



DEPARTMENT OF
ECOLOGY
State of Washington

Small Business Economic Impact Statement

*Chapter 173-351 WAC
Criteria for Municipal Solid Waste Landfills*

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Small Business Economic Impact Statement

Chapter 173-351 WAC Criteria for Municipal Solid Waste Landfills

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Table of Contents

Note: Due to size limitations relating to the filing of documents with the Code Reviser, the SBEIS does not contain full explanation of Ecology’s analysis. Additionally, it does not contain raw data or all summaries of data used in the analysis, or all of Ecology’s analysis of this data. However, this information is being placed in the rule-making file, and is available upon request for the rule file. A full analysis of compliance costs is available in the associated Cost-Benefit Analysis for this rule: <https://fortress.wa.gov/ecy/publications/SummaryPages/1507026.html>

Executive Summary	vii
Section 1: Background and Introduction	1
1.1 Introduction.....	1
1.2 Description of the proposed rule amendments.....	1
1.3 Reasons for the proposed rule amendments.....	1
Section 2: Analysis of Compliance Costs for Washington Businesses	3
2.1 Introduction.....	3
2.2 Baseline.....	3
2.3 Proposed rule amendments	3
2.4 Monitoring costs	4
2.4.1 Number of wells.....	4
2.4.2 Testing costs.....	4
2.4.3 Labor costs	5
2.5 Summary of the likely compliance costs of the proposed rule amendments	7
Section 3: Quantification of Cost Ratios.....	9
3.1 Introduction.....	9
3.2 Affected businesses.....	9
3.3 Cost-to-employee ratios	9
Section 4: Actions Taken to Reduce the Impact of the Rule on Small Businesses.....	11
Section 5: The Involvement of Small Businesses and Local Government in the Development of the Proposed Rule.....	13
Section 6: The SIC codes of Impacted Industries	15
Section 7: Impacts on Jobs.....	17

List of Tables

Table 1: Landfill monitoring wells _____	4
Table 2: Costs of the proposed rule compared to the baseline _____	7
Table 3: Total costs of the proposed rule compared to the baseline _____	9

Executive Summary

Based on research and analysis required by the Regulatory Fairness Act (RFA) – RCW 19.85.070 – **Ecology has determined that the proposed rule, Criteria for Municipal Solid Waste Landfills (chapter 173-351 WAC) does not have disproportionate impacts on small businesses.** The RFA directs Ecology to determine if there is likely to be disproportionate impact, and if legal and feasible, reduce this disproportionate impact.

The Small Business Economic Impact Statement (SBEIS) is intended to be read with the associated Cost-Benefit Analysis (Ecology publication # 15-07-027), which contains more in-depth discussion of the analysis.

The proposed rule amendments add two chemicals to the Appendix III list in WAC 173-351-990. These chemicals are 2,3,7,8 TCDD (2,3,7,8-Tetrachlorodibenzo-p-dioxin, CAS 1746-01-6) and Phentermine (alpha,alpha-Dimethylphenethylamine, CAS 122-09-8). No other changes are proposed.

When the operator of a municipal solid waste landfill finds a statistically significant increase in a contaminant listed in Appendix I of WAC 173-351-990, during routine detection monitoring, the landfill must then perform additional assessment monitoring for the expanded list of chemicals in Appendix III.

Most municipal solid waste landfills (MSWLFs) are owned and operated by government entities (cities, counties, federal government), but five are owned and operated by private businesses, and one of these is a small business. The small business is not currently in assessment monitoring. This means that the proposed rule does not impose costs on small businesses, as they currently exist and operate.

The proposed rule does not impose disproportionately large costs on small businesses. Ecology is therefore not required to include cost-mitigating elements in the proposed rule.

We estimated that there would be relatively little net change in jobs, statewide over 20 years. This is because the majority of compliance costs are a transfer to the testing laboratory industry. The precise number estimated by the model is between a gain of 0.33 and a loss of nearly 4 full-time employees (FTEs) for the duration of the analysis. This likely small impact is due to the proposed rule's direct compliance costs, based on the total present-value costs to landfills, and the transfer of some payments to laboratories. This includes direct job impacts in the landfill industry, as well as indirect impacts to all other private industry in the state.

