussed and water reused when practicable. "Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project goal.

Some commenters stated that industrial and agricultural sectors should be using water reuse practices to reduce groundwater withdrawal demands. Requiring the purchase of reuse water can negatively impact the viability of the identified economic sectors due to the up-front costs of

infrastructure. In addition, groundwater use is free to all beneficial users, including agriculture and industry.

Comments were received concerning the content of the Water Reuse regulations. A separate regulation sets forth water requirements for water reuse projects and those regulations are not open for public comment at this time.

Commenter	Comment	Agency response
Mr. Frank Fletcher, Ph.D. , citizen	Supports expanding water recycling and reuse to lessen demand on groundwater.	The Board agrees that water conservation and water reuse are both important tools for reducing demand on groundwater.
Pete Mansfield, citizen	Supports the use of water reuse to reduce the demand for groundwater withdrawals.	The Board supports water reuse as an alternative source of supply to groundwater withdrawals. The amendments to the regulations include revisions to encourage water reuse. Applications for new and expanded withdrawals as well as permits that are being renewed must include a water conservation and management plan. The regulations now specifically require water reuse options to be discussed and water reused when practicable. "Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project goal.
Trudy Feigum, citizen	Supports the use of water reuse to reduce the demand for groundwater withdrawals.	The Board supports water reuse as an alternative source of supply to groundwater withdrawals. The amendments to the regulations include revisions to encourage water reuse. Applications for new and expanded withdrawals as well as permits that are being renewed must include a water conservation and management plan. The regulations now specifically require water reuse options to be discussed and water reused when practicable. "Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the

		overall project goal.
Pete Mansfield, citizen	Stated the Water Reuse regulations should be revised to allow for more water reuse, which would in turn decrease the demand for groundwater withdrawals, while reducing nutrients from entering the bay.	The Water Reuse Regulations are not open for public comment at this time.
Pete Mansfield, citizen	Stated the Water Reuse regulations should be revised to allow for more water reuse, which would in turn decrease the demand for groundwater withdrawals, while reducing nutrients from entering the bay.	The Water Reuse Regulations are not open for public comment at this time.
Trudy Feigum, citizen	Stated the Water Reuse regulations should be revised to allow for more water reuse, which would in turn decrease the demand for groundwater withdrawals, while reducing nutrients from entering the bay.	The Water Reuse Regulations are not open for public comment at this time.
Pete Mansfield, citizen	Stated the industrial and agricultural sectors should be using water reuse practices to reduce groundwater withdrawal demands.	The up-front costs of infrastructure must be paid. In addition, groundwater use is free to all beneficial users, including agriculture and industry. Requiring the purchase of reuse water can negatively impact the viability of the identified economic sectors. The regulations now specifically require water reuse options to be discussed and water reused when practicable. "Practicable" means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project goal.
Trudy Feigum, Citizen	States the industrial and agricultural sectors should be using water reuse practices to reduce groundwater withdrawal demands.	The up-from costs of infrastructure must be paid. In addition, groundwater use is free to all beneficial users, including agriculture and industry. Requiring the purchase of reuse water can negatively impact the viability of the identified economic sectors. The regulations now specifically require water reuse options to be discussed and water

		reused when practicable. "Practicable means available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project goal.
Betty Lucas, citizen	Supports the use of water reuse to reduce the demand for groundwater withdrawals.	The up-front costs of infrastructure must be paid. In addition, groundwater use is free to all beneficial users, including agriculture and industry. Requiring the purchase of reuse water can negatively impact the viability of the identified economic sectors. The regulations now specifically require water reuse options to be discussed and water reused when practicable.
Betty Lucas, citizen	Stated the Water Reuse regulations should be revised to allow for more water reuse, which would in turn decrease the demand for groundwater withdrawals, while reducing nutrients from entering the bay.	The Water Reuse Regulations are not open for public comment at this time. The regulations were recently amended.
Gayl Fowler, citizen	Does not believe that water reuse projects will solve all of the groundwater issues in Virginia. May be part of the solution, but we are unsure what future use needs will be.	The reuse of water will help to reduce the demand on groundwater supplies, but additional measures are needed to maintain groundwater supplies for the long term.

Comments on permit processing and requirement to obtain a permit

Comments were received concerning the delays projects would encounter while waiting for a groundwater withdrawal permit to be issued. Permits for historical withdrawers of groundwater that become regulated as a result of expansion of the groundwater management area will be handled differently than new permits or for permits for current withdrawals in a groundwater management area. Historical permits will be issued without technical studies being required prior to application. Permits will be issued for withdrawals based on documented amounts of groundwater previously withdrawn.

