



DEPARTMENT OF
ECOLOGY
State of Washington

Final Cost-Benefit and Least Burdensome Alternative Analyses

Chapter 173-351 WAC

Criteria for Municipal Solid Waste Landfills

October 2012

Publication no. 12-07-066

Publication and Contact Information

This report is available on the Department of Ecology's website at <https://fortress.wa.gov/ecy/publications/SummaryPages/1207066.html>

For more information contact:

Waste 2 Resources Program
P.O. Box 47600
Olympia, WA 98504-7600

Phone: (360) 407-6900

Washington State Department of Ecology - www.ecy.wa.gov

Headquarters, Olympia	360-407-6000
Northwest Regional Office, Bellevue	425-649-7000
Southwest Regional Office, Olympia	360-407-6300
Central Regional Office, Yakima	509-575-2490
Eastern Regional Office, Spokane	509-329-3400

To ask about the availability of this document in a format for the visually impaired, call the Waste to Resources Program at (360) 407-6900. Persons with hearing loss can call 711 for Washington Relay Service. Persons with a speech disability can call 877-833-6341.

**Final Cost-Benefit and
Least Burdensome Alternative Analyses**

Chapter 173-351 WAC
Criteria for Municipal Solid Waste Landfills

Prepared by

Shon Kraley

Waste 2 Resources
Washington State Department of Ecology
Olympia, Washington

This page is purposely left blank.

Table of Contents

Table of Contents	i
Executive Summary	1
Chapter 1: Background and Introduction.....	3
1.1 Introduction	3
1.2 Description of the adopted rule amendments	3
1.3 Reasons for the adopted rule	4
1.4 Document organization	4
Chapter 2: Baseline and Adopted Rule.....	6
2.1 Introduction	6
2.2 Baseline	6
2.3 Analytic scope	6
2.4 Analyzed changes.....	6
Location restriction	7
Issuance of RD&D permits.....	7
Design criteria.....	7
Ground water reporting.....	8
Environmental covenant	8
Post-closure care	9
Permit provisions	9
Chapter 3: Likely Costs of the Adopted Rule.....	10
3.1 Introduction	10
3.2 Growth in the industry.....	10
3.3 Expected costs	10
Ground water reporting.....	10
Environmental covenant	10
Post-closure care	11
3.4 Total expected costs	11
Chapter 4: Likely Benefits of the Adopted Rule	12
4.1 Introduction	12
4.2 Growth in the industry.....	12
4.3 Expected benefits	12
Location restrictions.....	12
Issuance of RD&D permits.....	12

Design criteria.....	13
Ground water reporting.....	13
Post-closure care	13
Permit provisions	13
4.4 Total expected benefits.....	14
Chapter 5: Cost-Benefit Comparison and Conclusions	15
5.1 Introduction	15
5.2 Estimated costs.....	15
5.3 Estimated benefits	15
5.4 Final comments and conclusion	15
Chapter 6: Least Burdensome Alternative Analysis	16
6.1 Introduction	16
6.2 Alternatives considered	16
No action.....	16
Elimination of all unlined landfills	17
Closure and post-closure care	17
Removal of 10-year permit term limit	17
The adopted rule	17

Executive Summary

The Department of Ecology is amending Chapter 173-351 Washington Administrative Code (WAC) Criteria for Municipal Solid Waste Landfills. Chapter 173-351 WAC applies to publicly or privately owned Municipal Solid Waste Landfill (MSWLF) units that may be a new MSWLF unit, an existing MSWLF unit, or a lateral expansion. The adopted rule amendments:

- Adopts new federal regulations and allows for issuance of Research, Development and Demonstration (RD&D) permits.
- Eliminates equivalent and arid liner designs and extends greater flexibility for alternate liner designs consistent with federal regulations.
- Eliminates arid closure cover design criteria.
- Adds requirements for owners/operators to file an environmental covenant at closure in accordance with Chapter 64.70 RCW, Uniform Environmental Covenants Act.
- Adopts new post-closure care period standards, which are based on potential risk to human and environmental receptors.
- Adds alternative borehole program approval requirements to ensure quality characterization of the geology and hydrogeology of a site.
- Includes prevailing wage law provisions for financial assurance for closure.
- Addresses “general housekeeping” issues such as clarifying definitions, making formatting changes, and ensuring that the rule is consistent with Chapter 173-350 WAC, Solid Waste Handling Standards.

