

Point-of-Use and Point-of-Entry Treatment Guide for Small Public Water Systems

South Dakota Department of
Environment and Natural Resources



Protecting South Dakota's Tomorrow ... Today



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SOUTH DAKOTA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES

DRINKING WATER PROGRAM

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INTRODUCTION

Small public water systems faced with challenges associated with removing naturally occurring contaminants from potable water supplies often find the path to compliance challenging. Prior to 1996, all water systems were required to use centralized treatment systems for the removal of naturally occurring contaminants. The 1996 Amendments to the Safe Drinking Water Act (SDWA) removed the prohibition on using point-of-use (POU) and point-of-entry (POE) treatment devices for small public water systems in order to achieve compliance with some of the maximum contaminant levels (MCLs) established under the *National Primary Drinking Water Regulations*. These amendments have expanded the options small water systems may use to meet treated water standards for naturally occurring contaminants.

The Safe Drinking Water Act (SDWA) allows small public water systems to employ point-of-use (POU) or point-of-entry (POE) treatment devices as a means for compliance with drinking water maximum contaminant levels (MCL). This document will provide assistance to water systems in exploring POU/POE treatment options, as their means of compliance, in structuring a program that will meet South Dakota Department of Environment and Natural Resources safe drinking water requirements.

The State recognizes that POU/POE may be an attractive compliance option for many small water systems and supports the use of POU/POE treatment where appropriate, provided the program established by a water system provides the level of public health protection required in the SDWA. The Department will review each system's desire to use a POU/POE program on a case-by-case basis taking into consideration the number of service connections, the population being served, contaminant of concern, proposed treatment processes, and a system's overall ability to carry out such program.

POINT OF USE (POU) AND POINT OF ENTRY (POE) DEFINITIONS, REQUIREMENTS, LIMITATIONS AND RESTRICTIONS

POU and POE treatment devices rely on many of the same treatment technologies used in centralized treatment plants. However, while centralized plants treat all water distributed to consumers to the same level, POU and POE treatment devices treat only a portion of the total flow. A POU device treats only the water intended for direct consumption (drinking and cooking), typically at a single tap or a limited number of taps, while a POE device treats all the water entering a single home, business, school, or facility. Ultimately, POU or POE treatment devices may be an option for public water systems where central treatment is not affordable.

The EPA and State have not approved these types of devices for treatment of microbials, microbial indicators, or any treatment technique for surface water and ground water under direct influence of surface water systems. Specifically, POU devices are not approved technologies for the treatment of nitrate, nitrite, or VOC's. Water systems choosing to use POU devices as a means of compliance are required to provide education to the consumer to discourage consumption from any non-treated tap used for human consumption.

This guidance document outlines the technical, operational and managerial issues involved with implementing a POU or POE treatment strategy. It describes the types of contaminants that POU and

POE devices can reduce or remove and offers recommendation on how to select, install, operate, maintain, and monitor this equipment. The guidance document and policy intends to be a means of compliance for very small community water systems, but non-community water systems may find information in this document useful.

A. TYPES OF POINT OF USE TECHNOLOGIES

There are several types of POU and POE drinking water technology identified as *Small System Compliance Technologies (SSCTs)*. The water system is responsible for selecting an appropriate device that will provide the most effective treatment for their source water characteristics.

Available POU technologies are identified on the next page in **Table 1: Selection of Approved POU Small System Compliance Technologies (SSCTs)**, and include membrane processes such as reverse osmosis (RO), adsorption technologies like ion exchange (IX) or activated alumina (AA), in addition to distillation processes.

TABLE 1: Selection of Approved POU/POE Small System Compliance Technologies (SSCTs)
(Portions selected from EPA's *Point of Use or Point of Entry Treatment Options for Small Drinking Water Systems*, April 2006.)

TREATMENT TECHNOLOGY	CONTAMINANTS OF CONCERN													
	Arsenic	Copper & Lead	Fluoride	Nitrate	SOC's	Radium	Uranium	Antimony	Barium	Beryllium	Cadmium	Chromium	Selenium	Thallium
Activated Alumina (AA)	SSCT		X				X							
Distillation ¹	X	X		SSCT										
Granular Activated Carbon (GAC)					SSCT									
Ion Exchange (IX)	X			SFI										
Anion Exchange (AX)	X			SFI			SSCT	SSCT				SSCT	SSCT	
Cation Exchange (CX)		SSCT				SSCT			SSCT	SSCT	SSCT			SSCT
Reverse Osmosis (RO)	SSCT	SSCT	X	SFI		SSCT	SSCT	SSCT	SSCT	SSCT	SSCT	SSCT	SSCT	SSCT
Specialty Medias (SM) ²	X													

¹ Large device size is not suitable for installation under the sink and has limited production capability, typically under 10 gallons/day.

² Such as iron-, aluminum-, or titanium-dioxide-based media

SSCT = Treatment technology has been identified by EPA as an SSCT (Federal Register, Volume 63, No. 151, August 6, 1998).

SFI = Treatment technology has been suggested to receive further investigation for the listed contaminant (Federal Register, Volume 63, No. 151, August 6, 1998); anion exchange for nitrates is not currently recommended.

UI = Treatment technology is under investigation; even though EPA continues to investigate the use of POU/POE AA treatment, the preliminary view of treatability data indicates that it is effective

X = Treatment technology can remove the noted contaminant, but is not listed as an SSCT in the Federal Register or in a rule.

B. KEY POINT OF USE (POU) AND POINT OF ENTRY (POE) REQUIREMENTS

The Safe Drinking Water Act (SDWA) and the National Primary Drinking Water Regulations (40 CFR 142) regulate the design, management, and operation of POU/POE treatment units used to achieve compliance with an MCL. The State of South Dakota implements the use of POU/POE devices consistently with all federal and state laws and regulations. As such, the State requires the water system to provide sufficient information before the Department will approve a long-term POU/POE Operations, Maintenance and Monitoring Program (OMMP) as a means of compliance with regulatory provisions.

- 1) A public water system must obtain written approval from the Department prior to installing POU/POE treatment devices as a means of achieving compliance with an MCL.
- 2) A community water system is required to ensure 100% customer participation prior to the installation of any POU/POE treatment devices approved by the Department as a means of compliance.
- 3) The water system must own, control, and maintain the POU/POE 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.
- 4) All POU/POE devices must have a performance indication device (PID) which alerts the user when the unit is no longer meeting treatment standards. The PID must provide an automatic and effective means to warn the customer when the system is no longer operating effectively. The PID must be capable of providing a visual or auditory alert and calibrated to signal the customer when the POU/POE device is reaching its exhaustion stage. This will allow the water system sufficient time to receive notification from customers of the PID alert and perform maintenance to return the device to effective operation before the unit begins dispensing water that does not meet a drinking water standard.
- 5) When selecting a POU/POE device, water systems should ensure that the unit is appropriately certified. *Please see page 11 for additional information on standards and certifications.*
- 6) If using a POE device, water systems must ensure the device provides treated water to all water delivery lines within the household. Any outdoor spigots or hose-bibs used for watering or irrigation purposes shall be exempt from this requirement.
- 7) A public water system must demonstrate capability for long-term operation and maintenance of the POU/POE treatment system.
- 8) Certification of performance, field-testing, and a rigorous engineering design review of the POU/POE device, if not included in the certification process, is required.
- 9) The system must assure the Department that new residential units or buildings connected to the water system have sufficient POU/POE devices and properly installed, maintained and monitored for customer protection.

