



Environmental Health Policy

Potable Rainwater Catchment Systems for Existing Private Dwellings

Policy No: EH-_____

Effective Date: _____

Related Documents: Rainwater Catchment Water Availability Application Packet

Purpose

This policy establishes a process for Lewis County to review and approve potable rainwater catchment as an alternative to conventional potable water sources for existing private dwellings when the applicant meets the requirements set forth herein and demonstrates that no conventional potable water source is reasonably available.

The need for this policy arises from documented groundwater limitations in the Glacier Peak Lane area of Chehalis, where multiple wells have failed or produce insufficient potable water despite significant investment. Local geologic conditions have made conventional well construction and development unreliable, leaving some properties without a viable potable water source. At the same time, extending public water infrastructure is complex and long-term. As a result, rainwater catchment systems are being proposed as sole-source potable supplies. These systems can be designed to meet minimal household demands but may also introduce acute health risks if not consistently regulated to meet established standards. This policy establishes clear standards for design review, water adequacy determination, treatment, and long-term operation and management to ensure that alternative water systems provide a safe and reliable potable water supply.

Policy Statement

Lewis County may approve potable rainwater catchment systems only under limited availability/hardship conditions for existing dwellings, provided the applicant submits a complete engineered package meeting the requirements of this policy and adopted standards for system design, construction, testing, operations and

maintenance, documentation, and recording on the property title, as required herein.

This policy is intended to:

- Provide minimum submittal requirements for applicability determinations;
- Protect public health through adoption of system engineering criteria and design standards addressing collection, storage, filtration, disinfection treatment, recorded affidavits, and ongoing operation, maintenance, and monitoring; and
- Align with Washington State Department of Health (WSDOH) guidance regarding alternative sources, Ecology's rainwater policy, and applicable plumbing, design, and engineering standards specific to potable rainwater catchment.

Scope and Applicability

Eligible Use: This policy applies to existing single-family dwellings where the applicant demonstrates to the Lewis County Public Health and Social Services Environmental Health (EH) Division's satisfaction that a conventional potable supply is neither practicable nor available. A conventional potable water supply is defined as a drilled well providing potable water, or a connection to an approved public water supply.

Prior to applying for an alternative water source, applicant must demonstrate failure and/or infeasibility of all possible conventional water supplies to serve the property: an individual well, new public water system, or existing public water system connection. This policy *does not* establish rainwater as equivalent to conventional potable sources.

Not Eligible / Limitations:

- **New Land division/subdivisions:** Consistent with Washington State Department of Ecology Policy 1017, rainwater catchment systems are not an acceptable sole source of potable water for new land divisions (short plats/long plats/new subdivisions). Any County policy pathway shall clearly differentiate existing lots/dwellings from new subdivisions.
- **Public/shared systems:** This policy is not intended for public water systems or shared domestic systems.
- **New building permits:** This policy is not intended to allow new building permits in areas where conventional potable water sources are unavailable.

Implementation

Water system design reviews shall be conducted by Lewis County Environmental Health (EH) staff with experience in water quality and system design. Project, submittal, review, and approval shall be coordinated with Community Development through the Permits Center.

Guidance and Standards

This process uses the following technical standards, policy, and guidance:

- WA Department of Ecology (Ecology) Collection of Rainwater For Beneficial Use (Pol-1017, 10/09/2009)
 - *Under this Policy, Ecology clarifies that a water right is not required for on-site storage and use of rooftop collected water, stating that “if and when (Ecology) determines that rooftop rainwater harvesting systems are likely to negatively affect instream flow values or existing water rights, local restrictions may be set in place to govern subsequent new systems.”*
- WA Department of Health (WSDOH) Guidance for Local Government: Physical and Potable Water Availability (WSDOH Pub. 331-597, 10/25/2017)
 - *This guidance recognizing potable rainwater catchment in contrast to conventional sources and defines conditions for alternative use (including references to the 2012 Green Plumbing & Mechanical Code Supplement, where applicable)*
- 2021 Uniform Plumbing Code (UPC), Appendix K – “Potable Rainwater Catchment Systems”
- Plumbing Engineering and Design Standard American Rainwater Catchment System Association Foundations (ARCSA)/American Society of Plumbing Engineers (ASPE)/ American National Standards Institute (ANSI) 63-2020: Rainwater Catchment Systems
- ARCSA: Rainwater Harvesting Manual, 1st Edition (2015)
- Lewis County Public Health and Social Services “Interim Spring/Surface Water Availability” Policy (EH-POL-200-4)
 - Clarifies the conditions under which spring or surface water is considered safe for potable use.
 - Clarifies the acceptability of a proposal using spring or surface water, with respect to Growth-Management.

All system elements shall be designed/installed using best available practices and consistent with these standard and applicable code.

