

Office of Regulatory Management
Economic Review Form

Agency name	State Water Control Board
Virginia Administrative Code (VAC) Chapter citation(s)	Primary Action: 9VAC25-910 Secondary Action: 9VAC25-610
VAC Chapter title(s)	9VAC25-910 - General Permit For Use of Surficial Aquifer on the Eastern Shore 9VAC25-610 – Groundwater Withdrawal Regulations
Action title	Creation of a General Permit for Use of the Surficial Aquifer on the Eastern Shore
Date this document prepared	October 6, 2022

Cost Benefit Analysis

Table 1a must be completed for all actions. Tables 1b and 1c must be completed for actions (or portions thereof) where the agency is exercising discretion, including those where some of the changes are mandated by state or federal law or regulation. Tables 1b and 1c are not needed if **all** changes are mandated, and the agency is not exercising any discretion. In that case, enter a statement to that effect.

- (1) Direct Costs & Benefits: Identify all specific, direct economic impacts (costs and/or benefits), anticipated to result from the regulatory change. (A direct impact is one that affects entities regulated by the agency and which directly results from the regulatory change itself, without any intervening steps or effects. For example, the direct impact of a regulatory fee change is the change in costs for these regulated entities.) When describing a particular economic impact, specify which new requirement or change in requirement creates the anticipated economic impact. Keep in mind that this is the proposed change versus the status quo. One bullet has been provided, add additional bullets as needed.
- (2) Quantitative Factors:
 - (a) Enter estimated dollar value of total (overall) direct costs described above.
 - (b) Enter estimated dollar value of total (overall) direct benefits described above.
 - (c) Enter the present value of the direct costs based on the worksheet.
 - (d) Enter the present value of the direct benefits based on the worksheet.
- (3) Benefits-Costs Ratio: Calculate d divided by c OR enter it from the worksheet.
- (4) Net Benefit: Calculate d minus c OR enter it from the worksheet.
- (5) Indirect Costs & Benefits: Identify all specific, indirect economic impacts (costs and/or benefits), anticipated to result from the regulatory change. (An indirect impact is one that results from responses to the regulatory change, but which are not directly required by the regulation. Indirect impacts of a regulatory fee change on regulated entities could include a change in the prices they charge, changes in their operating procedures or employment levels, or decisions to enter or exit the regulated profession or market. Indirect impacts also include responses by other entities that have close economic ties to the regulated

entities, such as suppliers or partners.) If there are no indirect costs or benefits, include a specific statement to that effect.

- (6) Information Sources: Describe the sources of information used to determine the benefits and costs, including the source of the Quantitative Factors. If dollar amounts are not available, indicate why they are not.
- (7) Optional: Use this space to add any further information regarding the data provided in this table, including calculations, qualitative assessments, etc.

Table 1a: Costs and Benefits of the Proposed Changes (Primary Option)

Agency Note: The cost benefit analysis completed in the tables below is for the primary action of creating a new general permit regulation to promote use of the surficial aquifer on the Eastern Shore (9VAC25-910). The secondary action for this regulatory change is the amendment of the Groundwater Withdrawal Regulations (9VAC25-610) to authorize the development of a general permit. There is no economic impact based on the change to Chapter 610.

<p>(1) Direct Costs & Benefits</p>	<ul style="list-style-type: none"> <p>• 910-80 B (1) The permit fee as required by the Fees for Permits and Certificates (9VAC25-20)</p> <p>A permit fee is required upon application for a permit.</p> <p>Direct Costs: The regulatory change reduces the permit fee cost to a \$600 general permit fee which is recurring upon renewal every fifteen years.</p> <p>Direct Benefits: The regulatory change provides a cost savings of \$8400 every 15 years based on the \$9000 individual permit fee that would be assessed.</p> <p>• 910-80. Application – There is no public notice requirement for a general permit which is a change from the requirements for an individual permit.</p> <p>Public notice is required upon application for a new permit, expansion of an existing withdrawal, or reapplication for a current permitted withdrawal.</p> <p>Direct Costs: The regulatory change eliminates the requirement for a public notice and its associated publication cost.</p> <p>Direct Benefits: The regulatory change eliminates publishing charges for public notices and provides a cost savings of \$450.</p> <p>• 910-90 Part II G. Water withdrawal metering and equipment requirements.</p>
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Metering requirements and costs remain the same for a general permit and an individual permit under the regulatory change.