C. POINT OF USE (POU) AND POINT OF ENTRY (POE) RESTRICTIONS

To protect the integrity of the POU/POE treatment strategy and maintain compliance, the following items are required of all treatment programs:

- 1) The public water system may not delegate ownership, maintenance, or control to the customers or homeowners.
- 2) The use of POU/POE treatment devices for the treatment of volatile organic contaminants (VOCs) are prohibited, since POU/POE devices do not provide adequate protection against exposure through inhalation or contact with skin to these contaminants at untreated taps.
- 3) Microbial and nitrate contaminants are acute contaminants meaning that consuming water with these contaminants may cause illness shortly after ingestion. Under some conditions, the Department may consider the use of POU treatment technology for nitrate removal in non-community water systems, but additional requirements will be necessary to ensure public health and safety.

PLANNING FOR A POU OR POE TREATMENT SYSTEM

Implementing any major treatment process requires considerable planning. POU/POE treatment strategies include some unique considerations that are critical to the success of the program. As such, water systems should not consider POU/POE devices without careful consideration of all requirements and potential liabilities. The water system will need to evaluate the following areas to determine if a POU/POE policy is right for the system:

- Capital Cost Evaluations
- Operational and Maintenance Evaluations
- Addressing Previous Non-compliance or Deficiencies
- Public Outreach, Coordination and Negotiation

A. CAPITAL COST EVALUATION

Costs associated with POU/POE systems include the initial capital costs as well as operations and maintenance 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 POU/POE devices, adding pretreatment if necessary, and adding any necessary pre-filtration.

Financing a POU/POE Operations, Maintenance, and Monitoring Program can be a significant obligation; therefore, the water system should begin the evaluation process by analyzing the life cycle costs of centralized and POU/POE treatment options. A POU/POE Operations, Maintenance, and Monitoring Program will tend to have a lower capital cost, a larger O&M cost per customer served, and more extensive management requirements than a centralized treatment system. While the low capital cost of a POU/POE treatment system may be appealing, a water system should not make a conclusion based on the preliminary cost

estimates alone. The Department suggests a 20-year life cycle cost analysis, which may consist of capital, operational, management, and maintenance expenditures.

For preliminary estimates on POU/POE costs, the water system can download a cost estimating Excel spreadsheet tool from the EPA website under the section “Treatment Options – Install Point-of-Use (POU) or Point-of-Entry (POE) Treatment” at the following link:

<http://water.epa.gov/type/drink/pws/smallsystems/compliancehelp.cfm>

For estimates of a long term, sustainable and compliant POU/POE program, assumptions in the spreadsheet should to reflect expected conditions and operations of a POU/POE program for a water system such as compliance monitoring frequency of a least one third of all devices each year in accordance with the Departments minimum expectations.

B. OPERATIONAL AND MAINTENANCE COSTS EVALUATION

Operation and maintenance (O&M) costs are the expenses associated with maintaining a working system such as sampling, labor, service contracts, recordkeeping, treatment chemicals, waste disposal, liability insurance, and other administrative functions. In order for a water system to be aware of the costs associated with implementing such a program it must evaluate the following areas:

Maintenance Frequency – The maintenance frequency will depend on site-specific conditions and the technology type used. Maintenance will include replacement components (such as replacement cartridges) and labor. Labor costs typically consist of system personnel (a certified operator and clerical staff) or an individual under contract with the system to perform maintenance. Labor will include coordinating arrangements for maintenance calls in addition to performing the maintenance call. A device that requires frequent maintenance visits may result in substantial O&M costs.

Emergency Maintenance Contingencies – The calculation of maintenance costs should also take into account unanticipated service calls to address leaks and other repairs. A service call by a local vendor or representative, are often charged by the hour (traveling time and repair time) and can represent additional expense to the POU/POE unit owner.

Monitoring Frequency – Monitoring costs consist of laboratory analyses costs and labor. Labor costs typically consist of system personnel (a certified operator and clerical staff) or individual under contract with the system to perform monitoring. Labor will include arranging for the monitoring site visit and collecting the required water samples. A device that requires frequent monitoring may result in substantial O&M costs.

Residual Disposal – In some instances, the system may have to develop a new waste disposal system to accept the waste from devices, such as a reverse osmosis (RO) devices and ion exchange (IX) devices that regenerate automatically. The system will probably experience ongoing costs for the O&M of the waste disposal system.

Public Education – The system should provide continued public education to customers and have someone available to answer questions. The system must also educate new customers on the POU/POE devices and their functionality.

Insurance Costs – The system may need to obtain additional insurance to cover itself and employees for POU/POE devices installed inside a private residence. The system should have adequate coverage in the event personal property is damaged (such as POU/POE device that leaks and damages floorings or wall coverings).

C. ADDRESSING PREVIOUS NON-COMPLIANCE OR DEFICIENCIES

Implementing POU/POE devices as a treatment strategy presents challenges different from, and in addition to, those of operating centralized treatment, include:

- 1) The increased operation and maintenance associated with POU/POE may limit the time dedicated to normal operations and to correcting other existing, unresolved problems.
- 2) Managing POU/POE devices may complicate existing operational problems for the water system.
- 3) Existing operational problems may prevent the water system from implementing a POU/POE Operations, Maintenance, and Monitoring Program successfully.

For example, a water system that currently experiences high leakage rates in its distribution system and plans to use reverse osmosis POU/POE treatment units in conjunction with centralized pressure booster station may experience increased losses or more frequent distribution system line breaks following the installation and implementation of the POU/POE Operations, Maintenance, and Monitoring Program.

To overcome these challenges, the water system must have the managerial capacity to handle present water system operations, monitoring, and treatment issues successfully. The Department requires that all outstanding monitoring/reporting violations and significant deficiencies identified through sanitary surveys be resolved before implementing a POU/POE Operations, Maintenance, and Monitoring Program.

Meeting the monitoring requirements for POU/POE operation is crucial to ensuring public health protection. A water system should carefully consider its' strategies that are implemented to ensure compliance with all monitoring requirements. Water systems should contact the Department to discuss concerns about their compliance history.

Water systems must review previous sanitary survey reports, identify unresolved significant deficiencies and work to correct them. The water system is encouraged to communicate with the Department on resolving outstanding deficiencies, violations and other unresolved issues.

Water systems that have difficulty operating their existing centralized treatment and/or distribution system, or have a history of not complying with the required monitoring/reporting requirements may not be candidates for implementing a POU/POE Operations, Maintenance, And Monitoring Program unless the devices themselves will correct the violations or deficiencies. The Department, on a case-by-case basis, will review all exceptions.

D. PUBLIC OUTREACH, COORDINATION, AND NEGOTIATION

Customer participation is a critical component for successfully implementing a POU/POE treatment strategy. At no time is the homeowner allowed to bypass any treatment device used as a means of compliance. The water system will need to open a dialog with customers in order to explain the POU/POE program, water system responsibilities and customer responsibilities. Customer support is critical especially if a service agreement or ordinance change is required to support POU/POE. Public education will help a water system to achieve the customer support needed.