The Administrative Procedures Act – Revised Code of Washington (RCW) 34.05.328(d)(e) requires two types of analyses before adopting a significant legislative rule – a cost-benefit analysis and a least burdensome alternative analysis. This report provides the results of these analyses and shows the potential impacts associated with the rule.

Ecology estimated costs likely to result from the adopted rule, associated with:

- Ground Water Reporting.
- Environmental Covenant.
- Post-Closure Care.

These costs range from \$81,600 - \$161,600 in present value terms, over the 20 year period of study.

Many of the benefits associated with the adopted rule amendments are minimal, fall outside of the time-frame of the current analysis, accrue to potential entrants into the industry (which are not able to be accurately predicted) or are non-quantifiable. These include:

- Location Restrictions.
- Issuance of RD&D permits
- Design Criteria.

- Ground Water Reporting.
- Post-Closure Care.

These benefits range from \$954,000 - \$1,908,000 in present value terms, over 20 years.

Based on qualitative and quantitative assessment of the likely costs and benefits, Ecology concludes that there is reasonable likelihood that the estimated benefits of the adopted rule exceed its costs.

In the Least Burdensome Analysis, Ecology concluded that there is sufficient evidence the adopted rule is the least burdensome version of the rule for those who are required to comply. Ecology considered several alternatives:

- No action.
- Elimination of all unlined landfills in the state.
- Closure and Post-Closure Care.
- Removal of 10-year permit term limit.
- The Adopted Rule.

Based on those alternatives, Ecology concluded the adopted rule amendments are the least burdensome.

Chapter 1: Background and Introduction

1.1 Introduction

This report reviews the economic analysis performed by the Washington State Department of Ecology (Ecology) to estimate the expected benefits and costs of the adopted rule, Criteria for Municipal Solid Waste Landfills - Chapter 173-351 Washington Administrative Code (WAC). This analysis is generally intended for use with an associated Least Burdensome Alternative (LBA) analysis (included in this document) to develop an understanding of the full impact of the adopted amendments.

The Washington Administrative Procedure Act – Revised Code of Washington (RCW)34.05.328 requires Ecology to evaluate significant legislative rules to “[d]etermine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs, and the specific directives, of the law being implemented.”

Ecology’s analysis is based on the best available information at the time of this analysis.

1.2 Description of the adopted rule amendments

The Department of Ecology is amending Chapter 173-351 WAC Criteria for Municipal Solid Waste Landfills. Chapter 173-351 WAC applies to publicly or privately owned Municipal Solid Waste Landfill (MSWLF) units that may be a new MSWLF unit, an existing MSWLF unit, or a lateral expansion. The adopted rule:

- Adopts new federal regulations and allows for issuance of Research, Development and Demonstration (RD&D) permits.
- Eliminates equivalent and arid liner designs and extends greater flexibility for alternate liner designs consistent with federal regulations.
- Eliminates arid closure cover design criteria.
- Adds requirements for owners/operators to file an environmental covenant at closure in accordance with Chapter 64.70 RCW, Uniform Environmental Covenants Act.
- Adopts new post-closure care period standards, which are based on potential risk to human and environmental receptors.
- Adds alternative borehole program approval requirements to ensure quality characterization of the geology and hydrogeology of a site.
- Includes prevailing wage law provisions for financial assurance for closure.
- Addresses “general housekeeping” issues such as clarifying definitions, making formatting changes, and ensuring that the rule is consistent with Chapter 173-350 WAC, Solid Waste Handling Standards.

The new design standards adopt the requirements of 40 CFR Part 258.40(a)(1). This is a new federal performance-based criterion that says the design of a landfill must prevent groundwater from exceeding the contaminant levels shown in Table 1 of the same section of

the federal rule or the groundwater quality criteria in Chapter 173-200 WAC. Additional design considerations are also adopted into the rule that correlate with the explosive gas control requirements of WAC 173-351-200(4) and 40 Code of Federal Regulations (CFR) Part 258.23.

