



San Francisco Department of Public Health
Director's Rules and Regulations Regarding the Operation of Alternate Water Source Systems
March 2016

Authority

Article 12C of the San Francisco Health Code established Permitting requirements for the use of alternate water sources and set Permit and annual fees. The San Francisco Department of Public Health (SFDPH) is authorized to perform duties associated with regulating the internal uses of Alternate Water Source Systems through its general authority to provide for the preservation, promotion, and protection of the health of the inhabitants of the City and County [San Francisco Charter Sec.4.110]. Additionally, Articles 11 and 12A of the City's Health Code authorize the SFDPH to investigate and abate any nuisance, activity, or condition that the SFDPH deems to be a threat to public health and safety, and to investigate and abate any cross connection risks between municipally supplied potable water, alternate water source systems, and sanitation systems in both public and private facilities. The Health Code authorizes the SFDPH to order a person to vacate property, cease prohibited activities, abate unsafe or unsanitary conditions, and pay penalties for violations.

Role

The San Francisco Department of Public Health is the Permitting agency for the operation of Alternate Water Source Systems in Residential Buildings containing three or more dwelling units, in mixed-use and non-Residential Buildings, and where alternate water systems are shared across property lines or in multiple structures. SFDPH is responsible for ensuring that Alternate Water Source Systems are in compliance with applicable laws. SFDPH performs ongoing monitoring, review, and inspections of permitted Alternate Water Source Systems to ensure such compliance is maintained.

1. Definitions

Air Gap: A physical break between a supply pipe and a receiving vessel as set forth in the California Plumbing Code, Chapter 6, Section 603.

Alternate Water Source: A source of Non-Potable Water that includes Graywater, Rainwater, Stormwater, Foundation Drainage, Blackwater and/or any other source approved by the Director.

Alternate Water Source System: Technologies and equipment installed for the purpose of making Alternate Water Sources suitable for direct beneficial use

Alternate Water Source System Engineering Report (Engineering Report): Report submitted by project applicant to the Director describing the Alternate Water Source System in accordance with these Rules and Regulations.

As-Builts: Final as-built architectural drawings.

Blackwater: Wastewater containing bodily or other biological wastes, as from toilets, dishwashers, kitchen sinks and utility sinks.

Certified Laboratory: An environmental testing laboratory certified by the California Environmental Laboratory Accreditation Program or the National Environmental Laboratory Accreditation Program (NELAP). Laboratories must be certified to perform each test for which they are providing results.

Director: The Director of the San Francisco Department of Public Health or any individual designated by the Director to act on his or her behalf, including, but not limited to, inspectors.

Discharge Monitoring Report (DMR): A report documenting the operation and water quality results of an Alternate Water Source System permitted under these Rules and Regulations.

Disinfection: A physical or chemical process such as ultraviolet radiation, ozonation, and chlorination that is used for removal, deactivation or killing of pathogenic microorganisms.

District-scale Project: A project entailing the sharing of an Alternate Water Source System across property lines or for use in multiple structures, whether under the jurisdiction of one entity or several.

Enforceable Legal Agreement: A legally enforceable agreement defining the roles and responsibilities of each property owner or entity acting as an Operator, Supplier, or User of an Alternate Water Source System.

First Flush Diverter: A device operated by mechanical float valves or other types of automatic control that diverts a quantity of Rainwater collected from a surface following the onset of a rain event. Rainwater systems for subsurface or surface non-spray irrigation seeking to qualify for a permit exemption must have a first flush diverter that does not require manual operation, followed by a 100 µm filter or better.

Foundation Drainage: Nuisance groundwater that is collected to maintain a building's or facility's structural integrity and would otherwise be discharged to the sanitary sewer system. Foundation Drainage does not include non-potable groundwater extracted for a beneficial use that is subject to City groundwater well regulations.

Graywater: Untreated wastewater that has not been contaminated by any toilet discharge, has not been affected by infectious, contaminated, or unhealthy bodily wastes, and does not present a threat from contamination by unhealthful processing, manufacturing, or operating wastes. Graywater includes, but is not limited to, wastewater from bathtubs, showers, bathroom sinks, clothes washing machines, and laundry tubs, but does not include wastewater from kitchen sinks or dishwashers.

Human Contact Water Use: A use of water which has the potential for human exposure by breathing or by direct contact with skin or eyes. Human Contact Water Uses include toilet flushing, spray irrigation, and cooling towers.

Multi-family Building: A Residential Building containing three or more dwelling units.

Non-Potable Water: Water that is not of drinking water quality, but which may still be used for many other purposes, depending on its quality.

Operations and Maintenance Manual: Document providing comprehensive information on the Alternate Water Source System operation, maintenance, and repair.