E. CUSTOMER PARTICIPATION AND ACCESS AGREEMENTS

A community water system is required to ensure 100% customer participation prior to the installation of any POU/POE treatment devices approved by the Department as a means of compliance. This will require the system to provide a notarized, signed letter from every homeowner/user stating they are aware of the health issue surrounding drinking untreated water, that they support the use of POU/POE devices as a compliance strategy, and they will allow system representatives to enter their home to install and maintain the device. Granting access to the POU/POE devices through access agreements with each customer is necessary. Access agreements are legal documents and should be prepared and/or review by the systems' attorney.

The Department recommends considering the following key issues when drafting the agreement:

1. THIRD PARTY SERVICE CONTRACTS

A water system using a third party service provider for maintenance and operations of the POU/POE device must submit a copy of the service contract which clearly delineates responsibilities, liabilities, indemnities and explicitly stated duties concerning O&M of devices between the water system and service provider. However, the water system is ultimately responsible for meeting all regulatory requirements.

2. INSURANCE

The water system must have warranties on all of the POU/POE devices and insured against incidental damages, failures and other problems associated with the installation, operation and maintenance of the devices in the customer's homes. The water system must submit a copy of relevant insurance documents to the Department during the approval process. Water systems without insurance or warranties may submit an explanation to the Department for review. The Department will review each explanation, on a case-by-case basis of how the water system will be covered and protected from POU/POE device failures.

Liabilities associated with POU/POE systems include, but are not limited to, property damage from device failure or leakage and situations where homeowners may refuse entry for maintenance. Since POU/POE treatment is relatively a new strategy for compliance in water systems, other liabilities may become evident through time. The cost 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, property damage during installation, etc. Water systems may

be able to minimize their liability through properly developed access agreements. Water system operators or contractors will be entering the homes; therefore, bonding of personnel may be a consideration.

3. LEGAL CONSIDERATION

Public water systems will incur costs associated with hiring an attorney to draft and/or review access agreements. There may be additional costs for review or assistance in drafting ordinances, and/or codes, covenants and restrictions. While not comprehensive, the Department offers the following recommendations when drafting agreements:

- a) An additional legal consideration may include ensuring disclosure of the POU/POE treatment system during real estate transactions, which includes both the sale of the water system and the sale of individual homes. Homeowners are ultimately responsible for disclosing the POU/POE treatment information, but the water system will need to provide printed education materials and a blank access agreement for the homeowner. Water systems will be required to notify new homeowners of the policy, to reduce the likelihood of non-compliance.
- b) The Department recommends the water system obtain legal advice before enacting an ordinance or service agreement change and the liabilities, legalities, responsibilities, etc. that would be held by both the customers and the water system. A property owner's responsibilities should be contained in the title of the property so subsequent owners understand and agree to the requirements attached to the POU/POE devices.
- c) The water system should also consider what legal responsibilities the water system holds during installation, operation and maintenance of devices. For example, depending on what county a water system is in, a certified and licensed plumber, electrician or other professional may be required to install POU/POE devices. In addition, if a customer's plumbing, cabinetry, drywall, electrical, etc. is modified incorrectly or damaged by a third party contracted by the water system to install the devices, the water system may be ultimately responsible for damages related to device installation and for correcting improperly installed devices.

When working with individuals for access, the water system may expect to experience some resistance. The water system will need to plan for and address any situation where a customer refuses reasonable access for maintenance and sampling. For example, the water system may need to discontinue service to or fine customers who refuse reasonable access for maintenance or sampling, or for tampering with or bypassing the POU/POE device. In some cases, the water system may need to work with the local government to pass an ordinance granting the water system the authority to manage non-complying customers effectively. The issuance of an ordinance for the POU/POE Operations, Maintenance, and Monitoring Program may require the modification of existing ordinances. As an example, some governmental agencies require developed lots within a specific boundary to connect to centralized water and sewer collection systems. An existing ordinance such as this may need revision to allow the water system to discontinue service for non-participation in the POU/POE Operations, Maintenance, and Monitoring Program.

F. CUSTOMER EDUCATION AND OUTREACH

The water system will need to involve the customers in the POU/POE Operations, Maintenance, and Monitoring Program process to ensure full participation and understanding. Continuing education is essential to the success of POU/POE treatment systems.

After the installation of a POU/POE treatment system, systems will need to continue providing education to ensure that all customers have been informed and educated on using the POU/POE system for their drinking water. It is critical to communicate clearly to customers that there will be or could 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 is likely are educated on the use of the POU/POE treatment device.

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

- 1) Inform customers of the water system's proposal to use POU/POE treatment. Water systems can achieve this through homeowners' association meetings, town meetings, and/or mailings.
- 2) Long-term outreach and education, provided to the customer, usually in the form of printed materials. Outreach recipients must include consumers in rental homes also.
- 3) Scheduling of maintenance activities, including routine and emergency maintenance and sampling should be coordinated to reduce additional visits and cost. Water systems can inform customers, in advance, of when maintenance or sampling activities will likely take place.

G. TRANSFER OF EXISTING POU OR POE TREATMENT DEVICES

In instances where some households already have existing devices installed, the system will need to verify if existing units provide the desired level of treatment, are equipped with the required performance-indicating device (PID) or warning alarm, and are in an acceptable condition for the water system.

Provided the water system chooses to use the existing devices, the water system will need to provide documentation showing the transfer of ownership from the homeowner to the water system. If the water system does not approve of the device or feels the device is not in an acceptable condition for acceptance, the water system must work with the customer to arrange for a replacement unit.

DEPARTMENT APPROVAL

During the Department's approval process, the water system will be required to provide documentation that the owner or owner's legal representative at each service connection has agreed to installation and use of the POU/POE device and has granted access for installation, maintenance, and sampling. Documentation provided to the Department could be as simple as a list of addresses/connections served by the water system with a certification indicating all customers have entered into access agreements.

The water system will need to provide documentation of the following:

- ✓ Application for Point of Use Treatment Technology
- ✓ Point-Of-Use Device Information
- ✓ Water Chemistry Information
- ✓ The manufacturers printed specification, including ANSI/NSF certification and any requirements for source water characterization.
- ✓ Written description of how other drinking water units will be provided with treated water i.e., instant hot water and refrigerator water/ice dispensers.
- ✓ Documentation that demonstrates that the public water system owns, controls, and maintains the POU/POE treatment system such as agreements, contracts, etc.
- ✓ A map and/or other documentation of the system with a sampling plan identifying the location of service connections.
- ✓ An access agreement, signed by each customer authorizing access to the treatment devices. The Department advises access agreements be drafted by and reviewed by the public water system's attorney.
- ✓ Copies documenting the customer at EACH service location has agreed to installation, use, maintenance, and sampling.
- ✓ A written plan on how the system will address non-compliance of access, installation, maintenance, and sampling of the POU/POE devices.
- ✓ A written plan for routine and emergency maintenance, the replacement of parts and devices, and periodic verification assuring 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/POE treatment and health effects of contaminants of concern (Include proposed frequency and language given to customers).
- ✓ A written plan on how the system will disclose the use and maintenance of POU/POE devices for compliance during real estate transactions.
- ✓ For non-community systems only: demonstration that the POU/POE locations are adequate to protect public health.

A. SELECTION OF POU AND POE DEVICES

When selecting an appropriate POU/POE device, it is the water system's responsibility to select the best treatment devices based on the system's current water chemistry, pilot testing, standards, and certifications, and identify several types of POU/POE treatment devices for different contaminants.