Microbial Treatment and Disinfection Requirements

Rainwater collected from roof surfaces is considered a surface water source and is inherently susceptible to contamination by bacteria, viruses, and protozoa. The WSDOH recommends that potable rainwater systems include filtration and disinfection consistent with the treatment objectives of the Surface Water Treatment Rule (SWTR).

While private residential systems are not regulated under SWTR, failure or bypass of treatment may result in significant public health risk. Systems approved under this policy shall therefore be designed to achieve pathogen reduction performance functionally consistent with SWTR treatment objectives for residential use.

Minimum Treatment Requirements

At a minimum, the treatment system shall incorporate a multi-barrier approach consisting of:

- **Source Control and Pretreatment:**
Collection, conveyance, and storage components designed in accordance with ARCSA/ASPE/ANSI Standard 63 to reduce particulate loading and contamination.
- **Particulate Filtration:**
Filtration capable of reducing turbidity and particulate matter to levels suitable for effective disinfection. This shall include, at minimum, 1 micron absolute filtration or equivalent performance, installed upstream of the disinfection process.
- **Disinfection:**
A primary disinfection process designed for potable water applications and capable of inactivating bacteria, viruses, and protozoa.

Disinfection Requirements

Disinfection shall be provided by one of the following:

- **Ultraviolet (UV) Disinfection:** UV systems shall be certified to NSF/ANSI 55 Class A, installed downstream of required filtration, and sized for the design flow rate and operating conditions.
Systems shall include, at a minimum:
 - Lamp failure indication and alarm
 - Monitoring or control features sufficient to indicate loss of disinfection capability and cease water delivery until resolvedBecause UV provides no disinfectant residual, system reliability shall be ensured through:
 - Adequate upstream filtration
 - Operation within manufacturer specifications and flow conditions
 - Ongoing operation and maintenance schedules and documentation
 - Routine monitoring
- **Chemical Disinfection (e.g., Chlorination):**
Chemical disinfection systems shall be designed to provide adequate contact time and dosing and include provisions for monitoring disinfectant levels, where applicable.

Selection of Disinfection Method

The selection of a disinfection method shall be based on system design, source water characteristics, and operational reliability.

EH may require or recommend chemical disinfection, either alone or in combination with UV, where conditions indicate increased risk, including:

- Elevated or variable turbidity
- Intermittent operation
- Limited maintenance reliability
- Other site-specific factors

Combined treatment approaches may be required where necessary to ensure adequate protection of public health.

Standard 63 Design Framework

ARCSA/ASPE/ANSI Standard 63 includes pre-tank and in-tank features (e.g., prefiltration, calming inlet, floating intake, overflow) that improve water quality through sedimentation and debris removal. These components are not considered primary pathogen treatment barriers and do not replace required filtration and disinfection but do provide additional safety barriers.

Construction and Material Standards

Any design element not otherwise addressed by County requirements shall be designed, installed, constructed, and maintained per ARCSA/ASPE/ANSI 63-2020 and/or 2021 UPC Appendix K.

Underground cisterns, if used, shall meet applicable requirements of 2021 UPC Appendix K Section K 105.3.2 and be clearly detailed in plans/specifications.

All potable-contact materials shall be suitable for potable use and, where applicable, conform to the following NSF/ANSI potable water standards:

- NSF Protocol P151: Health Effects from Rainwater Catchment System Components
- NSF/ANSI Standard 14-2011: Plastic Piping System Components and Related Materials
- NSF/ANSI Standard 42-2010: Drinking Water Treatment Units—Aesthetic Effects
- NSF/ANSI Standard 53-2010: Drinking Water Treatment Units—Health Effects
- NSF/ANSI Standard 55-2009: Ultraviolet Microbiological Water Treatment Systems
- NSF/ANSI Standard 58-2009: Reverse Osmosis Drinking Water Treatment Systems
- NSF/ANSI Standard 60-2011: Drinking Water Treatment Chemicals—Health Effects
- NSF/ANSI Standard 61-2011: Drinking Water System Components—Health Effects

Inorganic Contaminants and Materials

In addition to material and source control measures, the design engineer shall evaluate the potential for inorganic contamination based on roofing materials, environmental conditions, and system design.

Initial water quality testing shall include, at minimum, a screening for inorganic contaminants of concern, which may include metals (e.g., lead, copper, zinc) and other parameters as determined by EH. Plumbing fixtures and materials shall meet applicable “lead-free” certification standards to reduce potential for leaching from acidic rainwater.

Where testing indicates the presence of contaminants at levels of concern, the system shall incorporate appropriate inspection, treatment, and/or mitigation measures, such as certified filtration, cleaning, or material replacement, to reduce concentrations to levels consistent with applicable drinking water standards or public health guidance.

Ongoing testing may be required where site conditions or prior results indicate a continued risk of contamination.

Recordkeeping and Compliance Expectations

Owner shall maintain and make available upon request:

- Maintenance log
- Replacement records (filters/UV)
- Water testing results
- O&M manual and manufacturer documentation

EH may request documentation or conduct follow-up review in response to inquiries, system failure, or other identified public health concerns.

