

# Point of Use Guidance



**Idaho Department of Environmental Quality**

**August 2006**



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## Executive Summary

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This guidance document is intended to provide public water systems with information necessary to make an informed decision about selecting point of use treatment and to provide systems with a description of the process involved in obtaining Idaho Department of Environmental Quality (DEQ) approval of a point of use (POU) treatment system.

### Idaho's POU Rule

Idaho's rule for POU treatment (IDAPA 58.01.08.450, *Idaho Rules for Public Drinking Water Systems, Use of Non-Centralized Treatment Devices*) became effective November 17, 2005. An unofficial copy of the rule text is provided in Appendix B. This rule applies to public water systems wishing to install POU treatment to meet the maximum contaminant level (MCL) for certain contaminants, particularly arsenic.

### POU Requirements

Important requirements of the POU Rule include the following:

- The water system must own, control, and maintain the POU treatment devices.
- POU devices must have an automatic warning device to notify customers of operational problems.
- POU devices must be certified through an accredited American National Standards Institute (ANSI) certification body to meet applicable ANSI/National Sanitation Foundation (NSF) Standards.
- A public water system must obtain written approval by the Department before installation of a POU treatment device for the purpose of achieving compliance with a MCL or treatment technique.
- A public water system must demonstrate capability for long term operation and maintenance of the POU treatment system.

### Planning for a POU Treatment System

Planning for a POU treatment system should include analysis of costs, examination of funding sources, customer education and outreach, and selecting a POU technology.

#### Costs

POU treatment systems tend to have lower capital costs than central treatment plants depending on the system's size. However, operation and maintenance costs tend to be higher for POU systems.

## Funding

Federal, state, and local funding for public water system projects is available. The following is a list of possible federal and state funding sources:

- Idaho DEQ/EPA's Drinking Water State Revolving Fund (DWSRF) grant and loan program: [http://www.deq.idaho.gov/water/prog\\_issues.cfm#funding](http://www.deq.idaho.gov/water/prog_issues.cfm#funding)
- Water Resources Board of the Idaho Department of Water Resources (IDWR) financial program: <http://www.idwr.state.id.us/waterboard/financial.htm>
- U.S. Department of Agriculture's Rural Utilities Service (RUS) grant and loan program: <http://www.usda.gov/rus/water/index.htm>
- U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant: <http://www.hud.gov/offices/cpd/>
- Rural Community Assistance Corporation (RCAC) short and long-term loan program: <http://www.rcac.org/>

## Access and Customer Education/Outreach

Water systems are required to have 100% customer participation prior to installation of the POU treatment system, and they must provide documentation that a customer at each service connection has agreed to installation and use of a POU treatment device and has granted access for installation, maintenance, and sampling.

## Choosing a POU Device

There are a number of different vendors of POU technology. Many vendors can be located through the Web sites of the following organizations:

- American National Standards Institute (ANSI)
- National Sanitation Foundation (NSF)
- Underwriter's Laboratories, Inc. (UL)
- Water Quality Association (WQA)

It is important for water systems to **pilot test** one or more devices to determine if the devices will work effectively with the system's raw water characteristics before purchasing and installing all of the POU devices.

POU devices used in public drinking water systems must be designed to **automatically** notify customers of operational problems.

## Installation

POU devices **must be installed by an appropriately licensed plumber**, as determined by the Plumbing Bureau, and the installer must operate within the scope delineated in the *Rules Governing Plumbing Safety Licensing*.



Water systems must provide information relating to how other drinking water dispensing units, such as instant hot water dispensers and refrigerator water and ice dispensers, whose primary function is to provide drinking water, will be provided with treated water.

Within thirty (30) days of installing an approved POU treatment system, the public water system must notify DEQ, in writing, that the POU treatment system was installed as approved by DEQ

## Management

Management of POU application must address operator licensing, sampling, maintenance, waste handling, and recordkeeping.

### Operator and system classification

All community and non-community non-transient public water systems must have a Responsible Charge Operator, licensed at the level appropriate for the water system classification.

### Sampling

Within 30 days after the POU system is installed, every tap with an installed POU device must be sampled and analyzed to demonstrate initial compliance with treatment requirements for the contaminant being treated. Additional routine samples are required at specified intervals, which is usually every three years.

### Maintenance

POU devices may not be maintained by the homeowner or customer.

### Waste Handling

Public water systems must provide a plan and method for waste disposal within the required maintenance plan for POU devices.

### Recordkeeping and Reporting

At a minimum, the water system should submit, on a quarterly basis, a statement to DEQ certifying that all devices are functioning and being maintained in accordance with DEQ's approval. If any devices are not in compliance, an explanation of the problem and a description of what is being done to return to compliance should be submitted to DEQ.

## Applying to Use POU

An application along with relevant materials is required. After DEQ or the health department receives the completed application and all relevant materials to review, the system will receive written notification within 90 days—depending on the completeness of the application and the complexity of the system—that either accepts the proposal to

use POU treatment or written notification identifying deficiencies or concerns to be addressed.

## 1.0 Introduction

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The 1996 Amendments to the *Safe Drinking Water Act* (SDWA) removed a long-standing prohibition on using point of use (POU) treatment methods to maintain compliance with certain national drinking water standards.

On November 17, 2005, the Idaho Board of Environmental Quality adopted the Point of Use Treatment Rule proposed by DEQ's drinking water program. The drinking water program proposed the rule to outline and clarify the requirements for using POU treatment to comply with certain maximum contaminant levels (MCL) or treatment techniques. An unofficial copy of the rule text is provided in Appendix B.

This guidance document provides information on the basics of POU treatment and how to comply with DEQ's POU rule. This document does not address point of entry (POE) devices, which are treatment units designed to treat all the water entering the home. Public water systems wishing to use POE will need to submit engineering plans and specifications as required by Idaho Code §39-118.

### 1.1 Purpose

This guidance provides information to small public water systems, to help them make informed decisions before selecting POU as their treatment option of choice. This document also provides guidance on how to obtain approval for a POU treatment system and how to comply with DEQ's POU rule.

### 1.2 Idaho's POU Rule

Idaho's rule for POU treatment (IDAPA 58.01.08.450, *Idaho Rules for Public Drinking Water Systems, Use of Non-Centralized Treatment Devices*) became effective November 17, 2005. This rule applies to public water systems wishing to install POU treatment to meet the maximum contaminant level (MCL) for certain contaminants, particularly arsenic. Prior to EPA's revision to the arsenic standard, effective January 23, 2006, there was very little interest by public water systems in utilizing POU treatment for compliance.

Before the addition of the POU provisions to IDAPA 58.01.08.450, any public water system wishing to install POU treatment was required to submit engineering plans and specifications to DEQ because installation of POU treatment devices is considered a material modification per Idaho Code §39-118.

With the new rule language, DEQ may waive plan and specification requirements for POU treatment devices for public water systems serving fewer than 200 connections, including community water systems, non-transient non-community water systems, and transient non-community water systems.

In place of engineering plans and specifications, public water systems must demonstrate to DEQ a program for long-term operation, maintenance, and monitoring as outlined in the rule. Systems must receive written approval from DEQ **prior** to installing POU treatment devices.

## 2.0 POU Definitions, Requirements, and Restrictions

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This section defines point of use (POU) treatment devices and POU treatment systems, identifies requirements for POU devices, and identifies restrictions that apply to POU treatment.

### 2.1 Definitions for POU (IDAPA 58.01.08.003)

- **POU Treatment device.** The rules define a POU treatment *device* as “[a] treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap.” Typically, POU devices are installed under the kitchen sink to ensure water used for cooking and drinking is treated.
- **POU Treatment System.** The rules define a POU treatment *system* as “[a] collection of POU treatment devices.” A public water system shall own, control, and maintain all POU devices. IDAPA 58.01.08.450.a.ii. states:

*“The public water system or a vendor of POU treatment devices under contract with the public water system shall own, control, and maintain the POU treatment system to ensure proper operation and maintenance and compliance with the MCL [maximum contaminant level] or treatment technique.”*

### 2.2 Types of POU Treatment Technologies

There are several types of POU drinking water treatment technologies available. Each type works best with certain contaminants and raw water characteristics. Certain water conditions will reduce the effectiveness of a POU treatment device. It is the water system’s responsibility to ensure the POU device selected will work effectively under the water conditions at their system.