B. PILOT TESTING

The POU/POE device selection for pilot testing may be the most critical step in the process toward implementing a POU/POE OMPP. The POU/POE device may influence long-term management issues such as the ease of installation, maintenance schedules, waste generation, compliance sampling and pre/post treatment requirements. Pilot testing will involve selecting suitable POU/POE devices followed by pilot testing of the selected devices under field

conditions. Field evaluations will facilitate the development of maintenance schedules and allow the water system to evaluate the POU/POE device efficacy.

C. STANDARDS & CERTIFICATIONS

The Safe Drinking Water Act requires that water systems installing POU/POE treatment devices as part of a compliance strategy use POU/POE devices that are independently certified to relevant, published American National Standards Institute (ANSI) and NSF International (NSF) product standards (now referred to as ANSI/NSF standards). The ANSI/NSF standards that apply and relative to POU/POE drinking water treatment devices in public drinking water supplies are:

- Standard 42: *Drinking Water Treatment Units – Aesthetic Effects*
- 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*

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. Water systems may find additional product information, regarding certification at the following web address <http://www.ansi.org/>.

NSF International (NSF) – NSF International 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/POE treatment devices, which allow customers to verify product claims made by manufacturers. NSF also accredits and audits other independent laboratories, such as Underwriter’s Laboratories and Water Quality Association. The basic requirements of certification include verifying or ensuring the following:

- The manufacturer’s claims of contaminant reduction
- That the system does not add anything harmful to the water
- That the system is structurally sound
- That the literature, advertising, and labeling is accurate and not misleading
- That the materials and manufacturing processes used to produce the system are not changed.

Water systems may find additional information, including product selection and a manufacturer’s database, at the following web address <http://www.nsf.org/>.

Underwriters Laboratories, Inc. (UL) – UL is independent, non-profit product safety and certification organization that test products, including drinking water treatment devices, for safety. Underwriters Laboratories, Inc can test and certify POU/POE treatment

devices in accordance with ANSI/NSF standards. Water systems may find a list of manufacturers at the following web address <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 devices meeting ANSI/NSF standards. Water systems may find a list of manufacturers at the following web address <http://www.wqa.org/>.

D. PERFORMANCE INDICATOR DEVICE (PID)

POU/POE devices used in public drinking water systems must have a means so devices automatically notify customers of operational problems. Each device must be equipped with an automatic mechanical warning mechanism such as a light or an alarm. In some cases, an automatic shut-off of the treated water can meet the requirement for an automatic mechanical warning mechanism. The 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.

E. WATER CHEMISTRY

Each POU/POE treatment unit has unique performance characteristics for specific site conditions. The characteristics of a water system's raw water will determine the appropriate POU/POE treatment technology. Manufacturers will ordinarily specify the range of raw water characteristics for which their equipment is suited. A treatment technology that is effective in treating a particular contaminant in one community water system may not necessarily be effective in another.

It is important for water systems to first establish the seasonal raw water extremes and then select a suitable POU/POE treatment device for those specific characteristics. While various products may treat the site-specific raw water, each product's useful life may vary significantly depending on specific water characteristics. In some instances, it may be necessary to install pretreatment devices to extend the longevity of the POU/POE treatment devices.

There are raw water characteristics that will help in evaluating the effectiveness of the POU/POE technology, such as inorganic constituents, including total dissolved solids (TDS), and pH. Water systems should choose a POU/POE treatment technology based on the worst-case water characteristics and highest water usage patterns.

Following are a couple examples of how raw water chemistry may affect POU/POE devices:

- For reverse osmosis (RO), TDS greater than 1,000 parts per million (ppm) and/or silica can limit membrane effectiveness and longevity. Pre-softening of such water may be required.
- For ion exchange (IX), the competition of ions for exchange sites on the resin can have a serious impact on the efficiency of the treatment devices. Some waters may not lend themselves to IX treatment without prior softening. Magnesium, copper, and iron may also foul IX equipment. Pre-softening may present challenges too, and water systems should discuss these challenges with the vendor.

F. AVAILABLE POU AND POE TREATMENT TECHNOLOGIES

Water systems can find a list of available POU/POE treatment technologies in **Table 1: Selection of Approved POU/POE Small System Compliance Technologies (SSCTs)**, which was adapted from EPA's *Point-Of-Use or Point-of-Entry Treatment Options for Small Drinking Water Systems, April 2006*.

INSTALLATION, MAINTENANCE, & MANAGEMENT

The following will provide information and guidance to assist with the installation process of POU/POE treatment systems, the routing of treated water to other drinking water dispensing units, device inspection requirements, and notifications to the Department.

It is the responsibility of the water system to ensure that existing plumbing is equipped with accessible water shut-off valves in the event of an emergency and adequate space to accommodate the installation of the POU/POE devices. The water system can likely identify and address installation issues before or during initial customer outreach. The water system should inquire with the homeowner or customer to determine if they have refrigerator water dispensers and/or hot water dispensers as well as any special considerations related to timing of the installation.

A. INSTALLER'S QUALIFICATIONS

The water system, or any individual contractor or vendor hired by the system, will install POU/POE devices in accordance with current plumbing codes adopted by the South Dakota Plumbing Commission. For additional information regarding installation requirements, please contact the South Dakota Plumbing Commission, Pierre, SD at 605-773-5405.

B. ROUTING TREATED WATER

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

If water from a POU/POE treatment device, is directed to another drinking water dispensing unit, the conducting tube shall be of non-reactive material. Otherwise, as part of its educational campaign or program, the water system must inform its customers to manually make ice or heat water using the treated water from the POU/POE device.

C. POU AND POE DEVICE INSPECTION

The Department recommends conducting a post-installation inspection or follow-up inspection to monitor devices for leaks or other mechanical issues after installation. This could be as simple as providing the homeowner or customer with an emergency number to notify the water system of a discovered leak.

D. NOTIFICATION TO THE DEPARTMENT

Within 30 days of installing the approved POU/POE treatment devices, the water system shall notify the Department in writing that installation is complete.

E. POU AND POE TREATMENT SYSTEM MANAGEMENT

Public water systems are ultimately responsible for the success or failure of implementing a POU/POE treatment system, even if installation and maintenance of the devices is contracted to a third party vendor. The Department prohibits a water system from delegating any operation or maintenance directly to a homeowner.

Proper system management is critical to the success of a water system implementing a sound POU/POE program. Areas typically addressed include operator and system classification, sampling, maintenance, waste handling, customer education, and recordkeeping requirements.

F. OPERATOR AND SYSTEM CLASSIFICATION

As required under the South Dakota Operator Certification Law each water system must be under the direct supervision of an operator certified at the appropriate level. State statutes and regulations, require all process control or water system integrity decisions regarding water quality or quantity affecting public health are to be made by a certified operator. It also requires that either the designated operator in responsible charge or another operator certified at the level of the water system must be available at all times the water system is in operation. "Available" means the designated operator must be either on-site or can be contacted as needed so that necessary decisions are made in a timely manner.

For questions regarding water system classification, operator certification requirements, or certification examination availability, please contact Mr. Rob Kittay at (605) 773-4208 or visit the following website at <http://denr.sd.gov/des/dw/opcertqa.aspx>.

