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SEP 25 2024

Dept of Ecology
Central Regional Office

September 19, 2024

James Rivard
Solid Waste & Financial Assistance Program
Washington State Department of Ecology
1250 W. Alder Street
Union Gap, Washington 98903-0009

RE: Ash Monofill Permit Renewal Application
Roosevelt Regional Landfill
Special Incinerator Ash Permit No. SW-ASH-01-18

Dear James:

In accordance with general requirement G23, Special Incinerator Ash Permit No. SW-ASH-01-18, enclosed are the revised Operations Plan that incorporates the comments received July 29, 2024 for the Roosevelt Regional Landfill Ash Monofill permit renewal submittal that was originally submitted July 3, 2024. Please contact me at (800) 275-5641 if you need any additional information or have any questions.

Revisions were as follows:

- Updated Cover Page (date-September)
- Updated Section 1.0 - Intro to include language regarding the lack of a current disposal agreement but ash mining operations are ongoing.
- Updated Operations Plan to include ash mining operations description and inspection schedule and log.
- Updated Closure Plan to include language regarding the lack of a current disposal agreement but ash mining operations are ongoing, and got rid of the lysimeters in final cover.
- Re-bookmarked all applicable sections of the document.

Sincerely,
Regional Disposal Company

A handwritten signature in blue ink, appearing to read "Art Mains".

Art Mains
Environmental Manager

Notarization on following page

State of Washington

County of Klickitat

Signed or attested before me on 9-20-24 (date) by

* Attached to document:
Ash MonoFill Renewal Application



[Handwritten Signature]

Signature

Notary Public

Title

My Appointment expires: 9-16-2024

**2024 ASH MONOFILL
PERMIT RENEWAL APPLICATION**

**Hydrogeological Assessment
Engineering Report
Operations Plan
Closure Plan
Post-Closure Plan**

**Roosevelt Regional Landfill
Ash Monofill**



Regional Disposal Company

A Subsidiary of



September 2024

Regional Disposal Company

500 Roosevelt Grade Road • P.O. Box 338 • Roosevelt, WA 99356 (509) 581-0450 • FAX (509) 581-0471

Geo-Logic
ASSOCIATES

Geo-Logic Associates, Inc.
PO Box 288, Newport, OR 97365

**2024 ASH MONOFILL PERMIT RENEWAL
APPLICATION
(SPECIAL INCINERATOR ASH PERMIT NO. SW-ASH-01-18)
ROOSEVELT REGIONAL LANDFILL ASH MONOFILL**

Prepared for:

***Regional Disposal Company
500 Roosevelt Grade Road
P.O. Box 338
Roosevelt, Washington 99356***

SeptemberJuly 2024

Prepared by

***Geo-Logic Associates, Inc.
PO Box 288
Newport, Oregon 97365
(541) 848-8859***

2024 Ash Monofill Permit Renewal Application
Roosevelt Regional Landfill
Ash Monofill

ENGINEER'S CERTIFICATION

This Permit Renewal has been prepared in accordance with the requirements of Chapter 173-306 WAC by a licensed professional engineer practiced in engineering disciplines associated with landfill design and construction.



Geo-Logic Associates, Inc.

Aaron Ogorzalek, P.E.
Senior Engineer

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ENGINEERING REPORT

OPERATION PLAN

CLOSURE PLAN

POST-CLOSURE PLAN

1.0 INTRODUCTION

This application is submitted to renew Special Incinerator Ash Permit No. SW-ASH-01-18 (Issuance Date: January 1, 2019 / Expiration Date: December 31, 2024). While the permit holder does not currently hold an active agreement to receive ash from its historical source, the Spokane WTE facility, through the year 2028, the Ash Monofill will remain open during that time for ongoing ash mining, processing, and recovery operations.

1.1 General Description

The Ash Monofill is located at the Roosevelt Regional Landfill site near Roosevelt, Washington, in Klickitat County. The Roosevelt Regional Landfill includes two permitted disposal facilities: the Ash Monofill and the Municipal Solid Waste (MSW) Landfill. The Ash Monofill and the MSW Landfill share many of the facilities at the site and the hydrogeological and geological work performed on the site pertains to both the Ash Monofill and the MSW Landfill.

The Ash Monofill is currently permitted under WAC 173-306 as a Special Incinerator Ash Facility. The design and operation of the Ash Monofill are governed by state regulations and local agreements.

1.2 Permit Renewal Format

In accordance with WAC 173-306 — Special Incinerator Ash Management Standards, this permit renewal consists of five documents:

- Hydrogeological Assessment
- Engineering Report
- Operation Plan
- Closure Plan
- Post-Closure Plan

The following index tables list where each requirement for the Ash Monofill Permit Renewal is located.

- Table 1-1 Application Contents for Permits
- Table 1-2 Incinerator Ash Siting Standards for Disposal Facilities
- Table 1-3 General Facility Operational Standards
- Table 1-4 General Closure and Post-Closure Requirements
- Table 1-5 Ash Monofill Facility Standards
- Table 1-6 Liner and Final Cap Design and Construction Standards

TABLE 1-1
Index to Regulations for WAC 173-306-330
Application Contents for Permits
2024 Permit Renewal Application
Roosevelt Regional Landfill

WAC 173-306-330 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)(a)(i)	Engineering Report, Section 1.1
(1)(a)(ii)	Operation Plan, Section 2.3
(1)(a)(iii)	Operation Plan
(1)(a)(iv)	Operation Plan, Section 6.0
(1)(a)(v)	Operation Plan, Section 8.0
(1)(b)(i)(A)	Hydrogeological Assessment, Section 2.0
(1)(b)(i)(B)	Hydrogeological Assessment, Section 3.1
(1)(b)(i)(C)	Hydrogeological Assessment, Section 3.2, 3.3
(1)(b)(i)(D)	Hydrogeological Assessment, Section 3.2
(1)(b)(i)(E)	Hydrogeological Assessment, Section 3.3
(1)(b)(i)(F)	Hydrogeological Assessment, Section 4.1
(1)(b)(i)(G)	Hydrogeological Assessment, Section 4.2
(1)(b)(i)(H)	Hydrogeological Assessment, Section 3.4
(1)(b)(i)(I)	Hydrogeological Assessment, Section 5.2
(1)(b)(i)(J)	Engineering Report, Section 6.2
(1)(b)(i)(K)	Hydrogeological Assessment, Section 5.1
(1)(b)(i)(L)	Hydrogeological Assessment, Section 2.4
(1)(b)(i)(M)	Hydrogeological Assessment, Section 2.4
(1)(b)(i)(N)	Hydrogeological Assessment, Section 2.4
(1)(b)(ii)(A)	Engineering Report, Section 1.2
(1)(b)(ii)(B)	Engineering Report, Section 1.3, Closure Plan, Section 5.0
(1)(b)(ii)(C)	Engineering Report, Section 3.0
(1)(b)(ii)(D)	Engineering Report, Section 2.2
(1)(b)(ii)(E)	Engineering Report, Section 3.5, 6.0
(1)(b)(ii)(F)	Engineering Report, Section 3.3
(1)(b)(ii)(G)	Operation Plan, Section 2.7
(1)(b)(ii)(H)	Engineering Report, Section 2.0, 2.4, 4.2, 2.2, Closure Plan Section 3.1
(1)(b)(ii)(I)	Engineering Report, Section 5.1
(1)(b)(ii)(J)	Engineering Report, Section 5.1, 5.2, 5.3
(1)(b)(ii)(K)	Engineering Report, Section 2.3, Operations Plan, Section 2.5.2
(1)(b)(ii)(L)	Engineering Report, Section 4.0