Direct Costs: Meters that measure the amount of groundwater withdrawn from each well are required and cost between \$500-\$1000 for a mechanical meter and several thousand dollars for a digital meter including installation costs. Mechanical meters are acceptable. It is expected that conducting the meter reading and assessing the conservation measures, filling out the form, and providing it to DEQ will involve 10-12 hours per year. The cost associated with this requirement is the same as the cost associated with the requirement for an Individual Permit.

- **910-90 Part II H. Well construction.**

The cost of drilling and well construction by a well drilling contractor is based on a per foot charge for each foot of depth. This is the same for a surficial withdrawal (general permit) or for a confined aquifer withdrawal (individual permit). Based on communication with a contractor, the market rate is \$35/foot.

Direct Costs: The surficial aquifer at each well location often has unique geologic properties and water quality. It is possible that more than one well may need to be drilled in the surficial aquifer to achieve the same yield as a well drilled in a deeper confined aquifer. This may increase costs, but these anticipated costs are likely to be less than drilling and constructing a deeper confined aquifer well in the majority of the cases. In most cases, each surficial aquifer well is anticipated to be 40-80 feet deep.

Direct Benefits: Generally, contractors drill a confined aquifer well to a depth of 180 feet to 400 feet depending on aquifer characteristics at each site. The regulatory change creating a new general permit option limits the depth of a well that can be drilled to the surficial aquifer, potentially reducing the construction costs by using shallower well(s).

- **910-80 B (10) The department shall require a complete set of geophysical logs where existing or proposed wells are greater than 80 feet below land surface.**

A geotechnical study to obtain geophysical logs is required when existing or proposed wells are greater than 80 feet below land surface. These logs indicate from which aquifer a well will pump its water. Target aquifer depth varies by location.

	Direct Costs: The cost of a geotechnical study required for a general permit ranges from a one-time expense of \$1,500 to \$5,000. The cost associated with this requirement is the same as the cost associated with the requirement for an Individual Permit.		
(2) Quantitative Factors	Estimated Dollar Amount	Present Value	
Direct Costs	(a) \$31,600	(c) \$31,600	
Direct Benefits	(b) \$64,850	(d) \$64,850	
(3) Benefits-Costs Ratio	2.05	(4) Net Benefit	\$33,250
(5) Indirect Costs & Benefits	The general permit regulation contains a number of specific instances of regulatory streamlining that may result in cost reductions. They include 1) simplified reporting, including reducing the frequency from quarterly to annually; 2) the use of a water conservation and management checklist form for annual reporting instead of a customized applicant conservation plan and reporting; 3) a simplified mitigation approach for impacts to other existing groundwater users; and 4) no requirement for geophysical logs if existing or proposed wells are less than 80 feet below land surface.		
(6) Information Sources	Publishing fees charged by newspapers with general circulation within the Groundwater Management Area DPB Economic Impact Analysis previously conducted Average well drilling costs reported by consultants		
(7) Optional			

Table 1b: Costs and Benefits under the Status Quo (No change to the regulation)

This table addresses current requirements and the implications of not making any changes. In other words, describe the costs and benefits of maintaining the current regulatory requirements as is.

Agency Note: The cost benefit analysis completed in the tables below is for the primary action of creating a new general permit regulation to promote use of the surficial aquifer on the Eastern Shore (9VAC25-910). The secondary action for this regulatory change is the amendment of the Groundwater Withdrawal Regulations (9VAC25-610) to authorize the development of a general permit. There is no economic impact based on the change to Chapter 610.

This new regulation creates a streamlined process to reduce the regulatory burden on the regulated community. The costs provided below indicate costs to be included if the streamlined

general permit regulation option was not available to the regulated community and an individual permit was required.

