

1

2

8

9

10

- 11

24

26

28

29

- (A) Except as provided in Subsection (B), this chapter applies to an OWRS installed and operated on a site that includes multi-family and non-residential buildings and that receives retail water service from Austin Water or a successor department.
- (B) This chapter does not apply to an OWRS installed and operated on a site that:
- (1) receives retail water service from an entity other than Austin Water or successor department;
 - (2) contains only one- or two-family dwellings, including detached one- and two-family dwellings and multiple single-family dwellings (townhouses);
 - (3) reuses industrial process wastewater that is regulated under Chapter 210 Subchapter E (*Special Requirements for Use of Industrial Reclaimed Water*) of Title 30 of the Texas Administrative Code; or
 - (4) reuses blackwater or domestic wastewater that is regulated under Chapters 210 (*Use of Reclaimed Water*) and 321 (*Control of Certain Activities by Rule*) of Title 30 of the Texas Administrative Code.

§ 15-13-2 – RULEMAKING.

- (A) The director may adopt rules under Chapter 1-2 (*Adoption of Rules*) to implement, administer, and enforce this title.
- (B) In addition to rules, the director may:
- (1) issue written interpretations of this chapter as necessary to ensure this chapter is implemented in a manner consistent with applicable state and federal law; and
 - (2) establish written procedures to implement this chapter.
- (C) A rule, interpretation, or procedure adopted under this chapter may address:
- (1) the usage, permitting, treatment, monitoring, reporting, and compliance requirements of an OWRS; and

- (2) other factors the director believes are necessary for the safe and effective use of an OWRS.

§ 15-13-3 – AUTHORITY.

The director administers, implements, and enforces this chapter.

§ 15-13-4 – DEFINITIONS.

The following terms are applicable to this chapter:

- (1) AIR GAP means a physical separation between the free-flowing discharge end of a potable water system pipeline and an open or non-pressure receiving vessel as defined in Section 290.38 (*Definitions*) of Title 30 of the Texas Administrative Code.
- (2) ALTERNATIVE WATER SOURCE means a source of non-potable water that may include any of the following: condensate water, graywater, rainwater, stormwater, foundation drain water, and any other source approved by the director.
- (3) BLACKWATER means domestic wastewater.
- (4) CERTIFIED LABORATORY means an environmental testing laboratory certified by an accepted state accreditation program or the National Environmental Laboratory Accreditation Program. Laboratories must be certified to perform each test for which they are providing results.
- (5) CONDENSATE WATER means water produced in a heating, ventilation and air conditioning (HVAC) system as the result of evaporative cooling.
- (6) CONDITIONAL PERMIT means a permit issued under Section 15-13-11 (*Conditional Permit*).
- (7) CONDITIONAL PERMITTEE means a person who holds a conditional permit.

- (8) CONTINUOUS MONITORING means ongoing confirmation of system performance using sensors for continuous observation of selected parameters, including surrogate parameters that are correlated with pathogen log reduction targets (LRTs).
- (9) COOLING TOWER MAKEUP WATER means water added to a cooling tower to replace water lost to evaporation or blow-down.
- (10) CROSS CONNECTION means an actual or potential connection to a public or private water system through which it is possible to introduce contamination or pollution.
- (11) DIRECTOR means the director of Austin Water.
- (12) DISINFECTION means a physical or chemical process, including, but not limited to, ultraviolet radiation, ozonation, and chlorination that is used for removal, deactivation, or killing of pathogenic microorganisms.
- (13) DISTRICT-SCALE PROJECT means an OWRS for a defined service area that covers two or more lots, tracts, land uses, or site plans and may cross public rights-of-way.
- (14) DOMESTIC WASTEWATER means wastewater which originates primarily from kitchen, bathroom, and laundry sources, including waste from food preparation, dishwashing, garbage grinding, toilets, baths, showers, and sinks of a residential dwelling. Domestic wastewater may contain commercial wastewater contributions.
- (15) EFFLUENT means water leaving one or more of the treatment unit processes in an OWRS.
- (16) ENFORCEABLE LEGAL AGREEMENT means a legally enforceable agreement defining the roles and responsibilities of each property owner or entity acting as a permittee, supplier, or user of an OWRS.
- (17) FIRST FLUSH DIVERter means a device operated by mechanical float valves or other types of automatic control that

diverts a quantity of roof runoff collected from a surface following the onset of a rain event.

