

An Update on Regulatory Guidelines for Landfill Post- Closure in Washington State

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Washington's Solid Waste Landfill Regulations

WAC 173-301 - Regulations Relating To Minimum Functional Standards for Solid Waste Handling

- ❑ Addresses a range of waste handling activities, including solid and hazardous waste disposal sites
- ❑ Originally issued in 1972
- ❑ Last updated in 1983
- ❑ Hazardous waste disposal applicability superseded by WAC 173-303 in 1984
- ❑ Applicability to operating solid waste landfills superseded by WAC 173-304 in 1985
- ❑ Focus of landfill engineering control requirements is on leachate control during active life

Washington's Solid Waste Landfill Regulations

WAC 173-301 - Regulations Relating To Minimum Functional Standards for Solid Waste Handling

- Minimal post-closure activity requirements and endpoints:
 - “Following the completion and abandonment of the sanitary landfill site, and inspection by the health department, necessary maintenance shall be conducted by the owner of this site at the time of abandonment and/or completion until the fill becomes stabilized or for a minimum of five years. Necessary leveling and repairs shall be made.” [WAC 173-301-309]

Washington's Solid Waste Landfill Regulations

WAC 173-301 - Regulations Relating To Minimum Functional Standards for Solid Waste Handling

- Minimal post-closure activity requirements and endpoints:
 - “Maps and a statement of fact concerning the disposal area shall be recorded as part of the deed with the county auditor not later than three months after the completion of operations. Records and plans specifying the materials, location and periods of operation shall be available for inspection. Areas used for the disposal of hazardous wastes shall not be sold or transferred without advanced notification of the jurisdictional health department.” [WAC 173-301-310]

Washington's Solid Waste Landfill Regulations

WAC 173-304 – Minimum Functional Standards for Solid Waste Handling

- ❑ Addresses a range of solid waste handling activities, including landfilling, inert waste and demolition waste landfilling, and woodwaste landfilling
- ❑ Originally issued in 1985
- ❑ Last updated in 1988
- ❑ Applicability to operating municipal solid waste landfills superseded by WAC 173-351 in 1993
- ❑ Applicability to operating non-MSW landfills superseded by WAC 173-350 in 2003

Washington's Solid Waste Landfill Regulations

WAC 173-304 – Minimum Functional Standards for Solid Waste Handling

- ❑ Additional criteria for landfill siting and design:
 - ❑ Locational restrictions
 - ❑ Run-on/run-off control
 - ❑ Leachate collection and management
 - ❑ Liners
 - ❑ Floodplains
 - ❑ Closure
 - ❑ Gas control
 - ❑ Access control and facility operation

Washington's Solid Waste Landfill Regulations

WAC 173-304 – Minimum Functional Standards for Solid Waste Handling

- ❑ More extensive post-closure activity requirements and endpoints than WAC 173-301:
 - ❑ Post-closure plan:
 - ❑ Groundwater monitoring
 - ❑ Surface water monitoring
 - ❑ Gas monitoring
 - ❑ Maintenance of facility, structures, and monitoring systems
 - ❑ Financial Assurance
 - ❑ Endpoint is a stabilized facility – the “little or no” criteria:
 - ❑ Settlement
 - ❑ Gas production
 - ❑ Leachate generation

Washington's Solid Waste Landfill Regulations

WAC 173-351 - Criteria For Municipal Solid Waste Landfills

- ❑ Addresses MSW landfills
- ❑ Originally issued in 1993
- ❑ Most recently updated in 2015
- ❑ Additional landfill engineering criteria:
 - ❑ Prescriptive composite liner
 - ❑ Prescriptive composite final cover
- ❑ More detailed closure and post-closure activity requirements than WAC 173-304

Washington's Solid Waste Landfill Regulations

WAC 173-351 - Criteria For Municipal Solid Waste Landfills

- ❑ Closure requirements:
 - ❑ Closure plan
 - ❑ Specific timelines:
 - ❑ Notification to permitting agency and financial assurance trustee or insurer of intent to close
 - ❑ Beginning of closure construction after receiving last waste
 - ❑ Completion of closure construction
 - ❑ Certification of closure in conformance with closure plan and engineering design
 - ❑ Environmental covenant under chapter 46.70 RCW, Uniform Environmental Covenants Act

Washington's Solid Waste Landfill Regulations

WAC 173-351 - Criteria For Municipal Solid Waste Landfills

- ❑ Environmental covenant
 - ❑ Legally sufficient description of the real property subject to the covenant
 - ❑ Designate the department, or other person approved by the department, as the holder of the covenant
 - ❑ Be signed by the department, every holder, and, unless waived by the department, every owner of a fee simple interest in the real property subject to the covenant
 - ❑ Identify the name and location of the administrative record for the property subject to the environmental covenant
 - ❑ Describe with specificity the activity or use limitations on the real property subject to the covenant

