

LIMITED PURPOSE LANDFILLS

Checklist for Review of Solid Waste Permit Application per WAC 173-350-400

Name of Applicant:	Name of Facility:				
Permit # assigned by Health Department:	Date Received:				
Lead Agency Reviewer	Determinati	on of Comp	oliance with:		
Name:	The Site or	Facility:			
	. meets all	solid waste	, air and other a	pplicable	
Phone:	laws and reg	gulations			
Signature:	waste handl	ing plan	proved comprel g requirements (
	Location	Complete	Meets	Date &	
☐ Location requirements WAC 173-350-400(2)	of material	Complete	Requirements	Initials of Reviewer)	
Demonstration that facility is not located over a Holocene fault (2)(a)					
Demonstration that facility is not located in a					
subsidence area (2)(a)					
Demonstration that facility is not located on or					
adjacent to an unstable slope or other geologic features which would compromise structural					
integrity of facility (2)(a)					
Demonstration that the active area is not within		П			
1,000 feet of a down-gradient drinking water supply			ш		
well <u>or</u> includes a demonstration that there is a					
minimum 90 day travel time for contaminant					
detection to nearest down-gradient drinking water					
supply well (2)(b)					
Demonstration that the active area is not located					
within a channel migration zone (2)(c) Demonstration that the active area is not within 200			П		
feet of a stream, lake, pond, river or saltwater body		Ш	Ш		
(2)(c)					
Demonstration that active area is not located within		П	П		
a wetland nor any public land used by a public		_	_		
water system for watershed control for municipal					
drinking water purposes (2)(c)					
Demonstration that facility conforms to locally					
adopted shoreline management plan (2)(c) For facilities with potential bird hazards,					
demonstrate facility location requirements to		Ш			
airports per $(2)(d)$ NA \square					
Complies with the location standards specified in		П	П		
RCW 70.95.060					

Agency Comments:				
□ Design Standards	Location	Complete	Meets	Date &
WAC 173-350-400(3)	of material		Requirements	Initials of Reviewer)
The following factors need to be considered in				Reviewery
evaluating the landfill design:				
(i) Waste characterization;				
(ii) Soil conditions;				
(iii) Hydrogeologic conditions;				
(iv) Hydraulic conditions;				
(v) Contaminant fate and transport;				
(vi) Topography;				
(vii) Climate;				
(viii) Seismic conditions;				
(ix) The total capacity of the facility and each landfill unit;				
(x) Anticipated leachate characteristics and				
quantity;				
(xi) Operational controls; and				
(xii) Environmental monitoring systems.				
Liner system design (3)(b)				
Liner system performance standard. Limited				
purpose landfills shall be constructed in accordance				
with a design that will(3)(b)(i):				
NA \square if presumtive liner design per (3) (b)(v) is				
approved.				
Prevent the contamination of the Description			Ш	
hydrostratigraphic units identified in the hydrogeologic assessment of the facility at the				
relevant point of compliance as specified				
during the permitting process				
Prevent the migration of methane and other		П		
gases.				
The JHD may allow a limited purpose landfill to be		П		
designed and constructed without a liner system if				
the owner or operator can demonstrate during the				
permitting process that (3)(b)(ii):				
NA □ if liner system is used				
 The contaminant levels in the waste and 				
leachate are unlikely to pose an adverse impact				
to the environment;				
• The ability of natural soils to provide a barrier				
or reduce the concentration of contaminants				
provides sufficient protection to meet the performance standards of WAC 173-350-040				
18/11/11/11/11/18/11/11/11/11/11/11/11/1		i i		i i

Liner separation from ground water. Bottom of			
the lowest component of the liner system is less		_ _	
than ten feet (three meters) above the seasonal high			
level of ground water or a hydraulic gradient			
control system has been installed which prevents			
ground water from contacting the liner. (3)(b)(iii)			
Hydraulic gradient control system performance			
standard. If hydraulic gradient control system is	ш	ш	
used: NA			
Demonstration included that the hydraulic gradient			
control system can be installed to control ground			
water fluctuations and maintain separation between			
the controlled seasonal high level of ground water			
in the identified water-bearing unit and the bottom			
of the lowest liner system component. The			
demonstration shall include (3)(b)(iv):			
A discussion in the geologic and hydrogeologic			
site characterization showing the effects from			
subsoil settlement, changes in surrounding land			
uses, climatic trends or other impacts affecting			
ground water levels during the active life,			
closure and post-closure periods of the landfill;			
A discussion showing potential impacts of the			
gradient control operation to existing quality	_	_	
and quantity of ground water or surface waters.			
This discussion shall include potential impacts			
to water users and instream flow and levels of			
surface waters in direct hydrologic contact or			
continuity with the hydraulic gradient control			
system. Any currently available ground or			
surface water quality data for aquifers, springs,			
or surface waters in direct hydrologic contact			
or continuity with the hydraulic gradient			
control system shall be included;			
Conceptual engineering drawings of the proposed landfill and a discussion as to have the	Ш		
proposed landfill and a discussion as to how the			
hydraulic gradient control system will protect			
or impact the structural integrity and			
performance of the liner system			
 Preliminary engineering drawings of the 			
hydraulic gradient control system	 		
Design specifications for the proposed ground			
and surface water monitoring systems;			
A discussion of the potential impacts from the	П	П	
gradient control system on the capability of			
collecting ground water samples that will			
represent the quality of ground water passing			
the relevant point of compliance			
the relevant point of comphanee			