(18) FOUNDATION DRAIN WATER means groundwater that is extracted to maintain a building's or facility's structural integrity and would otherwise be discharged to the storm sewer. Foundation drain water does not include groundwater extracted for a beneficial use that is subject to City groundwater well regulations or to regulation by a groundwater district.

(19) GRAYWATER means wastewater from showers, bathtubs, handwashing lavatories, sinks that are used for disposal of household or domestic products, sinks that are not used for food preparation or disposal, and clothes-washing machines. Graywater does not include wastewater from the washing of material, including diapers, soiled with human excreta, or wastewater that has come into contact with toilet waste.

(20) LEGACY SYSTEM means an OWRS installed prior to the effective date of this chapter.

(21) LOG REDUCTION means the removal of a pathogen or surrogate in a unit process expressed in log units. A 1-log reduction equates to 90% removal, 2-log reduction to 99% removal, 3-log reduction to 99.9% removal, and so on.

(22) LOG REDUCTION CREDIT means the log reduction value credited to a treatment technology based on the technology's ability to remove or inactivate pathogens and proposed surrogate parameter for continuous monitoring.

(23) LOG REDUCTION TARGET (LRT) means the required removal efficiency for the specified pathogen group (e.g., viruses, bacteria, or protozoa) to achieve the identified level of risk to individuals (e.g., 10^{-4} infections per year).

(24) MONITORING REPORT means a report documenting the operation and water quality results of an OWRS permitted under this chapter.

- (25) NEW OWNER means the record owner of a property that includes an OWRS after the director issues the initial operating permit.
- (26) NON-POTABLE WATER means water that is not of drinking water quality, but which may be treated to be used for many other purposes such as irrigation, landscaping, or toilet or urinal flushing.
- (27) OPERATING PERMIT means a permit issued to operate an OWRS.
- (28) OPERATIONS AND MAINTENANCE MANUAL means a document providing comprehensive information about the OWRS operation, maintenance, and repair.
- (29) OWRS means an onsite water reuse system that collects, treats and uses alternative water sources for non-potable uses at the building to district or neighborhood scale, generally at a location near the point of generation.
- (30) PERMITTEE means a person who holds an operating permit or a conditional permit.
- (31) PROCESS WATER means water used during manufacturing or processing that is not required to be of drinking water quality.
- (32) PROJECT APPLICANT means the person applying for an operating permit before installing an OWRS.
- (33) RAINWATER means precipitation or diffused surface water collected from roof surfaces or other above ground structures.
- (34) RECLAIMED WATER means domestic or municipal wastewater which has been treated to a quality suitable for a beneficial use, but that is not suitable for drinking.
- (35) RECORD OWNER means the owner of real property as shown by the deed records of the county in which the property is located.
- (36) SITE SUPERVISOR in a district-scale project means the qualified person or entity designated by a user or a supplier to

oversee the operation and maintenance of the on-site distribution system and collection system and to act as a liaison to the treatment system manager and permittee.

(37) STORMWATER means precipitation or diffused surface water collected from surfaces at or below grade before it enters the bed and banks of a state watercourse or state water body.

(38) SUPPLIER means an entity that supplies an untreated alternative water source to the OWRS for treatment and reuse. A supplier may also be a permittee or user.

(39) SURROGATE PARAMETER means a measurable physical or chemical property that has been demonstrated to provide a direct correlation with the concentration of an indicator compound, can be used to monitor the efficiency of trace organic compounds removals by a treatment process, and provide indication of a treatment process failure.

(40) TREATMENT UNIT PROCESS means a physical, chemical or biological system that is intended to improve water quality. Examples include filtration, oxidation, adsorption, disinfection, and membrane filtration.

(41) TREATMENT SYSTEM MANAGER means the qualified person or entity responsible for the daily management and oversight of the OWRS.

(42) USER means an entity that accepts treated water from an OWRS for beneficial purposes within its area of occupancy. A user may also be a permittee or supplier.