Ecology is also adopting new “functionally stable” criteria for the post-closure care period in WAC 173-351-500(2)(a). The owner or operator must demonstrate that the closed landfill will not pose a threat to public health or the environment from exposure to waste, leachate, gas, or groundwater. The point of potential exposure is determined by what is written into the environmental covenant. For post-closure calculations, the owner or operator must estimate the time required for a closed landfill to become functionally stable using the aforementioned conditions along with on-site conditions, readily available modeling software, and good engineering practices. Annual costs for post-closure care do not change under the adopted rule.

1.3 Reasons for the adopted rule

In 2004 the U.S. Environmental Protection Agency (EPA) amended the federal rule (40 CFR Part 258) to allow Municipal Solid Waste Landfills (MSWLFs) to obtain Research, Development and Demonstration (RD&D) permits for new, existing and lateral expansions. The purpose of the RD&D component of this rule adoption is to expand the variance authority for innovative or new technologies or methods beyond the authority that already exists in the current state rules for MSWLF criteria. RD&D permits provide a variance from existing requirements for run-on control systems, liquid restrictions, and the final cover requirements. The amended rule allows landfills, with concurrence from the local health jurisdiction and state solid waste program, to take advantage of these variances provided that MSWLF owners/operators demonstrate that compliance with the RD&D permit will not increase risk to human health and the environment.

Currently, Ecology has achieved only partial approval from the EPA for the MSWLF rule. By incorporating the recent RD&D and other federal amendments into Chapter 173-351 WAC, Ecology anticipates the agency will receive full approval of our state program from EPA. For the most part, Ecology is incorporating the federal rules, virtually identically, into Chapter 173-351 WAC. This rule adoption does not incorporate some of the federal less stringent optional provisions, and some parts of federal rules modified to conform to differences between states in the existing regulations.

1.4 Document organization

Ecology organized this document into the following sections:

- Baseline and the adopted rule (Chapter 2): Description of the baseline requirements in state and federal laws and rules and the adopted rule. Comparison of the baseline to the adopted rule, as well as how both apply in context.
- Likely costs of the adopted rule (Chapter 3): Analysis of the types and size of costs Ecology expects impacted parties to incur from the adopted rule.

- Likely benefits of adopted rule (Chapter 4): Analysis of the types and size of benefits expected to result from the adopted rule.
- Cost-benefit comparison and conclusions (Chapter 5): Discussion of the complete implications of the Cost-Benefit Analysis and comments on the results.
- Least burdensome alternative analysis (Chapter 6): Analysis of considered alternatives to the adopted rule.

Chapter 2: Baseline and Adopted Rule

2.1 Introduction

In this chapter, Ecology describes the baseline to which the adopted rule is compared. The baseline is the regulatory context, and its application, in the absence of the adopted amendments.

In this chapter, Ecology also describes the adopted rule, and identifies which elements of the adopted rule require analysis under the Administrative Procedure Act (Chapter 34.05 RCW). Here, Ecology addresses complexities in the scope of analysis, and indicates which cost and benefit analyses are discussed in chapters 3 and 4 of this document.

2.2 Baseline

Ecology compared the adopted rule to a baseline representing what would most likely happen if the adopted rule was not adopted. This baseline includes the regulatory framework of other state and federal laws and rules, and how they are applied. For the adopted rule to the Criteria for Municipal Solid Waste Landfill Regulations, the baseline includes both the requirements in the rule and 40 CFR Part 258. The federal language is included because federal regulation applies to facilities in Washington State in the absence of EPA approval of Washington's program. EPA requires that state programs be at least as stringent as the federal regulations in order to grant approval.

2.3 Analytic scope

Requirements in adopted rules that are dictated by state and federal regulations (to the extent that Ecology has no discretion in determining them) are exempt from this analysis. Many of the aspects of the adopted rule are dictated by Federal regulations. Others are "general housekeeping", such as clarification of definitions, formatting changes, and ensuring consistency with Chapter 173-350 WAC, Solid Waste Handling Standards. Only those requirements that Ecology had discretion over are subject to analysis and are analyzed relative to the baseline.