Monitoring Requirements

At a minimum, the following monitoring shall be required unless otherwise approved by EH:

- Quarterly bacteriological testing
- Annual system inspection
- Filter and UV maintenance per manufacturer specifications

Variances Requests

If an applicant cannot meet a specific requirement, EH may consider a variance request when:

- A Washington-licensed professional engineer provides sufficient technical justification
- Equivalent protection of public health is demonstrated
- The alternative is consistent with referenced standards/guidance
- The variance request shall be subject to Health Officer review and approval

Water Rights and Water Availability

Applicants are responsible for ensuring compliance with all applicable water rights and water availability requirements.

Approval of a rainwater catchment system or design does not confer or guarantee any legal right to a specific quantity of water. System approval is based on the applicant's representation of water availability at the time of the approval.

If the Department of Ecology, a local planning agency, or another authority responsible for determining water rights or water availability determines that the available water quantity is less than represented, the approved use may be reduced commensurate with the legally available water supply.

Two Step Approval Pathway

Step A Design Review: Applicant's design engineer submits Items 1 through 9 below in the form of a draft design report submittal. The project is reviewed by LCPHSS Environmental Health Division (EH) staff for completeness, applicability, and technical review, leading to approval to construct.

Step B Final Review: Following receipt of the design engineer's Construction Completion Record verifying that system installation conforms with approved design, submission of final water quality verification testing, and all completed materials and recorded document AFNs.

Step A –Application and Design Review

Establishes applicability for alternative source review and system design review by EH.

1. Public Water Denial / Availability Determination

Provide factual documentation that a Public Water System connection is not available or feasible. If a public connection is available or feasible, alternative source approval shall be denied.

2. Demonstration of No Other Available Potable Source

Provide factual documentation showing that no other conventional potable supply is reasonably available. This may include: approved connection to a neighboring well, rehabilitation of an existing well, construction of a new community water system, or drilling a new well source. Such documentation shall include insufficient yield reports, professional driller's statement, water quality constraints, or other demonstration of legal/physical infeasibility.

3. Water Budget Worksheet

Provide design engineer-supported calculations addressing:

- Demand assumptions including occupancy, fixtures, projected use (system shall incorporate water-conserving plumbing fixtures where practicable)
- Rainfall input and water budget calculations estimating the predicted collected rainfall projections for potable use
- Storage sizing and dry-period reserve
- Roof area capture assumptions and yield

4. Rainwater Catchment Design Checklist (Components + Cut Sheets)

Provide a complete component list and specification sheets including:

- Collection surface material and description
- Conveyance and pre-storage screening/filtration
- Storage tank/cistern specs
- Pump specs and controls
- Treatment processes (filters/UV/etc.)
- Potable-material certification evidence where applicable

5. Site Plan

Scaled plan showing:

- Roof collection areas
- Tank/cistern location(s) and reserve area (if applicable)
- Conveyance routing
- Nearby potential contamination sources, septic components, and setbacks
- Easements/access where necessary

6. Treatment System Schematic

Provide a detailed schematic and specifications for whole-house (point of entry) potable treatment, including:

- Design flow rate and required pressure
- Treatment train sequence (pre-filter → storage → filtration → UV/disinfection → distribution)
- Minimum treatment requirements shall be consistent with the Microbial Treatment and Disinfection Requirements of this policy.
- Treatment shall be demonstrated as suitable at the engineer's design flow rate and operating conditions

7. Operations & Maintenance (O&M) Manual

Provide a clear, owner-usable plan to be recorded on Title, including:

- Maintenance tasks and required frequencies (roof/gutters, screens, filters, UV lamp/sleeve, tank cleaning)
- Inspection schedule
- Replacement schedule
- Testing schedule and triggers

- A maintenance log template and record retention requirements

8. Owner Affidavit / Recorded Notice

Signed, notarized, and recorded document acknowledging:

- The home relies on rainwater catchment as the potable source
- Continuous treatment/maintenance is required
- Limitations/risks and the requirement to maintain testing and records

9. Designer Affidavit / Recorded Notice

Signed, notarized, and recorded certification that:

- Design meets applicable Standard
- Treatment is specified and sized for design flow and demand
- Designer has coordinated requirements with the installer

Step B – Prior to Final Approval

10. Installer Affidavit / Recorded Notice

Signed, notarized, and recorded certification that:

- Installation conforms to the approved design and specifications
- Any field changes were reviewed by the designer and approved by EH

11. Source Approval Water Quality Testing

Submit water quality verification testing demonstrating, at a minimum:

- Inorganic test results: nitrate and metals below all applicable maximum contamination limits (MCLs)
- E. coli: none detected
- Turbidity: less than 0.3 NTU

Submit additional water quality results as recommended by the design engineer or required by EH for initial source approval.