(43) VALIDATION REPORT means a report documenting a detailed technology evaluation study that was conducted to challenge the treatment technology over a wide range of operational conditions.

(44) WATER BALANCE CALCULATOR means the calculator tool approved by the director that provides for the assessment of both potable and non-potable water demands as well as alternative water supplies for a development project.

220 **§ 15-13-5 – ALLOWED ALTERNATIVE WATER SOURCES.**

221 (A) Under this chapter, the following alternative water sources may be
222 used to supply an onsite water reuse system:

- 223 (1) Condensate water;
- 224 (2) Rainwater;
- 225 (3) Stormwater;
- 226 (4) Graywater; and
- 227 (5) Foundation drain water.

228 (B) The director may approve other alternative water sources under the
229 variance procedure described in Article 7 (*Variances*).

230 **§ 15-13-6 – ALLOWED USES.**

231 (A) Under this chapter, an OWRS may provide the following non-potable
232 end uses:

- 233 (1) Indoor Use:
 - 234 (a) Toilet and urinal flushing;
 - 235 (b) Clothes washing in washing machines;
 - 236 (c) Trap priming;
 - 237 (d) Indoor decorative water features; and
 - 238 (e) Fire protection.

- 239 (2) Outdoor Use:
 - 240 (a) Subsurface irrigation;
 - 241 (b) Drip or other surface non-spray irrigation;
 - 242 (c) Spray irrigation;
 - 243 (d) Outdoor decorative water features;

(e) Cooling applications; and

(f) Dust control or street cleaning.

(B) The director may approve other uses of alternative water sources under the variance procedure described in Article 7 (*Variances*).

§ 15-13-7 – PRE-CONSTRUCTION AND INSTALLATION REQUIREMENTS.

(A) Before constructing or installing an OWRS, a person shall apply for an operating permit if required in Section 15-13-8 (*Operating Permit Required; Exceptions*).

(B) Before constructing or installing an OWRS, a person shall also obtain any approvals or permits required under Title 25 (*Land Development Code*).

(C) Before constructing or installing an OWRS, a person shall also obtain appropriate authorization for placement of any piping or other portions of an OWRS that must be located within the public right-of-way.

§ 15-13-8 – OPERATING PERMIT REQUIRED; EXCEPTIONS.

(A) Except as provided in Subsection (B), a person may not operate an OWRS without an operating permit.

(B) An operating permit is not required if the OWRS:

(1) is a condensate water, rainwater, stormwater, graywater, or foundation drain water sourced system that is constructed in accordance with applicable plumbing codes and used solely for subsurface irrigation, or for surface non-spray irrigation; or

(2) is a legacy system that is not modified or expanded to include a new allowable alternative water source or new allowable end use.

(C) A person who operates a legacy system must obtain a permit before modifying or expanding the legacy system.

(D) This subsection applies to an OWRS described in Subsection (B)(1).

(1) A person shall obtain an approval before installing an OWRS.

(2) A person shall submit an application, a water balance calculator, and any other applicable project information required by the director before installation.

§ 15-13-9 – PERMIT APPLICATION.

(A) A project applicant who submits an application for an operating permit must provide the following items to the director:

(1) a water balance calculator that includes:

(a) a description and location of the proposed or existing OWRS;

(b) a summary of water demands and supplies;

(c) user and supplier data; and

(d) any other information required by the director; and

(2) the application fee that is set by separate ordinance; and

(3) an engineering report that is on a form approved by the director and prepared by a qualified engineer licensed in Texas and experienced in the field of water and wastewater treatment.

(B) An application for an operating permit expires one year from the date of submittal if the engineering report has not been approved. A new application is required if the application expires.

(C) The director will not review an application, including the engineering report, until after the application fee is paid.

(D) The director may request revisions to initial and subsequent engineering report submittals.

(E) The record owner must sign the application.

(F) A record owner or the record owner's agent may file an application for an operating permit. The director may require a project applicant to provide evidence of the applicant's authority to file the application.

§ 15-13-10 – INITIAL OPERATING PERMIT.