Presumptive liner design. Limited purpose landfills designed and constructed with the				
following composite liner are presumed to meet the performance standard of WAC 173-350-				
400(3)(b)(i). An alternative liner system design				
shall be used when the nature of the waste, the				
disposal site, or other factors are incompatible with				
the presumptive liner. The presumptive liner design				
consists of the following two components (3)(b)(v):				
• A lower component consisting of at least a two-				
foot layer of compacted soil with a hydraulic				
conductivity of no more than 1 x 10-7 cm/sec.				
 An upper component consisting of a high- 				
density polyethylene (HDPE) geomembrane				
with a minimum of 60-mil thickness. The				
geomembrane shall be installed in direct and				
uniform contact with the lower component.				
Leachate collection and control system design.				
Except as provided in (b)(ii) of this section, limited				
purpose landfills shall be constructed in accordance				
with a design that (3)(c):		<u> </u>	<u> </u>	
Provides for collection and removal of leachate				
generated in the landfill				
• Is capable of maintaining less than a one-foot				
head of leachate over the liner system and less				
than a two-foot head in leachate sump areas				
Includes a monitoring system capable of				
collecting representative samples of leachate				
generated in the landfill; and				
Provides for leachate storage, treatment, or				
pretreatment to meet the requirements for				
permitted discharge under chapter 90.48 RCW,				
Water pollution control, and the Federal Clean				
Water Act.			 -	
Run-on/runoff control system design. Limited		Ш	⊔	
purpose landfills shall be constructed in accordance				
with a design that (3)(c):				
Will prevent flow onto the active portion of the landfill during the peak displaying from a			⊔	
landfill during the peak discharge from a				
twenty-five-year storm, as defined in WAC 173-350-100;				
,				
Will prevent unpermitted discharges from the active portion of the landfill resulting from a			⊔	
twenty-five-year storm, as defined in WAC				
173-350-100;				
 When located in a one hundred-year floodplain, 				
the entrance and exit roads, and landfill			⊔	
practices do not restrict the flow of the base				
flood, reduce the temporary water storage				
capacity of the floodplain or result in washout				
of solid waste, to pose a hazard to human life,				
wildlife, land or water resources.				
Final closure system design (3)(e)				
2 min crosure system wesign (3)(c)				
	I		1	l

Final alaman menfamman as atom dand. Limited	I			
Final closure performance standard. Limited		Ш	Ш	
purpose landfills shall be closed in accordance with				
a design that (3)(e)(i):				
 Prevents exposure of waste NA if presumtive final closure cover is approved 		Ц	Ц	
Minimizes infiltration (at a minimum, the				
design will prevent the generation of significant		ш	Ш	
quantities of leachate to eliminate the need for				
leachate removal by the end of the post-closure				
period)				
NA ☐ if presumtive final closure cover is approved				
Prevents erosion from wind and water		П	П	
NA □ if presumtive final closure cover is approved			ш	
Is capable of sustaining native vegetation		П	П	
NA ☐ if presumtive final closure cover is approved		ш		
Addresses anticipated settlement, with a goal of			П	
achieving no less than two to five percent slope				
after settlement				
NA ☐ if presumtive final closure cover is approved				
Provides sufficient stability and mechanical			П	
strength and addresses potential freeze-thaw		_	_	
and desiccation;				
Provides for the management of run-on and				
runoff, preventing erosion or otherwise		_		
damaging the closure cover				
Minimizes the need for post-closure				
maintenance				
Provides for collection and removal of methane				
and other gases generated in the landfill.				
Landfill gas shall be purified for sale, used for				
its energy value, or flared when the quantity				
and quality of landfill gases will support				
combustion. Landfill gases may be vented				
when they will not support combustion. The				
collection and removal system shall include a				
monitoring system capable of collecting representative samples of gases generated in				
the landfill; and				
the fallerini, and				
Meets the requirements of regulations, permits		П		
and policies administered by the jurisdictional				
air pollution control authority or the department				
under chapter 70.94 RCW, Washington Clean				
Air Act and Section 110 of the Federal Clean				
Air Act.				