Available POU technologies are identified in Section 3.3.6 Table 1 and include membrane processes such as reverse osmosis (RO), adsorption technologies like ion exchange (IX) or activated alumina (AA), and distillation processes.

### 2.3 POU Requirements

- The water system must own, control, and maintain the POU treatment devices. Water systems may enter into lease agreements or contracts with third parties but may not contract or delegate the authority to any customer or homeowner.

- POU devices must have an automatic warning device to notify customers of operational problems (see Section 3.3.5 of this document).
- POU devices must be certified through an accredited American National Standards Institute (ANSI) certification body to meet applicable ANSI/National Sanitation Foundation (NSF) Standards. More information on standards and certification can be found in section 3.3.4. of this document.
- A public water system must obtain written approval by the Department before installation of a POU treatment device for the purpose of achieving compliance with a MCL or treatment technique.
- A public water system must demonstrate capability for long term operation and maintenance of the POU treatment system.

## 2.4 POU Restrictions

- Public water systems may not delegate ownership, maintenance, or control to customers or homeowners.
- Public drinking water systems may not use POU treatment for: microbial contaminants or their indicators, radon, volatile organic contaminants, or nitrate for community water systems.

Microbial and nitrate contaminants are acute contaminants meaning that consuming water with these contaminants may cause illness shortly after ingestion. Therefore, POU treatment *may not* be used for compliance with microbial regulations *under any circumstances*, and POU treatment *may not* be used for compliance with nitrate regulations *in community water systems* because of the risk to infants from untreated taps. Under some conditions, POU treatment can be considered for nitrate in non-community water systems, but additional requirements will be necessary to ensure public health and safety.

POU treatment devices should not be used to treat for radon or for volatile organic contaminants (VOCs) since POU devices do not provide adequate protection against exposure through inhalation or contact with skin to these contaminants at untreated taps.

## 3.0 Planning for a POU Treatment System

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This section discusses utilizing a POU system to comply with regulations, which includes cost considerations, customer education, legal and liability considerations, device requirements, pilot testing, installation requirements, sampling requirements, and waste handling issues. Water systems should not consider utilizing POU without careful consideration of all requirements and potential liabilities.

### 3.1 Costs

Costs associated with POU systems include capital costs as well as operations and maintenance costs. Funding may be available from federal or state sources.

#### 3.1.1 Capital Costs

Capital costs are primarily the costs associated with purchasing equipment and/or building infrastructure. For drinking water systems, capital costs include constructing or modifying a central treatment system, purchasing individual POU devices, adding pre-treatment if necessary, and adding any necessary pre-filtration.

POU systems tend to have lower capital costs than central treatment plants. Adsorption POU units range from \$125 to \$350 per unit and reverse osmosis units range from \$200 to \$1195 per unit (AWWARF 2005). For a public water system serving 20 households, the capital costs range from \$2,500 to \$7,000 for the adsorption models to \$4,000 to \$23,900 for reverse osmosis technology.

Capital costs for purchasing POU devices can be reduced by leasing or renting the POU devices although this may increase the operation and maintenance costs since the system will need to enter into a service contract. Volume discounts may also be available from certain vendors.

Capital costs for central treatment are more difficult to define since designs are based on flow characteristics, demand, type of technology, and waste processes. Using information from the American Water Works Association's Research Foundation's (AWWARF) feasibility study, a system with 20 connections utilizing throw-away adsorption media could expect to spend an average of \$139,600 in capital costs (AWWARF 2005).

#### 3.1.2 Operation and Maintenance costs

Operation and maintenance (O&M) costs are the expenses associated with maintaining a working system such as sampling, labor, service contracts, recordkeeping, liability insurance, and other administrative functions.

POU systems will tend to have higher O&M costs, which will increase as the number of connections or households increase. Annual O&M costs for a public water system with

20 connections or households using POU technology averages \$6,113 whereas central treatment O&M for 20 connections averages \$9,400 (AWWARF 2005).

The difference in O&M costs between POU and central treatment rapidly decreases as the number of connections increase. POU O&M costs become more expensive as the number of connections increase and exceed O&M for central treatment at between 50 and 60 connections. For example, a water system serving 60 connections will spend an average of \$18,340 for POU O&M and \$15,700 for central treatment O&M. At 100 connections, the difference is \$30,567 for POU O&M and \$22,100 for central treatment O&M (AWWARF 2005).

Central treatment is generally expected to cost more to construct but the associated long-term O&M is usually easier to manage and less expensive. POU tends to have lower capital costs but the O&M costs increase significantly as the number of connections increase. In either case, dedicated funding is necessary to ensure long-term O&M of either centralized or POU treatment systems.

### 3.1.3 Arsenic Feasibility Study: POU versus Central Treatment

Research conducted by the AWWARF indicates that POU treatment for arsenic was more cost effective for systems with up to 120 connections using RO and for systems up to 200 connections using throw-away adsorption media. The monthly cost per household ranged from \$26 to \$31 depending on the type of POU device (adsorption or RO, respectively), and number of households.

Annual operations and maintenance costs were a different story. Operations and maintenance for POU devices were higher than centralized treatment for systems serving more than 50 or 60 connections.

The publication *POU/POE Feasibility Study for Arsenic Treatment* can be purchased through AWWARF at <http://www.awwarf.org/> or by calling 1-888-844-5082. The study includes a literature search of existing POU and Point of Entry (POE) treatment studies as well as listing additional studies specific to arsenic.

### 3.1.4 Potential Funding Sources

Funding for projects associated with infrastructure and compliance can pose the biggest hurdle for public water systems. Public water systems can obtain loans, grants, or issue bonds for funding water projects. Grants typically require systems to match a percentage of the grant award.

The type and amount of funding that is available to public water systems may be dependant on the following: profit/non-profit status, type of public water system (community, non-community), number of people served by the system, rate structure, economic status (disadvantaged/distressed), and credit rating.

Federal, state, and local funding for public water system projects is available. The following is a list of possible federal and state funding sources:

- Idaho DEQ/EPA's Drinking Water State Revolving Fund (DWSRF) grant and loan program: [http://www.deq.idaho.gov/water/prog\\_issues.cfm#funding](http://www.deq.idaho.gov/water/prog_issues.cfm#funding)



- Water Resources Board of the Idaho Department of Water Resources (IDWR) financial program: <http://www.idwr.state.id.us/waterboard/financial.htm>
- U.S. Department of Agriculture’s Rural Utilities Service (RUS) grant and loan program: <http://www.usda.gov/rus/water/index.htm>
- U.S. Department of Housing and Urban Development (HUD) Community Development Block Grant: <http://www.hud.gov/offices/cpd/>
- Rural Community Assistance Corporation (RCAC) short and long-term loan program: <http://www.rcac.org/>

For questions concerning the Drinking Water Revolving Fund and to inquire about other funding sources that may be available, please contact DEQ’s Grant and Loan program at 208-373-0502 or visit the Grants and Loans section at the following Web site: [http://www.deq.idaho.gov/water/prog\\_issues.cfm](http://www.deq.idaho.gov/water/prog_issues.cfm).

For assistance in funding opportunities, visit EPA Region X’s Environmental Finance Center located at Boise State University: <http://sspa.boisestate.edu/efc/> or visit EPA’s environmental finance Web site at: <http://www.epa.gov/efinpage/>.

## 3.2 Preparing to use POU

### 3.2.1 Customer Participation: Access

Customer participation is a critical component for successfully implementing a POU treatment strategy.

Water systems are required to have 100% customer participation prior to installation of the POU treatment system. Granting access to the POU device through access agreements with each customer is necessary. Access agreements are legal documents and should be prepared and/or reviewed by the systems’ attorney.

Systems are required to provide “documentation that a customer at each service connection has agreed to installation and use of a POU treatment device and has granted access for installation, maintenance, and sampling.” (IDAPA 58.01.08.450.02.d.vii) Documentation could be as simple as a list of addresses/connections served by the public water system with a statement indicating all customers have entered into access agreements.

The water system will need to plan for and address any situation where a customer refuses reasonable access for maintenance or sampling, IDAPA 58.01.450.02.d.viii. For example, water systems may need to discontinue service to customer(s) who refuse reasonable access for maintenance or sampling or for tampering with or bypassing the POU device. In some cases, a public water system may need to work with the local government to pass an ordinance granting the water system the authority to effectively manage non-complying customers.