Table 1-1

**Index to Regulations for WAC 173-306-330
 Application Contents for Permits
 2024 Permit Application Renewal
 Regional Disposal Company**

WAC 173-306-330 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)(b)(ii)(M)	Engineering Report, Section 7.0
(1)(b)(ii)(N)	Engineering Report, Section 7.0
(1)(b)(iii)(A)	Operation Plan, Section 2.8
(1)(b)(iii)(B)	Operation Plan, Section 2.7
(1)(b)(iii)(C)	Operation Plan, Section 3.0
(1)(b)(iii)(D)	Operation Plan, Section 5.1, 4.0
(1)(b)(iii)(E)	Operation Plan, Section 2.5
(1)(b)(iii)(F)	Operation Plan, Section 6.0
(1)(b)(iv)(A)	Closure Plan, Section 5.0
(1)(b)(iv)(B)	Closure Plan, Section 5.0
(1)(b)(iv)(C)	Closure Plan, Section 3.2, 3.5, Operations Plan, Section 2.5
(1)(b)(iv)(D)	Closure Plan, Section 6.0
(1)(b)(iv)(E)	Closure Plan, Section 2.0
(1)(b)(iv)(F)	Closure Plan
(1)(b)(iv)(G)	Closure Plan, Section 8.0, 9.0
(1)(b)(v)(A)	Post-Closure Plan, Section 3.0
(1)(b)(v)(B)	Post-Closure Plan, Section 4.2
(1)(b)(v)(C)	Post-Closure Plan, Section 2.3, Operation Plan, Section 9.0
(1)(b)(v)(D)	Post-Closure Plan, Section 4.1
(1)(b)(v)(E)	Post-Closure Plan
(1)(b)(v)(F)	Post-Closure Plan, Section 5.0
(1)(b)(vi)	N/A
(1)(c)(i)(A)	N/A
(1)(c)(i)(B)	N/A
(1)(c)(i)(C)	N/A
(1)(c)(i)(D)	N/A
(1)(c)(i)(E)	N/A
(1)(c)(i)(F)	N/A
(1)(c)(i)(G)	N/A
(1)(c)(ii)(A)	N/A
(1)(c)(ii)(B)	N/A

Table 1-1

**Index to Regulations for WAC 173-306-330
 Application Contents for Permits
 2024 Permit Application Renewal
 Regional Disposal Company**

WAC 173-306-330 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)(c)(ii)(C)	N/A
(1)(c)(ii)(D)	N/A
(1)(c)(iii)(A)	N/A
(1)(c)(iii)(B)	N/A
(1)(c)(iii)(C)	N/A
(1)(c)(iii)(D)	N/A
(1)(c)(iii)(E)	N/A
(1)(c)(iv)	N/A
(1)(d)(i)(A)	N/A
(1)(d)(i)(B)	N/A
(1)(d)(i)(C)	N/A
(1)(d)(ii)(A)	N/A
(1)(d)(ii)(B)	N/A
(2)(a)	N/A
(2)(b)	N/A
NOTE: N/A = Not applicable.	

**Table 1-2
 Index to Regulations for WAC 173-306-350
 Incinerator Ash Siting Standards for Disposal Facilities
 2024 Permit Renewal Application
 Roosevelt Regional Landfill**

WAC 173-306-350 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)(a)	Information repeated for Permit Renewal
(1)(b)	N/A
(2)(a)	Engineering Report, Section 1.2.1
(2)(b)(i)	Engineering Report, Section 1.2.2
(2)(b)(ii)	Engineering Report, Section 1.2.2
(2)(b)(iii)	Engineering Report, Section 1.2.2
(2)(c)(i)	Engineering Report, Section 1.2.3
(2)(c)(ii)	Engineering Report, Section 1.2.3
(2)(c)(iii)	Engineering Report, Section 1.2.3
(2)(d)	Engineering Report, Section 1.2.4
(2)(e)	Engineering Report, Section 1.2.5
(2)(f)(i)	Engineering Report, Section 1.2.6
(2)(f)(ii)	Engineering Report, Section 1.2.6
(2)(f)(iii)	Engineering Report, Section 1.2.6
(2)(f)(iv)	Engineering Report, Section 1.2.6
(2)(f)(v)	Engineering Report, Section 1.2.6
(2)(f)(vi)	Engineering Report, Section 1.2.6
(2)(f)(vii)	Engineering Report, Section 1.2.6
(2)(g)	Engineering Report, Section 1.2.7
(2)(h)	Engineering Report, Section 1.2.8
NOTE: N/A = Not applicable.	

**Table 1-3
 Index to Regulations for WAC 173-306-405
 General Facility Operational Standards
 2024 Permit Renewal Application
 Roosevelt Regional Landfill**

WAC 173-306-405 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)	Operation Plan
(2)	N/A
(3)(a)	Operation Plan, Section 2.0
(3)(b)	Operation Plan, Section 3.0
(3)(c)	Operation Plan, Section 4.0, 5.0
(3)(d)	Operation Plan, Section 4.0
(3)(e)	Operation Plan, Section 4.0
(3)(f)	Operation Plan, Section 8.0
(3)(g)	N/A
(4)(a)(i)	Operation Plan, Section 6.0
(4)(a)(ii)	Operation Plan, Section 7.0, 8.0
(4)(a)(iii)	Operation Plan, Section 3.0
(4)(a)(iv)	Closure Plan, Post-Closure Plan
(4)(a)(v)	N/A
(4)(b)	N/A
(5)(a)	Operation Plan, Section 7.0
(5)(b)	Operation Plan, Section 7.0
(5)(c)	Operation Plan, Section 7.0
(5)(d)	Operation Plan, Section 7.0
(5)(e)	Operation Plan, Section 7.0
(5)(f)	N/A
(6)	Operation Plan, Section 8.0
(7)	Operation Plan, Section 9.0
NOTE: N/A = Not applicable.	