Previously delays were experienced by those seeking groundwater withdrawal permits due to delays in groundwater modeling being conducted. Operational changes have been made to the program to focus on the reviews of the permits. Often delays are caused by inadequate applications or wells that were not constructed properly. The regulations have been revised to include more detail concerning the content of applications for withdrawals.

Some commenters requested the threshold for requiring a permit to be modified in the regulations. Virginia Code section 62.1-259 establishes the 300,000 gallon per month threshold for needing to obtain a permit. Each withdrawal is viewed independently by well or well system

and is independent of the amount of land a groundwater withdrawer owns. The 300,000 gallons per month threshold is the minimum amount of groundwater that requires a permit not a per parcel limit. Many withdrawers of groundwater seek to withdraw millions of gallons of groundwater per month and the withdrawal amount is not limited by the size of the property. The size of the property has no impact on how the withdrawal affects the aquifer.

Commenter	Comment	Agency response
Ms. Trudy Feigum, Middlesex Co. resident	Two replacement wells were needed in my housing development in Middlesex County due to mineral build-up and subsequent lack of pressure. The permit was issued in a short amount of time and work commenced. Once wells were completed and ready for use it took over a year for DEQ to grant permission to withdraw water. Lack of adequate staff to complete the permitting process was a big disadvantage to the citizen, the public. Due to further regulations on withdrawers, believes more time will be needed for the permitting process.	Middlesex County is not currently in the groundwater management area and a permit could not be required from the Board for this activity. Withdrawers in the newly expanded management area will be issued historical permits based on their historical groundwater usage. Historical permits will be issued without technical studies being required. This will expedite the historical permitting process.
Ms. Trudy Feigum, Middlesex Co. resident	More staff will be needed- 6 employees at a cost of $240,000. Concerned that as a taxpayer, this additional cost will impact the taxpayer. Wants to be assured of a more timely response.	Adequate staffing will allow the Board to issue permits in a timely manner. Operational changes have been made to the groundwater permitting program to focus on reviews of permits. Previously there was a long wait for groundwater modeling to be conducted and this issue has been resolved, which allows for the permitting process to proceed faster.
Mr. Tom Feigum, Middlesex Co. resident	Expressed concern with delays in permitting of withdrawals. Jobs are needed. Groundwater permitting delays may cause companies to locate elsewhere instead of here. One county waiting for approval for well for two years and still waiting.	Adequate staffing will allow the Board to issue permits in a timely manner. Operational changes have been made to the groundwater permitting program to focus on reviews of permits. Previously there was a long wait for groundwater modeling to be conducted and this issue has been resolved, which allows for the permitting process to proceed faster. Often, long delays reflect and adequate application or a well that was not constructed properly.

Mr. Tom Feigum, Middlesex Co. resident	A residential development application was approved for 2 replacement groundwater wells, the wells drilled, pumps and pipes installed with restrictors and one year passed before those wells were allowed to be placed online. Replacement wells were needed due to mineralization of the original wells, thus reducing the flow below the groundwater withdrawal level permitted and needed.	Middlesex County is not currently in the groundwater management area and a permit could not be required from the Board for the activity described by the commenter.
Mr. Matt Walker, Middlesex Co. Administrator	Inquired how long it would lake for DEQ to review a permit application for a groundwater withdrawal. Have heard there have been delays of 2 years.	On average it takes the Board 18 months to issue a groundwater withdrawal permit. This time period would be greatly reduced for historical permits issued as a result of the groundwater management area being expanded because no modeling or review of aquifer studies, water conservation plans, or mitigation plans are part of the review.
Andrew Arnold, citizen	Wants information on how the proposed regulations will impact his local water system with 115 users in Fairfax County, and how the existing user will be grandfathered once the groundwater management area is expanded.	DEQ provided information to this local water system concerning the groundwater management program and how existing users will be regulated if the management area is expanded.
Bernie Buchanan, citizen	Three years is too long to process a new groundwater withdrawal permit. Eliminate DEQ oversight of groundwater and give localities that authority to manage groundwater.	The Board agrees that three years is too long to issue a groundwater withdrawal permit. Changes have been made to the regulations to assist with shortening the amount of time required for issuing permits. The State Water Control Board is authorized by state law to manage groundwater, not individual localities; therefore localities do not have the ability to manage groundwater.
Stan Balderson, citizen	Three years is too long to process a new groundwater withdrawal permit. Eliminate DEQ oversight of groundwater and give localities that authority to manage groundwater.	The Board agrees that three years is too long to issue a groundwater withdrawal permit. Changes have been made to the regulations to assist with shortening the amount of time required for issuing permits. The