(A) The director may issue the initial operating permit after the engineering report and any updates are approved, if the OWRS is constructed in accordance with Title 25 (*Land Development Code*), the project applicant pays the annual permit fee, and the project applicant provides:

- (1) a finalized operations and maintenance manual that complies with the requirements set forth in section 15-13-51 (*Operations and Maintenance Manual*);
- (2) evidence of a contract with the designated treatment system manager who meets the requirements in Section 15-13-50 (*Treatment System Manager Capacity*).
- (3) evidence of a contract with a certified laboratory to perform water quality analysis;
- (4) evidence of satisfactory performance of an initial cross connection test overseen by certified personnel from Austin Water's Special Services Division or other certified personnel as determined by the director;
- (5) a signed and sealed engineer's letter stating that the OWRS was constructed in accordance with the approved engineering report, professionally sealed plans, specifications, and applicable sections of state and local code;
- (6) evidence that the OWRS performs consistent with the approved engineering report if the director issued a conditional permit under Section 15-13-11 (*Conditional Permit*); and
- (7) for district-scale projects only, an executed enforceable legal agreement as described in Section 15-13-61 (*Enforceable Legal Agreement*).

(B) Before a project applicant provides an engineer's letter that complies with Subsection (A)(5), the engineer who will seal the letter that complies with Subsection (A) (5) must conduct a construction verification inspection of the OWRS in the presence of the director

and the project applicant must correct any deficiencies identified during the construction verification inspection.

§ 15-13-11 – CONDITIONAL PERMIT.

(A) Before the director issues the initial operating permit, the director may issue a conditional permit to determine whether the OWRS performs consistent with the approved engineering report.

(B) A conditional permit is effective for 90 days unless otherwise specified by the director.

(C) A conditional permittee must:

(1) field verify treatment processes, instrumentation, water quality sampling, and any other aspects of the OWRS that are specified by the director;

(2) comply with the applicable requirements in Article 4 (*Monitoring, Sampling, Reporting, and Notification Requirements*); and

(3) comply with applicable requirements in Article 5.

(D) Except as provided in Subsection (E), if the OWRS does not perform consistent with the approved engineering report, the director may reissue the conditional permit.

(E) If the OWRS does not perform consistent with the approved engineering report by the 361st day after the initial conditional permit was issued,

(1) the director may not reissue a conditional permit or an operating permit; and

(2) the project applicant must submit a new application that describes how the existing treatment design or instrumentation will be modified so that the OWRS will perform consistent with the approved engineering report.

§ 15-13-12 – OPERATING PERMIT CONDITIONS.

(A) A permittee shall comply with Article 4 (*Monitoring, Sampling, Reporting, and Notification Requirements*).

(B) Depending on the treatment processes used in the OWRS, the director may authorize a permittee to minimize or eliminate water quality sampling requirements if the permittee continuously monitors treatment system performance via surrogate parameters as detailed in Article 4 (*Monitoring, Sampling, Reporting and Notification Requirements*).

(C) The OWRS must meet all requirements of this chapter.

(D) An operating permit is valid for one year from the date it is issued.

§ 15-13-13 – OPERATING PERMIT RENEWAL.

(A) A permittee shall renew an OWRS' operating permit annually.

(B) A permittee must submit a renewal application and pay the annual license fee at least 60 days prior to the day the existing operating permit expires.

(C) In reviewing the application, the director may require additional information or actions so that the OWRS meets the requirements of this chapter.

(D) The director may deny a renewal application if the permittee fails to take required actions or pay the annual license fee.

(E) If the director denies the renewal application, the OWRS may not operate.

(F) The director may take any enforcement action set out in Article 8 if a person operates an OWRS without an active operating permit.

§ 15-13-14 – PERMIT AMENDMENTS AND STRUCTURAL MODIFICATION.

(A) A permittee may not modify the structural components of an OWRS or a structure that is connected to the OWRS until the director and, if

391 applicable, the director of the Development Services Department or
392 successor department approve the modifications.

393 (B) A permittee must obtain an amended operating permit before the
394 permittee:

395 (1) changes source water, end uses, end users, treatment, suppliers,
396 or other system components; or

397 (2) increases the production of alternative water.

398 (C) The director may amend an operating permit when:

399 (1) a permittee submits a request to amend the permit; or

400 (2) the director determines that an amendment is required to protect
401 the public health and safety.