**Table 1-4
 Index to Regulations for WAC 173-306-410
 General Closure and Post-Closure Requirements
 2024 Permit Renewal Application
 Roosevelt Regional Landfill**

WAC 173-306-410 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)	N/A
(2)(a)	Engineering Report, Section 4.0
(2)(b)	Engineering Report, Section 4.0
(2)(c)	Engineering Report, Section 4.0
(3)(a)	Closure Plan, Section 3.0
(3)(b)	Closure Plan, Section 6.0, 8.0, 9.0
(3)(c)	Closure Plan, Section 2.0
(3)(d)(i)	N/A
(3)(d)(iii)	N/A
(3)(e)	Closure Plan, Section 7.0
(4)(a)	Closure Plan, Section 2.0
(4)(b)	Closure Plan, Section 2.0, 4.0
(4)(c)	Closure Plan, Section 2.0
(4)(d)(i)	Closure Plan, Section 2.0
(4)(d)(ii)	Closure Plan, Section 2.0
(4)(e)	Closure Plan, Section 2.0
(4)(f)(i)	Closure Plan, Section 2.0
(4)(f)(ii)	Closure Plan, Section 2.0
(5)	Post-Closure Plan
(6)(a)	Post-Closure Plan, Section 4.0
(6)(b)	Post-Closure Plan, Section 5.0, 6.0
(6)(c)	Post-Closure Plan, Section 1.0
(6)(d)(i)	N/A
(6)(d)(ii)	N/A
(7)(a)	Post-Closure Plan, Section 2.0
(7)(b)	Post-Closure Plan, Section 2.0
(7)(c)	Post-Closure Plan, Section 2.0
NOTE: N/A = Not applicable.	

**Table 1-5
 Index to Regulations for WAC 173-306-440
 Ash Monofill Facility Standards
 2024 Permit Renewal Application
 Roosevelt Regional Landfill**

WAC 173-306-440 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)	Applicable
(2)(a)	Operation Plan, Section 3.1
(2)(b)(i)	Operation Plan, Section 3.3
(2)(b)(ii)	Operation Plan, Section 3.3
(2)(c)	Operation Plan, Section 3.5
(2)(d)	Operation Plan, Section 3.2
(3)	Engineering Report, Section 1.2
(4)(a)(i)	Operation Plan, Section 2.4, 2.5
(4)(a)(ii)	Operation Plan, Section 2.4.1
(4)(a)(iii)(A)	Engineering Report, Section 5.0
(4)(a)(iii)(B)	Engineering Report, Section 5.0
(4)(a)(iii)(C)	Engineering Report, Section 5.0
(4)(a)(iii)(D)	Engineering Report, Section 5.0
(4)(a)(iv)(A)	Engineering Report, Section 5.0
(4)(a)(iv)(B)	Engineering Report, Section 5.0
(4)(a)(iv)(C)	Engineering Report, Section 5.0
(4)(a)(v)	Engineering Report, Section 5.0
(4)(b)(i)	Engineering Report, Section 6.0
(4)(b)(ii)	Engineering Report, Section 6.0
(4)(b)(iii)	Engineering Report, Section 6.0
(4)(c)	Engineering Report, Section 3.0, 4.0
(4)(d)(i)	Engineering Report, Section 2.4, Post-Closure Plan, Section 4.1.1
(4)(d)(ii)(A)	Engineering Report, Section 2.4, Post-Closure Plan, Section 4.1.1
(4)(d)(ii)(B)	Engineering Report, Section 2.4, Post-Closure Plan, Section 4.1.1
(4)(e)	Operation Plan, Section 2.4, 2.5.2, 2.6
(4)(f)(i)	Operation Plan, Section 2.4.1
(4)(f)(ii)	Operation Plan, Section 2.4.1, 2.7
(4)(f)(iii)	Operation Plan, Section 2.7
(4)(g)(i)	Engineering Report, Section 7.3
(4)(g)(ii)(A)	Engineering Report, Section 7.2
(4)(g)(ii)(B)	Engineering Report, Section 7.2

Table 1-5

**Index to Regulations for WAC 173-306-440
 Ash Monofill Facility Standards
 2024 Permit Renewal Application
 Roosevelt Regional Landfill**

WAC 173-306-440 Subsection	Permit Renewal Section Where Regulation is Addressed
(4)(g)(ii)(C)	Engineering Report, Section 7.2
(4)(g)(iii)	Operation Plan, Section 3.0
(4)(g)(iv)	Operation Plan, Section 2.4.1
(4)(g)(v)	Engineering Report, Section 7.0
(4)(g)(vi)	Operations Plan, Section 2.4.2
(4)(g)(vii)	Engineering Report, Section 7.0
(5)(a)	Operation Plan, Section 2.3
(5)(b)	Operation Plan
(5)(c)	Operation Plan, Section 2.5, 2.4.2, 2.7
(5)(d)	Engineering Report, Section 7.0
(5)(e)	Operation Plan, Section 2.4.2
(5)(f)	Operation Plan, Section 3.0
(5)(g)(i)	Operation Plan, Section 8.0
(5)(g)(ii)	Operation Plan, Section 8.0
(5)(g)(iii)	Operation Plan, Section 8.0
(5)(g)(iv)	Operation Plan, Section 8.0
(5)(h)	Operation Plan, Section 6.0
(6)(a)	Engineering Report, Section 4.0
(6)(b)(i)	Post-Closure Plan, Section 4.1.1
(6)(b)(ii)	Post-Closure Plan, Section 4.1.1
(6)(b)(iii)	Post-Closure Plan, Section 4.1.2
(6)(b)(iv)	Post-Closure Plan, Section 4.1.2
(6)(b)(v)	Post-Closure Plan, Section 4.1.3
NOTE: N/A = Not applicable.	

**Table 1-6
 Index to Regulations for WAC 173-306-450
 Liner and Final Cap Design and Construction Standards
 2024 Permit Renewal Application
 Roosevelt Regional Landfill**

WAC 173-306-450 Subsection	Permit Renewal Section Where Regulation is Addressed
(1)	Engineering Report, Section 1.1
(2)(a)	Engineering Report, Section 3.0
(2)(b)	N/A
(3)(a)(i)	Operation Plan, Section 2.4
(3)(a)(ii)	Operation Plan, Section 2.5
(3)(b)(i)	Engineering Report, Section 3.1
(3)(b)(ii)	Engineering Report, Section 3.2
(3)(b)(iii)	Engineering Report, Section 3.3
(3)(b)(iv)	Engineering Report, Section 3.4
(3)(b)(v)	Engineering Report, Section 3.5
(3)(b)(vi)	Engineering Report, Section 3.6
(4)(a)(i)	N/A
(4)(a)(ii)(A)	N/A
(4)(a)(ii)(B)	N/A
(4)(a)(iii)	N/A
(4)(b)(i)	N/A
(4)(b)(ii)	N/A
(4)(b)(iii)	N/A
(4)(b)(iv)	N/A
(5)(a)(i)	Engineering Report, Section 4.1
(5)(a)(ii)	Engineering Report, Section 4.1
(5)(a)(iii)	Engineering Report, Section 4.1
(5)(a)(iv)	Engineering Report, Section 4.1
(5)(b)	Post-Closure Plan, Section 4.1.1
(5)(c)	Post-Closure Plan, Section 4.1.1
NOTE: N/A = Not applicable.	