		State Water Control Board is authorized by state law to manage groundwater, not individual localities; therefore localities do not have the ability to manage groundwater.
Ms. Trudy Feigum, Middlesex Co. resident	Concerned that after 10 years current users may be required to reduce the withdrawals or no permit will be issued in the future. Concerned that her housing development, which currently is permitted for 500,000 gallons per month may be allowed to withdraw less water than is currently being used in the future. Questions with government management, will it be determined the groundwater is needed elsewhere and allowed to be diverted? Believes the government wants to take ownership of the groundwater in the county and the country.	The goal of the regulation is to manage groundwater for all users so that the resource will be available for the long term. The Board believes that the proposed changes will help to reduce current declines of groundwater levels. If these changes do not work, other actions will need to be considered so we do not allow the eventual depletion of the groundwater resource. All users will need to consider using conservation measures to protect the groundwater resource to reduce overall demand on the aquifers over a reasonable period of time.
Morgan Wright, Wood Preservers Inc.	Questioned whether the withdrawal of 300,000 gallons of groundwater per month is applicable to all withdrawals from all aquifers or only aquifers that are currently being depleted.	All withdrawals of 300,000 gallons of groundwater per month that occur in a groundwater management area are required to obtain a permit. This applies to withdrawals of this scale from all aquifers, both confined and unconfined.
Morgan Wright, Wood Preservers Inc.	Questioned if the groundwater withdrawal amounts were tied to the size of a property a withdrawer owns. For example 50 businesses that each have 1 acre of property that are adjacent to each other could each withdraw 300,000 gallons of groundwater per month, while a business on 50 acres would only be allowed to withdraw 300,000 gallons of groundwater per month.	Virginia Code section 62.1-259 establishes the 300,000 gallon per month threshold for needing to obtain a permit. Each withdrawal is viewed independently by well or well system and is independent of the amount of land a groundwater withdrawer owns. The 300,000 gallons per month threshold is the minimum amount of groundwater that requires a permit and is not a per parcel limit. Many withdrawers of groundwater seek to withdraw millions of gallons of groundwater per month and the withdrawal amount is not limited by the size of the property. The size of the property has no relationship to how the withdrawal affects the aquifer.

Morgan Wright, Wood Preservers Inc.	At the public hearing in Warsaw on January 14, 2013 comments were made that 10 entities, businesses or municipal concerns, withdraw 60% of the groundwater in Eastern Virginia. Each of these entities uses tens of millions of gallons per month. If this is factual, it appears that the proposed permit level of 300,000 gallons per month is very low in comparison. This gives me the feeling that the VADEQ could monitor and address groundwater concerns by setting the permit level at millions of gallons per month. The proposed permit level of 300,000 gallons per month will be onerous to small business.	Virginia Code section 62.1-259 establishes the 300,000 gallon per month threshold for needing to obtain a permit. Since this threshold is included in state law, the Board is unable to increase the 300,000 gallons per month threshold. Water withdrawals below the 300,000 gallon per month threshold represent 30% of the total groundwater use and are the fastest growing withdrawal type.
Morgan Wright, Wood Preservers Inc.	Many of the VADEQ assumptions are very conservative. As an example the 300,000 gallon per month limit is to be applied regardless of whether the water is withdrawn from one, or different, aquifers on the same property. The assumption that different aquifers are linked is not necessarily valid.	Virginia Code section 62.1-259 establishes the 300,000 gallon per month threshold for needing to obtain a permit. Each withdrawal is viewed independently by well or well system and is independent of the amount of land a groundwater withdrawer owns. The 300,000 gallons per month threshold is the minimum amount of groundwater that requires a permit from a well in one aquifer or a well system that uses wells in different aquifers. A withdrawal from one well pulling from multiple aquifers is not permitted. Whether aquifers are interconnected on a particular site is determined through analysis of an on-site aquifer test or other geophysical study.
Ms. Trudy Feigum, Middlesex Co. resident	Disagrees with the statement that 'There are no disadvantages to the public from managing the groundwater resources" since all withdrawers of groundwater, unless exempted by statute are required to obtain a permit, which places additional regulations on withdrawers of groundwater occurring within the management area.	The Town Hall document for the final regulation has been revised to reflect this concern.
Betty Lucas,	Concerned that the limit of 300,000	Virginia Code section 62.1-259