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Section 1: Background and Introduction

1.1 Introduction

Based on research and analysis required by the Regulatory Fairness Act (RFA) – RCW 19.85.070 – **Ecology has determined that the proposed rule, Criteria for Municipal Solid Waste Landfills (chapter 173-351 WAC) does not have disproportionate impacts on small businesses.** The RFA directs Ecology to determine if there is likely to be disproportionate impact, and if legal and feasible, reduce this disproportionate impact.

The Small Business Economic Impact Statement (SBEIS) is intended to be read with the associated Cost-Benefit Analysis (Ecology publication # 15-07-027), which contains more in-depth discussion of the analysis.

1.2 Description of the proposed rule amendments

The proposed rule amendments add two chemicals to the Appendix III list in WAC 173-351-990. These chemicals are 2,3,7,8 TCDD (2,3,7,8-Tetrachlorodibenzo-p-dioxin, CAS 1746-01-6) and Phentermine (alpha,alpha-Dimethylphenethylamine, CAS 122-09-8). No other changes are proposed.

When the operator of a municipal solid waste landfill finds a statistically significant increase in a contaminant listed in Appendix I of WAC 173-351-990, during routine detection monitoring, the landfill must then perform additional assessment monitoring for the expanded list of chemicals in Appendix III.

1.3 Reasons for the proposed rule amendments

Ecology previously amended the Chapter 173-351 WAC, *Criteria for Municipal Solid Waste Landfills* in 2012, but omitted two potential pollutants listed in the equivalent federal rules (40 CFR Part 258). Due to this omission:

- Ecology cannot obtain full federal approval of the state permit program. Without full approval, EPA cannot approve the Research, Development, and Demonstration (RD&D) permits allowed under the state program, that provide for use of new or innovative technologies, and associated financial incentives.
- There is potential for unrecognized groundwater contamination from these two constituents, and which could lead to the establishment of a cleanup site under the Model Toxics Control Act law and Cleanup rule (“MTCA”; chapter 70.105D RCW and 173-240 WAC).
- Landfills which omit required monitoring for these pollutants because they are not reflected in the state program, will be out of compliance with federal requirements.

Ecology is therefore proposing rule amendments that would bring the rule in line with the federal rule, and allow for full federal approval of the state program, as well as appropriate monitoring at sites that trigger broader assessment monitoring.

Section 2: Analysis of Compliance Costs for Washington Businesses

2.1 Introduction

We analyzed the impacts of the proposed rule relative to the baseline of the existing rule, within the context of all existing requirements (federal and state laws and rules). This context for comparison is called the baseline, and reflects the most likely regulatory circumstances that municipal solid waste landfills would face if the proposed rule were not adopted. It is discussed in detail in Section 2.2, below.

2.2 Baseline

The baseline for our analyses generally consists of existing rules and laws, and their requirements. For economic analyses, the baseline also includes the implementation of those regulations, including any guidelines and policies that result in behavior changes and real impacts. This is what allows us to make a consistent comparison between the state of the world with or without the proposed rule amendments. In this case we will assume that landfills required to perform assessment monitoring have already incurred an obligation from the federal rules to perform an annual monitoring event, and semi-annual monitoring for any constituents identified in the annual event. Therefore the increment resulting from proposed changes in state program rules will be two analytical events as the state requires quarterly instead of semiannual monitoring. For this rulemaking, we discuss the baseline below, including the:

- Federal rule: Criteria for Municipal Solid Waste Landfills (40 CFR Part 258).
- State law: Solid Waste Management – Reduction and Recycling (chapter 70.95 RCW).
- Existing state rule: Criteria for Municipal Solid Waste Landfills (chapter 173-351).
- Other regulations pertaining, e.g., to cleanup in the event a landfill becomes a cleanup site, such as the MTCA statute (chapter 70.105D RCW) and its implementing rule, the MTCA Cleanup regulation (chapter 173-240 WAC).

As is specifically significant to this rulemaking, the federal rule requires annual assessment monitoring of an expanded list of potential pollutants at MSWLFs that find statistically significant increases in a chemical in a smaller set of chemicals they are required to routinely monitor. Any pollutant found as a result of the annual event must be monitored semiannually. The existing state rule requires quarterly assessment monitoring.

2.3 Proposed rule amendments

The proposed rule amendments are intended to make the list of contaminants that MSWLFs must evaluate under assessment monitoring (if they trigger it) consistent with the list in the federal rule. Specifically, the proposed rule would add 2,3,7,8-Tetrachlorodibenzo-p-dioxin (CAS 1746-

01-6) and alpha,alpha-Dimethylphenethylamine (CAS 122-09-8) to the Appendix III list of contaminants.