For the current analysis, Ecology uses a time-horizon of 20 years when calculating both the costs and benefits of the adopted rule.

2.4 Analyzed changes

Ecology qualitatively or quantitatively analyzed the impacts of the following adopted rule elements:

- Location Restrictions
- Issuance of RD&D permits
- Design Criteria
- Ground Water Reporting

- Environmental Covenant
- Post-Closure Care
- Permit Provisions

Location restriction

Adopted rule

The adopted rule adds channel migration zones (areas likely to be impacted by stream or river channel movement) to location restrictions.

Baseline

Under current conditions, channel migration zones are not discussed.

Primary change

The adopted rule establishes a requirement that all future locations for landfills be outside of channel migration zones. This prevents landfills from being damaged by erosion when stream channels change over time.

Issuance of RD&D permits

Adopted rule

The adopted rule expands the variance authority for innovative or new technologies or methods beyond the authority that already exists in the current state rules for MSWLF criteria.

Baseline

Under current conditions, RD&D permits are not discussed.

Primary change

The key component for RD&D permits is to allow owner/operators to add water to landfills.

Design criteria

Adopted rule

The adopted rule requires that the bottom layer of liner be at least ten feet above the seasonal high level of ground water, unless a hydraulic gradient control system can be installed which would prevent seasonal high level ground water from contacting the lowest liner level. The adopted rule also allows the jurisdictional health district (JHD) to approve alternative cover designs for some landfills.

Baseline

The baseline in this case requires the bottom layer of liner be at least ten feet above the seasonal high level of ground water, decreasing to five feet of vertical separation from the top of the aquifer to the bottom of the landfill liner with a hydraulic gradient control system.

Primary change

This has the effect of increasing the potential volume of the landfill by increasing the allowable depth by five feet. Greater overall volume allows more waste to be collected and increases disposal fees collected by the landfill over the lifetime of the landfill. Alternative cover systems will significantly decrease the costs for some landfills.

Ground water reporting

Adopted rule

The adopted rule requires each owner/operator to submit an annual groundwater report in electronic form. It also allows the owner/operator discretion in selecting which statistical method he/she used in preparing the report.

Baseline

Currently, annual reports are to be prepared and submitted in printed form only. Also, the statistical methods to be used are explicitly defined.

Primary change

The submission requirement represents a minimal change, as the information is already being collected and environmental laboratories working in Washington State are already familiar with the electronic format. Elimination of the printed form requirement represents a cost savings for owner/operators. Discretion in choice of statistical methods represents a potential benefit to owners /operators.

Environmental covenant

Adopted rule

The adopted rule requires the owner or operator to file an environmental covenant following the closure of a MSWLF.

Baseline

Existing state law requires that the owner or operator make a notation on the deed to the facility property following closure.

Primary change

Environmental covenants will be required at closure for all MSWLFs.

Post-closure care

Adopted rule

The adopted rule requires a facility owner/operator to provide an estimate of the time required for care in the post-closure plan. Further, the owner/operator is required to provide post-closure care until the landfill becomes “functionally stable”, that is it no longer poses a threat to human health or the environment by exposure to waste, leachate, landfill gas, and groundwater.

Baseline

Currently, owner/operators are required to provide post-closure care for a period of 30 years. The permitting authority may shorten or lengthen the post-closure period, but the rule provides no criteria for doing either.

Primary change

“Functionally stable” represents a risk-based approach to determining the safety-level of the site, as opposed to the previous time-based approach. When used in conjunction with the environmental covenant, the potential exists to significantly decrease the period of time that post-closure care must be performed when compared to non risk-based approaches.

Permit provisions

Adopted rule

The adopted rule allows the term of the permit to be established by the JHD. The term of the permit may include the life of the facility including the post-closure period. Owners/operators must renew their permit at least every five years and can be repeated.

Baseline

Currently, permit terms are limited to ten years and must be renewed every year. The term limit requires permits to be reissued every 10 years.

Primary change

Renewal is essentially resubmission of previously prepared paperwork, and places no added burden on the owner/operator. Whereas reissuance, which represents nearly beginning the permitting process from scratch, places significant burden on the owner/operator in the form of primary data collecting and reporting.