citizen	gallons per month does not consider the amount of acreage a withdrawer owns.	establishes the 300,000 gallon per month threshold for needing to obtain a permit. Each withdrawal is viewed independently by well or well system and is independent of the amount of land a groundwater withdrawer owns. The 300,000 gallons per month threshold is the minimum amount of groundwater that requires a permit not a per parcel limit. Many withdrawers of groundwater seek to withdraw millions of gallons of groundwater per month and the withdrawal amount is not limited by the size of the property. The size of the property has no impact on how the withdrawal affects the aquifer.
Betty Lucas, citizen	Concerned that there may be multiple withdrawers under the 300,000 gallons per month threshold that are not required to have a permit, and that those withdrawals are not subject to permits. Fails to see how this plan gets water usage under control.	Groundwater users below the 300,000 gallon threshold are factored into the modeled impacts to the aquifer. The USGS and DEQ have developed a methodology to estimate this use based on census data and other sources of water use information.
Betty Lucas, citizen	Concerned about the implications of the 300,000 gal/month usage means in terms of a targeted withdrawal area or 12 square miles.	Mr. Kudlas used the term "small water system" to describe those groundwater withdrawals that are detailed in section 108 of the proposed amendments. This is a new section of the regulation that is being added to address those withdrawals that modeling indicates has an area of impact of less than 12 square miles. The applicant may choose to accept the area of impact without conducting geophysical investigations, without incurring costs to conduct geophysical evaluations. Systems with areas of impact that are smaller than 12 square miles withdraw less than 10 million gallons per year.
Bowman Davis, citizen	Believes the regulations will have monumental and negative consequences to the quality of life, personal health and financial well being of every property owner and tax payer throughout the old dominion and	Groundwater has been regulated on the York-James peninsula, on the Eastern Shore and in rural areas south of the James River since 1970s. The negative impacts described by the commenter have not happened in

	beyond.	these areas over the last 40 years.
Dave Rector, citizen	It is unacceptable to me to be faced with having my water sources be diverted to Northern Virginia and the Norfolk area, because they have not had the forethought to establish a viable reuse water program to meet their needs.	Due to the interconnectivity of Virginia's aquifers, the cumulative withdrawal of all users is causing long term groundwater level declines.
James Shelton, citizen	States golf courses and other developments take groundwater as a free resource in Chesterfield but they take too much. Preferences for groundwater should go to homes with existing wells, not for malls and developments and decorative lakes.	State law requires permits to be obtained for groundwater withdrawals that exceed 300,000 gallons per month. The General Assembly did not establish beneficial use priorities for groundwater in the statute. All beneficial uses of groundwater are considered equally beneficial in § 62.1-255 of the Code of Virginia. The only instance when a priority is established is when there is inadequate supply for all beneficial uses. In such an instance, § 62.1-263 establishes human consumption as the highest priority for groundwater use. No changes have been made to the regulations in response to this comment as a statutory change would be necessary to establish specific use priorities for groundwater.
James Shelton, citizen	Believes an insurance policy should be taken out before withdrawals of groundwater are allowed.	Withdrawers of groundwater that are located within groundwater management areas are required to mitigate impacts that they have on other groundwater users by developing a mitigation plan. A mitigation plan protects users of groundwater from impacts caused by larger withdrawers of groundwater, and is similar in nature to an insurance policy that would compensate for impacts caused to other withdrawers.

Mr. Matt Walker, Middlesex Co. Administrator	Asked if the proposed regulations would allow counties divided by interstate 95 to pump water to the areas east of 95 to avoid being regulated.	The proposed regulations impact those areas east of interstate 95. The fall line of Virginia (which interstate 95 generally follows) divides the piedmont and the coast plain of Virginia. Coastal Plain aquifers extend to the fall line. If a locality wanted to install a well west of the fall line they would not be withdrawing water from the aquifers being regulated by this regulation and would not be regulated. However, these piedmont sources of groundwater yield far less water than the coastal plain aquifers so it is difficult to see how such a plan would meet the local water needs and be cost effective.

Economic concerns

Comments were received concerning the economic analysis conducted by the Department of Budget and Planning for this regulation. Specific comments are listed below.