COMPLIANCE AND PERFORMANCE MONITORING

Water systems must obtain Department approval of a monitoring plan that ensures that the devices provide health protection equivalent to that provided by centralized water treatment. Sampling of the water provided by the POU/POE system shall be required both after initial installation and on a routine basis.

A. INITIAL COMPLIANCE SAMPLING

Within 30 days after the installation of devices, water systems are required to sample every tap installed with a POU/POE device for the contaminant of concern. A State or EPA certified laboratory must perform drinking water analyses to demonstrate initial compliance with treatment requirements for the contaminant of concern. Water systems will be required to sample any future device within 30 days of installation.

B. ROUTINE COMPLIANCE SAMPLING

Routine compliance sampling for the contaminant of concern is required for each device once during every compliance period (normally every three years for ground water systems) or at a frequency specified by the Department. To accomplish this, the Department will schedule one third of the devices be sampled annually. Provided a water system samples all devices during a compliance period, the Department may consider an alternate sampling schedule proposed by the system.

A State or EPA certified laboratory must perform drinking water analyses for all compliance samples. For efficiency, the water system should schedule routine compliance sampling in conjunction with regularly scheduled maintenance.

C. FIELD SAMPLING

Field test kits are available for various contaminants, such as arsenic. Results from field samples can determine if the POU/POE devices are working adequately. The water system may want to record the results of field sampling in the maintenance logs kept by the system. The Department does not require the system to report the results; however, we may review them during a sanitary survey. For any field test kits used by the system, the system should include the calibrating plan for the field-testing equipment in the system's Operation and Maintenance Manual. **Field samples may not replace regular compliance samples analyzed by a State or EPA certified laboratory.**

The type of field sampling needed depends on the type of treatment device and/or contaminant-of-concern. 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, must be calibrated periodically according to the manufacturer's recommendation, and the calibration method may be evaluated by the Department during sanitary surveys.

NOTE: Compliance sampling conducted at the device is ONLY for the regulated contaminants the device treats. Systems will continue to monitor at the frequency and location (entry point or distribution system) normally required for all other contaminants. The Department will inform a system in writing if any changes to an existing sampling plan will be required from the installation of a POU/POE treatment device.

D. RECORDKEEPING AND REPORTING

Public water systems utilizing POU/POE treatment as a compliance strategy will be required to keep and maintain records associated with managing a POU/POE treatment system. The water system must maintain all records pertaining to the POU/POE treatment system, including analyses and all contracts; maintenance records; logs of installed devices; legal documents, including insurance information; educational materials; and sampling results. The water system will maintain all records pertaining to approval of the POU/POE treatment system. The Department may request copies of these records periodically and will inspect the records and maintenance logs during site visits or sanitary surveys.

On a quarterly basis, the water system must submit maintenance logs along with a statement to the Department certifying that all devices are functioning and properly maintained. On a case-by-case basis, and at the discretion of the Department, a water system may reduce their quarterly reporting to annual reporting. If any devices are not in compliance, a water system will provide the Department with an explanation of the problem and a description of corrective actions taken to return the device to compliance.

E. WASTE CHARACTERIZATION

At a minimum, a water system should know the total quantity of liquid waste generated on average per unit of time, the ratio of liquid waste to finished water, total dissolved solids, radionuclide concentrations, pH, concurrent contaminants such as nitrate or other chemicals such as free chlorine from the liquid waste residuals. If the device setup generates other infrequent waste such as filter cartridge replacement, resin replacement, etc., the application must provide volumetric estimates of these wastes and how the wastes will be handled.

The Department may require more in depth analysis of wastes such as a spent radium specific ion exchange resin operated for continuous loading and not regeneration. The water system must also identify where liquid waste residuals from the devices will be discharged, e.g. holding tanks, individual homeowner's septic system, or community wastewater treatment lagoons.

F. WASTE HANDLING

Public water systems shall provide the Department with a written plan and method for waste disposal as part of the required maintenance plan for POU/POE devices. POU/POE devices may generate both solid and liquid waste residuals although in smaller amounts than with central treatments since the units only treat a small percentage of the water entering the home. Therefore, a water system's disposal issues and costs associated with operating POU/POE treatment devices will likely be lower.

1. SOLID WASTES

The types of solid wastes expected with POU/POE devices include: spent media, cartridges, membranes, and filters. Water systems utilizing POU/POE devices will need to dispose of various spent media possibly several times a year. Water systems will need to consult with the manufacturers to determine if spent media, cartridges, or filters are suitable for regeneration or recycling.

The State of South Dakota classifies solid wastes generated from POU/POE devices located in residential as *household wastes*. This waste stream is exempt from hazardous waste regulations under the Resource Conservation and Recovery Act (RCRA).

2. LIQUID WASTES

Liquid waste streams generated by POU/POE reverse osmosis (RO) systems and POE Ion Exchange (IX), Granular Activated Carbon (GAC), and adsorptive media systems if backwashed or regenerated, produce a small amount of waste brine with high contaminant concentrations as part of the treatment process.

Currently, water systems can discharge liquid wastes generated from POU/POE devices to a central wastewater treatment system, such as lagoons, or individual residential septic tanks.

The quantity and characteristics of residual wastes will vary based on the treatment technology used, contaminant(s) removed, source water characteristics, and other site-specific operational conditions. Water systems should complete pilot tests to assess the quantity and quality of residual wastes generated.

All waste disposal activities must comply with local, State, and Federal regulations, laws, and permitting requirements. Water systems should keep in mind, the potential for changes in future waste disposal regulations to become more stringent. If this occurs, water systems will be required to re-evaluate how the system handles specific wastes generated from the POU/POE devices.

TABLE 1: Selection of Approved POU AND POE Small System Compliance Technologies (SSCTs)

(Portions selected from EPA's *Point of Use or Point of Entry Treatment Options for Small Drinking Water Systems, April 2006.*)

TREATMENT TECHNOLOGY	CONTAMINANTS OF CONCERN													
	Arsenic	Copper & Lead	Fluoride	Nitrate	SOC's	Radium	Uranium	Antimony	Barium	Beryllium	Cadmium	Chromium	Selenium	Thallium
Activated Alumina (AA)	SSCT		X				X							
Distillation ¹	X	X		SSCT										
Granular Activated Carbon (GAC)					SSCT									
Ion Exchange (IX)	X			SFI										
Anion Exchange (AX)	X			SFI			SSCT	SSCT				SSCT	SSCT	
Cation Exchange (CX)		SSCT				SSCT			SSCT	SSCT	SSCT			SSCT
Reverse Osmosis (RO)	SSCT	SSCT	X	SFI		SSCT	SSCT	SSCT	SSCT	SSCT	SSCT	SSCT	SSCT	SSCT
Specialty Medias (SM) ²	X													

¹ Large device size is not suitable for installation under the sink and has limited production capability, typically under 10 gallons/day.

² Such as iron-, aluminum-, or titanium-dioxide-based media

SSCT = Treatment technology has been identified by EPA as an SSCT (*Federal Register*, Volume 63, No. 151, August 6, 1998).

SFI = Treatment technology has been suggested to receive further investigation for the listed contaminant (*Federal Register*, Volume 63, No. 151, August 6, 1998); anion exchange for nitrates is not currently recommended.

UI = Treatment technology is under investigation; even though EPA continues to investigate the use of POU/POE AA treatment, the preliminary view of treatability data indicates that it is effective.