### 3.2.2 Communications: Customer Education/Outreach

Customers of community water systems will need to be involved early and often to ensure full participation and understanding of what a POU system involves. Continuing education is essential to the success of POU treatment systems.

After a POU treatment system is installed, systems will need to continue providing education to ensure that all customers have been informed and educated on using the POU system for their drinking water. It is critical to communicate clearly to customers that there will be untreated taps in the home. Continued outreach is necessary to ensure that rental customers, new customers, or other occupants in situations where occupancy turnover may be high have been educated to the use of a POU treatment device.

The following are three main types of public education and outreach associated with POU treatment and their related cost considerations.

- The first outreach process is to inform customers of the water system's proposal to use POU treatment. This will usually be accomplished through a homeowners' association meeting, town meeting, and/or a mailing. The possible costs associated with holding a community meeting will likely include printed or newspaper announcements, mailing costs, room rental, and personnel time.
- The second outreach process is long-term outreach and education, usually in the form of printed materials. Outreach recipients must include consumers in rental homes or businesses. Costs could include drafting and printing materials, mailing costs, and time needed to hand-deliver material.
- The third outreach process is scheduling maintenance activities, which includes routine and emergency maintenance. Routine maintenance and sampling should be coordinated to reduce additional visits and costs. Water systems need to plan scheduled maintenance well in advance and communicate the schedules with the customers. This can be accomplished through meetings, flyers, door-hangers, mailings, or by phone. Customers also need to know how to manage emergencies such as a device failure, leakage, or other malfunctions. Water systems may need to install a dedicated phone line for emergencies or designate an on-call person.

### 3.2.3 Legal Considerations

Public water systems will incur costs associated with hiring an attorney to draft and/or review access agreements. Additional costs to review or assist in drafting ordinances and/or codes, covenants, and restrictions may also be needed.

Water system operators or contractors will be entering homes, therefore, bonding of personnel may be a consideration. Water system owners should consult with their attorney on these issues.

An additional legal consideration is ensuring disclosure of the POU treatment system during real estate transactions, which includes both the sale of the public water system and the sale of individual homes. Homeowners are ultimately responsible for disclosing the POU treatment information, but the water system will need to provide printed

education materials and a blank access agreement for the homeowner. New homeowners need to be fully informed to reduce the likelihood of non-compliance.

### 3.2.4 Liabilities

Liability insurance should be considered. The costs for liability insurance will vary depending on whether the water system owns or leases the devices and the nature of any contractual agreements for maintenance. Liability insurance needs to cover circumstances where there could be damage to property from a malfunctioning device, such as water leakage, or property damage during installation. Water systems may be able to minimize their liability through properly developed access agreements.

Liabilities associated with POU treatment systems include property damage from device failure or leakage and situations where homeowners may refuse entry for maintenance.

As mentioned in section 3.2.3, the water system operator or contractor will be entering homes and bonding of personnel may be a consideration. Water system owners should consult with their attorney on this issue.

Since POU treatment is a relatively new strategy for compliance in public water systems, other liabilities may become evident through time.

### 3.2.5 Department Approval

Public water systems must obtain written approval by DEQ *prior* to installing any POU device for compliance with Safe Drinking Water Act regulations. See Section 4.0 of this document for the application and submittal requirements (IDAPA 58.01.08.450.02.d.).

## 3.3 Selecting the POU Devices

This section provides information to help select the best treatment devices based on water chemistry, pilot testing, standards and certifications, and identifies several types of POU treatment devices for different contaminants.

### 3.3.1 Vendor Qualifications

There are a number of different vendors of POU technology. Many vendors can be located through the Web sites provided under Section 3.3.4 of this document.

Before selecting a vendor, water systems should contact several vendors and request references. Several factors enter into choosing a vendor, which include reputation, knowledge of water chemistry, knowledge of the POU device technology, disclosure of costs, and assistance with training and service.

**Note:** DEQ does not recommend or endorse vendors. Water systems wishing to purchase POU treatment devices will need to locate vendors of POU technology, some of whom may be found on the Web sites for the organizations listed in Section 3.3.4 of this document.

### 3.3.2 Water Chemistry

The characteristics of a water system's raw water will determine the appropriate POU treatment technology. Manufacturers will ordinarily specify the range of raw water characteristics for which their equipment is suited. It is important for water systems to **pilot test** one or more devices to determine if the devices will work effectively with the system's raw water characteristics before purchasing and installing all of the POU devices.

At a minimum, the effectiveness of the POU technology for removing the contaminant of concern is necessary. There are raw water characteristics that will help in evaluating the effectiveness of the POU technology, such as inorganic constituents, including total dissolved solids (TDS), and pH. If significant seasonal variations of these constituents are expected or known, quarterly or more frequent sampling to determine the range of raw water properties may be needed. The choice of POU treatment technology should be based on the worst case water characteristics and highest water usage patterns.

Following are three examples of how raw water chemistry may affect POU devices:

- For reverse osmosis (RO), total dissolved solids (TDS) greater than 1,000 parts per million (ppm) and/or silica can limit membrane effectiveness and longevity; pre-softening of such waters may be required. Acid balance (pH) may affect dielectric relationships at the membrane pores.
- For ion exchange (IX), competition among ions for exchange sites on the resin can seriously impact the efficiency with which the contaminant(s) of concern is (are) removed. Some waters may not lend themselves to IX treatment without prior softening. Magnesium, copper, and iron can foul IX equipment. Pre-softening may present challenges too, and these challenges should be discussed with the vendor.
- The chemical state of the contaminant is important. For example, arsenic has two primary oxidation states in water, arsenite (reduced) and arsenate (oxidized). Most treatment methods do not reliably remove the arsenite form. The water may need to be oxidized, typically through the addition of chlorine, prior to the POU device to convert arsenite (As III) to arsenate (As V). The arsenic form must be determined via speciation before the selection process can be completed. (Speciation of arsenic is neither required to be performed by a certified laboratory nor is it required for compliance with the arsenic standard.)

### 3.3.3 Pilot Testing

As with any treatment technology, POU treatment devices need to be field-tested to ensure they will work under the conditions unique to each water system. POU devices used for field-testing should be placed in homes where usage is high, consistent, and can be evaluated. Field evaluations will facilitate the development of maintenance schedules.

If possible, field testing should include several different POU treatment devices over the period of a year to account for seasonal variability in water chemistry. At a minimum, POU devices should be field tested for at least two months and evaluated frequently

through field sampling. The sampling results for the contaminant being treated should be detected well below the maximum contaminant level to establish a margin of safety. If the sampling results are inconsistent, the device may not be reliable to treat for that contaminant.

Water systems should evaluate POU devices based on the following: effectiveness of the treatment technology, ANSI/NSF certification, ease of installation and maintenance, ease of sampling, need for pre-treatment, frequency and cost of media replacement, availability of replacement parts, and waste stream.

**Note:** Be cautious of any vendor who discourages pilot testing without sufficient and credible evidence to explain why such testing is not necessary.

### 3.3.4 Standards/Certifications

Idaho regulations require that POU treatment devices “... *must be certified by an accredited American National Standards Institute (ANSI) certification body to meet applicable ANSI/National Sanitation Foundation (NSF) Standards.*” IDAPA 58.01.08.450.02.a.iv.

ANSI/NSF standards that apply or are related to POU drinking water treatment devices in public drinking water supplies are:

Standard 44: *Residential Cation Exchange Water Softeners*

Standard 53: *Health Effects*

Standard 58: *Reverse Osmosis Drinking Water Treatment Systems*

Standard 61: *Drinking Water System Components, Health Effects*

Standard 62: *Drinking Water Distillation Systems*

**Note:** Two standards that generally apply to public drinking water systems are not applicable to POU treatment. These are Standard 42: *Drinking Water Treatment Units—Aesthetic Effects* and Standard 55: *Ultraviolet Microbiological Water Treatment Systems*.

Organizations that certify products to the standards listed above include the following:

**American National Standards Institute (ANSI).** ANSI is a non-profit private sector organization. ANSI does not develop national standards but organizes, establishes consensus among qualified groups that do develop standards, and includes a process for broad public review and comment. More information can be found at <http://www.ansi.org/>.