<p>(1) Direct Costs & Benefits</p>	<ul style="list-style-type: none"> <p>• The current regulatory requirement for an individual permit requires a Groundwater Withdrawal permit fee (9VAC25-610-94)</p> <p>Direct Costs: A groundwater withdrawal permit application for a new or expanded withdrawal, or reapplication for a current withdrawal, contains a permit fee of \$9000. Each permit term is 15 years.</p> <p>• The current regulatory requirement for an individual permit requires the applicant to pay publishing charges for a public notice. (9VAC25-610-250)</p> <p>Direct Costs: Every draft permit is required to provide a one-time public notice, paid for by the applicant, by publication once in a newspaper of general circulation in the area affected by the withdrawal. The average cost of publication of a public notice is \$450 and is required upon application for a new permit, expansion of an existing withdrawal, or reapplication for a current permitted withdrawal.</p> <p>• The current regulatory requirement for an individual permit requires water withdrawal metering. (9VAC25-610-140)</p> <p>Direct Costs: Meters that measure the amount of groundwater withdrawn from each well are required and cost between \$500-\$1000 for a mechanical meter and several thousand dollars for a digital meter (including installation costs). Mechanical meters are acceptable by regulation and the applicant chooses the meter type. Conducting the meter reading and assessing the conservation measures, filling out the form, and providing it to DEQ will involve 10-12 hours per year of effort by the applicant.</p> <p>• The current regulatory requirement for an individual permit requires well construction.</p> <p>Direct Costs: The individual permit provides for constructing a well in the confined aquifer. Generally, contractors drill a confined aquifer well to a depth of 180 feet to 400 feet depending on location. The average cost for a confined aquifer well is \$50,000.</p> <p>• The current regulatory requirement for an individual permit requires a geotechnical study. (9VAC25-610-94)</p>
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	Direct Costs: The cost of a geotechnical study required for a general permit ranges from a one-time expense of \$1500-\$5000.		
(2) Quantitative Factors	Estimated Dollar Amount	Present Value	
Direct Costs	(a) \$65,450	(c) \$65,450	
Direct Benefits	(b) 0	(d) 0	
(3) Benefits-Costs Ratio	0	(4) Net Benefit	-\$65,450
(5) Indirect Costs & Benefits			
(6) Information Sources	Publishing fees charged by newspapers with general circulation within the Groundwater Management Area DPB Economic Impact Analysis previously conducted Average well drilling costs reported by consultants		
(7) Optional			

Table 1c: Costs and Benefits under an Alternative Approach

This table addresses an alternative approach to accomplishing the objectives with different requirements. These alternative approaches may include the use of reasonably available alternatives in lieu of regulation, or information disclosure requirements or performance standards instead of regulatory mandates.

Agency Note: The creation of the general permit option is an alternative approach to an individual permit for use of the surficial aquifer. This change reduces the regulatory burden on the regulated community and provides incentive to use the surficial aquifer for non-potable purposes. Table 1a identifies the costs associated with this general permit option. No other alternatives were identified.

(1) Direct Costs & Benefits	<ul style="list-style-type: none"> • Describe first alternative proposed impactful change here. <p>Direct Costs: Describe the direct costs of this proposed change here.</p>
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	<p>Direct Benefits: Describe the direct benefits of this proposed change here.</p> <ul style="list-style-type: none"> • Use additional bullets as needed 	
(2) Quantitative Factors	Estimated Dollar Amount	Present Value
Direct Costs	(a)	(c)
Direct Benefits	(b)	(d)
(3) Benefits-Costs Ratio		(4) Net Benefit
(5) Indirect Costs & Benefits		
(6) Information Sources		
(7) Optional		

Impact on Local Partners

- (1) Describe the direct costs and benefits (as defined on page 1) for local partners in terms of real monetary costs and FTEs. Local partners include local or tribal governments, school divisions, or other local or regional authorities, boards, or commissions. If local partners are not affected, include a specific statement to that effect and a brief explanation of the rationale.
- (2) Quantitative Factors:
 - (a) Enter estimated dollar value of total (overall) direct costs described above.
 - (b) Enter estimated dollar value of total (overall) direct benefits described above.
- (3) Indirect Costs & Benefits: Describe any indirect benefits and costs (as defined on page 1) for local partners that are associated with all significant changes. If there are no indirect costs or benefits, include a specific statement to that effect.
- (4) Information Sources: describe the sources of information used to determine the benefits and costs, including the source of the Quantitative Factors. If dollar amounts are not available, indicate why they are not.
- (5) Assistance: Identify the amount and source of assistance provided for compliance in both funding and training or other technical implementation assistance.