X = Treatment technology can remove the noted contaminant, but is not listed as an SSCT in the *Federal Register* or in a rule.

APPLICATION TO USE POU AND POE TREATMENT DEVICES FOR PUBLIC WATER SYSTEMS

Submit this application along with all supporting documentation required by the South Dakota Drinking Water Program

A. Water System Information:

Water System Name:	EPA ID Number:	Phone Number:
System Address:	State/Zip:	County:
Applicant Name & Title:	Population Served:	No. of Service Connections:
Operator in Direct Responsible Charge:	Treatment Operator Level:	Type of System:

B. POU/POE Device Information *(attach manufacturer's specifications):*

Manufacturer:	Make/Model:
Type of Process: <input type="checkbox"/> Reverse Osmosis (RO) <input type="checkbox"/> Ion Exchange (IX) <input type="checkbox"/> Other: _____	Type of Automatic Warning: <input type="checkbox"/> Warning Light <input type="checkbox"/> Alarm
Function of Mechanical Warning Device: <input type="checkbox"/> TDS Monitor (RO units) <input type="checkbox"/> Total Flow <input type="checkbox"/> Timer <input type="checkbox"/> Other (describe): _____	ANSI/NSF Standard:

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

Contaminant(s) to be Treated: <input type="checkbox"/> Arsenic <input type="checkbox"/> Gross Alpha <input type="checkbox"/> Radium 226/228 <input type="checkbox"/> Uranium <input type="checkbox"/> Fluoride <input type="checkbox"/> Other (specify): _____					
Parameter:	Results:	Unit:	Parameter:	Results:	Units:
pH			Phosphorus		
Alkalinity			Sulfates		
Barium			Silica		
Fluoride			TDS (Total Dissolved Solids)		
Hardness			Other:		
Iron			Other:		
Manganese			Other:		

D. Statement and Certification:

I understand that failure of the public water system to maintain a managed POU/POE treatment system may impact public health and can result in the requirements to install a centralized treatment system or other remedies available. _____ (initial)

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

Signature of Owner or Authorized Representative

Title

Date

E. Point-of-Use and Point-of-Entry Checklist:

Please submit the following materials for Department review and 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.

- The manufacturers 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 will be provided with treated water e.g., instant hot water and refrigerator water/ice dispensers.
- Documentation that demonstrates the public water system owns, controls, and maintains the POU/POE 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
- An access agreement, signed by each customer authorizing access to the treatment devices. The Department advises access agreement be drafted by and reviewed by the public water system's attorney.
- Copies documenting the customer at EACH service location has agreed to installation, use, maintenance, and sampling of the POU/POE devices.
- A written plan on how the system will address non-compliance of access, installation, maintenance, and sampling of the POU/POE devices.
- A written plan for routine and emergency maintenance, the replacement of parts and devices, and periodic verification assuring 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/POE treatment and health effects of contaminants of concern (Include proposed frequency and language given to customers.)
- A written plan on how the system will disclose the use and maintenance of POU/POE devices for compliance during real estate transactions.

Please Note:

1. Within 30 days of installing the approved POU/POE treatment devices, the water system shall notify the Department in writing that installation is complete.
2. Within 30 days of installing the approved POU/POE treatment devices, the public water system shall submit samples from EACH POU/POE treatment device to a certified laboratory for analysis of the contaminant treated by the device. The samples collected will demonstrate initial compliance with the maximum contaminant level (MCL).
3. The water system must maintain all records associated with a POU/POE treatment system – such as sampling, maintenance records, logs, contracts, and agreements – and report at the frequency and in a format specified by the Department.

EXAMPLE OF QUARTERLY OR ANNUAL COMPLIANCE REPORTING LETTER

[Insert Date]

SDDENR Drinking Water Program
ATTN: [contact name]
Joe Foss Building
523 East Capitol
Pierre, SD 57501-3128

RE: Point of Use (POU) or Point of Entry (POE) Annual Compliance Report for [System Name]

Dear [contact name]:

This letter is to inform you that the [system name's] point of use or point of entry devices are functioning and 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 regarding the annual compliance report for the [system's name] please contact [system's contact and phone number].

Sincerely,

[Contact Name]
[Water System Name]

EXAMPLE OF PUBLIC EDUCATION FOR CHRONIC CONTAMINANTS

Your Tap Water and Point-of-Use or Point-of-Entry Treatment Devices

Why have I received a point-of-use or point-of-entry device?

Your water system has installed a point-of-use (POU) or point-of-entry (POE) treatment device under your kitchen sink to remove chronic contaminants from your water. Treatment is necessary because contaminant levels in your source water exceed the EPA limit. Health effects from chronic contaminants vary depending on the contaminant but can include things like cancer and liver damage. These health effects occur only after chronic exposure (drinking the water over many years).

Because treatment from a centralized plan is very expensive, your system is instead providing POU or POE devices to all households. By treating only the water used for drinking and cooking, the water system can save money and pass the savings on to its customers.

What steps should I take?

Use water from the tap with the POU or POE device for drinking and cooking. In your kitchen, use the untreated tap for washing dishes and cleaning. Water from other taps in your house is NOT treated; do not use water from those taps for drinking or brushing teeth. You may use untreated water for all other activities such as bathing and laundry.

In addition, the water system needs your cooperation in order to maintain the POU devices. Maintenance ensures that the devices are working correctly and that your water is safe. Please allow water system personnel into your home to take water samples or replace devices.

If you have questions or concerns regarding your treatment device, please contact:

Example Ordinance for a System Implementing a POU or POE Compliance Strategy

The following example ordinance systems may want to use in order to grant the PWS the ability to implement a POU or POE treatment strategy. The ordinance also grants the PWS the ability to access private dwellings for installation, monitoring, maintenance, and other activities related to POU and POE devices. This example ordinance is overly inclusive in order to cover situations that could arise due to the implementation of a POU or POE treatment strategy. Some sections may not apply to specific systems because of current service agreements; specific administrative or legal process requirements; or other geographic, political, or financial constraints. As indicated previously, water systems should seek legal assistance prior to preparing and ordinance for the system.

EXAMPLE ORDINANCE

Section 1: Introduction

1. In accordance with the federal Safe Drinking Water Act and State drinking water regulations, INSERT NAME OF PUBLIC WATER SYSTEM must minimize contamination in drinking water. It is the intent of the INSERT NAME OF PUBLIC WATER SYSTEM to accomplish this through the installation and operation of INSERT TYPE OF TREATMENT UNIT THAT WILL BE INSTALLED, which INSERT NAME OF BODY PASSING THE ORDINANCE has determined is the most protective and cost efficient way of meeting drinking water standards.

Section 2: Purpose and Intent

- 2.1 The INSERT NAME OF BODY PASSING THE ORDINANCE is passing this ordinance in order to comply with the Safe Drinking Water Act, State drinking water regulations, and to protect the health of the consumers of water supplied by the INSERT NAME OF PUBLIC WATER SYSTEM.

- 2.2 The specific purposes of this Ordinance are:

- 2.2.1 To require the installation of INSERT TYPE OF TREATMENT UNIT THAT WILL BE INSTALLED to improve the quality of drinking water.
- 2.2.2 To minimize INSERT TYPE OF CONTAMINATION THAT TREATMENT UNITS WILL REMOVE in drinking water supplied by INSERT NAME OF PUBLIC WATER SYSTEM.
- 2.2.3 To provide for an operation, maintenance, and monitoring program for INSERT TYPE OF TREATMENT UNIT installed as part of this Ordinance.