**National Sanitation Foundation (NSF).** NSF is an independent, not-for-profit organization that develops standards, performs product testing, and provides certification services. NSF develops standards and confirms manufacturer’s claims for POU treatment devices, which allows customers to verify product claims made by manufacturers. NSF also accredits and audits other independent laboratories, such as Underwriter’s Laboratories

and the Water Quality Association. The basic requirements of certification include verifying or ensuring the following:

- 1) The manufacturer's claims of contaminant reduction
- 2) That the system does not add anything harmful to the water
- 3) That the system is structurally sound
- 4) That the literature, advertising, and labeling is accurate and not misleading
- 5) That the materials and manufacturing processes used to produce the system are not changed

More information, including a product selection and a manufacturer database, can be found at <http://www.nsf.org/>.

*Underwriters Laboratories, Inc. (UL)*. UL is an independent, non-profit product safety and certification organization that tests products, including drinking water treatment devices, for safety. UL is authorized to test and certify POU treatment devices to ANSI/NSF standards. More information and lists of manufacturers can be found at <http://www.ul.com/>.

*Water Quality Association (WQA)*. WQA is a non-profit, international trade association that represents several water related industries, including small community water treatment industries. WQA has been accredited by ANSI to evaluate drinking water treatment devices to meet ANSI/NSF standards. More information and manufacturers can be found at <http://www.wqa.org/>.

### 3.3.5 Mechanical Warnings

POU devices used in public drinking water systems must be designed to **automatically** notify customers of operational problems. Each device must be equipped with an automatic mechanical warning mechanism, such as a light or an alarm, which is sometimes called a *performance indication device* (PID). (IDAPA 58.01.08.450.02.a.iii)

In some cases, the requirement for an automatic mechanical warning mechanism could be met by an automatic shut-off of the treated water. Shut-off could be set for a certain amount of time or treated volume of water following service, for operational problems, water quality issues, or both. The shut-off feature is not required by Idaho regulations but may protect consumers from drinking water with contaminant breakthrough.

### 3.3.6 Available POU Treatment Technologies

Available POU treatment technologies are listed in Table 1, which was adapted from EPA's Draft Guidance for Implementing a Point-of-Use or Point-of-Entry Treatment Strategy for Compliance with the Safe Drinking Water Act (March 2002).

**Table 1. Selection of POU Treatment Technologies for Various Water Quality Problems.** (Portions selected from EPA's Revised Final Draft Guidance for Implementing a Point of Use of Point of Entry Treatment Strategy for Compliance with the Safe Drinking Water Act, March 2002)

Treatment Technology	Contaminant of Concern										Considerations
	Arsenic	Copper/Lead	Fluoride	Nitrate	SOCs <sup>1</sup>	VOCs <sup>2,3</sup>	Radium	Uranium	Radon <sup>3</sup>	Microbial <sup>4</sup>	
<b>Activated Alumina (AA)</b>	x		x					x			Raw water characteristics (e.g., pH and competing ions such as fluoride and sulfates) may reduce efficacy. Can be installed in series to improve run length.
<b>Distillation</b>	x	x		?	x		x	x		(x)	Very high electrical costs. Treated water produced in batches, rather than continuously; storage tank required. High total dissolved solids (TDS) or hardness can lead to scaling, increased costs, and decreased efficacy. POU distillation is not listed as a compliance strategy for nitrate due to potential for acute health effects (methemoglobinemia or blue baby syndrome) for certain vulnerable segments of the population.
<b>Granular Activated Carbon (GAC)</b>					x						Natural organic matter (NOM) and co-occurring SOCs can reduce efficacy. Some potential for microbial (HPC) colonization of units. Likely to improve aesthetics (taste, odor, color) of finished water. Therefore, often incorporated as element within other POU treatment systems.
<b>Ion Exchange (IX)</b>											Competing ions (particularly sulfates and barium) can greatly reduce efficacy. For example, run lengths for AX systems decrease dramatically in the presence of high levels of sulfates. If these units are not replaced on a regular basis, chromatographic peaking – the rapid desorption of arsenic from the resin – may occur, leading to higher levels of arsenic in finished water than in untreated water. Due to the risks posed by chromatographic peaking and the limited margin of safety provided by POU devices, POU AX is not listed as a compliance strategy for nitrate due to the potential for acute health effects (hemoglobinemia or blue baby syndrome) for certain vulnerable segments of the population.
<b>Anion Exchange (AX)</b>	(x)		x	?				x			
<b>Cation Exchange (CX)</b>		x					x				
<b>Reverse Osmosis (RO)</b>	x	x	x	?	x		x	x		(x)	Some membranes are chlorine-sensitive. High hardness reduces efficacy. Likely to improve aesthetics significantly (color, clarity). Storage typically required due to low production rate. POU RO is not listed as a compliance strategy for nitrate.
<b>Specialty Medias (SM)</b>	x	x		?			x				These medias preferentially remove specific contaminant(s). Examples include granular ferric hydroxide (GFH) to remove arsenic and specialty anionic and cationic resins for nitrate and radium removal, respectively. Not as sensitive to competing contaminants as standard medias, enabling longer run lengths. However, generally more expensive than standard medias. Technologies are still developing. POU SM is not listed as a compliance strategy for nitrate.

1. Synthetic organic contaminants (SOCs) include many pesticides, herbicides, and insecticides (e.g., alachlor, aldrin, atrazine, lindane, etc.).
2. Volatile organic contaminants (VOCs) include organic chemicals and solvents that vaporize at relatively low temperatures (e.g., TCE).
3. POU devices are not acceptable for treatment of radon or VOCs since they do not protect against dermal and inhalation exposure to these contaminants.
4. Microbial contaminants include bacteria, viruses, and protozoa. While POU devices may improve the microbial quality of finished water (indicated by an x in parentheses), these devices may *not* be used to meet the MCL for microbial contaminants.

## 3.4 Installing a POU Treatment System

POU devices are typically installed under the kitchen sink to treat water used for cooking and drinking. This section provides information to assist with the installation process of POU treatment systems and includes installer's qualifications, routing treated water to other drinking water dispensing units, inspection requirements, and notifications to the Department.

### 3.4.1 Installer's Qualifications

- POU devices must be owned, operated, and maintained by the public water system and, consequently, may **not** be installed or maintained by the homeowner or customer.
- A permit to install is required by the Idaho Division of Building Safety, Plumbing Bureau.
- POU devices **must be installed by an appropriately licensed plumber**, as determined by the Plumbing Bureau and the installer must operate within the scope delineated in the *Rules Governing Plumbing Safety Licensing*. DEQ recommends that a certificate of installation be provided by the vendor for each installed device. For information regarding installation requirements, please contact the Plumbing Bureau at 208-344-3442.

### 3.4.2 Routing Treated Water

- Water systems must provide information relating to how other drinking water dispensing units, such as instant hot water dispensers and refrigerator water and ice dispensers, whose primary function is to provide drinking water, will be provided with treated water (IDAPA 58.01.08.450.02.d.iii).
- If water is transported from a POU treatment device to another drinking water dispensing unit, the conducting tube shall be of non-reactive material. There may be added costs for routing treated water to refrigerator water dispensers, ice makers, instant hot water dispensers, or any other taps or dispensers where the water is specifically intended for ingestion. The conducting tube for such connections must be of non-reactive material as required by the POU rule. DEQ recommends using color-coded lines to ensure proper connection and reduce the possibility of crossing the discharge line with the treated water lines.

### 3.4.3 Installation Issues

Some problems may arise during the installation process that may increase the difficulty and expense of installing POU devices. Existing plumbing can be a significant problem where there are no accessible water shut-off valves or old or inferior plumbing and/or fixtures. Other issues that cause difficulties for installers are unsanitary conditions from water damage, lack of space for mounting the units, routing water lines to refrigerators in crawl spaces that may not be adequate, and language barriers.



Many of the installation issues can be identified and addressed during initial customer outreach. The water system should ask homeowners to identify where water shut-off valves are, whether they have refrigerator water dispensers and/or instant hot water dispensers, as well as any special considerations like time and day of the week that is convenient for installation. Prior to installation, the water system should notify customers to empty the contents from the compartment under the kitchen sink and to make the crawlspace accessible should additional water lines need to be routed to the refrigerator.

#### 3.4.4 Inspection

- Because there is evidence that leaks can occur a few hours after the initial installation, a second visual inspection is recommended. Customers could do this inspection themselves and call for help if needed but it may be more prudent to have the licensed installer conduct a second inspection and immediately make any needed adjustments.
- An inspection of installed units may be required by the Idaho Division of Building Safety, Plumbing Bureau. For questions, please contact the Plumbing Bureau at 208-344-3442.