(6) Optional: Use this space to add any further information regarding the data provided in this table, including calculations, qualitative assessments, etc.

Note: If any of the above information was included in Table 1, use the same information here.

Table 2: Impact on Local Partners

<p>(1) Direct Costs & Benefits</p>	<ul style="list-style-type: none"> <p>• 910-80 B (1) The permit fee as required by the Fees for Permits and Certificates (9VAC25-20)</p> <p>A permit fee is required upon application for a permit.</p> <p>Direct Costs: The regulatory change reduces the permit cost to a \$600 general permit fee which is recurring upon renewal every 15 years.</p> <p>Direct Benefits: The regulatory change provides a cost savings of \$8400 every 15 years based on the \$9000 permit fee</p> <p>• 910-80. Application – There is no public notice requirement for a general permit which is a change from the requirements for an individual permit.</p> <p>Public notice is required upon application for a new permit, expansion of an existing withdrawal, or reapplication for a current permitted withdrawal.</p> <p>Direct Costs: The regulatory change eliminates the requirement for a public notice and its associated cost.</p> <p>Direct Benefits: The regulatory change eliminates publishing charges for public notices and provides a cost savings of \$450.</p> <p>• 910-90 Part II G. Water withdrawal metering and equipment requirements.</p> <p>Metering requirements and costs remain the same for a general permit and an individual permit under the regulatory change.</p> <p>Direct Costs: Meters that measure the amount of groundwater withdrawn from each well are required and cost between \$500-\$1000 for a mechanical meter and several thousand dollars for a digital meter (including installation costs). Mechanical meters are acceptable by regulation and the applicant chooses the meter type. Conducting the meter reading and assessing the conservation measures, filling out the form, and providing it to DEQ will involve 10-12 hours per year of effort by the applicant.</p>
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	<ul style="list-style-type: none"> 910-90 Part II H. Well construction. <p>The cost of drilling and well construction by a well drilling contractor is based on a per foot charge for each foot of depth. This is the same for a surficial withdrawal (general permit) or for a confined aquifer withdrawal (individual permit). Based on communication with a contractor, the market rate is \$35/foot.</p> <p>Direct Costs: The surficial aquifer at each well location often has unique geologic properties and water quality. It is possible that more than one well may need to be drilled in the surficial aquifer to achieve the same yield as a well drilled in a deeper confined aquifer. This may increase costs, but these anticipated costs are likely to be less than drilling and constructing a deeper confined aquifer well in the majority of the cases. In most cases, each surficial aquifer well is anticipated to be 40-80 feet deep.</p> <p>Direct Benefits: Generally, contractors drill a confined aquifer well to a depth of 180 feet to 400 feet depending on aquifer characteristics at each site. The regulatory change creating a new general permit option limits the depth that a well can be drilled to the surficial aquifer, potentially reducing the construction costs by using shallower well(s).</p> 910-80 B (10) The department shall require a complete set of geophysical logs where existing or proposed wells are greater than 80 feet below land surface. <p>A geotechnical study to obtain geophysical logs is required when existing or proposed wells are greater than 80 feet below land surface. These logs indicate from which aquifer a well will pump its water. Target aquifer depth varies by location.</p> <p>Direct Costs: The cost of a geotechnical study required for a general permit ranges from a one-time expense of \$1,500 to \$5,000. The cost associated with this requirement is the same as the cost associated with the requirement for an Individual Permit.</p>
(2) Quantitative Factors	Estimated Dollar Amount
Direct Costs	(a) \$31,600
Direct Benefits	(b) \$64,850

(3) Indirect Costs & Benefits	The general permit regulation contains a number of specific instances of regulatory streamlining that may result in cost reductions. They include 1) simplified reporting, including reducing the frequency from quarterly to annually; 2) the use of a water conservation and management checklist form for annual reporting instead of a customized applicant conservation plan and reporting; 3) a simplified mitigation approach for impacts to other existing groundwater users; and 4) no requirement for geophysical logs if existing or proposed wells are less than 80 feet below land surface.
(4) Information Sources	Publishing fees charged by newspapers with general circulation within the Groundwater Management Area DPB Economic Impact Analysis previously conducted Average well drilling costs reported by consultants
(5) Assistance	
(6) Optional	

Economic Impacts on Families

- (1) Describe the direct costs and benefits (as defined on page 1) to a typical family of three (average family size in Virginia according to the U. S. Census) arising from any proposed regulatory changes that would affect the costs of food, energy, housing, transportation, healthcare, and education. If families are not affected, include a specific statement to that effect and a brief explanation of the rationale.
- (2) Quantitative Factors:
 - (a) Enter estimated dollar value of direct costs.
 - (b) Enter estimated dollar value of direct benefits.
- (3) Indirect Costs & Benefits: Describe any indirect costs and benefits (as defined on page 1) to a typical family of three that are most likely to result from the proposed changes.
- (4) Information Sources: describe the sources of information used to determine the benefits and costs, including the source of the Quantitative Factors. If dollar amounts are not available, indicate why not.
- (5) Optional: Use this space to add any further information regarding the data provided in this table, including calculations, qualitative assessments, etc.

Note: If any of the above information was included in Table 1, use the same information here.

Table 3: Impact on Families

Agency Note: DEQ anticipates that the general permit will have a minimal impact on families. The statute and regulations currently exempt the majority of individual single-family wells from the requirement to obtain a withdrawal permit because their withdrawal amounts are less than 300,000 gallons per month. The regulatory change does not change this.

(1) Direct Costs & Benefits	
(2) Quantitative Factors	Estimated Dollar Amount
Direct Costs	(a)
Direct Benefits	(b)
(3) Indirect Costs & Benefits	
(4) Information Sources	
(5) Optional	

Impacts on Small Businesses

- (1) Describe the direct costs and benefits (as defined on page 1) for small businesses. For purposes of this analysis, “small business” means the same as that term is defined in § 2.2-4007.1. If small businesses are not affected, include a specific statement to that effect and a brief explanation of the rationale.
- (2) Quantitative Factors:
 - (a) Enter estimated dollar value of direct costs.
 - (b) Enter estimated dollar value of direct benefits.
- (3) Indirect Costs & Benefits: Describe the indirect benefits and costs (as defined on page 1) for small businesses that are most likely to result from the proposed changes.
- (4) Alternatives: Add a qualitative discussion of any equally effective alternatives that would make the regulatory burden on small business more equitable compared to other affected business sectors, and how those alternatives were identified.
- (5) Information Sources: describe the sources of information used to determine the benefits and costs, including the source of the Quantitative Factors. If dollar amounts are not available, indicate why not.
- (6) Optional: Use this space to add any further information regarding the data provided in this table, including calculations, qualitative assessments, etc.

Note: If any of the above information was included in Table 1, use the same information here.

Table 4: Impact on Small Businesses

<p>(1) Direct Costs & Benefits</p>	<ul style="list-style-type: none">● 910-80 B (1) The permit fee as required by the Fees for Permits and Certificates (9VAC25-20)<p>A permit fee is required upon application for a permit.</p><p>Direct Costs: The regulatory change reduces the permit cost to a \$600 general permit fee which is recurring upon renewal every 15 years.</p><p>Direct Benefits: The regulatory change provides a cost savings of \$8400 every 15 years based on the \$9000 individual permit fee that would be assessed.</p>● 910-80. Application – There is no public notice requirement for a general permit which is a change from the requirements for an individual permit.<p>Public notice is required upon application for a new permit, expansion of an existing withdrawal, or reapplication for a current permitted withdrawal.</p><p>Direct Costs: The regulatory change eliminates the requirement for a public notice and its associated publication cost.</p><p>Direct Benefits: The regulatory change eliminates publishing charges for public notices and provides a cost savings of \$450.</p>● 910-90 Part II G. Water withdrawal metering and equipment requirements.<p>Metering requirements and costs remain the same for a general permit and an individual permit under the regulatory change.</p><p>Direct Costs: Meters that measure the amount of groundwater withdrawn from each well are required and cost between \$500-\$1000 for a mechanical meter and several thousand dollars for a digital meter including installation costs. Mechanical meters are acceptable. It is expected that conducting the meter reading and assessing the conservation measures, filling out the form, and providing it to DEQ will involve 10-12 hours per year. The cost associated with this requirement is the same as the cost associated with the requirement for an Individual Permit.</p>● 910-90 Part II H. Well construction.
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	<p>The cost of drilling and well construction by a well drilling contractor is based on a per foot charge for each foot of depth. This is the same for a surficial withdrawal (general permit) or for a confined aquifer withdrawal (individual permit). Based on communication with a contractor, the market rate is \$35/foot.</p> <p>Direct Costs: The surficial aquifer at each well location often has unique geologic properties and water quality. It is possible that more than one well may need to be drilled in the surficial aquifer to achieve the same yield as a well drilled in a deeper confined aquifer. This may increase costs, but these anticipated costs are likely to be less than drilling and constructing a deeper confined aquifer well in the majority of the cases. In most cases, each surficial aquifer well is anticipated to be 40-80 feet deep.</p> <p>Direct Benefits: Generally, contractors drill a confined aquifer well to a depth of 180 feet to 400 feet depending on aquifer characteristics at each site. The regulatory change creating a new general permit option limits the depth of a well that can be drilled to the surficial aquifer, potentially reducing the construction costs by using shallower well(s).</p> <ul style="list-style-type: none"> • 910-80 B (10) The department shall require a complete set of geophysical logs where existing or proposed wells are greater than 80 feet below land surface. <p>A geotechnical study to obtain geophysical logs is required when existing or proposed wells are greater than 80 feet below land surface. These logs indicate from which aquifer a well will pump its water. Target aquifer depth varies by location.</p> <p>Direct Costs: The cost of a geotechnical study required for a general permit ranges from a one-time expense of \$1,500 to \$5,000. The cost associated with this requirement is the same as the cost associated with the requirement for an Individual Permit.</p>
(2) Quantitative Factors	Estimated Dollar Amount
Direct Costs	(a) \$31,600
Direct Benefits	(b) \$64,850

(3) Indirect Costs & Benefits	The general permit regulation contains a number of specific instances of regulatory streamlining that may result in cost reductions. They include 1) simplified reporting, including reducing the frequency from quarterly to annually; 2) the use of a water conservation and management checklist form for annual reporting instead of a customized applicant conservation plan and reporting; 3) a simplified mitigation approach for impacts to other existing groundwater users; and 4) no requirement for geophysical logs if existing or proposed wells are less than 80 feet below land surface.
(4) Alternatives	
(5) Information Sources	Publishing fees charged by newspapers with general circulation within the Groundwater Management Area DPB Economic Impact Analysis previously conducted Average well drilling costs reported by consultants
(6) Optional	

Changes to Number of Regulatory Requirements

For each individual VAC Chapter amended, repealed, or promulgated by this regulatory action, list (a) the initial requirement count, (b) the count of requirements that this regulatory package is adding, (c) the count of requirements that this regulatory package is reducing, (d) the net change in the number of requirements. This count should be based upon the text as written when this stage was presented for executive branch review. Five rows have been provided, add or delete rows as needed.

Table 5: Total Number of Requirements

Agency Note:

The creation of this general permit regulation provides a streamlined approach for the regulated community to use in lieu of an individual permit. There are 390 requirements currently contained in Chapter 610-Groundwater Withdrawal Regulations, which governs individual groundwater withdrawal permits. The regulatory change to Chapter 610 authorizes the development of a general permit, thereby allowing for a reduction of the number of requirements for the new general permit by 136 for applicants choosing this permit option while retaining 254 requirements. The use of a general permit is not mandatory, but by choosing to apply for a general permit instead of an individual permit, the applicant has a reduced number of requirements.