HYDROGEOLOGICAL ASSESSMENT

ENGINEERING REPORT

OPERATION PLAN

CLOSURE PLAN

POST-CLOSURE PLAN

Operation Plan 2024 Ash Monofill Permit Renewal Application

Roosevelt Regional Landfill Ash Monofill



Regional Disposal Company

A Subsidiary of



September 2024

Regional Disposal Company LANDFILL SITE: • 500 Roosevelt Grade Road • P.O. Box 338 • Roosevelt, WA 99356 (509) 581-0450 • FAX (509) 581-0471

Geo-Logic Associates, Inc.
PO Box 288, Newport, Oregon 97365

**OPERATION PLAN
2024 ASH MONOFILL PERMIT RENEWAL
APPLICATION
ROOSEVELT REGIONAL LANDFILL ASH MONOFILL**

Prepared for

***Regional Disposal Company
500 Roosevelt Grade Road
P.O. Box 338
Roosevelt, Washington 99356***

September 2024

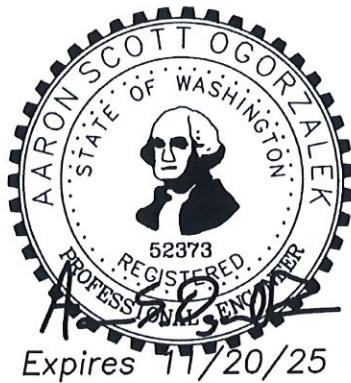
Prepared by

***Geo-Logic Associates, Inc.
PO Box 288
Newport, Oregon 97365
(541) 848-8859***

**Operation Plan
2024 Ash Monofill Permit Renewal Application
Roosevelt Regional Landfill
Ash Monofill**

ENGINEER'S CERTIFICATION

This Operation Plan has been prepared in accordance with the requirements of Chapter 173-306 WAC by a licensed professional engineer practiced in engineering disciplines associated with landfill design and construction.



Geo-Logic Associates, Inc.

A handwritten signature in black ink, appearing to read "A. S. Ogorzalek".

Aaron Ogorzalek, P.E.
Senior Engineer

FACILITY INFORMATION

Name: Roosevelt Regional Landfill Ash Monofill
500 Roosevelt Grade Road
P.O. Box 338
Roosevelt, Washington 99356
(509) 581-0450

Address: Regional Disposal Company
500 Roosevelt Grade Road
P.O. Box 338
Roosevelt, Washington 99356
(509) 581-0450

Description: Special Incinerator Ash Facility
Permit No. SW-ASH-01-18

Owner: Regional Disposal Company
Contact: Jeff Barcenas, General Manager
(509) 581-0450

Operator: Regional Disposal Company
Contact: Jeff Barcenas, General Manager
(509) 581-0450

Engineer: Geo-Logic Associates, Inc.
PO Box 288
Newport, Oregon 97365
Contact: Aaron Ogorzalek, P.E.
(541) 848-8859

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APPENDIX A NOC ODER NO. DE 93AQ – C163, FIFTH EDITION

APPENDIX B FUGITIVE DUST CONTROL PLAN

APPENDIX C DAILY INSPECTION LOG

1.0 INTRODUCTION

This document is one of five documents: (*Engineering Report, Closure Plan, Post-Closure Plan, Operation Plan, and Hydrogeological Assessment*) comprising the application to renew Special Incinerator Ash Permit No. SW-ASH-01-18 (Issuance Date: January 1, 2019 / Expiration Date: December 31, 2024).

This Operation Plan includes the information required by WAC 173–306–330(1)(b)(iii) and WAC 173–306–405. The introduction to the permit renewal package includes a master list that describes where each item required by WAC 173–306 is addressed. This plan has been prepared as a revision to the previously submitted Operations Plan for the Ash Monofill at the Roosevelt Regional Landfill.

The Operation Plan presented herein is submitted as part of the application for permit renewal.

The Ash Monofill at Roosevelt Regional Landfill has been operated by Regional Disposal Company (RDC) under a conditional use permit from the Klickitat County Board of Adjustment (CUP 91–06) and an operating permit from the Department of Ecology since late 1991. The original Operation Plan was published as Chapter 6.0 in the *Engineering Report: Roosevelt Regional Landfill Ash Monofill* (April 1991). The Operation Plan was modified in November 1992 in response to Ecology comments. The current operating permit was issued January 1, 2019 and expires December 31, 2024.

2.0 PLAN OF OPERATION AND MAINTENANCE

2.1 General

Proper operation of the Ash Monofill is an important element in assuring a safe and environmentally secure monofill. The operation and maintenance procedures described herein are intended to comply with the requirement of WAC 173-306 for special incinerator ash.

The Ash Monofill primarily provides for the disposal of special incinerator ash from the Spokane WTE facility. Since the Spokane facility utilizes mass burn technology, the resulting ash can be considered comparable to other mass burn facilities in the United States. Accordingly, the characteristics provided in Section 2.3 can be used as typical in physical nature for the Spokane ash and other special incinerator ash that may be disposed of at the Ash Monofill in the future.

The site does not currently have an active ash disposal agreement to receive ash from the Spokane WTE facility extending through the year 2028; however ash mining, processing, and recovery operations will remain continuous throughout that time period as described in Section 2.9 below.

2.2 Ash Management

This plan is limited to the operation and maintenance requirements concerning the Ash Monofill and ash management that will occur at the landfill. Ash management issues relating to the generation and transport of the ash to the landfill are not addressed in this plan.

2.3 Type of Ash Accepted

RDC accepts special incinerator ash as defined in WAC 173-306-100(49). In addition, RDC will accept special incinerator ash that is not hazardous under Chapter 70.105 RCW if the generator of such ash wishes to manage it at a higher standard provided by

WAC 173-306 versus WAC 173-351.

Ash must be tested by the generator to demonstrate the ash meets the minimum standards of WAC 173-306-100(49). This testing shall be in accordance with an approved generator ash management plan or other document approved by Ecology. The ash generator has primary responsibility for ash sampling and testing. RDC will also conduct its own sampling and testing in accordance with procedures to be published separately. Ash is moisture conditioned by the generator at its source. RDC will inspect ash for moisture content as described in RDC's Air Operating Permit.

Co-disposal of other waste types is prohibited unless otherwise provided for by permit.

2.4 Ash Disposal Filling, Compacting, and Grading

Special incinerator ash disposed of at this Ash Monofill will be handled in accordance with the methods and procedures outlined in the following sections.

2.4.1 Ash Delivery

All special incinerator ash will be delivered to the Ash Monofill in covered and sealed transport trailers or containers to prevent fugitive emissions during transport. The ash shall not contain any free liquids.

The ash delivered to the facility will be weighed at the entrance to the Roosevelt Regional Landfill facility. The trucks will then proceed to the Ash Monofill on the paved access road and will leave the site using the same access road. A turn-around and tipping area will be provided at the Ash Monofill.

Ash is transported in containers capable of being dumped at the designated location within the Ash Monofill. Access to the designated location within the Ash Monofill will be on an all-weather, graveled surface such that the tires of vehicles hauling ash do not

contact disposed ash and track-out is eliminated. This method precludes the requirement for a separate wheel-wash at the Ash Monofill.