#### 3.4.5 Notification to DEQ

“Within thirty (30) days of installing the approved POU treatment system, the public water system shall notify the Department in writing that the POU treatment system was installed as approved by the Department.” (IDAPA 58.01.08.450.02.e). This notification can be made through a letter to the Department stating that the POU treatment system has been installed as approved by the Department.

### 3.5 Managing a POU Treatment System

Public water systems are ultimately responsible for the success or failure of implementing a POU treatment system, even if installation and maintenance of the POU devices is contracted to a third party such as a POU vendor. Water systems may not delegate authority to a homeowner for any operations or maintenance.

This section addresses system management and includes operator and system classification, sampling, maintenance, waste handling, customer education, and recordkeeping requirements.

#### 3.5.1 Operator and system classification

All community and non-community non-transient public water systems must have a Responsible Charge Operator licensed at the level appropriate for the water system classification (IDAPA 58.01.08.554). The Responsible Charge Operator needs to be available at all times and must designate a Substitute Responsible Charge Operator also licensed at the level appropriate for the water system in their absence.

**Note:** At this time, DEQ is neither upgrading a system's classification or status to "Treatment" if the system only has a POU treatment system, nor is DEQ requiring the licensed operator to upgrade to "Treatment."

For questions regarding system classification or operator licensing, please visit the DEQ Web site at: [http://www.deq.idaho.gov/water/prog\\_issues.cfm#Drink](http://www.deq.idaho.gov/water/prog_issues.cfm#Drink) or call 208-373-0502.

### 3.5.2 Sampling

Sampling of the water provided by the POU system is required both after initial installation and on a routine basis. Additional tests for bacteria and/or field-sampling may be required depending on the type of POU device.

#### *Initial Compliance Sampling*

- Within 30 days after the POU system is installed, every tap with an installed POU device must be sampled. Samples must be analyzed by a laboratory certified to perform drinking water analysis in Idaho to demonstrate initial compliance with treatment requirements for the contaminant being treated. Future installation of new devices must also be sampled within 30 days of installation.
- A list of laboratories certified to perform drinking water analysis in Idaho can be found under certified laboratories at:  
[http://www.deq.idaho.gov/water/prog\\_issues.cfm#Drink](http://www.deq.idaho.gov/water/prog_issues.cfm#Drink)

#### *Routine Compliance Sampling*

Routine compliance sampling *for the contaminant being treated* is required for each device, once during every compliance period (normally every three years for ground water systems), or at a frequency specified by DEQ. To accomplish this, DEQ will schedule one third of the devices be sampled annually. DEQ will consider other sampling intervals if the water system submits a request in writing and as long as all POU devices are sampled during each compliance period.

All compliance samples are required to be analyzed by a laboratory certified to perform drinking water analysis in Idaho. A list of laboratories certified to perform drinking water analysis in Idaho can be found under certified laboratories at:  
[http://www.deq.idaho.gov/water/prog\\_issues.cfm#Drink](http://www.deq.idaho.gov/water/prog_issues.cfm#Drink)

For efficiency, the water system should schedule routine compliance sampling in conjunction with regularly scheduled maintenance.

**Note:** Compliance sampling at the POU device is performed **only** for the regulated contaminant the device is intended to treat. Systems will continue to monitor at the frequency and location (entry point or distribution system) normally required for all other contaminants.

### *Bacteria Sampling*

Additional sampling for bacteria performed at the tap with the installed POU device is recommended and may be required for POU devices that use an activated carbon element. Higher levels of bacteria are often seen in the finished water of POU devices using an activated carbon element. There have been no reports of increased illness but to ensure consumer safety, increased bacteria testing and possibly post-disinfection may be warranted.

### *Field Sampling*

Field sampling by the licensed operator or qualified contractor may be necessary to ensure the POU devices are working adequately. Results of field samples should be recorded in the maintenance logs kept by the system

The type of field sampling needed depends on the type of treatment device and/or contaminant being removed. For example, reverse osmosis (RO) devices should have treated water checked for total dissolved solids (TDS) whenever the operator performs maintenance or takes a compliance sample. This sampling is done with a TDS (electrical conductivity) meter that must be calibrated periodically according to the manufacturer's recommendation, and the calibration method may be evaluated by DEQ during sanitary surveys.

Field test kits are available for various contaminants, such as arsenic. Results from field samples are used to determine whether the POU devices are working adequately and are not used for compliance, therefore, the analyses are performed with test kits in the field rather than a laboratory. The results are not reported to DEQ although the logs may be reviewed during a sanitary survey.

For any field test kits used by the systems, the system should include the calibration plan for the field-testing equipment in the system's Operation and Maintenance Manual.

### 3.5.3 Maintenance

- The success of a POU treatment system is largely dependent on an aggressive yet practical maintenance program. POU maintenance issues include routine maintenance, replacement of parts or devices, as well as emergency maintenance. Maintenance can only be performed by the public water system staff, under direction of a certified operator, or a qualified contractor. **POU devices may not be maintained by the homeowner or customer.**
- POU devices require routine maintenance, mostly to change and dispose of spent media and evaluate the device's effectiveness using field sample kits. The vendor or manufacturer should recommend the frequency of maintenance activities. Maintenance schedules should also be determined with information obtained during the pilot-testing process. As mentioned previously, water systems should consider scheduling routine maintenance to coincide with routine compliance sampling to reduce the costs of multiple visits.
- POU devices also have a life expectancy. The manufacturer should recommend the scheduled frequency for replacement of the devices and/or components and

the system should consider this cost when evaluating the POU treatment alternative.

- Urgent or emergency maintenance is required whenever a device's mechanical warning mechanism is activated, if a device fails, or if leaks occur. The water system should maintain a stock of replacement parts and additional devices in case emergency maintenance is necessary.

### 3.5.4 Waste Handling

Public water systems are required to provide a plan and method for waste disposal with the required maintenance plan for POU devices. (IDAPA 58.01.08.450.02.d.ix)

POU devices generate solid and liquid waste residuals although in much smaller amounts than with central treatments since the units only treat a small percentage of the water entering the home. Therefore, disposal issues and costs associated with POU are expected to be lower than with centralized treatment

#### *Solid Waste*

The types of solid waste expected with POU devices include: spent media, cartridges, membranes, and filters. Water systems utilizing POU devices will need to dispose of various spent media, possibly several times a year. Check with the manufacturer to see if the spent media, cartridges, or filters may be regenerated or recycled.

Solid wastes generated in a home from the POU devices may be disposed of as household waste and do not require special handling. Idaho Solid Waste Management Rules, IDAPA 58.01.06.005., defines Household Waste as:

**17. Household Waste.** Any solid waste, including kitchen wastes, trash and sanitary waste in septic tanks, derived from households, including single and multiple residences, hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds and day use recreation areas.

#### *Hazardous Waste*

POU devices are excluded from the definition of hazardous waste and do not require special handling or disposal.

#### *Radioactive Solid Waste*

For public water systems treating for radionuclides, such as uranium, radium, or gross alpha, there may be special handling requirements for spent media that contain and accumulate radioactive material.

POU devices that use Reverse Osmosis (RO) membrane treatment do not accumulate radionuclides in/on the media and, therefore, do not require special waste handling.

The solid waste associated with POU devices that use an adsorptive media will require special handling. The spent media associated with adsorptive processes are classified as Technically Enhanced Naturally Occurring Radioactive Material (TENORM). From the Rules Regulating the Disposal of Radioactive Materials Not Regulated Under the Atomic Energy Act of 1954, as Amended, IDAPA 58.01.10.010:

**14. Technologically Enhanced Naturally Occurring Radioactive Material (TENORM).**

Any naturally occurring radioactive materials not subject to regulation under the Atomic Energy Act whose radionuclide concentrations or potential for human exposure have been increased above levels encountered in the natural state by human activities. TENORM does not include source, byproduct or special nuclear material licensed by the U.S. Nuclear Regulatory Commission under the Atomic Energy Act of 1954.

