

Office of Regulatory Management
Economic Review Form

Agency name	Virginia Waste Management Board
Virginia Administrative Code (VAC) Chapter citation(s)	9VAC20-81
VAC Chapter title(s)	Solid Waste Management Regulations
Action title	Amendment 9
Date this document prepared	August 31, 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)

<p>(1) Direct Costs & Benefits</p>	<p>Direct Costs</p> <p>Associated costs with the main elements of the proposed SWM regulation include the following:</p> <p><u>Landfill Siting</u> The proposed regulation increases setback distance from the waste management boundary to the facility boundary from 50ft to 100ft, and increases the distance from the waste management boundary to any residence, school, daycare, hospital, nursing home or recreational park area in existence at the time of application is being increased from 200ft to 500ft. Cost associated with the proposed setback requirements are variable and dependent on the existing facility and whether or not occupied buildings exist near the landfill in question. The Department is unable to estimate a cost associated with this requirement due to the variability of existing landfills.</p> <p><u>Operating Costs</u></p> <p><u>Topographic Survey</u> The proposed regulation requires that landfills with permitted daily disposal limits of 300 tons per day or less will have to conduct a topographic survey once every 24 months. All other landfills will have to conduct a topographic survey every 12 months. Currently topographic surveys are generally required at the time of application. The cost of more frequent surveys is dependent on tons per day of permitted daily disposal limit, the size of the landfill, and the actual cost of the survey itself which could fluctuate by region and company used for the survey. A general cost range of topographic surveys is between \$5,000 and \$16,000.</p> <p><u>Daily Cover</u> The cost associated with periodic cover is variable and depends on multiple factors including the size of the working face, the extent to which soil is removed and reused between lifts, the availability of soil onsite versus purchase or transport from an offsite location.</p>
--	--

	<p>Because of these variables it is impossible to determine a cost associated with this requirement.</p> <p><u>Landfill Gas Monitoring</u> The proposed regulation includes a requirement for landfills to notify adjacent properties within 500ft of a gas compliance level exceedance, as well as offer offsite monitoring inside or in nearby offsite structures for elevated levels of methane after an exceedance is detected in the perimeter gas monitoring network. Due to variability associated with this requirement it is impossible to determine a cost associated with this requirement. However, little to no additional costs could be associated with this requirement, as monitoring of nearby offsite structures can be incorporated into current gas monitoring plan/costs.</p> <p><u>Landfill Groundwater Monitoring</u> The proposed regulation includes the potential addition of monitoring for PFAS/emerging contaminants of concern after VDH determines MCLs for these monitoring parameters. Cost estimates for PFAS sampling range from \$300 to \$700 per sample.</p> <p><u>Open Burning</u> The proposed regulation includes a prohibition of private citizens burning any other waste except for vegetative waste, clean wood, and clean paper products if there are no regularly scheduled waste collection services available in the area. The additional cost of this requirement would be negligible for private citizens.</p> <p><u>Closure/Financial Assurance</u> The proposed regulations include an additional requirement to incorporate the costs related to removal of stockpiled beneficial use materials. This cost is dependent on whether or not there are stockpiled beneficial use materials onsite at the landfill in question, the amount of the beneficial use materials, and the cost to dispose of the beneficial material offsite. Due to these variables, it is impossible to determine a cost associated with this requirement.</p> <p>No significant direct benefits were identified as a result of the proposed regulatory changes.</p>	
<p>^A (2) Quantitative Factors</p>	<p>Estimated Dollar Amount</p>	<p>Present Value</p>

Direct Costs	(a) \$16,000 (Topo Survey, assume every year) \$700 per sample (Start dependent on promulgation of MCLs by VDH) Total: \$176,800	(c) Total Present Value: \$154,459.00	
Direct Benefits	(b) 0	(d) 0	
(3) Benefits-Costs Ratio	0.0	(4) Net Benefit	-154,459
(5) Indirect Costs & Benefits	No indirect costs and benefits were identified as a result of the proposed regulatory changes.		
(6) Information Sources	Topo Survey Cost- VA DPB EIA- 9VAC20-81 Solid Waste Management Regulations- Town Hall Action Stage- 12/9/21 PFAS Sampling Emails – Sampling cost estimates received from VDH staff via email		
(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.