Chapter 3: Likely Costs of the Adopted Rule

3.1 Introduction

Ecology estimated the expected costs associated with the adopted rule, as compared to the baseline as described in section 2.2 of this document. The baseline is the regulatory circumstances in the absence of the adopted rule. The costs analyzed here are associated with the adopted rule elements listed in section 2.4 of this report.

To the extent possible, Ecology has quantified these impacts, and has otherwise described them qualitatively to include in overall assessment of the costs of the adopted rule.

3.2 Growth in the industry

Currently, there are no new permits for Municipal Solid Waste Landfill Facilities in process. It has been 13¹ years since a new permit has been approved. While it is certainly possible that new permit applications will occur in the future, Ecology is unable to forecast this eventuality with any level of certainty.

3.3 Expected costs

Ecology estimated costs likely to result from the adopted rule, associated with:

- Ground Water Reporting.
- Environmental Covenant.
- Post-Closure Care.

Ground water reporting

Owners/operators are already required to collect ground water information, and laboratories are familiar with the electronic reporting format. The information that is to be reported is already being collected. Therefore the added cost of reporting this information would be minimal.

Environmental covenant

Under the adopted rule owners or operators will need to file an environmental covenant following the closure of a MSWLF. The cost of an environmental covenant varies by county and includes the appropriate filing fee. A per site estimate of \$100 is used². If the filing requires additional information gathering, it is estimated that costs would increase by up to \$5,000 per landfill³. For the 16 currently operating facilities, the aggregate cost would range from \$1,600 to \$81,600.

¹ LRI in Tacoma was the most recent new landfill site. It was permitted in 1999.

² Filing fees average \$62 + \$1 per page. An estimate of roughly 40 pages per covenant was used.

³ Per Steve Emge, P.E. Parametrics, phone conversation, 4/19/2012. Cost represents estimate of fee a consultant would charge to complete the task.

Post-closure care

For post-closure care, the added requirement of including an estimate of the time required for care represents an added cost for the owner/operator. If this information is not collected by the owner/operator in-house, the estimated cost of obtaining this information is \$5,000 per facility⁴. This will be a one-time cost and will be required for all 16 current facilities, for an aggregate cost of \$80,000⁵.

The adopted rule requires the closed landfill site to meet a “functionally stable” standard before the owner/operator is no longer responsible for post-closure care. This change from a numeric (30-year) approach to a risk-based approach to post-closure care could increase the care period or decrease it. An increase would add costs for the owner/operator and a decrease would subtract costs. Ecology anticipates that under the new requirements, post-closure care would last longer than 20 years and therefore falls outside of the 20-year scope of the current analysis.

3.4 Total expected costs

Ecology calculated total expected costs associated with the adopted rule, in present value, over 20 years as shown in the table below.

Cost	Low	High
Ground Water Reporting	-	
Environmental Covenant	\$1,600	\$81,600
Post-Closure Care	\$80,000	\$80,000
TOTAL	\$81,600	\$161,600

⁴ Emge, *ibid.*

⁵ This task could be required when the rule takes effect, but likely would occur during the next renewal. Therefore, by not discounting the cost, we are using the highest expected costs.

Chapter 4: Likely Benefits of the Adopted Rule

4.1 Introduction

Ecology analyzed the benefits of the adopted rule, compared to the baseline as described in section 2.2 of this document. The baseline is the regulatory circumstances in the absence of the adopted rule. The cost analyzed here are associated with the adopted rule elements listed in section 2.4 of this document.

To the extent possible, Ecology has quantified these impacts, and has otherwise described them qualitatively to include in overall assessment of the costs of the adopted rule.

4.2 Growth in the industry

Currently, there are no new permits for Municipal Solid Waste Landfill Facilities in process. It has been 13⁶ years since a new permit has been approved. While it is certainly possible that new permit applications will occur in the future, Ecology is unable to forecast this eventuality with any level of certainty.

4.3 Expected benefits

Ecology estimated benefits likely to result from the adopted rule, associated with:

- Location Restrictions.
- Issuance of RD&D Permits.
- Design Criteria.
- Ground Water Reporting.
- Post-Closure Care.
- Permit Provisions.