Commenter	Comment	Agency response
Ms. Trudy Feigum, Middlesex Co. resident	Disagrees with economic analysis that there will be no economic impact on the citizens. Compliance costs, permit application fees, costs for aquifer tests, geophysical logs, camera surveys, monitoring wells, additional staffing, and other unforeseen costs will be passed on to the end users, the tax payers.	The economic analysis was conducted by the Department of Planning and Budget and includes estimated costs for items listed by the commenter.
Morgan Wright, Wood Preservers Inc.	The economic analysis that was done by the Virginia Department of Planning and Budget reviewed the cost an applicant would incur in obtaining a permit, but that it did not offer any discussion related to business hiring, or a business' ability to continue operating if they could not get the water they need in the future. Many of the large employers in rural Virginia use a fair amount of groundwater.	The economic analysis is conducted by the Department of Planning and Budget. The economic impact did describe projected impacts on employment as a result of these regulations. Current withdrawers of groundwater that become subject to these regulations as a result of expansion of the groundwater management area will be issued permits to withdraw groundwater based on their documented historical withdrawals. The intent of these regulations is not to prevent users

		from withdrawing groundwater, but to ensure that water resources will be protected. The regulations examine many factors including the availability of water sources, water reuse, water recycling, and water loss prevention to ensure that the use of groundwater is conserved as much as possible.
Betty Lucas, citizen	Concerned that these regulations will prevent businesses from expanding because of greatly increased and continuous costs of compliance with these regulations.	Businesses in the current groundwater management area have been able to comply with these requirements while expanding their businesses. These businesses have implemented water conservation programs and water reuse and recycling programs to minimize their demand for groundwater usage.

Comments concerning permitted withdrawals

Comments were submitted concerning groundwater withdrawals that are currently permitted. Comments are accepted on individual groundwater withdrawals prior to individual permits being issued. Public comment periods are held prior to issuance of groundwater withdrawal permits and concerns with individual permits should be submitted during the public comment period associated with each permit. This allows concerns with specific withdrawals to be addressed prior to withdrawal permits being issued.

Commenter	Comment	Agency response
Ms. Trudy Feigum, Middlesex Co. resident	The paper mill at West Point withdraws over 20 million gallons of water per day from the ground, which has influenced and changed the directional flow of groundwater. Groundwater now flows toward West Point. Questions why the state does not require an alternate water source for the paper mill. If all of the aquifers are interconnected, must all tidewater citizens be negatively impacted or penalized by the paper mill?	Neither the statute, nor the regulation allows the Board to eliminate an existing user's access to groundwater. The Board also requires water conservation plans to be implemented, encourages water reuse, and also the use of surface water to meet the needs of water users. These measures seek to minimize the impact the groundwater in the coastal plain. Impacts to other groundwater users who can demonstrate harm is managed through a mitigation plan.
Gayl Fowler, citizen	Saw how the West Point Paper Mill was aggressively saving water used in their process. They were also diversifying their wells across many different aquifers.	DEQ works with permitted withdrawals to evaluate the need for groundwater withdrawals, to identify alternative water supplies, to reduce water usage, the eliminate water loss,

		and identify opportunities for water reuse. This assists with reducing the demand for groundwater withdrawals. Thank you for validating that the permit process is working to make permittees conserve water resources and minimize the impacts to groundwater resources.
Frank Fletcher, citizen	There was a "rebound" of the groundwater as a result of the Franklin Mill ceasing operations. There was a rebound of the cone of depression, which was rapid at first, then slowed. There has been a little rebound as a result of the Franklin Mill ceasing their withdrawals.	The Board agrees with this statement.
Frank Fletcher, citizen	The permit for the Franklin Mill is valid until renewal, even if operations changed once it was reopened.	The groundwater withdrawal activities occurring at the Franklin Mill are allowed by the current permit.

Data availability

Comments questioned the availability of information concerning aquifers in the groundwater management area. The DEQ and the Unites States Geological Survey (USGS) manage nearly 400 monitoring wells throughout the Commonwealth. This includes 225 wells in the coastal plain aquifer system. Groundwater levels are sampled every 15 minutes at 45 of these wells. Many of these wells have been sampled since at least the 1970s. While the resolution of monitoring wells in the Northern Neck and Middle Peninsula is less than that of the current GWMAs, the wells in the proposed expanded area show very similar trends in aquifer level declines. These results are from actual monitoring of groundwater levels in monitoring wells and are not modeled trends.