2.4.2 Unloading

Ash will be unloaded in a manner that minimizes fugitive dust, as well as reduces the potential for track-out of previously disposed ash. The transport trucks and associated containers will be directed to an area of the cell designated for daily disposal. The self tipping trucks will then back up to a crevice or pit which is located on the working face. The ash will then be dumped into this area. After the ash is dumped from a container a bulldozer is used to place and compact the ash. The operator places the ash in accordance with the final grading plan.

Filling of the Ash Monofill is accomplished in stages that make up a disposal phase.

Beginning in 2016, operations have also included the mining of previously placed ash which is transported to an [on-site](#) recovery facility, processed, and returned to the ash monofill. [The ash mining, processing, and recovery activities are described in Section 2.9 of this Operations Plan.](#)

2.5 Covering

2.5.1 Daily Cover

The purposes of the application of daily cover soils is prevent ash from blowing off the monofill and to inhibit the generation of fly vectors within the waste products. The application of daily cover soils is highly necessary for wastes consisting of putrescible waste products such as municipal solid waste which provides a highly desirable breeding habitat. In addition, daily cover soils impede rodents from borrowing into the waste to forage for food.

The ash waste products disposed of at the Roosevelt Regional Landfill contains no

putrescible waste materials that may promote the generation of fly or insect larva. The ash also contains no organic wastes that could be considered a food product for borrowing rodents.

Approved as an operating condition within NOC Order No. DE 93AQ-C163 Fifth Edition (Appendix A) for the Ash Monofill is the provision to allow up to 4.6 acres of ash to be exposed at any one time. This limitation is based on air emission testing and monitoring that was performed at the site which included monitoring points in the downwind direction from the monofill. Because the results of the study found that virtually no airborne contamination migrates off the site and that the chemical constituents within the ash are at concentrations significantly less than allowed in the permit application, the application of cover soils over the ash on a daily basis provides no additional environmental protection.

A Variance Application for Alternative Daily Cover has been prepared and submitted under separate cover.

2.5.2 Interim Cover

Interim cover will consist of a 1-foot layer of cover soil. The interim cover will be incorporated into the final cover system when the entire cell is filled.

A Variance Application for the use of a one-foot thick soil layer as the interim cover requirement was submitted in December 1999 for approval. This report, updated and resubmitted under separate cover as part of this permit renewal, provides the necessary technical justification for the use of soil as an alternative to the geomembrane system currently permitted. A copy of this report is available for review at the landfill office.

2.5.3 Final Cover

Final cover is placed when a stage or phase reaches final grade and is closed. Details

of the Final cover design and construction are discussed in the *Engineering Report*. A Variance Application for an alternative to the prescriptive final cover system was prepared and submitted in December 1999.

2.6 Phased Filling

The general phasing of the Ash Monofill is separated into stages as illustrated in the *Engineering Report*. Stage A encompasses the western portion of the Ash Monofill and stages progress across the Ash Monofill from west to east. Each stage will provide capacity for two to five years of ash volumes. A temporary access road will be constructed on to each lift of each stage. This road will be used to access the next lift as the filling progresses. The temporary access road will be constructed of all-weather materials such as gravel.

2.6.1 Filling Sequence

In Stage A, initial filling began at the east and worked west across the bottom in a lift about 5 feet deep. Subsequent lifts started at the west and progress in daily cells to the east. The proposed fill sequence is showed on Drawing 4 of Appendix J in the *Engineering Report*.

2.6.2 Access Roads

Temporary access roads used to fill the ash cell may be constructed directly on compacted ash. Ash is a suitable base material for road construction and only an additional 6-inch layer of trafficable material such as gravel or crushed rock will be required to complete the driving surface.

2.6.3 Drainage

Diversion ditches will be maintained to pass the 100-year, 24-hour storm, plus are additional 1 inch of assumed precipitation to account for rapid snowmelt from a Chinook wind.

Runoff within the active area not having final cover will be directed to the leachate collection and removal system. This runoff will be assumed to be contaminated and will be treated as leachate. Runoff from within the active area that has received final cover will be managed as described in the *Engineering Report*.

2.7 Fugitive Dust Controls

Fugitive dust control is conducted in accordance with RDC's Fugitive Dust Control Plan. This plan is provided in Appendix B.

Other ash fugitive dust controls include the following:

1. Disposal operations in accordance with Section 2.4 to prevent track-out of ash.
2. Paved roads to within 100 feet of the edge of the bottom liner where entrance onto the Ash Monofill occurs.
3. The major axis of the active area oriented approximately east west to minimize the effect of prevailing winds.

2.8 Leachate System

Leachate from the Ash Monofill flows by gravity to the leachate pump station. Design of the leachate system is described in detail in the *Engineering Report*. Leachate is pumped to Pond 2 (preferred) or Pond 1 of the MSW Landfill leachate system. From there, the leachate is managed in accordance with the Operation Plan for the MSW Landfill.

The flow capacity of the gravity and pressure lines is approximately 800 gpm. The leachate initially flows into a storage tank. Sensors measure the depth of leachate in the tank and turn on the pumps at pre-set levels. Five pumps are used and have the ability to manage a wide range of flow rates up to approximately 800 gpm.

Leachate discharge from the pump station flows through a buried HDPE pipe to Pond 2 or Pond 1 at the MSW Landfill. There are two pressure relief valves along the pipe alignment. Small amounts of leachate discharged from these valves are collected in the

tanks at the valves. These valves and tanks will be inspected frequently to ensure their proper operation and disposal of accumulated leachate.

An emergency generator will automatically start with a loss of power. This will also initiate an emergency call up system where designated individuals are notified by phone of the emergency.

Detailed operation and maintenance of the controls, pumps, and engine are provided in manufacturer's manuals. These manuals are available at the landfill office.

2.9 Ash Mining

Ash that has been landfilled or received at the site is processed for the removal of ferrous and non-ferrous metals by a third party. The landfilled ash is mined from the active landfill and hauled to an on-site processing and recovery facility. The mining activities utilize survey control to ensure that the ash excavation is maintained at least 5.0 feet from the liner system so as to not compromise the liner. Mined ash is hauled using large ADT type trucks on existing landfill access roads approximately 0.5 mile each way. After processing, the ash is returned to the active ash monofill and placed in an area that has previously been mined in accordance with this Operations Plan.

3.0 ENVIRONMENTAL MONITORING

This section addresses elements to be monitored that could impact the natural environment. These elements include:

- Groundwater
- Surface Water
- Soil
- Special Incinerator Ash
- Ambient Air
- Leachate
- Liner Leakage
- Final Cover Leakage

Monitoring the above items will help determine whether or not the facility is complying with performance standards in WAC 173-306-440(2).

A discussion of each of these monitoring activities is provided below.

3.1 Groundwater

Groundwater performance standards of WAC 173-306-440(2)(a) will be monitored through semi-annual samples collected from three downgradient compliance wells and three upgradient background wells. Samples will be analyzed for the parameters stipulated in WAC 173-306-500 with the exception of gamma radiation.