(1) Direct Costs & Benefits	<ul style="list-style-type: none"> • Describe the current requirement associated with the first proposed impactful change described in Table 1a here. <p>Direct Costs Associated costs with the main elements of the existing SWM regulation include the following:</p> <p><u>Permit</u> Current Permit application fees vary by the type of facility that is being permitted and what type of permit is required. A public comment period is also required and the cost of publication in a newspaper of local circulation is also associated with permit costs in the existing regulation. In addition an annual fee is also required which is based on tonnage of waste. Most permit applications also require the cost of a topographic survey at the time of application. Current cost of Part A Application Fee is \$4,180, and Part B Application Fee is \$18,680. Public Notice publication average</p>
-----------------------------	--

estimate is \$200. The average annual fee of existing SWM landfills in the Commonwealth is \$25,314. A topographic survey is generally required with an application and ranges in cost from \$5,000 to \$16,000. This cost estimate varies depending on landfill size and cost of conducting the actual survey may vary by company used.

Landfill Siting

The costs associated with landfill siting are completely facility dependent and cannot be estimated.

Landfill Design

The costs associated with landfill design are completely facility dependent and cannot be estimated.

General Operating Costs

Examples of operating costs include the cost of landfill equipment, staff and training. This cost is dependent on the size and complexity of the landfill and cannot be estimated with any certainty.

Periodic Cover

The cost associated with periodic cover is variable and depends on multiple factors including the size of the working face, the extent to which soil is removed and reused between lifts, the availability of soil onsite versus purchase or transport from an offsite location.

Landfill Gas Monitoring

Costs associated with this requirement include installation of a gas monitoring system if required, as well as the maintenance and operating costs of the system. This cost is dependent on the size and complexity of the monitoring system and cannot be estimated with any certainty.

Leachate Collection and Monitoring and E&S Controls

Costs associated with this requirement include cost of installation if necessary as well as maintenance and operational costs. These costs depend on the size and complexity of the landfill and cannot be estimated with any certainty.

Groundwater Monitoring

Costs associated with this requirement include installation of monitoring wells if necessary as well as ongoing maintenance and monitoring costs. Monitoring costs for constituents in Column A are estimated at \$250-\$300 per monitoring well using EPA Methods 8260, 6010, and 6020. Monitoring costs for Column B constituents

	<p>are estimated at \$850-\$1000 per monitoring well using EPA methods 8260, 8270, 6010, and 6020.</p> <p><u>Closure/Financial Assurance</u> Cost of closure is dependent on size of the facility and planned post-closure end use of the property. The cost of closure can also depend on which financial instrument is used by the facility to demonstrate financial assurance. The instrument would also need to be adjusted annually for inflation. The average amount of financial assurance for SWM facilities in the Commonwealth is currently \$21,198,141.</p> <p>Direct Benefits: No direct benefits were identified.</p>		
Gro			
(2) Quantitative Factors	Estimated Dollar Amount	Present Value	
Direct Costs	(a) \$4,180 (Part A Fee) \$18,680 (Part B Fee) \$25,314.03 (Average Annual Fee Based on Tonnage) \$200 (PN Publication Average Cost) \$16,000 (Topo survey at time of application) \$300 per well (Groundwater monitoring cost for Column A) Quarterly cost for 1 monitoring well: \$1,200.00 \$1000 per well (Groundwater monitoring cost for Column B) Quarterly cost for 1 monitoring well: \$4,000 \$21,198,141- (Average Financial Assurance of existing facilities) Total: \$21,542,341	(c) Total Present Value- 21,505,300	
Direct Benefits	(b) 0	(d) 0	
(3) Benefits-Costs Ratio	0	(4) Net Benefit	-21,505,300
(5) Indirect Costs & Benefits	N/A		

(6) Information Sources	Existing permit application fees, average cost of public notice publication, annual fees, financial assurance of existing permitted facilities Topo Survey Cost- VA DPB EIA- 9VAC20-81 Solid Waste Management Regulations- Town Hall Action Stage- 12/9/21 Monitoring Well Costs- Based on best professional judgement of DEQ groundwater staff, estimate is based on 1 monitoring well.
(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.