Only one requirement of the proposed and existing state rules differs from the federal rule: quarterly rather than twice-yearly assessment monitoring. The proposed amendments mean that a landfill which triggers assessment monitoring **and** finds one or both contaminants in its initial assessment or during an annual assessment thereafter, would have to analyze for them twice more per year than the minimum under the federal rules. . Landfills that do not find these potential pollutants in their preliminary or annual assessment monitoring are not required to analyze for them quarterly during the rest of the year. All of the other requirements of the proposed rule are the same as those in the existing rule, and we do not expect any additional changes in behavior to result from the proposed rule.

2.4 Monitoring costs

There are 25 landfills operating in Washington State that might be, or are, presently subject to groundwater assessment monitoring under the baseline. These landfills are open and accepting municipal solid waste, or were closed under the baseline rule and are subject to post-closure care requirements that include groundwater monitoring. Of these, 12 landfills are currently performing assessment monitoring.

As discussed in Chapter 2, the proposed rule will potentially generate only one change in behavior: an increase in monitoring of two events per year (four quarterly rather than two annual) for the two chemicals Ecology is proposing to add to Appendix III of the rule language.

2.4.1 Number of wells

Table 1 summarizes the numbers and circumstances of wells for this analysis.

Table 1: Landfill monitoring wells

	Number of Wells
All wells at 25 facilities	235
Assessment monitoring currently in place	160
No current assessment monitoring	75

2.4.2 Testing costs

We contacted six labs requesting typical retail costs for analysis of 2,3,7,8-TCDD and Phentermine. Only two labs provided costs, consistent with one another and Ecology’s general expectation from professional experience. The estimated incremental costs were:

- Phentermine: This chemical is typically analyzed in conjunction with other pollutants of similar character. Labs performing assessment monitoring would be able to provide data with no significant additional cost.
- 2,3,7,8-TCDD: Estimated costs were \$425 from one lab, and between \$500 and \$570 from the other. The actual costs would vary depending on the matrix, the level of detection

required, and the response time requested from the lab. For this analysis, we used the median estimate of \$500 per test.

If we assume that all facilities currently performing assessment monitoring will find dioxin in annual assessment monitoring events, then an additional 160 wells would be included at an additional \$500 cost twice per year. Ecology looks at a 20-year timeframe in its analysis (to include short- and long-term impacts), and this additional \$160 thousand annual cost translates to approximately **\$2.8 million in present value cost over 20 years** (2016 through 2035), at a real discount rate of 1.21 percent.¹

There are 75 remaining wells at facilities that are not currently performing assessment monitoring. While Ecology believes it is unlikely that these additional wells will all enter assessment monitoring in the future, an additional 75 wells would increase costs proportionally by 47 percent, or \$1.3 million in present value testing costs over 20 years. For illustration, each additional well entering assessment monitoring would increase costs by less than 1 percent.

2.4.3 Labor costs

Monitoring requires additional professional and administrative effort as well, including:

- Taking samples
- Analytic costs
- Reporting and recordkeeping

Sampling costs

We assumed that a professional engineer or environmental technician between 15 and 30 minutes per well to take samples. As additional monitoring would only be necessary at landfills that are already performing assessment monitoring, we did not include costs such as travel to the landfill, as they would already be incurred under the baseline. It is important to note that only 2,3,7,8-TCDD monitoring would require additional sampling, as sampling for Phentermine testing would already be covered by existing sampling for semi-volatile contaminants under the baseline.

The median wage for environmental engineers is currently \$43.36 per hour, and is \$31.74 per hour for environmental technicians.² As this activity is likely to be performed as part of regular internal job duties, we did not include an overhead premium.

Total sampling costs for 160 wells at the wages and times above lead to an estimated annual cost of approximately \$2,500 to \$6,900 per year. Ecology looks at a 20-year timeframe in its analysis (to include short- and long-term impacts), and this additional annual cost translates to an

¹ 1.21 is the average risk-free rate of return on inflation-adjusted I-Bonds issued by the US Treasury Department, since 1998. This time period includes various economic circumstances, including times of both exceptionally high and low rates of return that have occurred during good and bad economic times.