Changes in the water quality between the background and compliance wells will be measured by a statistical analysis per WAC 173-306-500(2)(f) described in the Statistical Data Characterization Report (Pacific Groundwater Group, December 2012), included in Appendix F of the *Groundwater Monitoring Plan*. Prediction Limits, used in the statical assessment of groundwater data, were updated in 2016 and 2020 (Pacific Groundwater Group, March 2020). Groundwater monitoring is described in more detail in “*Groundwater Monitoring Plan, Roosevelt Regional Landfill, Klickitat County*” (Pacific Groundwater Group, December 2013), which is provided as Appendix B to the *Hydrogeological Assessment*.

3.2 Surface Water

Surface water will be monitored for compliance at the discharge of the detention/sedimentation basin located near the east end of the landfill, in accordance with the Stormwater Basin General Permit/NPDES requirements and the Stormwater Pollution Prevention Plan.

RDC is permitted to discharge stormwater per its Industrial Activities NPDES Permit No. WAR000939. Runoff from areas of the Ash Monofill not having final or interim cover are collected by the leachate collection system and managed as leachate. These referenced documents are available at the landfill office for review.

3.3 Soils

Soils on the downwind (eastern) side of the site have been sampled annually for cadmium concentrations and compared to existing background levels to conform to performance standards specified in WAC 173-306-440(2)(b). Historical test results have demonstrated no impacts on soil quality from the ash landfill activity.

3.4 Special Incinerator Ash

Prior to receiving special incinerator ash, Regional Disposal Company will require each generator of special incinerator ash to provide verification of the designated status of the special incinerator ash, according to WAC 173-306-500(4).

3.5 Ambient Air

Standards for air emissions for the Ash Monofill are stipulated in Washington Department of Ecology Order No. DE 93AQ-C163 Fifth Revision, and as hereafter amended. These include standards and monitoring requirements for opacity, PM-10, and lead. A copy of Order No. DE 93AQ-C163 Fifth Revision is provided in Appendix A of this report and is also available in the landfill office for review.

Ambient air quality will be monitored monthly on the downwind side of the facility at the property boundary to demonstrate conformance to performance standards found in WAC 173-306-440(2)(c). Air will be sampled and analyzed for PM-10 particulates associated with the operations, closure and/or post-closure of the facility.

Ambient air quality sampling and analysis for lead will be conducted according to 40 CFR Part 50, Appendix G. Lead samples will be collected over a 24-hour period. Lead sampling and analysis will be conducted monthly.

3.6 Leachate

Leachate from the Ash Monofill will be sampled quarterly and analyzed for the parameters stipulated in WAC 173-306-500 including lead, cadmium, conductivity, and pH as described in the “*Groundwater Monitoring Plan, Roosevelt Regional Landfill, Klickitat County*” (Pacific Groundwater Group, December 2013).

3.7 Liner Leakage

Leak detection and collection is provided by the secondary containment system. The monitoring sumps (in the leachate vault) will be inspected visually every month for accumulation of liquid.

The following actions will be initiated in response to liquids observed in the leak detection system. Action levels are based on leakage rates measures in gallons per acre per day (gpad).

Quantity of Liquid	Response Action
0-19 gpad	Continue routine monitoring.
20-249 gpad	Notify Ecology. Inspect leak detection pipe. Direct leakage into leachate treatment and disposal system.
250-2,499 gpad	Notify Ecology. Reinspect with video camera. Sample liquid in the leak detection system and test for leachate parameters. Sample groundwater monitoring wells.
>2,500 gpad	Notify Ecology. Install additional groundwater monitoring wells immediately down gradient of the area of the leak. Implement operational changes, such as closure of the affected area, as approved by Ecology.

4.0 EMERGENCY PLANS

In the event of a sudden release of special incinerator ash to surface water, dispersal by wind, a leachate seep, or any other type of contaminant release, RDC will do the following:

- Notify Ecology to provide them with necessary information.
- Take immediate action to stop, contain, and clean up any unauthorized discharges.
- Take all reasonable steps to minimize any adverse impacts to waters and correct the problem.

Contaminant release to groundwater is an extremely remote possibility because of both the arid climate and such protective features incorporated into the design such as the bottom liner, leak detection system, leachate collection and removal system, leachate treatment and disposal system, and the surface water management system. In the remote event that leachate does escape from the landfill, it would be picked up in the shallow monitoring aquifer and detected by the sampling and statistical analysis program described in the *Groundwater Monitoring Plan* (Pacific Groundwater Group, 2013). The deep regional aquifer supplying drinking water is naturally protected by the low permeable, 340-foot-thick Selah Formation.

Should a statistically significant increase be detected in the monitoring system, RDC shall follow protocols outlined in the *Groundwater Monitoring Plan* (see *Hydrogeological Assessment*, Appendix B). In the event of groundwater contamination, RDC will comply with the requirements of WAC 173-306-500(2). Any modifications required due to groundwater contamination will be done after approval from Ecology.

5.0 EMPLOYEE SAFETY AND TRAINING

Employee safety and training is conducted in accordance with RDC's Health and Safety Plan prepared to comply with Washington State Department of Labor and Industry requirements. In addition to the requirements in the Health and Safety Plan, employees working on the Ash Monofill will wear personal protective equipment to include coveralls, gloves, hard hats, and safety glasses.

5.1 Health And Safety Program

The safety plan for the facility includes the following:

- Education and Training of personnel in hazards associated with ash monofills and solid waste landfills.
- Fire protection.

Since the Ash Monofill is near a MSW Landfill within the boundary of the Roosevelt Regional Landfill, personnel will be cross-trained for both the MSW fill and the Ash Monofill. The following Health and Safety programs would apply to the entire site.

5.1.1 Education and Training Program

The training program will include instruction to prevent illness, injury, and damage to equipment, or failure of operational systems designed to protect the public health and safety, and the environment. Prior to operations start-up, employees will receive training in their area of responsibility from knowledgeable personnel, including equipment suppliers, engineers, industrial hygienists and technicians. These are the people involved in the design and construction of the landfill facilities, preparation of the operation and maintenance plan, and the supplying of equipment for operation of the landfills. Prior to beginning their job, trainees will have to demonstrate to the satisfaction of the Operation Manager their ability to knowledgeably and safely perform their jobs.

Routine training will be conducted for all site employees in a number of areas, including:

- Potential hazards of special incinerator ash.
- Recognition of potentially dangerous waste.
- Firefighting procedures, including building, equipment, subsurface landfill fires, and rangeland fires.
- Safe equipment operating procedures.
- Use of communication equipment.
- Emergency notification procedures.
- Health and safety, personal protective equipment.
- Emergency response to a solid waste accident.

5.1.2 Fire Protection

Routine fire prevention measures are employed in buildings and maintenance facilities. These measures include maintaining cleanliness and proper storage of flammables and oily rags. A fire main system is provided for the entrance area facilities. Portable fire extinguishing equipment is also available to allow rapid response in the event of fire. A watchman is present on site after normal business hours and his responsibilities include making rounds of all buildings and watching for fires.

RDC maintains firefighting equipment at the site. The equipment includes installed and portable firefighting equipment, and personal protective equipment. In addition, the water truck is equipped with pumps and hoses so that it can be used as a firefighting truck in emergencies.