(1) Direct Costs & Benefits	<ul style="list-style-type: none"> There is no viable alternative. Alternatives to the regulation were explored by the Agency, however no viable alternatives were identified. 		
(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

(1) Direct Costs & Benefits	If localities own landfills they would be subject to the same potential costs associated with additional requirements in the proposed regulation as noted above.
(2) Quantitative Factors	Estimated Dollar Amount
Direct Costs	(a)
Direct Benefits	(b)
(3) Indirect Costs & Benefits	
(4) Information Sources	
(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

(1) Direct Costs & Benefits	No significant monetary impact is expected as a result of the proposed regulation on families living in the Commonwealth.
(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

(1) Direct Costs & Benefits	If small businesses own landfills they would be subject to the same potential costs associated with additional requirements in the proposed regulation as noted above.
(2) Quantitative Factors	Estimated Dollar Amount
Direct Costs	(a)
Direct Benefits	(b)
(3) Indirect Costs & Benefits	
(4) Alternatives	

(5) Information Sources	
(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

	Number of Requirements			
Chapter number	Initial Count	Additions	Subtractions	Net Change
9VAC20-81	8,624	8	0	+8

COST BENEFIT ANALYSIS WORKSHEET

INTERIM v. July 28, 2022

Discount Rate:	3%
Time horizon:	10 years

DO NOT CHANGE THIS NUMBER unless you wish to use a different discount rate

Notes:

1. Year 0 represents the current fiscal year
2. Options 1 & 2 below correspond to the two options in the grocery cart example. Option 3 below provides an alternative
3. Replace the values in the green cells below with the expected costs and benefits for your analysis. Insert zero for any missing values.
4. The sections for options 2 and 3 must be filled out if the agency has any discretion over the proposed regulation.

Year	Option 1		Option 2		Option 3	
	Cost	Benefit	Cost	Benefit	Cost	Benefit
0	16,000	0	21,267,715	0	0	0
1	16,000	0	30,514	0	0	0
2	16,000	0	30,514	0	0	0
3	16,000	0	30,514	0	0	0
4	18,800	0	30,514	0	0	0
5	18,800	0	30,514	0	0	0
6	18,800	0	30,514	0	0	0
7	18,800	0	30,514	0	0	0
8	18,800	0	30,514	0	0	0
9	18,800	0	30,514	0	0	0
TOTAL	176,800	0	21,542,341	0	0	0

Present Value						
Year	Option 1		Option 2		Option 3	
	Cost	Benefit	Cost	Benefit	Cost	Benefit
0	16,000	0	21,267,715	0	0	0
1	15,534	0	29,625	0	0	0
2	15,082	0	28,762	0	0	0
3	14,642	0	27,925	0	0	0
4	16,704	0	27,111	0	0	0
5	16,217	0	26,322	0	0	0
6	15,745	0	25,555	0	0	0
7	15,286	0	24,811	0	0	0
8	14,841	0	24,088	0	0	0
9	14,409	0	23,386	0	0	0
TOTAL	154,459	0	21,505,300	0	0	0

	Option 1	Option 2	Option 3
Benefit-Cost Ratio	0.00	0	#DIV/0!
Net Benefit	-154,459	-21,505,300	0

ent discount rate; if so, please make a note of this on the Economic Impact form and provide a rationale

example where costs and benefits vary from year to year.

0 (0) for years where no costs or benefits are expected.

tory changes. Use "Option 2" for the status quo and "Option 3" for one other alternative.