² US Bureau of Labor Statistics (2014). May 2014 State Occupational Employment and Wage Estimates for Washington. Inflation adjustment of -0.08 percent from \$43.71 and \$32, respectively.

approximate **\$45 thousand to \$123 thousand in present value cost over 20 years** (2016 through 2035), at a real discount rate of 1.21 percent.³

There are 75 remaining wells at facilities that are not currently performing assessment monitoring. While Ecology believes it is unlikely that these additional wells will all enter assessment monitoring in the future, an additional 75 wells would increase costs proportionally by 47 percent, or \$21 thousand to \$57 thousand in present value sampling costs over 20 years. For illustration, each additional well entering assessment monitoring would increase costs by less than 1 percent.

Analytical costs

Analytic labor costs for this analysis were assumed to be included in lab costs, discussed above in section 3.2.2. The lab would perform all necessary analytic work for the landfill.

Reporting and recordkeeping costs

We conservatively assumed an environmental technician or professional engineer would require an additional 30 minutes to one hour, per well, per additional monitoring event, for recordkeeping and reporting.

The median wage for environmental engineers is currently \$43.36 per hour, and is \$31.74 per hour for environmental technicians.⁴ As this activity is likely to be performed as part of regular internal job duties, we did not include an overhead premium.

Total recordkeeping and reporting costs for 160 wells at the wages and times above lead to an estimated annual cost of approximately \$5,100 to \$13,900 per year. Ecology looks at a 20-year timeframe in its analysis (to include short- and long-term impacts), and this additional annual cost translates to an approximate **\$90 thousand to \$245 thousand in present value cost over 20 years** (2016 through 2035), at a real discount rate of 1.21 percent.⁵

There are 75 remaining wells at facilities that are not currently performing assessment monitoring. While Ecology believes it is unlikely that these additional wells will all enter assessment monitoring in the future, an additional 75 wells would increase costs proportionally by 47 percent, or \$42 thousand to 115 thousand in present value reporting and recordkeeping costs over 20 years. For illustration, each additional well entering assessment monitoring would increase costs by less than 1 percent.

³ 1.21 is the average risk-free rate of return on inflation-adjusted I-Bonds issued by the US Treasury Department, since 1998. This time period includes various economic circumstances, including times of both exceptionally high and low rates of return that have occurred during good and bad economic times.

⁴ US Bureau of Labor Statistics (2014). May 2014 State Occupational Employment and Wage Estimates for Washington. Inflation adjustment of -0.08 percent from \$43.71 and \$32, respectively.

⁵ 1.21 is the average risk-free rate of return on inflation-adjusted I-Bonds issued by the US Treasury Department, since 1998. This time period includes various economic circumstances, including times of both exceptionally high and low rates of return that have occurred during good and bad economic times.

2.5 Summary of the likely compliance costs of the proposed rule amendments

We estimated the costs of requiring an additional two samples per year under assessment monitoring for the two pollutants proposed to be added to the state rule. There are two important assumptions here. First, we did not speculate on landfills that might be required to monitor in the future. While this may under predict costs, we also did not account for landfills that would complete assessment monitoring and drop out of the calculation. Further, it seems unlikely that all facilities will eventually be required to perform assessment monitoring, and even if so, certainly not for dioxin in every case. Secondly, for those landfills currently performing assessment monitoring, we assumed that all wells not currently analyzed for dioxin would have to be analyzed an additional two times per year. Ecology expects few to find dioxin. Therefore the estimates below are very conservative (high end costs). Table 2 summarizes those costs of the proposed rule.

Table 2: Costs of the proposed rule compared to the baseline

Cost	Annual		20-year Present Value	
	Low	High	Low	High
Lab analysis	\$160,000	\$160,000	\$2.8 million	\$2.8 million
Sampling	\$2,500	\$6,900	\$45 thousand	\$123 thousand
Recordkeeping and reporting	\$5,100	\$13,900	\$90 thousand	\$245 thousand
TOTAL	\$168,600	\$180,800	\$3 million	\$3.2 million

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Section 3: Quantification of Cost Ratios

3.1 Introduction

This analysis would normally estimate and compare the compliance costs per employee at small versus large (the largest ten percent) businesses. The proposed rule does not, however, impose new costs on small businesses. We describe, in this section, the affected and unaffected businesses, and make the required comparison of costs per employee at large businesses, to the zero new compliance cost to small businesses under the proposed rule.

3.2 Affected businesses

Most municipal solid waste landfills (MSWLFs) are owned and operated by government entities (cities, counties, federal government), but five are owned and operated by private businesses, and one of these is a small business. The small business is not currently in assessment monitoring. This means that the proposed rule does not impose costs on small businesses, as they currently exist and operate.