402 (D) A request to amend an operating permit or to modify structural
403 components must be on a form approved by the director and the
404 applicant must pay a fee that is set by separate ordinance.

405 (E) A request described in Subsection (D) that includes a change to the
406 treatment system process train and the change will affect the
407 calculation of log reduction credits, must also include an engineering
408 report sealed by a qualified engineer licensed in Texas.

409 **§ 15-13-15 –CHANGE OF OWNERSHIP.**

410 (A) Before a permittee transfers the property with an OWRS, the
411 permittee must:

412 (1) notify the director of the proposed transfer at least 30 days
413 before the date of transfer; and

414 (2) inform the new owner what this chapter requires.

415 (B) A new owner shall submit a completed change of ownership form
416 within 30 days from the date the property transfers from the permittee
417 to the new owner.

(C) If the director finds that the OWRS will operate in a manner that is inconsistent with the approved engineering report and operating permit, the director may require the new owner to amend the operating permit as set forth in Section 15-13-14 (*Permit Amendments and Structural Modifications*).

(D) A new owner becomes the permittee on the date the property transfers and is responsible for complying with this chapter. This applies even if the new owner fails to submit a completed change of ownership form.

§ 15-13-16 – FEES.

Fees assessed under this chapter shall be set by council under a separate ordinance.

§ 15-13-17 DOCUMENT SUBMITTALS.

A person, permittee, project applicant, or engineer required by this chapter to submit a document shall submit the document to the director.

ARTICLE 2 – SYSTEM DESIGN REQUIREMENTS.

§ 15-13-20 – SYSTEM DESIGN.

A project applicant shall design and construct the OWRS in a manner that complies with this article.

§ 15-13-21 – CROSS-CONNECTION CONTROL AND MAKE-UP WATER SUPPLY.

(A) The director may not issue a conditional permit or an initial operating permit until the project applicant completes cross-connection testing in accordance with Chapters 15-1 (*Cross Connection Regulations*) and 25-12 (*Technical Codes*).

(B) The director may require a permittee to complete additional cross-connection testing at specified intervals.

(C) A project applicant shall install a containment Reduced Pressure Principle Backflow Prevention Device (RP) immediately downstream of the point of connection or water meter to protect the municipal water connection that serves the property with the OWRS, public water system, and recycled water system.

(D) A project applicant must provide a municipally supplied make-up water supply that is protected by either an air gap for graywater sourced systems or a RP for non-sewage sourced systems.

§ 15-13-22 – FAIL-SAFE MECHANISMS.

Each system must be equipped with features that allow for a controlled and non-hazardous automatic shutdown of the process in the event of a malfunction.

§ 15-13-23 – FLOW METER.

(A) An OWRS distribution system that provides treated water must include a flow meter.

(B) A pipeline that provides make-up water to an OWRS must include a flow meter.

(C) Any component of a district-scale OWRS that is not the main OWRS and collects, treats, receives, or distributes water must include a flow meter.

(D) This requirement applies to each property that collects, treats, receives, or distributes water from an OWRS.

§ 15-13-24 – OVERFLOW.

(A) A facility that treats or stores water from an OWRS must be designed and operated in a manner that complies with this section.

(B) A permittee may not allow graywater, condensate water, rainwater, stormwater, or foundation drain water to overflow except as set forth in this section.

(C) A permittee may not allow overflow into the sanitary sewer or storm sewer systems except as specifically described in this section.

(D) A permittee shall install an approved backwater valve to direct graywater, condensate water, rainwater, stormwater, or foundation drain water into the applicable discharge location.

(E) Graywater may overflow into the sanitary sewer or another approved discharge location.

(F) Condensate water may overflow into the sanitary sewer or another approved discharge location.

(G) Rainwater, stormwater, and foundation drain water may overflow to a storm sewer.

§ 15-13-25 – PLUMBING CODE COMPLIANCE.

For each property that collects, treats, receives, or distributes water from an OWRS, the permittee shall include components or design features that are required by applicable local and state plumbing codes, including:

- (1) required signage maintained in good condition and free from damage or removal;
- (2) for rainwater systems, a first flush diverter or debris excluder;
- (3) tanks that receive or store untreated graywater which are properly vented; and
- (4) a filter permitting the passage of particulates no larger than 100 microns for OWRS supplying non-potable water to toilets, urinals, trap primers, and drip irrigation systems.