Because the spent media is classified as TENORM, special waste handling is required, which is identified under IDAPA 58.01.10.020:

**03. Disposal of Radioactive Material.** No person, owner, or operator shall dispose of radioactive materials by any method other than: (3-15-02)

a. At a permitted treatment, storage or disposal facility under the authority of the Idaho Hazardous Waste Management Act, Chapter 44, Title 39, Idaho Code, provided that the facility owner or operator complies with each of the following: (3-15-02)

i. Department-approved waste acceptance criteria for radioactive material defined in Section 010; (3-15-02)

ii. A Department-approved closure program that provides reasonable assurance that the radon emanation rate from the closed disposal unit will not exceed twenty (20) picocuries per square meter per second averaged across the entire area of the closed disposal unit and meets the requirements in Subsection 020.01.b.; and (3-15-02)

**04. Prohibit Disposal at a Municipal Solid Waste Landfill.** No person shall dispose of radioactive material as defined in these rules at a municipal solid waste landfill, except for individual consumer products containing radioactive material. (3-15-02)

Spent media containing radioactive material associated with POU devices are not considered individual consumer products. Consumer products are the products that contain small amounts of radioactive material as part of the finished product, such as smoke alarms.

Questions concerning radioactive waste handling associated with POU devices should be directed to DEQ at 373-0502.

*Liquid Waste*

There may also be a liquid waste associated with POU devices although the amount of concentrated liquid waste generated from POU devices is very minimal. For example, reverse osmosis (RO) units produce very small amounts of waste brine with high contaminant concentrations as part of the treatment process.

If a public water system uses a subsurface disposal system (septic system) that has been disapproved, liquid wastes may be precluded from discharge to these systems. For questions concerning discharging liquid wastes into a disapproved subsurface system, please contact your local health department.

3.5.5 Recordkeeping and Reporting

*Recordkeeping*

Public water systems utilizing POU treatment as a compliance strategy will be required to keep and maintain records associated with managing a POU treatment system. (IDAPA 58.01.08.450.02.g)

The water system must maintain all records pertaining to the POU treatment system, including any and all contracts; lease agreements; maintenance records; logs of installed devices; legal documents, including insurance information; educational materials; and sampling results. All records pertaining to the approval of the POU treatment system must also be maintained by the water system. DEQ may request copies of these records periodically and will inspect the records and maintenance logs during site visits or sanitary surveys.

### *Reporting*

DEQ requires water systems using POU treatment to submit documents pertaining to the operations and maintenance of the devices, IDAPA 58.01.08.450.g. states that “Records shall be submitted to the Department at a frequency and in a format specified by the Department...”

At a minimum, the water system should submit, on a quarterly basis, a statement to DEQ certifying that all devices are functioning and being maintained in accordance with DEQ’s approval. If any devices are not in compliance, an explanation of the problem and a description of what is being done to return to compliance should be submitted to DEQ.

DEQ may reduce the frequency of reporting if there is adequate history to ensure compliance is being maintained. A copy of a form letter can be found in Appendix C

## 4.0 Instructions for POU Application

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**Using POU treatment in a public drinking water system requires prior written approval from DEQ.** This section provides details on the required application and the approval process.

Please review all information before filling out the POU application. The application is intended to be used after water systems have evaluated and decided to use POU and after pilot testing. Preparation for completing the application also includes document preparation, which may need review of the water system's attorney prior to submitting the application and materials to DEQ for approval.

The application form is in Appendix A of this document. The following subsections list the requirements for information to be provided, signatures to be obtained, and a list of those materials that must accompany the form. These requirements are included in the checklist on the back of the form.

The application and accompanying materials should be sent, at the same time, to DEQ or to the local health department for evaluation. The application will be considered incomplete and returned if DEQ or the health department is unable to evaluate all requirements or the submittal is incomplete.

### 4.1 Section A: Water System Information

- Record the public water system identification number and name.
- Record the name and address information for the owner or administrative contact of the water system.
- Indicate the name of the person filling out the form and their title or association with the water system. The person filling out the form may be different from the owner or authorized agent of the water system, but the owner or authorized agent are the only parties who can sign the completed form.
- List the name of the water system's Responsible Charge Operator and their current level of certification.
- List the name(s) and qualifications of the person(s) who will install the POU devices, as required by *Rules Governing Plumbing Safety Licensing* (see Section 3.4.1 of this guidance).
- Indicate the proposed date for completing the installations of all POU devices.

## 4.2 Section B: POU Device Information:

- Record the manufacturer's name and the make/model of the proposed POU devices.
- List the type of process used by the POU device (reverse osmosis, ion exchange, etc.).
- List the ANSI/NSF standard number(s) for which the POU devices are approved.
- Indicate the length of time this make/model of POU device was field-tested. Although not specifically required by rule, pilot testing is essential for a water system to select the best device for the conditions unique to that system.
- Indicate the type of proposed automatic warning mechanism and how it will work. For example, an RO device usually has a warning light that is activated by monitoring the electrical conductivity of the Total Dissolved Solids (TDS) in the water. Adsorptive media might include automatic shut-off based on time or volume of treated water, with the values based on pilot data or information provided by the vendor.
- Indicate whether there is an automatic shut-off even if it is not utilized specifically as the automatic warning device.

## 4.3 Section C. Water Chemistry Information

- Attach the laboratory results related to the water chemistry of the system. The samples should be representative of the water to be treated and should be taken after any other treatment in the water system to identify for the vendor any chemicals that may interfere with the treatment process.
- Indicate the regulated contaminant(s) intended for treatment, including the highest recorded concentration and the date the highest recorded concentration was taken (contaminants will fluctuate over time and recording the highest value should help the vendor identify the best technology and the frequency to change the treatment media). Most of the contaminant information and fluctuations will be demonstrated through the pilot testing process.
- List the water quality parameters and include the laboratory report(s). To assist the vendor with selection of the device and for maintenance purposes, it is beneficial to include the highest recorded value.

## 4.4 Section D. Statement and signature

- The water system owners, managers, or authorized agents will need to initial the statement of recognition to indicate that they understand that failing to maintain a properly managed POU treatment system *may* result in the requirement to install centralized treatment. DEQ retains the authority to issue



administrative penalties and enforcement actions as it would for any non-compliance with the *Rules for Public Drinking Water Systems*.

- The owner or authorized agent for the public water system needs to sign the application. By signing, the owner or authorized agent is indicating that all the information is correct to the best of his/her knowledge.

## 4.5 Section E. Checklist

Along with the application, include all of the following information as part of the submittal. ***Submit all required materials to prevent having the package returned as incomplete.***

- Attach a copy of the manufacturer's specifications, including ANSI/NSF certifications.
- Attach all water chemistry results required by Section C of the application.
- Submit a description of how the water system will provide treated water to drinking water devices, such as instant hot water dispensers and refrigerator water/ice dispensers.
- Submit all contracts/lease agreements, etc., which demonstrate that the water system owns, controls, and maintains all POU devices. Lease agreements and contracts with third party service providers are acceptable, but the water system maintains ultimate responsibility for the POU devices. **Water systems may not contract with homeowners or individual users for maintenance.**
- Attach a map, or other document, showing the locations of all service connections where POU devices are to be installed.
- Indicate locations and a description of a sampling plan that will ensure all POU devices are sampled during every compliance period. Usually, one-third of the devices will be sampled annually for a three-year compliance period.
- Attach a copy of the model access agreement that has been approved by the water system's attorney.
- Either include a list of all service connections, with a statement certifying that all customers have signed access agreements and that they are on file for inspection, or include copies of all signed access agreements that are associated with each service connection. These records must be maintained by the public water system.
- Include a written plan describing how the water system will address any non-compliance with the access agreements. For example, a series of escalating warning letters and/or discontinuing service to the non-compliant connection. The plan and any templates for correspondence should be reviewed by the water system's attorney to ensure the documents are legal and enforceable.
- Attach a written maintenance plan that follows the manufacturer's recommendations for replacement of filter media or other parts, including scheduled whole device replacement, if necessary

- Attach documentation of a Responsible Charge Operator certified at the level appropriate for the water system classification.
- Attach a written plan that includes the frequency and proposed language the water system intends to use to provide on-going education of POU treatment system to customers, and include a description of how the water system will ensure rental customers are educated.
- Attach a written plan describing how the water system will ensure disclosure of the POU devices during real estate transactions.
- **For non-community systems only:** demonstration that the POU locations are adequate to protect public health.

## 4.6 Review Process

Applications will be processed by the first come, first serve principle and only if the materials are complete. Health departments will perform an initial completeness review and then will consult with DEQ for review and approval.