3.3 Cost-to-employee ratios

Ecology found constant ranges of compliance costs, based on the total number of wells sampled (see Section 2). The number of wells actually affected at a large facility is difficult to determine, due to different types of well, as well as multiple-use wells. Consequently, we estimated costs across all 25 facilities, based on the total number of wells.

Table 3: Total costs of the proposed rule compared to the baseline

	Annual		20-year Present Value	
	Low	High	Low	High
Total cost for all landfills	\$92,000	\$99,000	\$1,600,000	\$1,800,000
Minimum cost per employee (small business)	\$0	\$0	\$0	\$0
Maximum cost per employee (large business)	\$78	\$78	\$1,000	\$1,400

The proposed rule does not impose disproportionately large costs on existing small businesses in an industry.

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Section 4: Actions Taken to Reduce the Impact of the Rule on Small Businesses

The proposed rule does not impose disproportionately large costs on small businesses. Ecology is therefore not required to include cost-mitigating elements in the proposed rule.

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Section 5: The Involvement of Small Businesses and Local Government in the Development of the Proposed Rule

Ecology involved landfill owners and operators in the development of this limited rulemaking. A list of affected facilities is provided in the table below. Ecology also notified more than 200 members of a ListServ specifically maintained for those interested in revisions to chapter 173-351 WAC.

Landfill Facility	Owner	Public/Private
Asotin County Regional Landfill	Asotin County	Public
Cedar Hills	King County	Public
Cheyne Landfill	Yakima County	Public
Closed Ryegrass Balefill Landfill	Kittitas County	Public
Cowlitz County Hqtrs. Rd LF, (Cowlitz; LP).	Cowlitz County	Public
Cowlitz County Tenant Way	Cowlitz County	Public
Delano Landfill	Regional Board of Mayors of the Grand Coulee Dam Area	Public
Ephrata Landfill	Grant County	Public
Fort Lewis LF5	U.S. Army	Public/Federal
Greater Wenatchee Regional Landfill	Waste Management	Private
LRI Hidden Valley Landfill	Waste Connections	Private
LRI/304th Street	Waste Connections	Private
New Waste Landfill	New Waste Landfill Inc.	Private
Northside Landfill	City of Spokane	Public
Okanogan Central Landfill	Okanogan County	Public
Olympic View Landfill	Waste Management	Private
Port Angeles	City of Port Angeles	Public
Richland Horn Rapids Landfill	City of Richland	Public
Roosevelt Regional Landfill	Allied Waste	Public
Stevens County Landfill	Stevens County	Public
Sudbury Regional Landfill	City of Walla Walla	Public
Tacoma City Municipal Landfill	City of Tacoma	Public
Terrace Heights Landfill	City of Yakima	Public
Thurston Co./Hawks Prairie	Thurston County	Public
Vashon island	King County	Public

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Section 6: The SIC codes of Impacted Industries

The SIC (Standard Industry Classification) system has long been replaced by the North American Industry Classification System (NAICS). The proposed rule specifically applies to landfills, NAICS code 5622.

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Section 7: Impacts on Jobs

We used the Washington State Office of Financial Management's 2002 Washington Input-Output Model (OFM-IO) to estimate the proposed rule's first-round impact on jobs across the state. This methodology estimates the impact as reductions or increases in spending in certain sectors of the state economy flow through to purchases, suppliers, and demand for other goods. Compliance costs incurred by an industry are entered in the OFM-IO model as a decrease in spending and investment. If that money is spent in another industry (in this case, it is in part spent on laboratory analysis), it is entered in the model as an increase in production.

We estimated that there would be relatively little net change in jobs, statewide over 20 years. This is because the majority of compliance costs are a transfer to the testing laboratory industry. The precise number estimated by the model is **between a gain of 0.33 and a loss of nearly 4 full-time employees (FTEs) for the duration of the analysis**. This likely small impact is due to the proposed rule's direct compliance costs, based on the total present-value costs to landfills, and the transfer of some payments to laboratories. This includes direct job impacts in the landfill industry, as well as indirect impacts to all other private industry in the state.

As with transfers of funds across industries, while there is likely to be a job loss of fewer than 4 FTEs statewide, the model also estimates primarily losses of between 24 and 26 FTEs in waste management jobs, and gains of 19 laboratory services-related jobs, as well as their employment spending on retail goods, healthcare, and food good and services adding to approximately 5 jobs across multiple industries.