§ 15-13-26 – IRRIGATION SYSTEM REQUIREMENTS.

(A) This section applies to an OWRS that will provide non-potable water for irrigation purposes.

(B) A permittee shall not apply treated alternative water sources to designated irrigation areas during periods when soils are saturated and the treated water could runoff.

(C) A permittee may not allow treated alternative water sources to escape the designated irrigation areas as surface flow or spray that would either pond or enter surface waters.

(D) A permittee may not allow irrigation spray or irrigation runoff to:

(1) enter a dwelling or food handling facility; or

(2) contact any drinking water fountain.

(E) A permittee may not use graywater sourced systems for outdoor irrigation within the Edwards Aquifer Recharge Zone or within critical water quality zones.

§ 15-13-27 – COOLING APPLICATION REQUIREMENTS.

(A) This section applies to an OWRS that serves a cooling tower or that operates in a manner that can create a mist that could contact employees, members of the public, or building occupants.

(B) A permittee must:

(1) use a drift eliminator whenever the cooling system is in operation;

(2) use chlorine or other biocide to treat the cooling system recirculating water to minimize the growth of Legionella and other microorganisms; and

(3) include a management plan in the approved operations and maintenance manual.

§ 15-13-28 – VECTOR AND ODOR CONTROL.

(A) An OWRS must be constructed, operated, and maintained to prevent mosquito harborage and to minimize odors.

(B) A person must operate and maintain an OWRS as required by this section.

(C) Mosquito Harborage.

(1) Each drain, vent, and other conduit that leads to the system reservoir shall be screened with a durable fine mesh.

(2) The mesh required by this subsection must be no greater than one sixteenth of an inch.

- 532 (3) Gaps are not allowed around the mesh.
- 533 (D) All annular gaps around pipes that feed the reservoir shall be sealed
534 with a durable, waterproof, and non-porous material.
- 535 (E) Each door opening to the reservoir must have a durable gasket and no
536 gaps.
- 537 (F) A gap shall be sealed or screened.
- 538 (G) An OWRS may not emit odors.
- 539 (H) A person who treats, stores, distributes, reuses, or discharges
540 alternative water sources creates a nuisance and threatens human
541 health if the alternative water sources become a potential instrument or
542 medium that transmits disease to or between persons.

543 **ARTICLE 3. – WATER QUALITY.**

544 **§ 15-13-30 – WATER QUALITY REQUIREMENTS.**

- 545 (A) A project applicant shall design and construct the OWRS to achieve
546 the water quality requirements in this article.
- 547 (B) A permittee shall maintain and operate an OWRS to achieve the water
548 quality requirements in this article.
- 549 (C) To meet the pathogenic microorganism control requirements for
550 enteric virus, parasitic protozoa, and bacteria, an OWRS must include
551 treatment processes that achieve LRTs as shown in Table 1.

552 **Table 1: Pathogen Log Reduction Targets**

Alternate Water Source	Enteric Virus	Parasitic Protozoa	Bacteria
Condensate Water	--	--	--
Rainwater	--	--	3.5
Stormwater	3.5	3.5	3.0
Stormwater Outdoor Use Only	3.0	2.5	2.0

Foundation Drain Water	3.5	3.5	3.0
Foundation Drain Water Outdoor Use Only	3.0	2.5	2.0
Graywater	6.0	4.5	3.5
Graywater Outdoor Use Only	5.5	4.5	3.5

- (D) When operating pursuant to a conditional permit, an OWRS must meet the total coliform limits in Table 2, as well as the LRTs for bacteria.
- (E) If the OWRS does not achieve the LRTs for bacteria as required in Subsection (D), the director may not issue an operating permit until the OWRS meets total coliform sampling requirements. .