Section 3: Applicability

This ordinance applies to all customers connected to the INSERT NAME PUBLIC WATER SYSTEM and all customers who connect to the INSERT NAME PUBLIC WATER SYSTEM in the future.

Section 4: Authority and Effective Date

INSERT NAME OF BODY PASSING THE ORDINANCE is authorized under INSERT BODY OF LAW PROVIDING JURISDICTION to adopt this ordinance.

This ordinance becomes effective immediately upon adoption.

Section 5: Definitions

- 5.1 **Building** means a combination of any materials, whether portable or fixed, having a roof to form a structure for the shelter of persons, animals, or property.

- 5.2 **Consumer** means any person, corporation, or other entity using or receiving water from the INSERT NAME PUBLIC WATER SYSTEM.
- 5.3 **Customer** means any purchaser or buyer of water from the INSERT NAME PUBLIC WATER SYSTEM.
- 5.4 **Dwelling Unit** means a house or other structure in which a person or persons live.
- 5.5 **Non-Residential User** is a user of water provided by the INSERT NAME PUBLIC WATER SYSTEM for purposes other than personal consumption. Such purposes may include, but are not limited to, resale, as a component or ingredient in other products designed for resale or service to the public, or otherwise providing water directly or indirectly to a person for the purposes of consumption.
- 5.6 **Owner of the Premises** includes the legal owners, their agents, or authorized representatives.
- 5.7 **Person** means a human being, partnerships, associations, corporations, legal representatives, or trustees.
- 5.8 **Potable Water** means any water supply intended or used for human consumption or other domestic use.
- 5.9 **Premises** means any real property including, all improvements, buildings, dwelling units, mobile homes, and other structures located on it.
- 5.10 **Residential User** defined as any person occupying a dwelling unit receiving water from the INSERT NAME PUBLIC WATER SYSTEM for the purpose of personal consumption.
- 5.11 **Service Connection** is the point of delivery at which the INSERT NAME PUBLIC WATER SYSTEM connects to the private supply line.
- 5.12 **Structure** means anything constructed or erected, the use of which requires a fixed location on the ground or attached to something located on the ground.
- 5.13 **Tap** means any faucet, spigot, or fountain that supplies water for consumption by drinking or cooking (including ice).
- 5.14 **Treatment Unit** includes any device installed by the INSERT NAME PUBLIC WATER SYSTEM to treat water as well as any associated equipment or devices, including separate taps, storage tanks, and bypass valves.
- 5.15 **Water Supplier** means INSERT NAME OF PUBLIC WATER SYSTEM, its employees, agents, and authorized representatives.

Section 6: Residential Users

6.1 Installation

- 6.1.1 The owner of the premises or residential users will allow the Water Supplier, or contractor or vendor hired by the water system, to install INSERT TYPE OF TREATMENT UNIT and all ancillary equipment needed for the proper operation of the treatment units.
- 6.1.2 The water system will install a treatment unit on a separate tap next to the kitchen tap used for drinking and cooking water (or INSERT TAPS THAT WILL BE TREATED).
- 6.1.3 The installation of the devices will be in accordance with local and state plumbing codes, if any, and in accordance with the manufacturer's specifications.
- 6.1.4 Title to the treatment units remains with the Water Supplier. While in effect, this Ordinance shall run with the land and shall be enforceable on all parties having or acquiring any right, title, or interest in any dwelling unit.

6.2 Maintenance

- 6.2.1 The Water Supplier will maintain the treatment units. Maintenance may include, but is not limited to: any required repair to, or replacement of a treatment unit; any sampling of a treatment unit or the water a treatment unit is treating; or any action deemed necessary by the Water Supplier for the on-going proper operation of a treatment unit.
 - 6.2.1.1 A properly trained individual will conduct all required maintenance.
- 6.2.2 Regular Maintenance: The owner of the premises or residential users will provide the Water Supplier access to the treatment units on a regular basis so that the Water Supplier can maintain the treatment units.
 - 6.2.2.1 The Water Supplier will periodically notify the owner of the premises or residential users of the intention to provide maintenance to a treatment unit. The water system will provide notification in the water bill (or INSERT OTHER MEANS OF NOTIFICATION).
 - 6.2.2.2 Regular maintenance will be provided during normal business hours or as arranged between the Water Supplier and Residential User. Sampling will occur approximately every INSERT TIME FRAME FOR SAMPLING IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS AND MANUFACTURERS SPECIFICATIONS.
 - 6.2.2.3 In the event that the owner of the premises or the residential users will not be able to provide access to a treatment unit on the date and time specified in the notification, the residential user will schedule an alternative time with the Water Supplier.

- 6.2.3 Emergency Repairs or Replacement: Residential users must provide access to the treatment units for emergency or unexpected repairs or replacements. Refusal to allow entry may result in termination of service in accordance with Section 8 of this Ordinance.
- 6.2.4 Residential users must notify the Water Supplier of any observed leaks or defects immediately. The Water Supplier shall arrange to repair the leak or other defect within INSERT REPAIR TIME FRAME (i.e., two consecutive calendar days upon receipt of notice, four business days from receiving notice, etc.).
- 6.2.5 The owner of the premises and residential users shall not adjust, modify, repair, replace, remove, disconnect, bypass, or otherwise tamper with a treatment unit.
- 6.2.5.1 Customers shall pay the Water Supplier for any costs incurred due to the owner of the premises or the residential user adjusting, modifying, bypassing, tampering with, or removing a treatment unit or any ancillary equipment.
- 6.2.6 INSERT ANY MAINTENANCE CONDITION SPECIFIC TO THE TYPE OF TREATMENT UNIT INSTALLED. FOR EXAMPLE, "RESIDENTIAL USERS SHALL ENSURE THAT THE TREATMENT UNIT REMAINS PLUGGED INTO AN OPERATIONAL OUTLET."

Section 7: Non-Residential Users

7.1 Installation

- 7.1.1 The owner of the premises or non-residential users will allow the Water Supplier to install INSERT TYPE OF TREATMENT UNIT and all ancillary equipment needed for the proper operation of the treatment units.
- 7.1.2 Treatment units are installed at locations with separate taps designated for drinking water.
- 7.1.3 The installation of the devices will be in accordance with local and state plumbing codes, if any, and in accordance with the manufacturer's specifications.
- 7.1.4 Title to the treatment units remains with the Water Supplier. While in effect, this Ordinance shall run with the land and shall be enforceable on all parties having or acquiring any right, title, or interest in any premises.

7.2 Maintenance

- 7.2.1 The Water Supplier will maintain the treatment units. Maintenance may include, but is not limited to: required repair to, or replacement of a treatment unit; any sampling of a treatment unit or the water a treatment unit is treating; or any action deemed necessary by the Water Supplier for the on-going proper operation of a treatment unit.