Presumptive final closure cover. Limited purpose landfills designed and constructed with the following closure cover are presumed to meet the performance standards in (e)(i)(A) through (D) of this subsection. An alternative final closure cover shall be used when the nature of the waste, the disposal site or other factors are incompatible with the presumptive final closure cover system. The presumptive final closure cover consists of the following components (3)(e)(ii):		
An antierosion layer consisting of a minimum of two feet (60 cm) of earthen material of which at least twelve inches (30 cm) of the uppermost layer is capable of sustaining native vegetation, seeded with grass or other shallow rooted vegetation; and		
• A geomembrane with a minimum of 30-mil (.76 mm) thickness, or a greater thickness that is commensurate with the ability to join the geomembrane material and site characteristics such as slope, overlaying a competent foundation.		
Water balance and ground water contaminant fate and transport modeling. Any modeling performed for evaluating a landfill design shall meet the following performance standards (3)(f):		
All water balance analysis shall be performed using:		
The Hydrologic Evaluation of Landfill Parformer of (HELD) Models or		
Performance (HELP) Model; or Alternate methods approved by the jurisdictional health department. Alternate methods shall have supporting documentation establishing its ability to accurately represent the water balance within the landfill unit.		
Any ground water and contaminant fate and transport modeling shall be conducted by a licensed professional in accordance with the requirements of chapter 18.220 RCW and meet the following performance standards:		
The model shall have supporting documentation that establishes the ability of those methods to represent ground water flow and contaminant transport under the conditions at the site;		
The model shall be calibrated against site- specific field data		
A sensitivity analysis shall be conducted to measure the model's response to changes in the values assigned to major parameters, specific tolerances, and numerically assigned space and time discretizations;		
The value the model's parameters requiring site-specific data shall be based upon actual field or laboratory measurements; and		

The values of the model's parameters that do not require site-specific data shall be supported by laboratory test results or equivalent methods documenting the validity of the chosen parameter values.				
Seismic impact zones. Limited purpose landfills located in seismic impact zones shall be designed so that all containment structures, including liners, leachate collection systems, surface water control systems, gas management, and closure cover systems are able to resist the maximum horizontal acceleration in lithified earth materials for the site (3)(g)				
Demonstration in unstable area. The owner or operator of limited purpose landfills located in an unstable area shall demonstrate that engineering measures have been incorporated into the landfill's design to ensure that the integrity of the structural components of the landfill will not be disrupted. The owner or operator shall place the demonstration in the application for a permit. The owner or operator shall consider the following factors, at a minimum, when determining whether an area is unstable (3)(h): NA □				
On-site or local soil conditions that may result in significant differential settling				
On-site or local geologic or geomorphologic features; and				
On-site or local human-made features or events (both surface and subsurface).				
Setback. Limited purpose landfills shall be designed to provide a setback of at least one hundred feet between the active area and the property boundary. The setback shall be increased if necessary to (3)(i):				
Control odors, dust, and litter				
Provide a space for the placement of monitoring wells, gas probes, run-on/runoff controls, and other design elements; or				
Provide sufficient area to allow proper operation of the landfill and access to environmental monitoring systems and facility structures.				
Agency Comments:	Location	Complete	Meets	Date &
WAC 173-350-400(4)(f)	of material	•	Requirements	Initials of Reviewer)

Description of types of solid waste to be handled at the facility (4)(f)(i)				
Description of how solid waste are to be handled on-site during its active life including (4)(f)(ii):				
The acceptance criteria that will be applied to the waste				
Procedures for ensuring only the waste described will be accepted				
Procedures for handling unacceptable wastes				
Unloading and staging areas, transportation, routine filling, compaction, grading, cover or other vector controls, and housekeeping				
A description of how equipment, structures and other systems, including leachate collection, gas collection, run-on/runoff controls, and hydraulic gradient control systems, are to be inspected and maintained, including the frequency of inspection and inspection logs (4)(f)(iii)				
Safety and emergency plans including (4)(f)(iv):				
Procedures for fire (including subsurface fires) prevention, a description of fire protection equipment available on-site and actions to take if there is a fire or explosion				
Actions to take if leaks are detected or for other releases, such as failure of runoff containment system, if such systems are required				
Forms for recording weights and volumes (4)(f)(v)				
Other such details to demonstrate that the landfill will be operated in accordance with subsection (4) and as required by the jurisdictional health department (4)(f)(vi)				
Agency Comments: Ground Water Monitoring	Location of	Complete	Meets	Date &
WAC 173-350-400(5)	material		Requirements	Initials of Reviewer)
Limited purpose landfills are subject to the ground water monitoring requirements of WAC 173-350-500. (Use Form ECY 040-86 (Ground Water Monitoring Requirements Checklist for review)				
Agency Comments:				
☐ Closure plan WAC 173-350-400(6)(d)	Location of material	Complete	Meets Requirements	Date & Initials of Reviewer)