Table 2: Water Quality Limits for Total Coliform

Sample Type	Water Quality Limit	Required U.S. EPA Standard Method
7-sample median	2.2 MPN / 100 mL	SM9223B
30-day maximum	23 MPN / 100 mL	
Absolute maximum	240 MPN / 100 mL	

- (F) For a use with the potential for human contact, the OWRS must disinfect effluent with chlorine, ozone, ultraviolet radiation, or other approved agent.
- (G) For an indoor use, the OWRS must maintain a minimum chlorine residual of 0.5 mg/L at or after the effluent enters the plumbing of the distribution system.

§ 15-13-31 – GRAYWATER TREATMENT SYSTEMS.

- (A) This section applies to graywater treatment systems.
- (B) A project applicant shall design and construct the OWRS to meet the requirements of this section.
- (C) A permittee shall maintain and operate the OWRS to meet the requirements of this section.
- (D) The OWRS must include a biological treatment process to remove particulate matter, biodegradable organics, and ammonia from graywater prior to use for non-potable applications.
- (E) A permittee shall maintain and operate all graywater treatment systems in a manner that meets the water quality requirements established in Table 3 and the LRTs in Table 1.

Table 3. Water Quality Requirements for Graywater Treatment Systems.

Parameter	Water Quality Limit	Required U.S. EPA Standard Method
Biochemical Oxygen Demand (BOD ₅)	25 mg/L	SM5210B
Total Suspended Solids (TSS)	30 mg/L	SM2540D

ARTICLE 4. – MONITORING, SAMPLING, REPORTING, AND NOTIFICATION REQUIREMENTS.

§ 15-13-40 – PATHOGENIC MICROORGANISM CONTROL LOG REDUCTION CREDITS AND CONTINUOUS MONITORING.

- (A) A project applicant shall design and construct an OWRS to meet the requirements in this section.
- (B) A permittee shall maintain and operate an OWRS to meet the requirements in this section.
- (C) Each treatment process used to meet a log reduction target must include continuous monitoring using the pathogenic microorganisms of concern or a microbial, chemical, or physical surrogate

parameter(s) that verifies the performance of each treatment process's ability to achieve its credited log reduction.

(D) An engineering report must include evidence that the treatment unit process can reliably and consistently achieve a specific log reduction value. The engineering report must also include information about the required operating conditions and the type of continuous monitoring to be utilized.

(E) Table 4 identifies the log reduction credits that will be granted for different unit processes and includes examples of required supporting information.

(F) For unit processes that require a validation report, the permittee shall submit a validation report that includes:

(1) evidence of the treatment technology's ability to reliably and consistently achieve the log reduction value;

(2) information about the required operating conditions and surrogate parameters that require continuous monitoring; and

(3) a letter that demonstrates a state public health official previously accepted the report.

Table 4: Treatment Process Log Reduction Credits

Treatment Process	Maximum¹ Log Reduction Credits Virus/Protozoa/Bacteria	Information to be Included in an Engineering Report	Continuous Monitoring Requirements
Microfiltration or Ultrafiltration	0/4/0	Description and calculation of how the system defines an acceptable pressure decay test value per the EPA's Membrane Filtration Guidance Manual	Daily pressure decay test Effluent Turbidity

		to detect 3.0 µm breach	
Membrane Biological Reactor (MBR)	1.5/2/4	Operation within the Tier 1 operating envelope ²	Effluent Turbidity
Reverse Osmosis	2/2/2 (Dependent on surrogate parameter)	Manufacturer's information indicating ability to reject sodium chloride and description of/rationale for surrogate parameter used to calculate log removal credits	Influent and Effluent Total Organic Carbon (TOC) Or Influent and Effluent Electrical Conductivity
Ultraviolet (UV) Light Disinfection	6/6/6 (Dose Dependent)	UV reactor's Validation Report following state-approved procedures ³ or NSF/ANSI 55 Class A validated.	UV intensity Flow rate
Chlorine Disinfection	5/0/0 (CT dependent) Bacteria credit equivalent to virus credit can be granted if free chlorine is preceded by membrane filtration and up to 4-log removal for other filtration processes	Calculations demonstrating CT disinfection (CT = Chlorine Residual Concentration x Contact Time) Specifics on how concentration and contact time will be determined	Free chlorine residual Flow rate

Ozone Disinfection	4/3/4 ⁴ (CT dependent)	Calculations demonstrating CT disinfection (CT = Ozone Residual Concentration x Contact Time) Specifics on how concentration and contact time will be determined	Ozone residual Flow rate
--------------------	-----------------------------------	---	---------------------------------

¹ Projects may seek higher credit with site-specific validation, alternative surrogates, or other approved methods.