Commenter	Comment	Agency response
Ms. Trudy Feigum, Middlesex Co. resident	Questions if there is scientific research available to show groundwater levels in the proposed management area are continuing to decline two to four feet per year, or is this statement being based on results of computer models.	The DEQ and the Unites States Geological Survey (USGS) manage nearly 400 monitoring wells throughout the Commonwealth. This includes 225 wells in the coastal plain aquifer system. Groundwater levels are sampled every 15 minutes at 45 of these wells. The majority of these wells have been sampled since the 1970s or earlier. While the resolution of monitoring wells in the Northern Neck and Middle Peninsula is less than that of the current GWMAs, the wells in the proposed expanded area

		show very similar trends in aquifer level declines. These results are from actual monitoring of groundwater levels in monitoring wells and are not modeled trends. All but two of the 225 monitoring wells in the coastal plain show continuing water level declines.
Betty Lucas, citizen	Expressed concern with not receiving responses from Essex County concerning their involvement with the proposed regulations	The Board is unable to address this comment since it is outside of its purview.
Betty Lucas, citizen	Expressed concern with finding conflicting information from local governments concerning the groundwater withdrawals occurring at the International Paper Franklin Mill in Franklin Virginia and the associated groundwater impacts from the closure of the mill and the reopening of the mill.	The Board is unable to address this comment since it is outside its purview.
Betty Lucas, citizen	States DEQ does not have real data for the affected area and will need to model state of aquifers again	The DEQ and the USGS manage nearly 400 monitoring wells throughout the Commonwealth. This includes 225 wells in the coastal plain aquifer system. Groundwater levels are sampled every 15 minutes at 45 of these wells. The majority of these wells have been sampled since the 1970s or earlier. While the resolution of monitoring wells in the Northern Neck and Middle Peninsula is less than that of the current GWMAs, the wells in the proposed expanded area show very similar trends in aquifer level declines. All but two of the 225 monitoring wells in the coastal plain show continuing water level declines.
Betty Lucas, citizen	States DEQ claims 50% of the Potomac Aquifer has been used up in the past 50 years, but believes that DEQ does not have the data to support that claim.	The DEQ and the U.S. Geological Survey manage nearly 400 monitoring wells throughout the Commonwealth. This includes 225 wells in the coastal plain aquifer system. Groundwater levels are sampled every 15 minutes at 45 of these wells. The majority of these wells have been sampled since the 1970s or earlier. While the

		resolution of monitoring wells in the Northern Neck and Middle Peninsula is less than that of the current GWMAs, the wells in the proposed expanded area show very similar trends in aquifer level declines. All but two of the 225 monitoring wells in the coastal plain show continuing water level declines.
Betty Lucas, citizen	States DEQ inaccurately says that aquifers can only be recharged to 70% of its previous levels; ignoring the Franklin Mill closure evidence of rapid Norfolk aquifer recharge.	The commenter is referencing a presentation made to the Middlesex County Board of Supervisors which included some findings of recent scientific studies between DEQ and the USGS. When compaction of clay confining layers occurs within aquifer systems, storage of groundwater is lost. The best available science estimates that when this happens approximately 30% of that storage is unrecoverable. While there was a rapid initial increase in water levels when International Paper ceased pumping, the physics of the aquifer system will cause that increase to continue to level off over time. This is the reverse of how the impacts caused by withdrawing the groundwater behave. DEQ installed a number of groundwater level monitors within the mill's cone of depression to measure the aquifer's recovery. The period of no pumping was too short to document more than a small portion of the aquifer response curve.
Gayl Fowler, citizen	Believes that there is more data needed on the groundwater to continue to protect the groundwater supply.	DEQ works with the U.S. Geological Survey to obtain information concerning the conditions of the aquifers in the coastal plain. Monitoring wells have been installed to assist with monitoring the water levels of aquifers throughout areas of the state. Funding is needed to install additional monitoring wells to more fully monitor aquifer levels.

Frank Fletcher, citizen	All evidence indicates that the Va. Coastal Plain is a single system with interconnectivity between the aquifers.	The Board agrees with this statement.
Frank Fletcher, citizen	Most groundwater withdrawn from wells in the Middle Peninsula comes from the Potomac Aquifer.	The Board agrees with this statement.
Frank Fletcher, citizen	There is evidence of the decline in the water level in the Potomac aquifer. The evidence is the shrinkage of the stored water in the artesian water levels. The measure of the loss of storage of the aquifer is the decline in water pressure.	The Board agrees with this statement.