A description of the final closure cover, designed in			
accordance with WAC 173-350-400(3)(e), the		_ 	
methods and procedures to be used to install the			
closure cover, sources of borrow materials for the			
closure cover, and a schedule or description of the			
time required for completing closure activities			
(6)(d)(i)			
Projected time intervals at which sequential partial			
closure and final closure are to be implemented		_	
(6)(d)(ii)			
A description of the activities and procedures that			
will be used to ensure compliance with WAC 173-	_	_	
350-400(6) (a)-(g):			
The owner or operator shall notify the			
jurisdictional health department, and where	_	_	
applicable, the financial assurance instrument			
provider, one hundred eighty days in advance			
of closure of the facility, or any portion thereof.			
The facility, or any portion thereof, shall close			
in a manner that			
Minimizes the need for further	П		
maintenance			
Controls, minimizes, or eliminates threats	П		
to human health and the environment from			
post-closure escape of solid waste			
constituents, leachate, landfill gases,			
contaminated runoff, or waste			
decomposition products to to the ground,			
ground water, surface water, and the			
atmosphere; and			
Prepares the facility, or any portion		П	
thereof, for the post-closure period			
The owner or operator shall commence	П		
implementation of the closure plan in part or			
whole within thirty days after receipt of the			
final volume of waste and/or attaining the final			
landfill elevation at part of or at the entire			
landfill as identified in the approved facility			
closure plan unless otherwise specified in the			
closure plan unless otherwise specified in the			
crosure piun.			
The owner or operator shall not accept waste,	П		
including inert wastes, for disposal or for use in		Ц	
closure except as identified in the closure plan			
approved by the jurisdictional health			
department.			
порагинент.			
The owner or operator shall develop, keep, and			
abide by a closure plan approved by the		Ц	
jurisdictional health department as part of the			
permitting process.			
permitting process.			

The owner or operator shall submit final engineering closure plans, in accordance with the approved closure plan and all approved amendments, for review, comment, and approval by the jurisdictional health department.				
 When landfill closure is completed in part or whole, the owner or operator shall submit the following to the jurisdictional health department: 				
Landfill closure plan sheets signed by a professional engineer registered in the state of Washington and modified as necessary to represent as-built changes to final closure construction for the landfill, or a portion thereof, as approved in the closure plan; and				
Certification by the owner or operator, and a professional engineer registered in the state of Washington, that the landfill, or a portion thereof has been closed in accordance with the approved closure plan.				
The owner or operator shall record maps and a statement of fact concerning the location of the disposal site as part of the deed with the county auditor not later than three months after closure.				
Identify closure cost estimates and projected fund withdrawal intervals for the associated closure costs, from the approved financial assurance instrument (6)(d)(iv)				
Agency Comments:				
□ Post-closure plan WAC 173-350-400(7)(b)	Location of material	Complete	Meets Requirements	Date & Initials of Reviewer)
Addresses facility maintenance and monitoring activities for at least a twenty-year period or until the landfill becomes stabilized (i.e., little or no settlement, gas production or leachate generation), and monitoring of ground water, surface water, gases and settlement can be safely discontinued (7)(b)(i)				
Projects time intervals at which post-closure activities are to be implemented (7)(b)(ii)				

Identifies post-closure cost estimates and projected fund withdrawal intervals from the selected financial assurance instrument, where applicable, for the associated post-closure costs (7)(b)(ii) NA NA				
Agency Comments:				
☐ Financial Assurance Requirements <i>WAC 173-350-400(8)</i>	Location of material	Complete	Meets Requirements	Date & Initials of Reviewer)
Financial assurance is required for all limited purpose landfills				
Each owner or operator shall establish a financial assurance mechanism in accordance with WAC 173-350-600 that will accumulate funds equal to the closure and post-closure cost estimates over the life of the landfill, or over the life of each landfill unit if closed discretely.				
No owner or operator shall commence or continue disposal operations in any part of a facility subject to this section until a financial assurance instrument has been provided for closure and post-closure activities in conformance with WAC 173-350-600.				
Agency Comments:				