- 7.2.1.1 A properly trained individual will conduct all required maintenance.
- 7.2.2 Regular Maintenance: The owner of the premises or non-residential users will provide the Water Supplier access to the treatment units on a regular basis so that the Water Supplier can maintain the treatment units.
- 7.2.2.1 The Water Supplier will periodically notify the owner of the premises, his agent, his authorized representative, or the non-residential users of the intention to provide maintenance to a treatment unit. The water system will provide notification in the water bill (or INSERT OTHER MEANS OF NOTIFICATION).
- 7.2.2.2 Regular maintenance will be provided during normal business hours or as arranged between the Water Supplier and owner of the premises. Sampling will occur approximately every INSERT TIME FRAME FOR SAMPLING IN ACCORDANCE WITH FEDERAL AND STATE REGULATIONS AND MANUFACTURERS SPECIFICATIONS.
- 7.2.2.3 In the event that the owner of the premises or non-residential users will not be able to provide access to a treatment unit on the date and time specified in the notification, the owner of the premises or the non-residential users will schedule an alternative time with the Water Supplier.
- 7.2.3 Emergency Repairs or Replacement: The non-residential users must provide access to the treatment units for emergency or unexpected repairs or replacements. Refusal to allow entry may result in termination of service in accordance with Section 8 of this Ordinance.
- 7.2.4 If a leak or defect is detected the non-residential user will: notify the Water Supplier at INSERT TELEPHONE NUMBER within 24 hours of noticing the leak or other defect and follow all directions given by the Water Supplier. The Water Supplier shall arrange to repair the leak or other defect within INSERT REPAIR TIME FRAME (i.e., two consecutive calendar days upon receipt of notice, four business days from receiving notice, etc.)
- 7.2.5 The owner of the premises and the non-residential user shall not adjust, modify, repair, replace, remove, disconnect, bypass, or otherwise tamper with a treatment unit.
- 7.2.5.1 The Customer shall pay the Water Supplier for any costs incurred due to the adjusting, modifying, bypassing, tampering with, or removing a treatment unit or any ancillary equipment.
- 7.2.6 INSERT ANY MAINTENANCE CONDITION SPECIFIC TO THE TYPE OF TREATMENT UNIT INSTALLED. FOR EXAMPLE, "NON-RESIDENTIAL USERS SHALL ENSURE THAT THE TREATMENT UNIT REMAINS PLUGGED INTO AN OPERATIONAL OUTLET."

Section 8: Emergency Suspension of Utility Service

- 8.1 The Water Supplier may without prior notice, suspend water service to any premises when such suspension is necessary to prevent or stop an actual or threatened imminent and substantial danger to the Water Supplier's public water supply.
- 8.2 The Water Supplier may without prior notice, suspend water service to any premises when such suspension is necessary to prevent or stop an actual or threatened imminent and substantial danger to the environment or to the health or welfare of any person.
- 8.3 As soon as practicable after the emergency suspension of service, the Water Supplier will notify Customers of the suspension. The water system will provide notification in person or by certified mail, return receipt requested.

Section 9: Non-Emergency Suspension of Utility Service

- 9.1 The Water Supplier may terminate, after notice and opportunity for a hearing, the water service of any Customer who:
 - Fails or refuses to allow the installation of treatment units as required by this Ordinance.
 - Fails or refuses to allow the Water Supplier access to the premises to conduct regular or emergency maintenance.
 - Adjusts, modifies repairs, replaces, removes, disconnects, bypasses, or otherwise tampers with a treatment unit without prior written permission from the Water Supplier.
- 9.2 Except in accordance with Section 8 of this Ordinance, the Water Supplier will notify the Customer of the proposed termination of water service at least 30 days before the proposed termination. The water system will provide notification in person or by certified mail, return receipt requested.
- 9.3 The Customer may request a hearing on the proposed termination by filing a written request for a hearing with the Water Supplier, not more than 10 consecutive calendar days after receipt of notice of the proposed termination.
- 9.4 If the Water Supplier terminates water service, the Water Supplier will not reinstate water service until the Customer and owner of the premises allows for the installation of treatment units.
- 9.5 The Customer and the owner of the premises must enter into a written agreement to allow the Water Supplier access to the premises to conduct regular or emergency maintenance.

9.6 The Customer shall pay all costs incurred by the Water Supplier to reinstate service.

Section 10: Installation and Maintenance Charges

10.1 Customers may be charged INSERT COST OF INSTALLATION for the installation of a treatment unit.

10.1.1 Customers may be charged for all costs incurred by the Water Supplier to make any required modifications to existing plumbing in order to install the treatment unit. Customers may be charged in equal increments every month for one year.

10.2 Customers may be charged a monthly maintenance charge of INSERT MONTHLY MAINTENANCE CHARGE for as long as the treatment unit remains installed on the premises.

10.3 The Water Supplier will deposit any installation and maintenance charges into the system's operating budget. The water system will use these funds to purchase new treatment units and to help defray the costs associated with purchasing, installing, maintaining, and removing the treatment units.

10.4 The INSERT NAME OF PUBLIC WATER SYSTEM reserves the right to increase or decrease the installation and maintenance charges as deemed appropriate through an amendment to this ordinance.

Section 11: Enforcement

11.1 All users of water supplied by the Water Supplier shall abide by the provisions of this Ordinance and any such rules, regulations, and ordinances promulgated for the improvement and maintenance of the quality of the water intended for human consumption supplied by the Water Supplier.

11.2 Failure to abide by the provision of this Ordinance may result in the termination of service as described in Section 8 or 9 or in the imposition of service charges.

11.3 The Water Supplier may charge the customer INSERT AMOUNT OF SERVICE CHARGE FOR EACH FAILURE for failure to allow access for the installation of the treatment unit.

11.4 The Water Supplier may charge the customer INSERT AMOUNT OF SERVICE CHARGE FOR EACH FAILURE for failure to allow access for the maintenance of the treatment unit.

11.5 If a Customer, owner of the premises, residential user, or non-residential user fails to allow access to the premises, for the purposes of removing the treatment unit, the Water Supplier may apply to the INSERT COURT OF JURISDICTION (e.g., District Court, County Sheriff) for an order permitting entry onto the premises and the removal of the treatment unit.

11.6 The Water Supplier will deposit any service charges imposed and collected into the Water Supplier operating budget. The Water Supplier will use funds to purchase new treatment units and to help defray the costs associated with purchasing, installing, maintaining, and removing the treatment units.

11.7 The INSERT NAME OF PUBLIC WATER SYSTEM reserves the right to increase or decrease the service charges as deemed appropriate through an amendment to this ordinance.

Section 12: Liability

12.1 The Customer, owner of the premises, residential user, and non-residential user shall indemnify and hold harmless the Water Supplier for any injury or damage which may occur as a result of:

- The installation, maintenance, operation, sampling, monitoring, or removal of a treatment unit;
- The adjusting, modifying, repairing, replacing, removing, disconnecting, bypassing, or otherwise tampering with a treatment unit; or
- The failure to inspect, detect, report, any leaks or other defects, detected during the required inspection.

12.2 The Customer or the owner of the premises shall be liable for any damage to a treatment unit resulting from fire, theft, or impact. Note that the water system may wish to obtain the advice of local legal counsel before including this provision.

Section 13: Severability

13.1 If any provision or provisions of this Ordinance is held to be invalid, illegal, unenforceable or in conflict with the law of any jurisdiction, the validity, legality and enforceability of the remaining provisions shall not in any way be affected or impaired thereby.

Adopted this _____ day of _____ by the [*INSERT NAME OF BODY PASSING THE ORDINANCE*].

Authorized Signatory

Witness