### 4.6.1 Timeline

After DEQ or the health department receives the completed application and all relevant materials to review, the system will receive written notification within 90 days that either accepts the proposal to use POU treatment or written notification identifying deficiencies or concerns to be addressed. This is a guideline and processing applications may take more or less time depending on the completeness of the application, the size and complexity of the public water system, and current workloads. DEQ may send a written letter of extension to review and approve the materials.

### 4.6.2 Purpose and Format of Reviews

The purpose of DEQ and health district reviews are to determine if the water system's proposed POU treatment system is likely to be sufficient for compliance with an MCL or treatment technique and for maintenance of the system long-term. The application may be rejected if the materials fail to provide enough technical detail to enable determination of the probable effectiveness of the treatment system or of the ability of the water system to operate and maintain a POU system.

DEQ is not reviewing whether individual POU devices chosen by the system are the devices best suited for the water system or the most cost effective. DEQ is also not reviewing the legality of access agreements with a system's customers. Legal review should be done by the system's attorney prior to submitting the package to DEQ.

Only after DEQ approves the POU treatment system in writing can systems install POU treatment to comply with an MCL or treatment technique. A list of DEQ regional offices and health departments can be found in Appendix D.

## 5.0 Links to Additional Information on POU

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For additional information about POU treatment, see the following:

- Department of Environmental Quality:  
<http://www.deq.idaho.gov/>
- EPA's Compliance Page for Arsenic:  
<http://www.epa.gov/OGWDW/arsenic/compliance.html>
- EPA's Point of Use or Point of Entry Treatment Guidance:  
[http://www.epa.gov/ogwdw/smallsys/pdfs/guide\\_smallsystems\\_pou-poe\\_june6-2006.pdf](http://www.epa.gov/ogwdw/smallsys/pdfs/guide_smallsystems_pou-poe_june6-2006.pdf)
- American National Standards Institute (ANSI):  
<http://www.ansi.org>
- National Sanitation Foundation (NSF):  
<http://nsf.org/>
- Underwriters Laboratory (UL):  
<http://www.ul.com/>
- Water Quality Association (WQA):  
<http://www.wqa.org/>
- AWWA Research Foundation:  
<http://www.awwarf.org/>

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# Glossary

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BAT	Best Available Technology
Compliance period	A three-year calendar period for chronic contaminants. Nitrate compliance periods are annual.
Contaminant	Any chemical, ion, radionuclide, synthetic organic compound, microorganism, waste or other substance that does not occur naturally in ground water or that naturally occurs at a lower concentration.
Contaminant Breakthrough	Breakthrough occurs when the removal capability of the treatment is exceeded or when changes in other ambient water quality characteristics or concentration result in a release of those contaminants that have already been adsorbed, which results in a more concentrated amount of the contaminant in the water.
Contamination	The direct or indirect introduction into ground water of any contaminant caused in whole or in part by human activities.
CWA	Clean Water Act
CWS	Community Water Systems
Degradation	The lowering of ground water quality as measured in a statistically significant and reproducible manner.
DEQ/Department	Idaho Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
Ground Water	Any water of the state that occurs beneath the surface of the earth in a saturated geological formation of rock or soil.
Ground Water Quality Standard	Values, either numeric or narrative, assigned to any constituent for the purpose of establishing minimum levels of protection.
IDWR	Idaho Department of Water Resources
MCL	Maximum Contaminant Level
mg/l	Milligrams per liter, unit of measure
ml	Milliliter, unit of measure
Non-community water system	A public water system that is not a community water system and is either a transient non-community water system or a non-transient non-community water system
RCRA	Resource Conservation and Recovery Act
Responsible Party	An individual, group, corporation, or other entity that is accountable for implementation of the approved ground water quality monitoring plan. The responsible party may be the land owner, the operator, the project manager, or the benefactor. The responsible party must be identified in the monitoring plan.
SDWA	Safe Drinking Water Act
SSCT	Small System Compliance Technologies

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## References

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## Appendix A: Application Form

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Application Form

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### APPLICATION TO USE POINT-OF-USE FOR A PUBLIC WATER SYSTEM

Submit this application along with all supporting documentation required by IDAPA 58.01.08.450 to your local DEQ or Health District Office. (See checklist on back)

#### A. Water System Information:

PWS 7 Digit Number: ID		PWS Name:		Name and Title of Person Filling out Application:		Phone #:	
Street Address:			City/State/ZIP:		Number of service connections or total hookups (including any vacant):		Population served by system: <input type="checkbox"/> CWS <input type="checkbox"/> NCNT
Responsible In-Charge Operator's Name:			Operator Level:		Installer's name and qualifications:		Proposed date of completion:

#### B. POU Device Information (attach manufacturer's specifications):

Manufacturer:		Make/Model:		Type of Process: <input type="checkbox"/> Reverse Osmosis (RO) <input type="checkbox"/> Ion Exchange		ANSI/NSF Standard#:	
Type of automatic warning: <input type="checkbox"/> Warning Light <input type="checkbox"/> Alarm						Months this make/model was pilot tested:	
Function of mechanical warning device: <input type="checkbox"/> TDS Monitor (RO units) <input type="checkbox"/> Timer <input type="checkbox"/> Total Flow <input type="checkbox"/> Other (describe):							

#### C. Water Chemistry Information (attach laboratory results):

Contaminants to be treated: <input type="checkbox"/> arsenic <input type="checkbox"/> uranium <input type="checkbox"/> radium <input type="checkbox"/> other (specify):				Highest recorded concentration:		Date recorded:	
Water quality parameter:		Highest recorded value and unit of measure:		Water quality parameter:		Highest recorded value and unit of measure:	
pH				Phosphorous			
Alkalinity				Sulfates			
Barium				Silica			
Fluoride				TDS (Total Dissolved Solids)			
Hardness				Other:			
Iron				Other:			
Manganese				Other:			

#### D. Statement and signature required by water system owner or authorized representative:

I understand that failure of the public water system to maintain a managed POU treatment system may affect public health and can result in the requirement to install a centralized treatment system or other remedies available. \_\_\_\_\_ (initial)

I hereby certify that the information provided in this application is correct to the best of my knowledge:-

\_\_\_\_\_  
Signature of owner or authorized representative

\_\_\_\_\_  
Date

### E. Checklist:

Please submit the following materials for Department approval at the same time as your application to ensure materials are not lost. **Incomplete packages will be rejected and returned to the public water system.**

- Manufacturer's printed specifications, including ANSI/NSF certification and any requirements for source water characteristics
- Water chemistry test results (for Part C and contaminants to be treated)
- Written description of how other drinking water units (instant hot water and refrigerator water/ice dispensers) will be provided with treated water
- Documentation that demonstrates that the public water system owns, controls, and maintains the POU treatment system such as agreements, contracts, etc.
- A map or other documentation of the system with a sampling plan identifying the location of service connections
- A copy of the access agreements that have been approved by the water system's attorney.
- Copies of documentation that a customer at EACH service location has agreed to installation, use, and maintenance, and sampling (NOTE: access agreements should be drafted by/reviewed by the public water system's attorney)
- A written plan describing how the public water system will address non-compliance with access/installation/maintenance/sampling of the POU devices
- A written maintenance plan for both routine and emergency maintenance and replacement of parts and devices, and periodic verification that the warning mechanism is functional
- Documentation of Responsible Charge Operator certified at the level appropriate for the water system classification
- A written plan for ongoing education and outreach to customers including rental customers on POU treatment and health effects of Contaminants of Concern. (Include proposed frequency and language to be given to customers.)
- A written plan for how the POU devices and required access and maintenance will be disclosed during real estate transactions
- For non-community systems only:** demonstration that the POU locations are adequate to protect public health.

#### ***Please note:***

1. Within 30 days of installing the approved POU treatment system, the public water system shall notify the Department in writing that the POU treatment system was installed as approved by the Department.
2. Within 30 days of installing the approved POU treatment system, the public water system shall submit samples from each POU treatment device to a certified laboratory for analysis of the contaminant being treated by the POU device. The samples will be used to demonstrate initial compliance with the MCL.
3. The water system must maintain all records associated with a POU treatment system—such as sampling, maintenance records, logs, contracts, and agreements—and report at the frequency and in a format specified by the Department.

***For Department Use Only:***

Date Materials Received:

Reviewer Name:

#### **a. Completeness:**

- Complete
- Incomplete (circle or highlight items in checklist that are incomplete or deficient)
  - Make a copy of this form for the file and return all materials to PWS
  - Date returned:

#### **b. Evaluation:**

- Approved
- Disapproved : Note all deficiencies or discrepancies:

## Appendix B: POU Rule Text

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**Excerpt from IDAPA 58.01.08:**

**450. USE OF NON-CENTRALIZED TREATMENT DEVICES.**

**01. Point of Entry Devices.** 40 CFR 141.100, revised as of July 1, 1999, is herein incorporated by reference. (4-5-00)

**02. Point of Use (POU) Treatment Devices.** (11-17-05)T

**a.** A public water system may use point of use (POU) treatment in order to achieve compliance with certain maximum contaminant levels (MCL) or treatment techniques, in accordance with Subsection 450.02.b., when the following conditions are met: (11-17-05)T

i. A program for long-term operation, maintenance, and monitoring of the POU treatment system is approved by the Department, pursuant to Section 450.02.d. (11-17-05)T

ii. The public water system or a vendor of POU treatment devices under contract with the public water system shall own, control, and maintain the POU treatment system to ensure proper operation and maintenance and compliance with the MCL or treatment technique. (11-17-05)T

iii. Each POU treatment device is equipped with a mechanical warning mechanism to ensure that customers are automatically notified of operational problems. (11-17-05)T

iv. The POU treatment device must be certified by an accredited American National Standards Institute (ANSI) certification body to meet applicable ANSI/National Sanitation Foundation (NSF) Standards. (11-17-05)T

**b.** POU treatment devices shall not be used to achieve compliance with a MCL or treatment technique requirement for a microbial contaminant or an indicator of a microbial contaminant. Community water systems may not use POU treatment devices to achieve compliance with a nitrate MCL. (11-17-05)T

**c.** The Department will waive the plan and specification requirements as described in Subsection 551.04 relating to material modifications for the following systems only to that extent that the material modification proposed is limited to the installation and/or use of a POU treatment device(s): (11-17-05)T

i. Community water systems serving two hundred (200) or fewer service connections. (11-17-05)T

ii. Non-transient non-community water systems. (11-17-05)T

iii. Transient non-community water systems. (11-17-05)T

iv. Community water systems serving more than two hundred (200) service connections if approved by the Department through the waiver process outlined in Subsection 005.01.a. (11-17-05)T

**d.** A public water system must obtain written approval by the Department before installation of a POU treatment device for the purpose of achieving compliance with a MCL or treatment technique. The public water system shall submit the following documentation for approval to the Department: (11-17-05)T

i. Information identifying the public water system name and number, total number of service connections, contaminant(s) to be treated, type of POU treatment device to be installed, manufacturer and model number of the POU treatment device, type and function of the mechanical warning mechanism (performance indicator) on the POU treatment device, certification verification for ANSI/NSF, installer qualifications, and a proposed date for installation of the POU treatment device(s). (11-17-05)T

ii. The manufacturer's specifications for the POU treatment device including demonstration that the POU treatment device is suited for the water chemistry of the public water system and contaminant(s) of concern and is of sufficient design and capacity for the particular application. (11-17-05)T

iii. Information relating to how other drinking water dispensing units, such as instant hot water dispensers and refrigerator water and ice dispensers, whose primary function is to provide drinking water, will be provided with treated water. If water is transported from a POU treatment device to another drinking water dispensing unit, the conducting tube shall be of non-reactive material. (11-17-05)T

iv. For non-transient non-community water systems and transient non-community water systems, demonstration that the drinking water dispensing units are located in areas adequate to protect public health. (11-17-05)T

v. Demonstration that all POU treatment devices are owned, controlled, and maintained by the public water system or by a vendor of POU treatment devices under contract with the public water system. (11-17-05)T

vi. A sampling plan identifying the location of all service connections and demonstrating how the system will ensure that all POU treatment devices are sampled for compliance with the contaminant(s) being treated during every compliance period or at a frequency designated by the state. (11-17-05)T

vii. Documentation that a customer at each service connection has agreed to installation and use of a POU treatment device and has granted access for installation, maintenance, and sampling. (11-17-05)T

viii. A plan that describes how the public water system will address any non-compliance with Subsection 450.02.d.vii. (11-17-05)T

ix. A maintenance plan that demonstrates how on-going maintenance activities will be performed and on what frequency, including: frequency of treatment media replacements, frequency of POU treatment device replacements, periodic verification that the mechanical warning device is functional, schedule of planned maintenance activities, plan of how the system will address unscheduled maintenance problems, and a plan and method of waste disposal. (11-17-05)T

x. Documentation that the system meets the current requirements for a certified operator pursuant to Section 554. (11-17-05)T

xi. A plan for on-going education and outreach to the customers of the public water system, including rental customers, on POU treatment and health effects of the contaminant(s) of concern. (11-17-05)T

xii. A plan for how the system will ensure real estate disclosures for the POU treatment system. (11-17-05)T

xiii. A statement of recognition that failure to maintain compliance with the MCL, or the failure to operate and maintain compliance with a POU treatment system as approved by the Department, may necessitate installation of centralized treatment. (11-17-05)T

**e.** Within thirty (30) days of installing the approved POU treatment system, the public water system shall notify the Department in writing that the POU treatment system was installed as approved by the Department. (11-17-05)T

**f.** Within thirty (30) days of installing the approved POU treatment system, the public water system shall submit samples from each POU treatment device to a certified laboratory for the contaminant(s) being treated by the POU treatment device. The samples shall be used to demonstrate initial compliance with the MCL. (11-17-05)T

**g.** The water system owner or operator must maintain records for a POU treatment system. Records shall be submitted to the Department at a frequency and in a format specified by the Department. Records to maintain shall include: (11-17-05)T

i. Requirements of Subsection 450.02.d.; (11-17-05)T

ii. All sampling performed on the POU treatment devices; (11-17-05)T



- iii. Maintenance logs and schedules; (11-17-05)T
- iv. Log of installed units; and (11-17-05)T
- v. Contracts, lease agreements, or other legal documents with vendors and consumers. (11-17-05)T

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## Appendix C: Example of Reporting Letter

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[Date]

Department of Environmental Quality

ATTN: [contact name]

[Regional Office Address]

[Regional Office City, State, Zip]

RE: Point of Use Quarterly Compliance Report for [System Name]

Dear [contact name]:

[System name's] point of use devices are functioning and being maintained in accordance with the plan submitted to and approved by the Department.

The following issue(s) was/were encountered and addressed as described:

- 1) [insert description of the problem and resolution]
- 2) [insert description of the problem and resolution]

If you have any questions or concerns, please contact [insert name and phone number for water system contact].

Sincerely,

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## Appendix D: DEQ and Health District Contact Information

Idaho DEQ Coeur d’Alene Regional Office 2110 Ironwood Parkway Coeur d’Alene, ID 83814 (208) 769-1422	Panhandle Health District (HD1) 322 Marion Sandpoint, ID 83864 (208) 265-6384
Idaho DEQ Lewiston Regional Office 1118 F. Street Lewiston, ID 83501 (208) 799-4370	North Central District Health (HD2) 215 10 <sup>th</sup> Street Lewiston, ID 83501 (208) 799-3100
Idaho DEQ Boise Regional Office 1445 North Orchard Boise, ID 83706 (208) 373-0550	Southwest District Health (HD3) 920 Main Street Caldwell, ID 83605 (208) 455-5403
	Central District Health (HD4) 707 North Armstrong Place Boise, ID 83704 (208) 327-7499
Idaho DEQ Twin Falls Regional Office 1363 Fillmore Twin Falls, ID 83301 (208) 736-2190	South Central District Health (HD5) 1020 Washington Street N. Twin Falls, ID 83391 (208) 734-5900 x 217
Idaho DEQ Pocatello Regional Office 444 Hospital Way #300 Pocatello, ID 83204 (208) 236-6160	Southeastern District Health (HD6) 1901 Alvin Ricken Drive Pocatello, ID 83201 (208) 233-9080 x 320
Idaho DEQ Idaho Falls Regional Office 900 Skyline, Suite B Idaho Falls, ID 83402 (208) 528-2650	Health District Seven (HD7) 254 “E” Street Idaho Falls, ID 83402 (208) 523-5382

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