Location restrictions

By requiring that all future locations for landfills be outside of channel migration zones, the adopted rule prevents landfills from being damaged by erosion when stream channels change over time.

This represents a potential benefit to future MSWLF projects. However, this will not impact current MSWLFs.

Issuance of RD&D permits

RD&D permits allow owner/operators to add water to landfills. This would increase the level of biological activity significantly. This greatly increases the rate at which organic materials degrade, which generates methane. Higher rates of methane generation make the generation of electricity from landfill gas (LFG) cost effective. There are two sources

⁶ LRI in Tacoma was the most recent new landfill site. It was permitted in 1999.

of income from LFG electricity, renewable electricity and carbon credit sales. The actual financial benefit would depend greatly on the size of the landfill and the going rate for renewable energy and carbon credits. While the benefits could be great, there is no way to estimate them with any level of accuracy.

A potentially larger benefit comes from a landfill stabilizing much earlier, reducing the post-closure care period by as much as half. However, for most facilities this benefit will likely occur beyond the 20-year timeframe of this analysis.

Design criteria

The adopted rule will potentially allow up to five additional feet of allowable depth for a landfill. As a result MSWLFs could increase the landfill volume, allowing more waste to be collected and increased disposal fees to be collected over the lifetime of the landfill.

Whether this change actually increases potential volume depends on whether the landfill is currently limited by groundwater depth and varies by location. No current MSWLF, closed or operating, has a hydraulic gradient control system. Therefore, the change will not have any immediate financial impact. The potential benefits will come when new facilities are proposed or when existing landfills expand in size. We cannot predict if or when this benefit will materialize.

The adopted rule reduces the landfill cover system design requirements that were included in the rule proposal. The adopted rule allows much lower cost cover systems at many landfills located in areas with lower precipitation or with readily available fine soils.

Ground water reporting

Currently, ground water reporting requires the use of statistical methods that are out-of-date. The adopted rule will relieve owner/operators of the burden of some of these methods. Further, elimination of submission of printed forms will eliminate these associated costs. This represents a minimal benefit to the owner/operators.

Post-closure care

The change from a numeric (30-year) approach to a risk-based approach to post-closure care could in some situations, increase the care period, or in other situations decrease it. An increase would add costs for the owner/operator and a decrease would subtract costs. In either situation Ecology assumes that post-closure care would be required for more than 20 years. This impact from this change would fall outside of the 20-year scope of the current analysis.

Permit provisions

By allowing JHDs to renew permits as opposed to requiring reissuance every 10 years, the adopted rule represents a significant cost savings for owner/operators. Permit renewal

represents minimal cost, while reissuance carries a cost of \$50,000 - \$100,000 per permit⁷.

Based on projected re-issuance dates for the 16 currently operating landfills, this change would save owner/operators \$954,000 - \$1,908,000 over the 20-year span of the current analysis⁸.

4.4 Total expected benefits

Many of the benefits associated with the adopted rule are minimal, fall outside of the time-frame of the current analysis, accrue to potential entrants into the industry (which are not able to be accurately predicted) or are non-quantifiable. These include:

- Location Restrictions.
- Issuance of RD&D permits
- Design Criteria.
- Ground Water Reporting.
- Post-Closure Care.

Ecology calculated total expected benefits associated with the adopted rule, in present value, over 20 years as shown in the table below.

Benefit	Low	High
Permit Provisions	\$954,000	\$1,908,000
TOTAL	\$954,000	\$1,908,000

⁷ Emge, *ibid.*

⁸ Future values are discounted at an annual rate of 1.58%. Of the 16 currently permitted MSWLFs in Washington, one has yet to be constructed and two are scheduled for closure prior to their next scheduled reissuance and therefore would not benefit from this provision.

Chapter 5: Cost-Benefit Comparison and Conclusions

5.1 Introduction

As discussed in Chapter 1, the Washington Administrative Procedure Act (RCW 34.05.328) requires Ecology to evaluate significant legislative rules to “[d]etermine that the probable benefits of the rule are greater than its probable costs, taking into account both the qualitative and quantitative benefits and costs, and the specific directives of the statute being implemented.”

5.2 Estimated costs

As described in Chapter 3, Ecology estimated the following costs associated with the adopted rule. These costs are in present value terms, over 20 years, and range from \$81,600 - \$161,600 as shown in Table 1.

5.3 Estimated benefits

As described in Chapter 4, Ecology estimated the following benefits associated with the adopted rule. These benefits are in present value terms, over 20 years, and range from \$954,000 - \$1,908,000, as shown in Table 2.

5.4 Final comments and conclusion

Based on qualitative and quantitative assessment of the likely costs and benefits, Ecology concludes that there is reasonable likelihood that estimated benefits of the adopted rule exceed its costs.

	Low	High
Benefits	\$954,000	\$1,908,000
Costs	\$81,600	\$161,600
TOTAL	\$872,400	\$1,746,400

In addition to the quantifiable benefits of the adopted rule shown in Table 3, Ecology also expects the adopted rule to benefit some MSWLFs by allowing higher volumes, expanded locations, or reduced post-closure care, depending on the landfill.

Chapter 6: Least Burdensome Alternative Analysis

6.1 Introduction

RCW 34.05.328(1)(d) requires Ecology to "...[d]etermine, after considering alternative versions of the rule and the analysis required under (b) and (c) of this subsection, that the rule being adopted is the least burdensome alternative for those required to comply with it that will achieve the general goals and specific objectives stated under (a) of this subsection."

Ecology assessed alternatives to the adopted rule, and determined whether they met the general goals and specific objectives of the authorizing statute. Of those that would meet these objectives, Ecology determined the adopted rule amendments were the least burdensome.

6.2 Alternatives considered

Currently, Ecology has achieved only partial approval from EPA for the MSWLF rule. By incorporating the recent RD&D and other federal amendments into Chapter 173-351 WAC, Ecology anticipates that the agency will receive full approval of our state program from EPA. For the most part, Ecology will be incorporating the federal rules, virtually identically, into Chapter 173-351 WAC. For some of the federal regulations this rule adoption will not incorporate some of the federal less stringent optional provisions, and some parts of federal rules that are modified to conform to the state differences in the existing regulations.

Ecology considered alternative rule contents that would address the above concerns through rule making:

- **No action.**
- **Elimination of all unlined landfills in the state:** Ecology considered proposing a rule which would eliminate all unlined landfills.
- **Closure and Post-Closure Care:** Ecology considered proposing a rule with no change to WAC 173-351-500 as well as using a numerical approach to post-closure care.
- **Removal of 10-year permit term limit:** For this rule revision we considered several options to address this issue, including keeping it as-is. One option was to change the 10-year limit to a longer timeframe. Another was to eliminate permit terms and the reissuance procedures altogether.
- **The Adopted Rule.** Ecology considered the rule contents currently being adopted.

Each of these options is described in greater detail below, with a discussion of whether and why it was included in the adopted rule language.

No action

Ecology determined that taking no action was not appropriate because it would not allow for approval by EPA of the MSWLF rule.

Elimination of all unlined landfills

Ecology considered proposing a rule which would eliminate all unlined landfills. We currently have at least one unlined landfill in the state. With the adopted rule revision, Washington can continue to allow unlined landfills to remain if the owner/operators would adopt and apply the federal “alternative” design standards (performance standards).

Closure and post-closure care

Doing nothing would bring up the real possibility of post-closure care financial assurance accounts running dry while the landfill still required care to protect human health and the environment.

The numeric approach was eliminated based on our experience implementing the current rule that required very long post-closure care periods.

Removal of 10-year permit term limit

The ten-year permit term was originally established solely as a way to provide privately owned landfills sufficient time to fund financial assurance trust accounts. Extending the permit term to some other numerical value, to provide a longer timeframe, would not allow project specific issues to be addressed in a timely manner. Further, eliminating the term altogether would not allow the JHD to address unforeseen issues as they occurred.

The adopted rule

Ecology anticipates that the adopted rule will result in EPA approval of the entire MSWLF rule. It further will allow current landfills to continue to operate. The risk-based approach also prevents threats and shortens post-closure care to the extent possible while being protective.