Washington's Solid Waste Landfill Regulations

WAC 173-351 - Criteria For Municipal Solid Waste Landfills

- Environmental covenant
 - Prohibit uses and activities that may:
 - Threaten integrity of the landfill cover and other waste containment elements, engineered controls for storm water, gas, or leachate, public access controls, or environmental monitoring systems
 - Interfere with the operation and maintenance, monitoring, or other measures necessary to assure the integrity of the landfill unit and continued protection of human health and the environment
 - Result in the release of solid waste constituents or otherwise exacerbate exposures
 - Right of entry to solid waste permitting agency and Ecology

Washington's Solid Waste Landfill Regulations

WAC 173-351 - Criteria For Municipal Solid Waste Landfills

- ❑ Post-closure requirements:
 - ❑ Thirty year post-closure period, or as long as necessary to become functionally stable
 - ❑ Post-closure plan
 - ❑ Financial assurance

Washington's Solid Waste Landfill Regulations

WAC 173-351 - Criteria For Municipal Solid Waste Landfills

- ❑ The meaning of “functionally stable”
 - ❑ “A landfill is functionally stable when it does not present a threat to human health or the environment at the point of exposure for humans or environmental receptors.”
 - ❑ Point of exposure – “the closest location at which a receptor could be exposed to contaminants and receive a dose by a credible pathway from the MSWLF unit”
- ❑ Evaluation of functional stability considers:
 - ❑ Leachate quality and quantity
 - ❑ Landfill gas production rate and composition,
 - ❑ Cover system integrity
 - ❑ Groundwater quality

Washington's Solid Waste Landfill Regulations

WAC 173-351 - Criteria For Municipal Solid Waste Landfills

- ❑ Post-closure plan:
 - ❑ Maintenance and monitoring activities
 - ❑ Description of planned uses of property during post-closure period and activity or use limitations placed on the real property by the environmental covenant
 - ❑ Post-closure use of the property must not disturb:
 - ❑ Integrity of final cover, liner(s), or other components of the containment system
 - ❑ Function of monitoring or control systems unless necessary to comply with the requirements of this regulation.
 - ❑ Solid waste permitting agencies may approve disturbances if the owner or operator demonstrates that there will be no increase in potential threat to human health or the environment

Washington's Solid Waste Landfill Regulations

WAC 173-350 – Solid Waste Handling Standards

- ❑ Addresses a range of handling activities for solid wastes other than MSW, including limited purpose landfills and inert waste landfills
- ❑ Originally issued in 2003
- ❑ Updated in 2018
- ❑ Additional engineering criteria – limited purpose landfills:
 - ❑ Performance standards for liners and final covers
 - ❑ Presumptive design for liners and final covers

Washington's Solid Waste Landfill Regulations

WAC 173-350 – Solid Waste Handling Standards

- ❑ Limited purpose landfills closure and post-closure activity requirements have been revised to align with WAC 173-351:
 - ❑ Post-closure plan:
 - ❑ Financial Assurance
 - ❑ Post-closure endpoint is now functional stability

Summary of Current Endpoints for Post-Closure Activities

301 Landfills

- ❑ Endpoint defined by “fill becoming stabilized or a minimum of five years”
- ❑ No criteria in rule for what “stabilized” looks like

304 Landfills

- ❑ Endpoint defined by the facility becoming stable
- ❑ Rules give us the “little or no” criteria to denote stability

350 Limited Purpose and 351 Municipal Solid Waste Landfills

- ❑ Endpoint is attainment of functionally stable state, protective of human health and the environment at specified points of exposure
- ❑ The permitting agency may lengthen or shorten the post-closure period based on evaluation of functional stability and continued protection of human health and the environment

Resources on Post-Closure Evaluations

Preparing for Termination of Post-Closure Activities at Landfills Closed Under Chapter 173-304 WAC - February 2011 (Ecology Publication 11-07-006)

This document provides information on procedures and requirements for ending post-closure at landfills with permits issued under Chapter 173-304 WAC. It discusses approaches operators and permitting agencies may use to decide when a landfill is ready to end post-closure.

Available on Ecology's website at

<https://fortress.wa.gov/ecy/publications/SummaryPages/1107006.html>

Evaluating, Optimizing, or Ending Post-Closure Care at MSW Landfills Based on Site-Specific Data Evaluations. ALT-4. 2006.

This document describes the basis of the functional stability approach for post-closure of WACs 173-350 and 173-351. Developed by the Interstate Technology & Regulatory Council, a coalition of state regulators working with EPA and industry stakeholders on cleanup and solid waste technical issues.

Available on ITRC's website at:

<https://itrcweb.org/Guidance/GetDocument?documentID=4&documentID=4>

For More Information...

Contact Ecology's Solid Waste Management Program staff in the regional office for your county



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