² Tier 1 operating envelope is defined in the AWRCE Membrane bio-reactor WaterVal validation protocol, Australian Water Recycling Center of Excellence (AWRCE), Brisbane.

³ UV Log Reduction Credits are reactor-specific and dose dependent. UV Validation Reports shall be prepared by a licensed engineer. Validation reports must provide evidence of reactor's ability to reliably and consistently achieve the log reduction value, including information on the required operating conditions and surrogate parameters that require continuous monitoring. The Validation Report shall document results based on validation testing finished utilizing one of the following: EPA UV Disinfection Guidance Manual (USEPA 2006), German UV Devices for the Disinfection for Drinking Water Supply Standard (DVGW 2006), or NWRI UV Disinfection: Guidelines for Drinking Water and Water Reuse, 3rd edition (NWRI 2012). Submitted validation reports must include a letter demonstrating the report has been accepted previously by a state public health official.

⁴ Bacteria credit can be obtained for ozone according to the Tier 1 framework in the AWRCE Ozone WaterVal Validation protocol, which includes CT tables for waters with turbidity <0.15 NTU.

§ 15-13-41 – MONITORING AND SAMPLING.

- (A) A treatment system manager must perform all water quality sampling required by Table 5 and the annual permit.

- 619 (B) A permittee violates this section if someone other than the treatment
620 system manager performs water quality sampling required by this
621 section.
- 622 (C) A treatment system manager shall collect water samples in a manner
623 that complies with U.S. EPA Wastewater Standard Methods for the
624 Examination of Water and Wastewater Method 9060B.
- 625 (D) A water sample required by this section must be analyzed:
- 626 (1) in a certified laboratory that uses the methods described in
627 Table 3; or
- 628 (2) through an approved in-line monitoring devices that is as
629 detailed in the approved engineering report.
- 630 (E) A treatment system manager shall collect and transport each sample in
631 a manner that meets quality assurance and quality control (QA/QC)
632 standards of the labs, including maintenance of required hold times
633 and temperatures.
- 634 (F) To measure total coliform, BOD or TSS, a water sample must be
635 collected from disinfected effluent.
- 636 (G) To measure chlorine residual, a water sample must be collected at or
637 after entry to the plumbing of the distribution system.
- 638 (H) The director may request to be present during required water quality
639 sample collections or require that the permittee use a third-party who
640 is not the treatment system manager to take water quality sample
641 collections.
- 642 (I) A project applicant shall install instrumentation with continuous
643 monitoring capabilities.
- 644 (J) If a pathogen LRT or total coliform exceeds the limits in Tables 1 and
645 2, the permittee shall notify the director in accordance with Section
646 15-13-45 (*Malfunction Notification*).

647 **Table 5: Water Quality Sampling Requirements**

Parameter	Rain/Condensate		Stormwater/Foundation Drain		Graywater	
	Conditional	Operating	Conditional	Operating	Conditional	Operating
Total Coliform ¹	Weekly for Rainwater	Monthly	Weekly	Monthly	Weekly	Monthly
Chlorine Residual	Continuously at entry to end-use plumbing					
LRTs	Continuously as specified in the approved engineering report					
BOD ₅	N/A	N/A	N/A	N/A	Weekly	Monthly
TSS	N/A	N/A	N/A	N/A	Weekly	Monthly
Flow	Continuously measuring alternative water treated by the OWRS					
¹ Total coliform monitoring requirement may be eliminated after 12 consecutive months of consistent compliance.						

§ 15-13-42 – DIVERSION TO SEWER.

(A) A conditional permittee shall:

- (1) divert treated graywater to the sanitary sewer or to another approved discharge location;
- (2) divert treated condensate water to the sanitary sewer or to another approved discharge location;
- (3) divert treated rainwater, stormwater and foundation drainage to the storm sewer; and
- (4) operate all fixtures in the building using the municipally supplied make-up water source.

(B) When operating an OWRS pursuant to a conditional permit, the director may allow: