

**REPORT OF THE VIRGINIA DEPARTMENT OF
ENVIRONMENTAL QUALITY**

**Report on a Protocol to Determine Whether an
Unpermitted Discharge Has a De Minimis
Impact on the Beneficial Uses of State Waters
and a Proposed Implementation Procedure if
§ 62.1-44.19:6 of the Code of Virginia Were
Amended to Require Dissemination of all
Unpermitted Discharges Reported Pursuant
to § 62.1-44.5 of the Code of Virginia Except
for Those Determined to Have a De Minimis
Impact on the Beneficial Uses of State Waters
(Chapter 1182, 2020)**

TO THE GENERAL ASSEMBLY OF VIRGINIA



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**COMMONWEALTH OF VIRGINIA
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Report on a Protocol to Determine Whether an Unpermitted Discharge Has a De Minimis Impact on the Beneficial Uses of State Waters and a Proposed Implementation Procedure if § 62.1-44.19:6 of the Code of Virginia Were Amended to Require Dissemination of all Unpermitted Discharges Reported Pursuant to § 62.1-44.5 of the Code of Virginia Except for Those Determined to Have a De Minimis Impact on the Beneficial Uses of State Waters

**Virginia Department of Environmental Quality
COMMONWEALTH OF VIRGINIA**

July 1, 2021

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EXECUTIVE SUMMARY

The Code of Virginia provides that it is unlawful for any person to discharge sewage, industrial waste, other waste, or any noxious or deleterious substance into state waters except in compliance with a certificate or a permit.¹ Any person who violates this prohibition is required to notify the State Water Control Board, the Director of the Department of Environmental Quality, or the appropriate coordinator of emergency services within 24 hours and must follow up with written notice to the Director of the Department of Environmental Quality.² The Department of Environmental Quality is required to share information received about unpermitted discharges with media outlets and to disseminate the information via official social media accounts and email distribution lists when either “the Virginia Department of Health determines that the discharge may be detrimental to the public health or the Department [of Environmental Quality] determines that the discharge may impair beneficial uses of state waters.”³

Legislation enacted following the 2020 General Assembly session in part directed the Department of Environmental Quality to:

[R]eport to the General Assembly (i) a protocol that could be used to determine whether a discharge would have a de minimis impact on the beneficial uses of state waters and (ii) a proposed implementation procedure if subsection B of § 62.1-44.19:6 of the Code of Virginia were to be amended to require dissemination to media outlets, social media accounts, and email distribution lists of all discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters. The Department of Environmental Quality shall consult with the Virginia Department of Health in preparing such report.⁴

As explained below, this report utilizes a negative definition to identify unpermitted discharges that potentially have a “de minimis impact on the beneficial uses of state waters.” In other words, rather than identifying criteria for unpermitted discharges that have a “de minimis impact on the beneficial uses of state waters,” this report proposes a set of criteria that, if present, would result in the discharge being treated as at least potentially having more than a “de minimis impact on the beneficial uses of state waters,” which would then require notification to media outlets and dissemination to official social media accounts and email distribution lists.

For purposes of the options discussed below in this report, the Department of Environmental Quality proposes that a discharge would be treated as potentially having more than a “de minimis impact on the beneficial uses of state waters,” and thereby require notifications to media outlets and dissemination of information via official social media accounts and email distribution lists, in the following situations:

- Significant fish kill (with or without a documented pollution discharge)

¹ Va. Code § 62.1-44.5 A.

² Va. Code § 62.1-44.5 B.

³ Va. Code § 62.1-44.19:6 B.

⁴ 2020 Va. Acts Ch. 1182.

- Shellfish bed closure by the Virginia Department of Health
- Significant non-precipitation related sewage incident reaching surface waters
- Harmful Algae Blooms (HABs) determined to be present by the Virginia Department of Health
- Concern for human contact with contamination in surface waters (either a Department of Environmental Quality notification or a Virginia Department of Health advisory)
- Contamination in surface waters that could result in water intake impacts (e.g., drinking water, industrial uses, agricultural uses)

This report evaluates four implementation options that could be used to evaluate reported unpermitted discharges and to determine whether the unpermitted discharge potentially has more than a “de minimis impact on the beneficial uses of state waters,” which would then require notifications to be sent to media outlets, official social media accounts, and email distribution lists. These four options include: 1) the Human-Based Notification Solution with Existing Resources, 2) the Human-Based Notification Solution with New Resources, 3) the Human/Technology Hybrid Solution, and 4) the Technology-Based Solution. Descriptions for each option, as well as the primary strength, weakness, and fiscal impact for each option are included in Table 1 below. Unless sufficient additional financial resources are provided, the Department of Environmental Quality prefers the Human-Based Notification Solution with Existing Resources option, which is the only option in this report that could be implemented within existing resources.

Table 1: Summary of Solutions in this Report

OPTION	DESCRIPTION	PRIMARY STRENGTH / WEAKNESS	FISCAL IMPACT
Human-Based Notification Solution with Existing Resources	The General Assembly would amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters. Using existing resources, the Department of Environmental Quality would develop guidance that defines de minimis loss of beneficial use and procedures for notifying media outlets and disseminating information via official social media accounts and email distribution lists. The Virginia Department of Health would develop a “tool kit” to streamline the provision of health advisory information. The Department of Environmental Quality and the Virginia Department of Health would collaboratively develop a Memorandum of Understanding or a Memorandum of Agreement to standardize	<p><u>Strength:</u> Standardizes practices and processes used to coordinate and issue notifications to the public.</p> <p><u>Weakness:</u> Manual notification process that opens up the possibility for human error and delayed, missed, or unnecessary notifications.</p>	\$10,000/year

	practices and processes to specify the methods and mechanics to coordinate and issue notifications to the public.		
Human-Based Notification Solution with New Resources	The General Assembly would amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters. The Department of Environmental Quality's Pollution Response Program staff would review all pollution reports received to evaluate whether or not the report met the criteria as having more than a "de minimis impact on the beneficial uses of state waters." When pollution incident reports meet one or more of these criteria, the Department of Environmental Quality's Communications Division staff would be notified. Communications Division staff would provide the incident details to media outlets and disseminate the information via official social media accounts and email distribution lists.	<p><u>Strength:</u> Universe of pollution incident notifications under this option is expected to be smaller than under the technology-based option, limiting "notification fatigue" and up-front costs are less than the human/technology hybrid or the technology-based options.</p> <p><u>Weakness:</u> Manual notification process that opens up the possibility for human error and delayed, missed, or unnecessary notifications, although delays will be less of a concern than with the Human-Based Notification Solution with Existing Resources due to the additional staff provided under this option.</p>	\$400,000-\$500,000/year
Human/Technology Hybrid Solution	The General Assembly would amend the Code of Virginia to require all persons to electronically report all unpermitted discharges to the Department of Environmental Quality. The General Assembly would also amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters. The Department of Environmental Quality would modify its Pollution Response Database to contain fields that reflect the criteria discussed in the Defining "De Minimis Impact on	<p><u>Strength:</u> Provides slightly more automation than a fully manual process and the electronic reporting requirement would enhance the timeliness of information about unpermitted discharges reported to the Department of Environmental Quality; Pollution incident notifications will be reviewed and vetted by Department of Environmental Quality staff, which will improve the quality of information relayed to the public</p> <p><u>Weakness:</u> Significant implementation and maintenance costs for technology and staff resources.</p>	\$300,000 (one time) and \$419,100/year

	<p>the Beneficial Uses of State Waters” section. Department of Environmental Quality Pollution Response Program staff would review the electronic reports received for completeness and to confirm whether or not the criteria discussed in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section were met. When one or more of those criteria were met, Department of Environmental Quality Communications Division staff would share the information with media outlets, official social media accounts, and email distribution lists.</p>		
<p>Technology-Based Notification Solution</p>	<p>The General Assembly would amend the Code of Virginia to require all persons to electronically report all unpermitted discharges to the Department of Environmental Quality. The Department of Environmental Quality would then develop an automated notification system for the public. Members of the public would be able to sign-up to receive email notifications of unpermitted discharges, which would automatically be generated once unpermitted discharges were reported. Unlike the other options presented in this report this solution would relay all reports of unpermitted discharges to persons who signed up to receive notifications; there would be no screen to filter reports of unpermitted discharges based on whether or not there is a de minimis impact on beneficial uses of state waters.</p>	<p><u>Strength:</u> Allows stakeholders to receive near real-time notifications of pollution incidents and customize geographic areas of interest.</p> <p><u>Weakness:</u> Significant implementation and maintenance costs. Because reports would not be vetted by Department of Environmental Quality staff before notifications are generated the reports could contain incomplete or erroneous information. Members of the public may struggle to evaluate the risks posed by certain incidents that result in public notifications. Since notifications would not be screened to determine whether or not there is a de minimis impact on beneficial uses of state waters a large number of notifications would be generated, which creates a risk of “notification fatigue.”</p>	<p>\$600,000 (one-time) and \$240,000/year</p>

BACKGROUND

STATUTORY FRAMEWORK

The Commonwealth of Virginia's State Water Control Law prohibits unpermitted discharges of sewage,⁵ industrial waste,⁶ other waste,⁷ or any noxious or deleterious substance into state waters.⁸ Specifically, § 62.1-44.5 A. of the Code of Virginia provides in part that:

Except in compliance with a certificate or permit issued by the [State Water Control] Board or other entity authorized by the [State Water Control] Board to issue a certificate or permit pursuant to this chapter, it shall be unlawful for any person to:

1. Discharge into state waters sewage, industrial wastes, other wastes, or any noxious or deleterious substances[.]⁹

Pursuant to § 62.1-44.5 B. of the Code of Virginia:

Any person in violation of the provisions of subsection A who discharges or causes or allows (i) a discharge of sewage, industrial waste, other wastes or any noxious or deleterious substance into or upon state waters or (ii) a discharge that may reasonably be expected to enter state waters shall, upon learning of the discharge, promptly notify, but in no case later than 24 hours the [State Water Control] Board, the Director of the Department of Environmental Quality, or the coordinator of emergency services appointed pursuant to § 44-146.19 for the political subdivision reasonably expected to be affected by the discharge. Written notice to the Director of the Department of Environmental Quality shall follow initial notice within the time frame specified by the federal Clean Water Act.¹⁰

⁵ Sewage is defined as "the water-carried human wastes from residences, buildings, industrial establishments or other places together with such industrial wastes and underground, surface, storm, or other water as may be present." Va. Code § 62.1-44.3.

⁶ Industrial wastes are defined as "liquid or other wastes resulting from any process of industry, manufacture, trade, or business or from the development of any natural resources." *Id.*

⁷ Other wastes are defined as "decayed wood, sawdust, shavings, bark, lime, garbage, refuse, ashes, offal, tar, oil, chemicals, and all other substances except industrial wastes and sewage which may cause pollution in any state waters." *Id.* Pollution is defined as "such alteration of the physical, chemical, or biological properties of any state waters as will or is likely to create a nuisance or render such waters (a) harmful or detrimental or injurious to the public health, safety, or welfare or to the health of animals, fish, or aquatic life; (b) unsuitable with reasonable treatment for use as present or possible future sources of public water supply; or (c) unsuitable for recreational, commercial, industrial, agricultural, or other reasonable uses, provided that (i) an alteration of the physical, chemical, or biological property of state waters or a discharge or deposit of sewage, industrial wastes or other wastes to state waters by any owner which by itself is not sufficient to cause pollution but which, in combination with such alteration of or discharge or deposit to state waters by other owners, is sufficient to cause pollution; (ii) the discharge of untreated sewage by any owner into state waters; and (iii) contributing to the contravention of standards of water quality duly established by the Board, are "pollution" for the terms and purposes of this chapter." *Id.*

⁸ State waters are defined as "all water, on the surface and under the ground, wholly or partially within or bordering the Commonwealth or within its jurisdiction, including wetlands." *Id.*

⁹ Va. Code § 62.1-44.5 A.

¹⁰ Va. Code § 62.1-44.5 B.

Additionally, consistent with the federal National Pollutant Discharge Elimination System (NPDES) Rule,¹¹ all Virginia Pollutant Discharge Elimination System (VPDES) permits contain language requiring notification of noncompliant discharges orally within 24 hours and in writing within 5 days.¹²

Prior to the enactment of 2020 Va. Acts Ch. 1182, the State Water Control Law provided that:

The [State Water Control] Board shall provide to a local newspaper the discharge information reported to the Director of the Department of Environmental Quality pursuant to § 62.44.5, when the Virginia Department of Health determines that the discharge may be detrimental to the public health or the [State Water Control] Board determines that the discharge may impair beneficial uses of state waters.¹³

Legislation enacted following the 2020 Virginia General Assembly amended § 62.1-44.19:6 B. of the Code of Virginia to require the Department of Environmental Quality to provide notice of certain discharges to local television stations and radio stations in addition to a local newspaper, and to require the Department of Environmental Quality to disseminate such information via official social media accounts and email notification lists.¹⁴ However, the legislation enacted following the 2020 General Assembly session did not change the threshold for determining which discharges trigger the requirement to provide notice to media outlets and to disseminate the information to official social media accounts and email notification lists.¹⁵ As was the case before the 2020 General Assembly session, these notifications are required if the Virginia Department of Health determines that the discharge may be detrimental to public health or the Department of Environmental Quality determines that the discharge may impair beneficial uses of state waters.¹⁶ Currently § 62.1-44.19:6 B. of the Code of Virginia provides in full:

The Department of Environmental Quality shall provide to the Virginia Department of Health and local newspapers, television stations, and radio stations, and shall disseminate via official social media accounts and email notification lists, the discharge information reported to the Director of the Department of Environmental Quality pursuant to subsection B of § 62.1-44.5, when the Virginia Department of Health determines that the discharge

¹¹ 40 C.F.R. 122.41(l)(6)(i) provides: “ The permittee shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the permittee becomes aware of the circumstances. A report shall also be provided within 5 days of the time the permittee becomes aware of the circumstances. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times), and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (combined sewer overflows, sanitary sewer overflows, or bypass events), type of sewer overflow structure (e.g., manhole, combine sewer overflow outfall), discharge volumes untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the sewer overflow event, and whether the noncompliance was related to wet weather.”

¹² 9VAC25-31-190 L 7.

¹³ Va. Code § 62.1-44.19:6 B. (2019).

¹⁴ 2020 Va. Acts Ch. 1182.

¹⁵ *Id.*

¹⁶ Va. Code § 62.1-44.19:6 B. (2020).

may be detrimental to the public health or the Department [of Environmental Quality] determines that the discharge may impair beneficial uses of state waters.¹⁷

POLLUTION INCIDENT METRICS

The Department of Environmental Quality’s pollution report database contains 4,639 database entries for calendar year 2020. Out of these 4,639 database entries, 1,574 indicated a “Threat to Water Body.” Out of the 1,574 database entries that indicated a “Threat to Water Body,” 931 reports had a status of “impact,” 424 reports had a status of “unknown,” and 219 reports had a “NULL” status, meaning nothing was indicated.

Of the pollution report database entries that indicated a “Threat to Water Body” sewage and petroleum-related products were the primary materials of concern. Forty-three percent of these reports involved sewage, and 16 percent involved a petroleum-related product.

Whether or not a pollution report triggers the notification requirement in § 62.1-44.19:6 B. of the Code of Virginia is not tracked in the pollution report database. Therefore, it is not known how many of these incidents involved notification to media outlets or the public.

DEQ central office Pollution Response Program staff performed a cursory review of the 931 reports where “impact” was indicated. Staff determined that 30-40 of those 931 reports could have resulted in more than a de minimis loss of beneficial use using the proposed criteria in the next section. Staff also performed a cursory review of the reports where “unknown” or “NULL” was indicated and determined about 20 of those reports could have resulted in a more than a de minimis loss of beneficial use using the proposed criteria in the next section.

DEFINING “DE MINIMIS IMPACT ON THE BENEFICIAL USES OF STATE WATERS”

The options presented in this report utilize a negative definition to classify unpermitted discharges that have a “de minimis impact on the beneficial uses of state waters.” In other words, rather than identifying criteria for unpermitted discharges that have a “de minimis impact on the beneficial uses of state waters,” this report proposes a set of criteria that, if present, would result in the discharge as being treated as at least potentially having more than a “de minimis impact on the beneficial uses of state waters,” which would then require notification to media outlets and dissemination to official social media accounts and email distribution lists.

The criteria listed below were developed in consultation with subject matter specialists at the Department of Environmental Quality and the Virginia Department of Health. In developing these criteria, the Department of Environmental Quality focused on discharge events that would be useful for members of the public to know about prior to engaging in recreational activities in or on surface waters. One of the key challenges in developing these criteria is that reports received about unpermitted discharges, especially initial reports, are often incomplete and frequently erroneous. Erroneous initial reports can either overstate or understate risks to beneficial uses. For example,

¹⁷ *Id.*

the reported initial estimate of the volume of the unpermitted discharge might later be determined to have been either higher or lower than the volume actually discharged. Another challenge is that many types of unpermitted discharges may pose a risk of a short-term impact on the beneficial uses of state waters, but that impact is often for a short duration (e.g., a few hours or a couple of days). Sometimes the impact to the beneficial uses of state waters has passed before the Department of Environmental Quality receives the notification about the unpermitted discharge. Additionally, the Department of Environmental Quality sought to create a list of criteria that would balance the need for useful information with concerns about notification fatigue (i.e., the concern that individuals might begin to ignore pertinent information if overwhelmed with a large number of notifications over a set period of time).

For purposes of the options discussed below in this report, the Department of Environmental Quality proposes that a discharge would be treated as potentially having more than a “de minimis impact on the beneficial uses of state waters,” and thereby require notifications to media outlets and dissemination of information via official social media accounts and email distribution lists, in the following situations:

- Significant fish kill (with or without a documented pollution discharge)
- Shellfish bed closure by the Virginia Department of Health
- Significant non-precipitation related sewage incident reaching surface waters
- Harmful Algae Blooms (HABs) determined to be present by the Virginia Department of Health
- Concern for human contact with contamination in surface waters (either a Department of Environmental Quality notification or a Virginia Department of Health advisory)
- Contamination in surface waters that could result in water intake impacts (e.g., drinking water, industrial uses, agricultural uses)

After much deliberation, the list above purposefully excludes precipitation-related sewage discharges. These types of unpermitted discharges frequently result from inflow and infiltration during wet weather storm events. Given the large volume of notifications the Department of Environmental Quality receives about unpermitted precipitation-related sewage discharges there was concern that including this category of unpermitted discharges could lead to notification fatigue. Additionally, even in the absence of a precipitation-related unpermitted sewage discharge, it is generally not advisable to recreate in or on surface waters during or immediately after storm events due to the presence of stormwater runoff and higher water levels. However, the list above does include non-precipitation related unpermitted sewage discharges. Whereas wet weather storm events automatically signal the need for increased caution prior to recreating in or on surface waters, there is no weather related event to warn or to alert persons engaging in recreation in or on surface waters about non-precipitation related sewage discharges.

OPTION 1: HUMAN-BASED NOTIFICATION SOLUTION WITH EXISTING RESOURCES

HIGHLIGHTS

- The General Assembly would amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters.
- The Human-Based Notification Solution with Existing Resources option includes action items to formalize procedures for notifying media outlets and disseminating information via official social media accounts and email distribution lists.
- The Department of Environmental Quality would develop guidance based on the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section to specify pollution incidents that would lead to notifications.
- The Virginia Department of Health would develop a “tool kit” to streamline the provision of health advisory information.
- The Department of Environmental Quality and the Virginia Department of Health would collaboratively develop a Memorandum of Understanding or a Memorandum of Agreement to standardize practices and processes to specify the methods and mechanics to coordinate and issue notifications to the public.
- This approach would have a minimal fiscal impact.

DESCRIPTION

Under the Human-Based Notification Solution with Existing Resources option the General Assembly would amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters. Utilizing the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section, the Department of Environmental Quality and Virginia Department of Health would take steps, largely within existing resources, to formalize procedures for notifying media outlets and disseminating information via official social media accounts and email distribution lists about certain unpermitted discharges. This approach would require additional legislation but would have minimal fiscal impacts.

First, the Department of Environmental Quality would develop guidance based on the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section to specify pollution incidents where the Department of Environmental Quality would share information received about unpermitted discharges with media outlets and to disseminate the information via official social media accounts and email distribution lists. Second, the Virginia Department of Health would develop a “tool kit” to streamline the provision of health advisory information when the Virginia Department of Health determines that health risks may be present.

Third, the Department of Environmental Quality and the Virginia Department of Health would collaboratively develop a Memorandum of Understanding or a Memorandum of Agreement to standardize practices and processes used to coordinate and issue notifications to the public. Additionally, the Department of Environmental Quality would establish a state-wide email distribution list that members of the public could sign-up for to receive notifications. Department of Environmental Quality Communications Division staff would then provide the incident details to media outlets and disseminate the information via official social media accounts and email distribution lists. The notifications would contain a link to the pollution incident report, accessible through the Department of Environmental Quality’s online portal to allow interested persons to view additional pollution incident information. The Department of Environmental Quality could also establish a web-based map that would illustrate locations of pollution incidents and any associated advisories/warnings.

FISCAL IMPACT

The Human-Based Notification Solution with Existing Resources option has the lowest fiscal impact of the four options presented in this report. The guidance that the Department of Environmental Quality would develop through this option, as well as the Memorandum of Understanding or Memorandum of Agreement can be implemented within existing resources at the Department of Environmental Quality. There would be a cost required to establish a state-wide single email distribution list for members of the public to sign-up to receive notifications. There would be an optional cost to create and maintain a web-based map solution to display locations of pollution incidents and associated advisories/warnings. The fiscal impacts are summarized in the table below.

Table 2 Human-Based Notification Solution with Existing Resources Option, Fiscal Impacts to the Department of Environmental Quality

ITEM	FISCAL IMPACT
Development of guidance and a Memorandum of Understanding or a Memorandum of Agreement	Within existing resources
Single Statewide Email List Serve Email List Serve (could vary depending on the number of subscribers)	\$3,600/year
ArcGIS Pro Licenses (x2) for web-based mapping option	\$5,500/year
TOTAL	\$9,100/year

STRENGTHS AND WEAKNESSES

The Human-Based Notification Solution with Existing Resources option would standardize the practices and processes used by the Department of Environmental Quality and the Virginia Department of Health to coordinate and issue notifications to media outlets and the public. This would result in more consistent and improved communication with the public concerning unpermitted discharges that have more than a de minimis impact to the beneficial uses of state waters. Additionally, this option would have the lowest fiscal impact of the four options presented in this report.

Unlike some of the other options presented in this report, this option would not utilize automation and would rely on a manual notification process performed by Department of Environmental

Quality staff. Under this option information about unpermitted discharges would have to be reviewed by staff to determine if any of the criteria that trigger the requirement for notification are present before notifications would be sent to media outlets or the public. Due to limited staff resources at both the Department of Environmental Quality and the Virginia Department of Health notifications would not be instantaneous and there could be delays in sharing this information. Additionally, as with any process that relies on staff reviews of information, there is a possibility for human error, which could result in delayed, missed, or even unnecessary notifications. This risk is compounded by the reality that initial reports about unpermitted discharges are frequently incomplete and erroneous. Errors contained in initial reports about unpermitted discharges can either overstate or understate potential risks to beneficial uses of state waters. The strengths and weaknesses of this option are outlined in the table below.

Table 3. Human-Based Notification Solution with Existing Resources Option, Strengths and Weaknesses

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Standardizes the practices and processes used by the Department of Environmental Quality to issue notifications to media outlets and the public • Would result in fewer and more accurate notifications due to staff evaluation of pollution incidents • Universe of pollution incident notifications expected to be smaller than under the technology-based options, limiting “notification fatigue” • Lowest fiscal impact 	<ul style="list-style-type: none"> • No automation, resulting in potential delayed notifications • Manual notification process that opens up the possibility for human error and delayed, missed, or unnecessary notifications • The Virginia Department of Health does not have staff that work 24/7 other than one person in the Office of Drinking Water • Will require diverting resources from other tasks

OPTION 2: HUMAN-BASED NOTIFICATION SOLUTION WITH NEW RESOURCES

HIGHLIGHTS

- The General Assembly would amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters.
- The Department of Environmental Quality’s Pollution Response Program staff would review all pollution reports received to evaluate whether or not the report met the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section.
- When pollution incident reports satisfy one or more of these criteria, the Department of Environmental Quality’s Communications Division staff would be notified.

Communications Division staff would provide the incident details to media outlets and disseminate the information via official social media accounts and email distribution lists.

- This approach would have a fiscal impact, primarily for new staff resources to ensure timely evaluation of pollution incidents and dissemination of information.

DESCRIPTION

Under the Human-Based Notification Solution with New Resources option the General Assembly would amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters. The Department of Environmental Quality's Pollution Response Program staff would review all pollution reports received to evaluate whether or not the report met the criteria discussed above in the Defining "De Minimis Impact on the Beneficial Uses of State Waters" section. When pollution incident reports satisfied one or more of these criteria, Pollution Response Program staff would notify the Department of Environmental Quality's Communications Division and provide Communications Division staff with high level incident details. Communications Division staff would then provide the incident details to media outlets and disseminate the information via official social media accounts and email distribution lists. The notifications would contain a link to the pollution incident report, accessible through the Department of Environmental Quality's online portal to allow interested persons to view additional pollution incident information. The Department of Environmental Quality could also establish a web-based map that would illustrate locations of pollution incidents and any associated advisories/warnings.

This option will require developing procedures and workflow processes, establishing an email contact management system, and public messaging about the new service. The Department of Environmental Quality estimates it will take about one year to stand up this process. As described more fully below, this option will require new staff resources.

FISCAL IMPACT

The Human-Based Notification Solution with New Resources option has a lower fiscal impact than the human/technology hybrid and technology-based solutions discussed below but would require new resources for additional staff. The Department of Environmental Quality projects this solution will require new staff resources to review pollution incident reports, especially to ensure that staff are available to review reports that are received during nights, weekends, and on state holidays. Additionally, with increased messaging to the public about pollution incidents the Department of Environmental Quality anticipates there will be an increase in questions from the public about the information that is disseminated, which will require additional staff support for the Department of Environmental Quality's Communications Division. There would be a cost required to establish an email distribution list for members of the public to sign-up to receive notifications. This cost would be variable depending on the number of distribution lists established and number of subscribers to each. For example, the costs to establish locality specific or region specific email distribution lists would be greater than the cost of a single statewide email distribution list. There would be an optional cost to create and maintain a web-based map solution

to display locations of pollution incidents and associated advisories/warnings. The fiscal impacts are summarized in the table below.

Table 4. Human-Based Notification Solution with New Resources Option, Fiscal Impacts to the Department of Environmental Quality

ITEM	FISCAL IMPACT
Development of procedures and workflow processes	Within existing resources
1 FTE for the Department of Environmental Quality Central Office Pollution Response Program (PREP) to coordinate with DEQ regions, Virginia Department of Health and Department of Environmental Quality Communications Division staff	\$115,000/year
Fiscal compensation for Department of Environmental Quality regional PREP on-call staff to review pollution reports received during nights, weekends, and holidays	\$65,000/year
1 Department of Environmental Quality Communications Division FTE to receive pollution notifications and to push the information to social media, including during nights, weekends, and holidays and to answer media and constituent inquiries	\$115,000/year
Virginia Department of Health FTE for 24/7 assessment of pollution events, recommendations for health notifications and coordination with the Department of Environmental Quality and Local Health Districts	\$115,000/year
Single Statewide Email List Serve (variable depending on the number of email distribution lists established and subscribers to each list)	\$3,600/year
ArcGIS Pro Licenses (x2) for web-based mapping option	\$5,500/year
TOTAL	\$419,100/year

STRENGTHS AND WEAKNESSES

The Human-Based Notification Solution with New Resources option would standardize the practices and processes used by the Department of Environmental Quality to issue notifications to media outlets and the public. Under this option all pollution incident reports would be reviewed by Department of Environmental Quality Pollution Response Program staff. This would result in more consistent and improved communication with the public concerning unpermitted discharges that have more than a de minimis impact to the beneficial uses of state waters. Because reports would be manually reviewed and vetted before dissemination to the public it is anticipated there will be fewer unnecessary reports shared under this approach relative to a technology-based option; therefore the risk of notification fatigue is less with this option compared to a technology-based approach. Additionally, this option would have a lower fiscal impact than the technology-based option presented in this report.

Similar to the Human-Based Notification Solution with Existing Resources option, this option would not utilize automation and would rely on a manual notification process performed by Department of Environmental Quality staff. Under this option information about unpermitted discharges would have to be reviewed by staff to determine if any of the criteria that trigger the requirement for notification are present before notifications would be sent to media outlets or disseminated via official social media accounts and email distribution lists. Unlike the Human-Based Notification Solution with Existing Resources option, the new resources provided under this option should minimize delays in sharing information. However, as with any process that relies on staff reviews of information there is a possibility for human error, which could result in delayed,

missed, or even unnecessary notifications. This risk is compounded by the reality that initial reports about unpermitted discharges are frequently incomplete and erroneous. Errors contained in initial reports about unpermitted discharges can either overstate or understate potential risks to beneficial uses of state waters. Additionally, as explained above, this option will require new staff resources for the Department of Environmental Quality in both the Pollution Response Program and the Communications Division. This option would also require an additional staff resource at the Virginia Department of Health. The strengths and weaknesses of this option are outlined in the table below.

Table 5. Human-Based Notification Solution with New Resources Option, Strengths and Weaknesses

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Standardizes the practices and processes used by the Department of Environmental Quality to issue notifications to media outlets and the public • More timely notifications if additional resources provided • Fewer and more accurate notifications due to staff evaluation of pollution incidents • Universe of pollution incident notifications expected to be smaller than under the technology-based options, limiting “notification fatigue” • Smaller up-front costs to implement than the technology-based options 	<ul style="list-style-type: none"> • No automation, resulting in potential delayed notifications; the timeliness of notifications will depend on the availability of staff resources to receive and process the notifications • Manual notification process that opens up the possibility for human error and delayed, missed, or unnecessary notifications • Will require additional Department of Environmental Quality Pollution Response Program staff resources to review pollution incident reports and to follow up on reports to collect and verify data • Will require compensation for Department of Environmental Quality Pollution Response Program afterhours staff to triage pollution reports during nights, weekends, and holidays • Will need additional Department of Environmental Quality Communications Division staff to disseminate notifications, including during nights, weekends, and holidays • Will require additional Virginia Department of Health staff; the Virginia Department of Health does not have staff that work 24/7 other than one person in the Office of Drinking Water

OPTION 3: HUMAN/TECHNOLOGY HYBRID SOLUTION

HIGHLIGHTS

- The General Assembly would amend the Code of Virginia to require all persons to electronically report all unpermitted discharges to the Department of Environmental Quality. The General Assembly would also amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of §

62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters.

- The Department of Environmental Quality would modify its Pollution Response Database to contain fields that reflect the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section. Department of Environmental Quality Pollution Response Program staff would review the electronic reports received for completeness and to confirm whether or not the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section were met.
- When one or more of those criteria were met, Department of Environmental Quality Communications Division staff would share the information with media outlets, official social media accounts, and email distribution lists.
- This approach would have a significant fiscal impact to develop and maintain the notification system and necessary staff resources.

DESCRIPTION

Under the Human/Technology Hybrid Solution the General Assembly would amend the Code of Virginia to require all persons to electronically report all unpermitted discharges to the Department of Environmental Quality. The General Assembly would also amend subsection B of § 62.1-44.19:6 of the Code of Virginia to require dissemination to media outlets, social media accounts, and email distribution lists all unpermitted discharges reported pursuant to subsection B of § 62.1-44.5 of the Code of Virginia except for those determined to have a de minimis impact on the beneficial uses of state waters.

The Department of Environmental Quality would modify its Pollution Response Database to contain fields that reflect the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section. The Department of Environmental Quality’s Communications Division would also establish and maintain email distribution lists that members of the public could opt-in or opt-out of through the Department of Environmental Quality’s online portal.

Department of Environmental Quality Pollution Response Program staff would review the electronic reports of unpermitted discharges received for completeness and to confirm whether or not the criteria discussed above in the Defining “De Minimis Impact on the Beneficial Uses of State Waters” section were met. When one or more of those criteria were met, Department of Environmental Quality Pollution Response Program staff would notify the Communications Division, which would then share the information with media outlets, official social media accounts, and email distribution lists. Notifications would include a link to the pollution incident report, accessible through the Department of Environmental Quality’s online Portal, which would allow members of the public to view additional pollution incident information. The Department of Environmental Quality could also establish a web-based map that would illustrate locations of pollution incidents and any associated advisories/warnings.

As explained below, this option will require funding and time for development and deployment as well as staff resources. The Department of Environmental Quality estimates that if full funding were available approximately 18 months would be necessary to implement this solution.

FISCAL IMPACTS

The Human/Technology Hybrid Solution would require new one time resources for database modifications and new resources on an annual basis for additional staff. New staff resources will be necessary to review pollution incident reports, especially to ensure that staff are available to review reports that are received during nights, weekends, and on state holidays. Additionally, with increased messaging to the public about pollution incidents the Department of Environmental Quality anticipates there will be an increase in questions from the public about the information that is disseminated, which will require additional staff support for the Department of Environmental Quality’s Communications Division. This option would also require additional staff resources for the Virginia Department of Health. There would be a cost required to establish an email distribution list for members of the public to sign-up to receive notifications. This cost would be variable depending on the number of distribution lists established and the number of subscribers. For example, the costs to establish locality-specific or region-specific email distribution lists would be greater than the cost of a single statewide email distribution list. There would be an optional cost to create and maintain a web-based map solution to display locations of pollution incidents and associated advisories/warnings. The fiscal impacts are summarized in the table below.

Table 6. Human/Technology Hybrid Solution, Fiscal Impacts to the Department of Environmental Quality

ITEM	FISCAL IMPACT
Pollution Response Database modifications	\$300,000
1 Department of Environmental Quality Central Office Pollution Response Program FTE to review all reports	\$115,000/year
Fiscal compensation for Department of Environmental Quality Pollution Response Program staff to review pollution reports received during nights, weekends, and holidays	\$65,000/year
1 Department of Environmental Quality Communications Division FTE to receive pollution notification and push the information to social media, including during nights, weekends, and holidays and to answer media and constituent inquiries	\$115,000/year
Virginia Department of Health FTE for 24/7 assessment of pollution events, recommendations for health notifications and coordination with the Department of Environmental Quality and Local Health Districts	\$115,000/year
Email List Serve (variable depending on the number of email distribution lists established)	\$3,600/year
ArcGIS Pro Licenses (x2) for web-based mapping option	\$5,500/year
TOTAL	\$300,000 (one time) and \$419,100/year

STRENGTHS AND WEAKNESSES

The Human/Technology Hybrid Solution provides more automation than a fully manual process and would standardize the practices and processes used by the Department of Environmental Quality to issue notifications to media outlets and the public. Under this option all pollution incident reports would be reported electronically and then reviewed by Department of Environmental Quality Pollution Response Program staff. This would result in more consistent

and improved communication with the public concerning unpermitted discharges that have more than a de minimis impact to the beneficial uses of state waters. Because reports would be manually reviewed and vetted before dissemination to the public it is anticipated there will be fewer unnecessary reports shared under this approach relative to the technology-based option; therefore the risk of notification fatigue is less with this option compared to the technology-based approach. Additionally, this option would have a lower fiscal impact than the technology-based option presented in this report.

Similar to the human-based solutions discussed above, information about unpermitted discharges would have to be reviewed by staff to determine if any of the criteria that trigger the requirement for notification are present before notifications would be sent to media outlets or disseminated via official social media accounts and email distribution lists. Unlike the Human-Based Notification Solution with Existing Resources option, the new resources provided under this option should minimize delays in sharing information. However, as with any process that relies on staff reviews of information there is a possibility for human error, which could result in delayed, missed, or even unnecessary notifications. This risk is compounded by the reality that initial reports about unpermitted discharges are frequently incomplete and erroneous. Errors contained in initial reports about unpermitted discharges can either overstate or understate potential risks to beneficial uses of state waters. Additionally, as explained above, this option will require new staff resources for the Department of Environmental Quality in both the Pollution Response Program and the Communications Division. The strengths and weaknesses of this option are outlined in the table below.

Table 7. Human/Technology Hybrid Solution, Strengths and Weaknesses

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Provides slightly more automation than a fully manual process and the electronic reporting requirement would enhance the timeliness, completeness and accuracy of information about unpermitted discharges reported to the Department of Environmental Quality • Standardizes the practices and processes used by the Department of Environmental Quality to issue notifications to media outlets and the public • Pollution incident notifications will be reviewed and vetted by Department of Environmental Quality staff, which will improve the quality of information relayed to the public • Universe of pollution incident notifications expected to be smaller than under the technology-based option, limiting “notification fatigue” 	<ul style="list-style-type: none"> • Significant up-front cost for database modifications • Manual notification process that opens up the possibility for human error and delayed, missed, or unnecessary notifications • Will require additional Department of Environmental Quality Pollution Response Program staff resources to review pollution incident reports and to follow up on reports to collect and verify data • Will require compensation for Department of Environmental Quality Pollution Response Program afterhours staff to triage pollution reports during nights, weekends, and holidays • Will need additional Department of Environmental Quality Communications Division staff to disseminate notifications, including during nights, weekends, and holidays • Requires the Department of Environmental Quality’s Office of Information Services to devote project management time to this project to both build and maintain the system • Will require additional Virginia Department of Health staff; the Virginia Department of Health

	does not have staff that work 24/7 other than one person in the Office of Drinking Water
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OPTION 4: TECHNOLOGY-BASED NOTIFICATION SOLUTION

HIGHLIGHTS

- The General Assembly would amend the Code of Virginia to require all persons to electronically report all unpermitted discharges to the Department of Environmental Quality. Additional amendments to the Code of Virginia would then be necessary to direct the Department of Environmental Quality to develop an automated system to transmit these unpermitted discharge reports to persons who sign up to receive automatic notices.
- The Department of Environmental Quality would develop a notification system that interfaces with the Department of Environmental Quality’s Pollution Response Database. Members of the public would be able to sign-up to receive email notifications which would automatically be generated once unpermitted discharges were reported to the Department of Environmental Quality.
- Unlike the other options presented in this report, this solution would relay all reports of unpermitted discharges to persons who signed up to receive notifications; there would be no screen to filter reports of unpermitted discharges that might only have a de minimis impact on beneficial uses of state waters.
- This option would result in the greatest number of notifications compared to all of the other options in this report, which both provides the public with potentially useful information and creates a risk of notification fatigue. Additionally, because the reports would not be vetted prior to being disseminated it could result in sharing erroneous information.
- This approach would have a significant fiscal impact to develop and maintain the automated system.

DESCRIPTION

Under the Technology-Based Notification Solution the General Assembly would amend the Code of Virginia to require all persons to electronically report all unpermitted discharges to the Department of Environmental Quality. Additional amendments to the Code of Virginia would direct the Department of Environmental Quality to develop an automated system to transmit these reports of unpermitted discharges to persons who sign up to receive such notices. The Department of Environmental Quality would then develop an automated notification system that interfaces with the Department of Environmental Quality’s Pollution Response Database.

Members of the public would be able to sign-up to receive email notifications of unpermitted discharges, which would automatically be generated once unpermitted discharges were reported to the Department of Environmental Quality. The Department of Environmental Quality envisions this system would allow interested persons to sign up for notifications for either particular localities of interest or for all notifications generated for the entire Commonwealth. This system

would be similar to the Florida Department of Environmental Protection’s Public Notice of Pollution notification list service.¹⁸

Unlike the other options presented in this report this solution would relay all reports of unpermitted discharges received by the Department of Environmental Quality to persons who signed up to receive notifications. These reports would not be screened or vetted by Department of Environmental Quality staff to determine whether or not there is a de minimis impact on beneficial uses of state waters.

As explained below, this option will require funding and time for development and deployment. The Department of Environmental Quality estimates that if full funding were available approximately 18 months would be necessary to implement this solution.

FISCAL IMPACTS

The Technology-Based Notification Solution has a significant fiscal impact to build and maintain the system. The Department of Environmental Quality estimates that it will cost \$600,000 to build the automated notification system and the system will require approximately \$10,000 per year in annual maintenance costs. The notifications generated by this system will result in additional media and constituent inquiries, which will require additional staff for the Department of Environmental Quality’s Communications Division. The number of notifications passed to the Virginia Department of Health will also require additional staff to review the notices and determined if health advisories are warranted. The fiscal impacts are summarized in the table below.

Table 8. Technology-Based Notification Solution, Fiscal Impacts to the Department of Environmental Quality

ITEM	FISCAL IMPACT
Custom system build	\$600,000
Annual system maintenance	\$10,000/year
Virginia Department of Health FTE for 24/7 assessment of pollution events, recommendations for health notifications and coordination with the Department of Environmental Quality and Local Health Districts	\$115,000/year
1 Department of Environmental Quality Communications Division FTE to answer media and constituent inquiries	\$115,000/year
TOTAL	\$600,000 (one-time) and \$240,000/yr

STRENGTHS AND WEAKNESSES

¹⁸ See generally Florida Department of Environmental Protection, Public Notice of Pollution, available at: <https://floridadep.gov/pollutionnotice#:~:text=Protecting%20Florida's%20pristine%20environment%20is%20the%20Department%20of%20Environmental%20Protection's%20top%20priority.&text=While%20the%20preferred%20method%20for,.state.fl.us> and <https://prodenv.dep.state.fl.us/DepPNP/reports/addSubscriber>. See also Fla. Stat. § 403.077 (2020).

The Technology-Based Notification Solution option would result in the greatest number of notifications compared to all of the other options in this report, which would provide the public with potentially useful information in near real-time. This approach would allow members of the public to sign-up to receive notifications for either particular localities of interest, or for the entire Commonwealth, allowing for a degree of customization.

As discussed above, this option has a significant fiscal impact to design and maintain the automated system. Additionally, while the automated nature of this option allows for near-real time notification to the public, the tradeoff is that pollution incident reports would not be vetted by Department of Environmental Quality staff prior to notifications being generated by the automated system. This could result in notifications being sent that contain incomplete or erroneous information, and notifications may also be generated for unpermitted discharges that have only a de minimis impact to beneficial uses of state waters. As noted previously, these risks are compounded by the reality that initial reports about unpermitted discharges are frequently incomplete and erroneous. Errors contained in initial reports about unpermitted discharges can either overstate or understate potential risks to beneficial uses of state waters. The number of reports generated by the automated system and quality of the information disseminated could cause members of the public to struggle to evaluate the risk associated with the unpermitted discharge at issue. The large number of unpermitted discharge notifications generated by this approach also could result in notification fatigue, which might lead members of the public to overlook important information.

Table 9. Technology-Based Notification Solution, Strengths and Weaknesses

STRENGTHS	WEAKNESSES
<ul style="list-style-type: none"> • Near real-time notification to members of the public • Allows persons to select localities of interest • Similar systems have been implemented in other states (e.g., Florida) 	<ul style="list-style-type: none"> • Significant up-front cost to build the system • Requires the Department of Environmental Quality's Office of Information Services to devote project management time to this project to both build and maintain the system • Pollution incident reports may contain erroneous information because reports will not be vetted • Members of the public may struggle to evaluate the risk posed by the information received • May create notification fatigue due to the number of notifications issued • Requires Department of Environmental Quality Communications Division staff resources to field inquiries from public and media stakeholders