6.0 RECORDKEEPING

Record keeping will be done at the Ash Monofill in accordance with WAC 173-306-405(4). Records will be kept on file at the facility office and will be available to regulatory agencies for review until closure of the Ash Monofill is complete. Record keeping will include:

1. Scale records showing date, generator and weight of ash received.
2. Records of inspections described in Section 8.0.
3. Groundwater reports prepared in accordance the *Groundwater Monitoring Plan*.
4. Other monitoring reports.
5. Closure and post-closure cost estimate.
6. Any deviations from this Operation Plan.

7.0 REPORTING

RDC will submit an annual report by March 1st of each year. The report will include the following:

1. Name and address of the facility.
2. Calendar year covered by the report.
3. Annual quantity in tons of ash received and disposed method of management.
4. Any results from soil, air, and groundwater monitoring for the applicable calendar year not already submitted and available as of March 1st.
5. The most recent closure and post-closure cost estimates.

8.0 INSPECTIONS

Inspections will be conducted on a routine basis in accordance with the Operation Plan. The inspections would be conducted to prevent system malfunctions and deterioration, operator errors, and discharges, which may lead to the release of wastes to the environment or pose a threat to public health and safety. Daily Logs will be kept of inspections and include the following:

- Date and time of inspection.
- Printed name and handwritten signature of the inspector.
- Notation of observations made, and the date and nature of any repairs or corrective action.

Daily Inspection logs will be kept at the facility administrative offices for at least three years and be available for review upon request. An example of the site's daily inspection log is included in Appendix C.

The Ash Monofill will be inspected at least semi-annually or after major storms. ~~Inspections will include~~ for the following:

1. Check interim cover to ensure complete coverage of ash and to identify evidence of erosion.
2. Inspect stormwater control system for evidence of erosion or blockage. Pay particular attention to perimeter stormwater drains to ensure they are draining properly and stormwater is not ponding and potentially entering the Ash Monofill leak detection system.
3. Check each stage's leak detection system and record volume of any leachate removed. Direct any leachate removed into the leachate collection system. Notify Ecology within seven days if leachate volume in any leak detection system exceeds 19 gallons per acre per day. Include in the notification the schedule for determining the cause of the leak and any planned remedial measures.
4. Inspect the leachate collection pipe and penetration to ensure leachate is flowing freely and there are no blockages in the system.

5. Inspect the leachate pump station and storage tanks for evidence of any leaks. Verify pumps are on and set to operate automatically. Change the flow meter recording paper.
6. Inspect the leachate transmission line from the pump station to Pond 2 for proper operation of the pressure relief valves and accumulation of leachate in the catch tanks for the pressure relief valves.
7. Inspect visible emissions from the Ash Monofill and at the property boundary in accordance with the Washington Department of Ecology Order No. DE 93AQ-C163, Fifth Revision.

9.0 OTHER PERMITS

RDC has obtained the necessary local and state permits to operate at the facility. These permits are kept on-file at the facility office and are available for review by Ecology at any given time. A list of permits obtained include:

- Zoning permits
- Land use permits
- Air Permits
- Stormwater Baseline General Permit/NPDES Permit
- NOC Order No. DE 93AQ-C163 (Appendix A)
- Fugitive Dust Control Plan (Appendix B)

APPENDIX A

NOC ORDER NO. DE 93 AQ – C163, FIFTH EDITION

APPENDIX B
FUGITIVE DUST CONTROL PLAN

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APPENDIX C

DAILY INSPECTION LOG

Closure Plan 2024 Ash Monofill Permit Renewal Application

Roosevelt Regional Landfill Ash Monofill



Regional Disposal Company

A Subsidiary of



September~~July~~ 2024

Regional Disposal Company LANDFILL SITE: • 500 Roosevelt Grade Road • P.O. Box 338 • Roosevelt, WA 99356 (509) 581-0450 • FAX (509) 581-0471

Geo-Logic Associates, Inc.
PO Box 288, Newport, Oregon 97365

**CLOSURE PLAN
2024 ASH MONOFILL PERMIT RENEWAL APPLICATION
ROOSEVELT REGIONAL LANDFILL ASH MONOFILL**

Prepared for

***Regional Disposal Company
500 Roosevelt Grade Road
P.O. Box 338
Roosevelt, Washington 99356***

SeptemberJuly 2024

Prepared by

***Geo-Logic Associates, Inc.
PO Box 288
Newport, Oregon 97365
(541) 848-8859***

**Closure Plan
2024 Ash Monofill Permit Renewal Application
Roosevelt Regional Landfill
Ash Monofill**

ENGINEER'S CERTIFICATION

This Closure Plan has been prepared in accordance with the requirements of Chapter 173-306 WAC by a licensed professional engineer practiced in engineering disciplines associated with landfill design and construction.



Geo-Logic Associates, Inc.

A handwritten signature in black ink, appearing to read "A. S. Ogorzalek", written over a horizontal line.

Aaron Ogorzalek, P.E.
Senior Engineer

FACILITY INFORMATION

Name: Roosevelt Regional Landfill Ash Monofill
500 Roosevelt Grade Road
P.O. Box 338
Roosevelt, Washington 99356
(509) 581-0450

Address: Regional Disposal Company
500 Roosevelt Grade Road
P.O. Box 338
Roosevelt, Washington 99356
(509) 581-0450

Description: Special Incinerator Ash Facility
Permit No. SW-ASH-01-18

Owner: Regional Disposal Company
Contact: Jeff Barcenas, General Manager
(509) 581-0450

Operator: Regional Disposal Company
Contact: Jeff Barcenas, General Manager
(509) 581-0450

Engineer: Geo-Logic Associates, Inc.
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1.0 INTRODUCTION

This document is one of five documents: (*Engineering Report, Closure Plan, Post-Closure Plan, Operation Plan, and Hydrogeological Assessment*) comprising the application to renew Special Incinerator Ash Permit No. SW-ASH-01-18 (Issuance Date: January 1 2019 / Expiration Date: December 31, 2024).

The introduction to the permit renewal package includes a master list that describes where each item required by WAC 173–306 is addressed.

This Closure Plan includes the information required by WAC 173-306-330(1)(b)(iv) and has been prepared as a revision to the previously submitted Closure Plan for the Ash Monofill at the Roosevelt Regional Landfill.

The Ash Monofill at Roosevelt Regional Landfill has been operated by Regional Disposal Company (RDC) under a conditional use permit from the Klickitat County Board of Adjustment (CUP 91-06 and CUP 2006-01) and an operating permit from the Department of Ecology since late 1991. The original Closure Plan was published as Chapter 7.0 in the *Engineering Report: Roosevelt Regional Landfill Ash Monofill* (April 1991). The current operating permit was issued January 1, 2019 and expires December 31, 2024.

2.0 CLOSURE PROCEDURES

WAC 173-306-410(1) lists the required closure procedures. Closure is expected to occur in two phases. Following is a summary of the procedures:

- Notify the Department of Ecology and the Financial Assurance Trustee no later than 180 days prior to closure work.
- Prepare and submit a closure plan and construction documents for the closure work.
- Start implementation of the closure plan within 30 days after final receipt of ash and/or attaining final grade in a closure area.
- Install final cover system and necessary surface water controls.
- Submit the required facility closure plan sheets signed by a professional engineer registered in the state of Washington reflecting all as-built changes to the Department of Ecology.
- Submit an affidavit signed by a professional engineer registered in the state of Washington stating that the site has been closed in accordance with the approved closure plan to the Department of Ecology.
- File maps and statements of fact with the County Auditor within three months of closure. Ash amounts, location, and period of operation will be submitted to Klickitat County.
- When Ecology finds the facility has been closed in accordance with the specifications of the approved closure plan and the closure requirements of this section, Ecology will:
 - Issue a certificate of closure for the site to RDC and Ecology; and
 - Notify RDC and Ecology that the facility post-closure period has begun in whole or in part on a specified date.

3.0 CLOSURE DESIGN

3.1 Final Grading Plan

The final grading plan for the Ash Monofill is included in the *Engineering Report*.

- The top deck is set with a minimum slope of 2 percent in accordance with WAC 173-306 minimum requirements.
- The side slopes are set with a maximum slope of 3.0H:1V (33.3 percent) to ensure the final cover system is stable.
- The maximum elevation for the top of the final cover is 1,660 feet mean sea level (roughly 1,655 feet for top of ash), in accordance with the Klickitat County CUP.
- The side slopes are benched to limit erosion.

3.2 Final Cover System

This final cover design will be in accordance with standard final cover design defined in WAC 173-306-450(5).

As shown on Drawing 7 in Appendix J of the *Engineering Report*, the final cover system for the Ash Monofill will consist of the following components (from bottom to top):

- **Interim Cover.** Interim cover soils will be placed to a thickness of 12 inches over the ash waste as part of daily filling of the monofill. Prior to placement of the final capping layers, approximately 4.5 inches of interim cover will be removed and the remaining interim cover soils will be moisture conditioned and compacted as the subgrade for the final cover layers.
- **Lower Component of Composite Liner.** A low permeable soil layer 24-inches thick and not exceeding 1×10^{-7} cm/sec permeability will be placed directly over the interim cover subgrade.
- **Upper Component of Composite Liner.** A geomembrane, consisting of a 60-mil High Density Polyethylene (HDPE) will be installed in direct contact with the underlying compacted clay liner.

- **Drainage Layer.** A geocomposite drainage material or a gravel layer will be installed on the side slopes of the monofill to act as a drainage layer to catch liquids infiltrating through the overlying soil cover.
- **Protective Cover Soil.** 18-inches of native soils will be placed over the geomembrane (top areas) and drainage layer (side slopes) to act as a protective cover for the barrier liner system.
- **Vegetation Layer.** Six-inches of uncompacted native and topsoil materials will be placed over the protective cover as the vegetative layer to promote evapotranspiration and plant growth.
- ~~**Vegetation.** A dense mixture of various local and native grasses.~~
- ~~In addition to the cover system, described above, a series of gravity collection lysimeters will be installed within the capping system. These lysimeters fulfill the requirement for a system to detect cap failure. Ecology has recognized the ability of gravity collection lysimeters to measure performance of landfills in an arid environment and have provided design guidance in Technical Information Memorandum No. 89-1 (Eaton, 1989). The gravity collection lysimeters will be designed and submitted for review prior to construction of the final cover system.~~

3.3 Surface Water Management

The surface water management system for the Ash Monofill after closure is described in the *Engineering Report*.

3.4 Construction and CQA

Construction quality assurance will be performed for final cover projects. An independent third party prepares and implements the CQA Plan. A sample CQA Plan is included in the *Engineering Report*. Final design drawings, construction specifications, and a CQA Plan will be submitted for review prior to construction.

3.5 Closure Area

Installation of the final cover system will be accomplished by standard earthwork equipment such as scrapers, dump trucks, water trucks, soil compactors, bulldozers, and graders. Vegetative cover will be established by hydroseeding.

4.0 CLOSURE AREAS

In accordance with WAC 173-306-410(4)(b), closure activities will commence after receipt of the final volume of ash, after ash mining, processing, and recovery operations have ceased, and/or after attaining the final monofill elevation.

The final elevation in a monofill stage can not be attained until adjacent stages are constructed and filled because of the configuration of the monofill footprint, the filling sequence and the final grading plan.

5.0 REMAINING CAPACITY AND SITE LIFE

Based on the subgrade plan and the final grade plan shown *Engineering Report*, approximately 1.55 million cubic yards of airspace remain over the 33-acre footprint (as of the date of this permit renewal application). Assuming an Ash Monofill density of 2,660 pounds of ash per cubic yard of airspace, the remaining capacity of the Ash Monofill is approximately 2.07 million tons of ash.

At the assumed ash disposal rate of 65,000 tons/year and a projected 1% growth rate annually, the Ash Monofill has a remaining life of approximately 28 years. The site does not currently have an active ash disposal agreement extending through the year 2028; however ash mining, processing, and recovery operations will remain continuous throughout that time period. Assuming the site's ash disposal agreement is resumed in 2029 and continues until capacity is reached, the estimated site life would extend to the year 2056 (see Appendix C in the *Engineering Report*). The actual closure schedule is a function of the volume of ash disposed and the duration of ash disposal agreements. The closure schedule presented in this closure plan is based on current ash volumes, densities, and disposal agreements.

6.0 PROJECTED CLOSURE SCHEDULE

The Ash Monofill will close as described in Section 4. The final closure date is projected to occur in Year 2056, as explained in Section 5. The actual final closure date will vary and is dependent on incoming tonnages and if additional ash disposal agreements are obtained.

7.0 CLOSURE CONSTRUCTION

The final design and construction documents will be submitted for review prior to performing closure construction work in accordance with the procedures listed in Section 3.

8.0 CLOSURE COSTS

The closure cost estimate to close all open areas of the monofill will be updated annually. The estimates are included in Appendix A. The unit prices are based on historical costs to construct previous monofill stages and MSW cells.

9.0 FINANCIAL ASSURANCE

9.1 Financial Assurance Mechanism

RDC has established a trust fund that meets the requirements of this WAC 173–306–470. Financial assurance documentation is included in Appendix B.

9.2 Closure Trust Fund Contribution and Withdrawal Schedule

The current closure fund balance and contribution and withdrawal schedule are updated annually. The current trust fund balance and schedule are included in Appendix C. In addition, no expected withdraws are expected against the fund for purposes of closure construction over the duration of this permit.

10.0 MAINTENANCE OF CLOSED AREAS

Maintenance of the closed areas is described in the *Post-Closure Plan*. Maintenance of areas not closed is described in the *Operation Plan*.

APPENDIX A
CLOSURE COST ESTIMATES

APPENDIX B
FINANCIAL ASSURANCE INSTRUMENT

APPENDIX C
TRUST FUND BALANCE AND SCHEDULE