Operator: The entity that operates an Alternate Water Source System. The Operator is responsible for applying for a permit, assuring that water collection, treatment, use, and water quality monitoring and reporting are consistent with the approved engineering report, the Operations and Maintenance Manual, these Rules and Regulations, and applicable state and local laws. Operators that do not hold a valid permit are subject to the same penalties described in Section 17 of these rules and regulations.

Permit: Permit to operate an Alternate Water Source System issued and enforced by SFDPH.

Project Applicant: The person(s) or entity(s) applying for authorization to install an Alternate Water Source System.

Rain Event: For the purposes of informing the Director's decision on the length of the Initial System Start-up Period during system startup for Rainwater and Stormwater sourced systems, each Rain Event is the occurrence of precipitation in an amount exceeding 0.50 inches reported at the National Weather Service San Francisco station (SFOC1), or other applicable location as determined by the Director, preceded and followed by a minimum of 1 hour where less than 0.05 inches precipitation are reported.

Rainwater: Precipitation collected from roof surfaces or other manmade, above ground collection surfaces where hydrocarbon-based fuels, hazardous materials, or fertilizers are not stored or used.

Residential Building: A building that contains only dwelling units.

SFDBI PID: San Francisco Department of Building Inspection Plumbing Inspection Division

SFDPH: San Francisco Department of Public Health

SFPUC: San Francisco Public Utilities Commission

Stormwater: Precipitation collected from at-grade or below grade surfaces, or precipitation collected from any surface where hydrocarbon-based fuels, hazardous materials, or fertilizers are stored or used.

Site Supervisor: In a District-scale Project, the qualified person or entity designated by a User and/or a Supplier to oversee the operation and maintenance of the on-site distribution system and/or collection system and act as a liaison to the Operator.

Spray irrigation: A method of applying water for beneficial use by plants where the water emits from a fixture or device into the air before coming into contact with the soil, ground or plant surface.

Subsurface irrigation: A method of applying water for beneficial use by plants where the water is delivered beneath the soil surface.

Surface non-spray irrigation: A method of applying water for beneficial use by plants where the water is delivered directly at the ground plane via hardware such as a drip emitters or soaker hoses.

Supplier: An entity that supplies an untreated Alternate Water Source to the Operator for treatment and reuse. A Supplier may also be an Operator and/or User.

Template for Alternate Water Source System Engineering Reports: A fillable form identifying and describing the required elements of the Alternate Water Source System Engineering Report.

Template for Alternate Water Source System Annual Reports: A fillable form identifying and describing the required elements of the Alternate Water Source System Annual Report.

Treatment System Manager: The qualified person or entity responsible for the daily management and oversight of the Alternate Water Source System. The Treatment System Manager may also be the Operator or an entity contracted by the Operator.

User: An entity that accepts treated water from an operator for beneficial purposes within its area of occupancy. A User may also be an Operator and/or Supplier.

2. Allowed Alternate Water Sources

Collection, storage and/or treatment and subsequent reuse of the following alternate water sources may be permitted under these Rules and Regulations:

- Rainwater
- Stormwater
- Graywater
- Foundation Drainage
- Blackwater

Other alternate sources of water may be considered if approved under the variance procedure described in Section 16.

3. Allowed Uses

The following uses may be permitted under these Rules and Regulations:

- Toilet and urinal flushing
- Irrigation:
 - Subsurface
 - Drip or other surface non-spray
 - Spray
- Other uses:
 - Priming drain traps
 - Decorative fountains and impoundments
 - Clothes washing
 - Cooling applications
 - Dust control

Other uses of Alternate Water Sources may be allowed if approved under the variance procedure described in Section 16.

4. SFDPH Permits

A permit from SFDPH is required for the operation of Alternate Water Source Systems at multi-family, mixed use and non-Residential Buildings with the following three exceptions:

- Permit Exception 1: Rainwater systems having a first flush diverter and a 100 µm filter which are used solely for subsurface irrigation or for surface non-spray irrigation;
- Permit Exception 2: Graywater systems used solely for subsurface irrigation;
- Permit Exception 3: Foundation Drainage systems used solely for subsurface irrigation.

The above three types of Alternate Water Source systems do not require a permit under San Francisco Health Code Article 12C.

The Director shall issue a Permit after all applicable requirements in these Rules and Regulations are met. A Permit to operate will be valid for one year from the date of issuance. Permits must be renewed annually as specified in Section 7.

Systems being operated without a valid permit shall be subject to penalty.

5. Permit Application

The following are required elements for an Alternate Water Source System Permit application:

Water Budget Application: Project Applicants shall submit a Water Budget Application for review by the General Manager of the SFPUC. The Water Budget Application shall include a description and location of the proposed or existing Alternate Water Source System, the project's water budget, and other applicable information. The Water Budget Application must identify The Operator and all User(s) and Supplier(s) data.

Application for a Permit to Operate and Fee: Project Applicants shall submit an Application for a Permit to Operate an Alternate Water Source System (Permit Application) to the Director accompanied by the appropriate fee as shown in the SFDPH schedule of fees. District-scale systems may be charged an additional hourly rate for permit application review and approval.

Engineering Report Approval: Project Applicants shall submit an Alternate Water Source System Engineering Report (Engineering Report) to the Director for review and approval. The Engineering Report shall include all items in the Template for Alternate Water Source System Engineering Reports. The Director may request revisions to initial and subsequent Engineering Report submittals. The Director shall make reasonable efforts to provide a response to project applicants within 30 days of receipt of an initial or revised Engineering Report.

Required Documents:

- A finalized Operations and Maintenance Manual that complies with the requirements set forth in Section 12 of these Rule and Regulations;
- For blackwater systems, a start-up plan detailing system start-up procedures;
- An affidavit signed by the designated Treatment System Manager that verifies knowledge, skills, abilities and training to operate the permitted system; Verification of a contractual arrangement with a laboratory certified to perform water quality analysis;
- Evidence of a contract with a certified laboratory;

- System construction verification provided to SFDPH on company letterhead, signed and stamped by the registered professional engineer stating that the alternate water system was constructed in accordance with the approved Engineering Report, professionally certified plans, specifications and applicable sections of state and local code; SFDPH may request to be present during system construction verification;
- Evidence of satisfactory performance upon cross connection wet-test overseen by certified personnel from the San Francisco Public Utilities Commission Water Quality Division or other certified personnel as determined by the Director;

Enforceable Legal Agreement (for District-scale Projects only): Project applicants for District-scale Projects shall provide to the Director an executed legally enforceable agreement defining the roles and responsibilities of each property owner or entity with regard to the Alternate Water Source System. The Operator and each of the Suppliers and Users shall be included in, and signatories of the agreement. The agreement shall be recorded.

6. Permit Issuance

Upon receipt of the permit fee and all required elements in Section 5 of these Rules and Regulations, SFDPH will issue a Permit for the Operation of the Alternate Water Source System. The permit requires compliance with all requirements of these Rules and Regulations, and will require increased monitoring and reporting frequencies in the Conditional Startup Mode before the Final Use Mode is granted.

Conditional Startup Mode: (Initial System Start-up Period)

Duration: The duration of the Conditional Startup Mode period for Initial System Start-up shall be 180 days, unless the Director determines that a shorter or longer start-up period will best serve the public health. The Conditional Startup Mode period may be extended for an additional 90 days upon approval of the Director.

Monitoring and Reporting: During the Conditional Startup Mode period, the Operator or designee shall have treated water samples analyzed by a Certified Laboratory at the frequencies noted in Tables 2-7. The Operator or designee shall submit results of laboratory analysis along with a completed and signed Discharge Monitoring Report to DPH at the frequencies shown in Tables 2.1 – 7.1. Water sample locations shall be as specified in Table 8.

Bypass Period: The Director may require diversion of the treated water to the sanitary sewer when the Alternate Water Source system is first utilized during Conditional Startup Mode. The Bypass Period, if required, will be set by Director for between 30 to 90 days, and may be extended at the Director's discretion. During a required bypass period all fixtures in the building shall be operated using the municipally supplied make-up water source.

Bypass Conditions: During the Bypass Period (if required) the alternate water source shall be treated, and samples of water shall be collected prior to disposal; treated water samples shall be analyzed by the Certified Laboratory for all required parameters in Tables 2-7 and reported at the frequencies described in Tables 2.1 – 7.1. Water sample locations shall be as specified in Table 8. The Bypass Condition will be met when samples of treated water disposed to the sanitary sewer show compliance with water quality requirements for no fewer than 80% of sample days in the Bypass Period, and consistent compliance must be achieved for at least the final 14 days of the Required Bypass period. Upon completion of any required Bypass Conditions, treated water from

the system may be utilized for the applications identified in the approved Engineering Report, except that all Alternate Water Source Systems shall immediately divert the alternate water source to the sanitary sewer system upon receipt of the results of any laboratory or instrument result that does not meet the performance requirements of the Permit.

Final Use Mode and Ongoing Permit Conditions

Duration: Upon completion of the Conditional Startup Mode period, the director will revise the Permit to Final Use Mode. The Final Use Mode applies as long as all permit conditions and requirements are met.

Monitoring and Reporting: During the Final Use Mode, treated water samples shall be analyzed at the frequencies noted in Tables 2-7 and reported to DPH at the frequencies shown in Tables 2.1 – 7.1. Water sample locations shall be as specified in Table 8. Applicable sampling, analysis and reporting requirements in Tables 2-7 and 2.1 – 7.1 must be continually met for the permit to remain valid. During Final Use Mode, systems must comply with all requirements of the permit as set forth in these Rules and Regulations.

Bypass Conditions: All Alternate Water Source Systems shall immediately divert the alternate water source to the sanitary sewer system upon receipt of the results of any water quality test sample that does not meet the water quality requirements of the Permit. Systems required to divert to the sanitary sewer after a water quality test result excursion may resume normal operation after the Director receives and approves documentation of three (3) consecutive days full compliance along with a letter explaining why the performance was compromised and what actions were taken to prevent it from reoccurring.

7. Permit Renewal

Every operator shall renew the Permit annually by paying to the Office of the Treasurer & Tax Collector of the City and County of San Francisco the annual Permit fee set forth in Section 249.24 of the San Francisco Business and Tax Regulation Code. Upon the failure of The Operator to pay such fees, the Permit shall be considered null and void until the Operator pays the fees and any penalties that might be assessed by the Director.

The Alternate Water Source System Permit shall be considered null and void if it is determined that the system was built without applicable building and plumbing permits issued by the SFDBI PID, and, where applicable, encroachment permits issued by Department of Public Works.

8. Permit Modification

The Director may order the modification of any Permit issued under these Rules and Regulations upon: (1) a written application from the Operator or (2) receipt of evidence that the operation may (A) violate any provisions of these Rules and Regulations or (B) endanger the public health.

Changes to the Alternate Water Source System, including but not limited to changes in source water, end uses, treatment or other system components, may require permit modification.

In a District scale Project, the Director may order the modification of any Permit issued under these regulations given any changes in the roles of Supplier, Operator, and or User as submitted to the Director.

Except where the Operator requests Permit modification, if the Director determines that a Permit issued under these Rules and Regulations is required to be modified, the Director shall serve such order on the Operator, either by personal service or by certified mail return receipt requested, and the modification shall be effective and final thirty (30) days after the service of such order unless appealed by the Operator. Within thirty (30) days from the service of the order, the Operator may appeal the modification order to the Director. The Director shall conduct an administrative hearing upon the filing of an appeal by the Operator in accordance with Section 18.

Alternate Water Source System Operators will be charged an hourly rate for review and approval of permit modifications.

9. Permit Transfer

Permits to operate Alternate Water Source Systems are not automatically transferable. New owners must submit documentation that they can and will properly operate an alternate water source system. The director may approve or deny the transfer of a permit. The system may not be operated in absence of a current Permit.

A SFPUC Water Budget Application is not required to obtain a Permit for an existing system in which construction and operation are consistent with a previously accepted Engineering Report.

10. Water Quality Sampling, Reporting and Notification Requirements

Routine Sampling:

Tables 2 – 7 show water quality requirements and sampling frequencies; water sample locations are specified in Table 8. Permits issued under these Rules and Regulations will adhere to the water quality sampling and analysis requirements specified in Tables 2 – 7 at locations specified in Table 8 for the alternate source water and end use. In general, monitoring is required quarterly, monthly, weekly, daily or continuously depending on the permit type, source and end use. The Director may modify Permit requirements if evidence indicates that the modified requirements maintain public health protection.

The Operator shall ensure that all operational water quality sampling and reporting requirements are undertaken by a qualified entity as approved by the Director. Where multiple water sources are combined, the monitoring requirements of the source with the most stringent monitoring requirements will apply.

Water samples must be analyzed by a Certified Laboratory using methods approved by the Environmental Protection Agency for water sampling and analysis, or through approved in-line monitoring devices. Laboratory reports must be signed by the laboratory director or a designee. Instrumentation with continuous monitoring capabilities must be installed for turbidity and chlorine measurements when continuous monitoring is required.

SFDPH may request to be present during required water quality sample collections.

Routine Reporting:

Tables 2.1 – 7.1 show reporting schedules; Testing results shall be reported via approved Discharge Monitoring Reports and be accompanied by data in an approved electronic format. A Discharge Monitoring Report form shall be provided by the Director. The information reported shall include:

- System treated water flow (gallons per day, gallons per week or gallons per month)
- Water quality characteristics in accordance with the Permit.
- Attachments describing any breakdowns, upsets, bypasses, odors, complaints, or other system operation anomalies.

Discharge Monitoring Reports shall be signed by the Operator or Treatment System Manager and submitted by the 15th of the month following the last day of the period reported.

Tables 2.1 – 7.1 specify reporting requirements. In general, results from monitoring must be reported to the health department on a monthly or annual basis, depending on the type of permit issued.

Annual Report:

The Operator shall submit an Annual Report to the Director by January 15, each year. The Annual Report shall include all items in the Template for Alternate Water System Annual Reports, and will describe compliance of the Alternate Water Source System with these Rules and Regulations and the limits and conditions established by the Permit.

The Annual Report shall be signed by the Treatment System Manager.

Malfunction Notification:

The Treatment System Manager shall notify the San Francisco Department of Public Health, Environmental Health (phone: 415-252-3800, email: DPH.Nonpotable@sfdph.org) of any malfunction that results in or is likely to result in environmental harm or increased public risk. Malfunctions may include, but are not limited to overflows, unanticipated bypasses, or excursions outside of water quality limitations for any of the pollutants monitored.

Oral notification shall take place within 24 hours from the time the Treatment System Manager becomes aware of the circumstances and include, as applicable:

- A description of the malfunction, including location description
- If an overflow occurred: estimated volume and description of receiving waters
- A description of any component involved in the malfunction
- A description of the suspected causes
- Planned diagnostic and/ or mitigation steps
- The estimated date and time when the malfunction or the effects of the malfunction began and stopped or will be stopped

Written notification shall occur within 5 days and include:

- The cause or suspected cause of the circumstance
- Steps taken or planned to reduce, eliminate, and prevent reoccurrence and a schedule of major milestones for those steps

- Steps taken or planned to mitigate the impacts(s) and schedule of the major milestones for those steps
- Public notification steps taken

Notification of Facility Changes and Other Circumstances:

The Operator shall notify the SFDPH, SFDBI PID and SFPUC prior to any facility expansion, production increase, or process modification that is expected to result in a change in the character of the treated water.

The Operator shall notify all users immediately of any circumstance which indicates that treated water quality may not meet acceptable standards.

11. Recordkeeping

The Treatment System Manager shall maintain system records on premises and available for inspection by the Director, including but not limited to (1) Current Permit; (2) Current treatment system Operations and Maintenance Manual; (3) Signed results delivered by the Certified Laboratory and evidence of chain of custody; (4) Discharge Monitoring Reports; (5) Annual Reports; (6) Notifications as described in Section 10; (7) A log of all calibrations, maintenance, and major changes in operation; and (8) A log of all system auto-generated alarms, causes and corrective actions. Records shall be maintained for at least two years.

12. Treatment System Operation, Maintenance and Equipment**Treatment System Manager Capacity**

The Operator shall directly employ or maintain a service contract with a Treatment System Manager(s) to supervise the operation of the system. The Treatment System Manager will be required to sign an affidavit attesting that they possess sufficient Knowledge, Skills, Abilities and Training to operate the Alternate Water Source System. The Operator shall notify the Director in writing within thirty (30) days of replacement or re-designation of Treatment System Manager(s) responsible for supervising system operation (including shifts). This requirement is in addition to other reporting requirements contained in these Rules and Regulations.

Upon written request, the Director may grant the Operator reasonable time, not to exceed 120 days, to obtain the services of a qualified person to supervise the system. The written request must include justification for the time needed, a schedule for recruiting and hiring, the date the system supervisor availability ceased, and the name of the temporary Treatment System Manager(s).

The Operator must provide adequate operating and monitoring staff that is duly qualified to carry out the operation, maintenance, and monitoring requirements to assure continuous compliance with the conditions set forth in these Rules and Regulations. All compliance sample collection shall be conducted by adequately trained staff and according to approved protocols. For black water systems, Treatment System Managers must be certified by the California Water Environmental Association as a level 2, or higher, Wastewater Treatment Plant Operator or have comparable education and/or experience.

Operations and Maintenance Manual

A current Operations and Maintenance Manual must be kept on premises and in other locations specified in the manual. The manual shall be reviewed annually and updated as appropriate.

The manual shall include:

- A chapter or section on training personnel to operate and troubleshoot the system, what minimum qualifications (e.g. education, experience and/or certifications) are required to operate the system, and qualifications of staff who will be responsible for collecting samples and delivery to the Certified Laboratory;
- Compliance monitoring plan identifying location and schedule for: sample collection, analysis and reporting, equipment to be used, and sampling procedures;
- A maintenance and inspection schedule and criteria for maintaining each component of the treatment system, such as filters, disinfection process, monitoring equipment, and plumbing components;
- Provisions for monitoring and managing failure of treatment processes;
- Detailed process for determining the need for and method of providing make-up water in the event of low flow situations;
- Detailed process for identifying and handling overflow or over-capacity situations, and guidance to ensure capacity is not exceeded;
- Explicit procedures to ensure members of the public are protected from any contact with wastewater;
- A chapter/section on troubleshooting the system;
- A schedule for updating the manual;
- Procedures and an emergency plan in the event of malfunctions;
- A process for ensuring emergency numbers and contacts are kept current and disseminated when they change;
- Schedule for testing any remote notification systems; and
- Locations where copies of the manual will be maintained.

Systems with any cooling tower end use shall also include a Cooling Tower Water Management Plan as an appendix to the Operations and Maintenance Manual. The purpose of the Cooling Tower Water Management Plan is to describe strategies for preventing the growth of *legionella* and other bacteria in the cooling tower system. Required elements of the Cooling Tower Water Management Plan shall be those contained in the O&M Manual Template and shall include the following specific to the cooling tower end use: recordkeeping; location of the cooling tower in relation to nearby HVAC intake fans or other equipment or receptors of concern; description and maintenance schedule for drift eliminators; start-up and shutdown procedures; disinfection and treatment; procedures for monitoring control measures; and procedures that will be followed if known or suspected legionellosis is associated with the building water system.

Equipment

Equipment and instruments used to comply with the treatment and monitoring requirements set forth in these Rules and Regulations shall be calibrated, maintained, and operated consistent with manufacturer's recommendations.

[13. Reserved]

14. System Design Requirements

Cross Connection Control and Make-up Water Supply

Cross connection testing shall be completed in accordance with the California Plumbing Code prior to initial operation of the system and at intervals thereafter as mandated.

The municipal water connection serving properties with alternate water source systems must be protected by a containment Reduced Pressure Principle (RP) device within 25 feet downstream of the point of connection or water meter to protect the City's public water and/or recycled water system.

As shown in Table 1, Alternate Water Source systems must include municipally supplied make-up water **via an air gap** except:

Make-up Water Supply Exception 1: Irrigation-only systems are not required to include a municipally supplied make-up;

Make-up Water Supply Exception 2: Rainwater harvesting systems that do not specify an isolation air-gap at the point of municipally supplied make-up may alternatively specify an isolation RP at the point of potable make-up to the alternate water source system.

**Table 1:
Make-up Supply and Cross Connection Protection for Alternate Water Source Systems**

	Rainwater Source Systems	All other Alternate Water Sources (e.g. Stormwater, Graywater, Blackwater, Foundation Drainage)
Municipally supplied make-up water source*	Required	Required
Service Meter Protection	Containment RP required < 25' downstream of municipally supplied water service meter	Containment RP required < 25' downstream of municipally supplied water service meter
Protection at the point of municipally supplied make-up to the Alternate Water Source system	Isolation air gap OR Isolation RP	Isolation Air gap

* Irrigation-only systems are not required to include a municipally supplied make-up

RP: Reduced Pressure Principle

Flow Meter

All properties collecting, treating, receiving, or distributing water from an Alternate Water Source System shall include a flow meter on the treated Alternate Water Source distribution system;

Overflow

All properties collecting, treating, receiving, or distributing water from an Alternate Water Source System shall include overflow connections to the sanitary sewer system with an air gap or other approved backflow prevention device.

California Plumbing Code

All properties collecting, treating, receiving, or distributing water from an Alternate Water Source System shall include components or design features as required by the California Plumbing code, specifically: (1) Signage as required by the California Plumbing Code; signage shall be maintained in good condition and free from damage or removal; (2) For rainwater systems, a

first flush diverter or debris excluder as required by the California Plumbing Code; (3) Tanks that receive and/or store untreated graywater and/or blackwater shall be properly vented per the California Plumbing Code.

15. Special Requirements for District-Scale Alternate Water Source Systems

A District-scale Project entails the sharing of an Alternate Water Source System across property lines or for use in multiple structures, whether under the jurisdiction of one entity or several. District-scale Projects are subject to additional permit requirements as outlined in this section.

Legally Enforceable Agreement

Project applicants for District-scale Projects shall provide to the Director an executed legally enforceable agreement defining the roles and responsibilities of each property owner or entity in relation to the maintenance and use of the System. The Operator and each of the Suppliers and Users shall be included in, and signatories of the agreement. The agreement shall be recorded.

Special Requirements for Operations and Maintenance for District Scale Systems

Suppliers, Operators, and Users shall, at all times, properly operate and maintain all technologies and systems which are installed or used to achieve compliance with the Permit. All procedures shall be described in the Operations and Maintenance Manual.

The Operator shall conduct periodic inspections of all facilities to monitor and assure compliance with conditions of the Permit. The Operator shall take all necessary actions to assure compliance as outlined in the Legally Enforceable Agreement, the Operations and Maintenance Manual, and these Rules and Regulations.

All properties where alternate water is collected, treated and/or used shall allow entry for inspection by the Operator and SFDPH and SFDBI PID inspectors.

All Suppliers, Operators, and Users shall comply with these Rules and Regulations and other regulations regarding the use of alternate water sources and recycled water.

Special Requirements for Notifications and Reporting for District Scale Systems

The Operator is responsible for all notifications including those which result from equipment failures or system malfunctions on properties which are owned and operated by other entities named in the Legally Enforceable Agreement.

The Operator shall notify the SFDPH, SFDBI PID and SFPUC prior to termination of system operation by the Operator, termination of the approved water source by the Supplier, and/or termination of the acceptance of treated water by a User.

Special Requirements for Records and Documentation for District Scale Systems

A copy of the Permit must be provided to all Suppliers and Users in a District-Scale system by the Operator. The Operator, Suppliers, and Users must have the Permit available at all times for inspection by SFDPH.

Copies of the current Operations and Maintenance Manual must be kept on premise where each component resides.

Site Supervisor

Each User and Supplier shall designate a Site Supervisor to oversee the operation and maintenance of the on-site distribution and or collection systems and act as a liaison to the Operator. The Site Supervisor must be an employee who is familiar with the plumbing system and available and be able to be reached by phone at all times. The User and or Supplier shall notify the Operator immediately of replacement or re-designation of Site Supervisor(s). The Operator shall notify the Director in writing within thirty (30) days of replacement or re-designation.

The Site Supervisor shall be adequately trained to operate and monitor all needed equipment to assure continuous compliance with the conditions set forth in these Rules and Regulations.

The Site supervisor is responsible for:

- Overseeing the maintenance of the collection and/or distribution system;
- Overseeing repairs and/or modifications to the plumbing/sprinkler system to ensure it remains in compliance with all regulatory requirements;
- Maintaining all signs, labels, and tags on system components;
- Acting as a liaison between the actual users of the treated alternate water source and the Treatment System Manager and SFDPH;
- Understanding, and implementing emergency procedures and protocols; and
- Reporting system issues, non-functioning system components, and any other condition that jeopardizes public health and/or permit compliance as needed to the Treatment System Manager and SFDPH.

Lockable Valves

All properties collecting, treating, receiving, or distributing water from an Alternate Water Source System shall include lockable valves which can be activated to control the flow of water from any source originating from another property and lockable valves which can be activated to control the flow of water to any user located at another property.

16. Variances

The Director shall have the discretion to grant variances for additional water sources and end uses as set forth in Sections 2 and 3, provided that the project applicant provides the anticipated source water quality data and demonstrates that the treatment and end use are protective of public health. The Director shall determine the appropriate water quality criteria and ongoing monitoring and reporting. A request for variance shall be in writing and submitted to the Director.

The Director shall have the discretion to grant variances from the sampling requirements set forth in Tables 2 – 7, the reporting frequencies in Tables 2.1 – 7.1, and the water sample locations specified in Table 8 provided that the project applicant demonstrates that strict interpretation of a standard would cause practical difficulties or unnecessary hardship due to special circumstances and/or that the requested variances do not pose a threat to the public health. A request for a variance shall be in writing and submitted to the Director. No variance shall be granted unless the Director finds that the requested variance is consistent with the purposes of these Rules and Regulations.

17. Inspection and Notices of Violation

SFDPH retains the right to enter and inspect any Alternate Water Source System governed by these Rules and Regulations during normal business hours in the absence of advance notice.

All properties included in a District-Scale system are subject to inspection. All documentation required under these Rules and Regulations shall be made available for inspection on request.

If informal attempts by the Director to obtain compliance with the provisions of San Francisco Health Code Article 12C ("Article 12C") fail, the Director may take any the following steps:

- The Director may send written notice of noncompliance with the provisions of Article 12C to the Operator of the Alternate Water Source System. The notice shall specify the steps that must be taken to bring the system into compliance. The notice shall specify that the Operator has 10 days in which to bring the system into compliance.
- If the Director determines that the Operator has corrected the problem and is in compliance with the provisions of Article 12C, the Director may so inform the Operator.
- If the Director determines that the Operator failed to make the necessary changes in order to come into compliance with the provisions of Article 12C, the Director may issue a notice of violation.

If the Director concludes that announced inspections are inadequate to ascertain compliance with Article 12C (based on public complaints or other relevant circumstances), the Director may use other appropriate means to inspect the system. If such additional inspection shows noncompliance, the Director may issue a notice of violation and/or notice of noncompliance, as the Director deems appropriate.

Every entity to whom a permit is granted pursuant to Article 12C shall post a sign in a conspicuous place indicating the operation of the Alternate Water Source System. Signage is required on all properties using water from an Alternate Water Source System. Signs shall state that it is unlawful to refuse an inspection by the Department of Public Health, or any City peace, fire, planning, or building official or inspector, conducted during the hours the establishment is open to the public and at all other reasonable times, of the areas of the establishment to which patrons have access.

18. Suspension and Revocation of Permits

Any permit issued for an Alternate Water Source System may be revoked, or suspended for up to 30 days, by the Director, if the Director determines:

- The Treatment System Manager, or any employee has violated any provision of Article 12C or any regulation issued pursuant to Article 12C;
- The Operator has engaged in any conduct in connection with the operation of the Alternate Water Source System that violates any State or local laws, or any employee of the Operator has engaged in any conduct that violates any State or local laws while operating Alternate Water Source System, and the Operator had or should have had actual or constructive knowledge by due diligence that the illegal conduct was occurring;
- The Operator has engaged in any material misrepresentation when applying for a permit;
- The Alternate Water Source System is being managed, conducted, or maintained without regard for the public health, or the health of patrons and/or employees;
- The Operator or any employee of the Operator or any entity entered into a Legally Enforceable Agreement with the Operator in a District-scale system has refused to allow any duly authorized City official to inspect the premises or the operations of the Alternate Water Source System; or
- Based on a determination by another City department, including the Department of Building Inspection, the Fire Department, the Police Department, and/or the Planning

Department, that the Alternate Water Source System is not in compliance with any State or local laws.

The Director may not suspend or revoke a permit issued pursuant to Article 12C or take other enforcement action against the Operator of an Alternate Water Source System until the Director has issued a notice of violation and provided the Operator an opportunity to be heard and respond as provided in this Section 18. Notwithstanding, the Director may immediately suspend any permit issued under Article 12C pending a noticed hearing on revocation or suspension when in the opinion of the Director, the public health or safety requires such immediate suspension. Any affected operator shall be given notice of such immediate suspension in writing delivered to the Operator in person or by registered letter.

If a permit is revoked, no application for an Alternate Water Source System may be submitted by the same person for three years.

If the Director determines that an Alternate Water Source System is operating in violation of the regulations adopted pursuant to Article 12C, he or she shall issue a notice of violation to the Operator of the Alternate Water Source System. The notice of violation shall be served by either personal delivery or deposit in the United States Mail, first class, in a sealed envelope postage prepaid. Service shall include a declaration under penalty of perjury setting forth the date of personal delivery or, for service by mail, the date of deposit in the mail. Service by personal delivery shall be deemed complete on the date of the delivery. Service by mail shall be deemed complete on the date of deposit in the mail.

The notice of violation shall include a copy of the Rules and Regulations adopted pursuant to Article 12C concerning the denial, suspension or revocation of permits, and the imposition of administrative penalties on the Alternate Water Source System. The notice of violation shall include a statement of any informal attempts by the Director to obtain compliance with the provisions of Article 12C pursuant to Section 17. The notice of violation shall inform the Operator that:

- (1) The Director has made an initial determination that the alternate water source system is operating in violation of Article 12C and/or the Rules and Regulations adopted pursuant to Article 12C;
- (2) The alleged acts or failures to act that constitute the basis for the Directors initial determination;
- (3) That the Director intends to take enforcement action against the Operator, and the nature of that action including the suspension or revocation of the Operator's Permit; and
- (4) That the Operator has the right to request a hearing before the Director within fifteen (15) days of service of the notice of violation in order to allow the Operator an opportunity to show that the on-site Alternate Water Source System is operating in compliance with Article 12C and/or the Rules and Regulations adopted pursuant to Article 12C.

If the Operator files a timely request for a hearing, within fifteen (15) days of receipt of the request, the Director shall notify the requestor of the date, time, and place of the hearing. The Director shall make available all documentary evidence against the Operator no later than fifteen (15) days prior to the hearing. Such hearing shall be held no later than forty- five (45) days after the Director receives the request, unless time is extended by mutual agreement of the affected parties.

At the hearing, the Operator of the Alternate Water Source System shall be provided an opportunity to refute all evidence against it. The Director shall conduct the hearing.

Within twenty (20) days of the conclusion of the hearing, the Director shall serve written notice of the Director's decision on the alleged violation.

If no request for a hearing is filed with the Director within the appropriate period, the initial determination shall be deemed final and shall be effective fifteen (15) days after the notice of initial determination was served on the alleged violator. The Director shall issue an order imposing the enforcement action and serve it upon the party served with the notice of initial determination.

19. Violations and Administrative Penalties

The provisions of Chapter 100 of the San Francisco Administrative Code, as amended, shall govern the amount of administrative fines to be charged and the procedures for imposition, enforcement, collection, and administrative review of administrative citations issued to enforce Health Code Article 12C.

For purposes of this Rule, "charging official" shall mean the Director, or his or her designee, "violation" shall mean a violation of Article 12C or these Rules and Regulations, and "violator" shall mean the cited Alternate Water Source System Operator.

Any Alternate Water Source System Operator who violates any provision of Article 12C or any Rule or Regulation adopted pursuant to Article 12C may be subject to an administrative penalty not to exceed \$100 for the first violation of a provision or regulation in a 12-month period, \$200 for the second violation of the same provision or regulation in a 12-month period; and \$500 for the third and subsequent violations of the same provision or regulation in a 12-month period.

Citations will be served to both the Operator and the Real Property owner in a manner consistent with Chapter 100 of the San Francisco Administrative Code. Payment of fines shall be directed to the San Francisco Department of Public Health Environmental Health Branch, 1390 Market Street, Suite 210, San Francisco, CA 94102.

20. Appeals

Permit Decisions: The final decision of the Director to grant, deny, suspend, or revoke a permit, as provided in Article 12C, may be appealed to the Board of Appeals in the manner prescribed in San Francisco Business and Tax Relations Code Article 1.

Administrative Penalties: The final decision of the Director to impose administrative penalties, as provided in Article 12C may be appealed in the manner described in Administrative Code Chapter 100.

Table 2a: Monitoring for Rainwater Treatment Systems that do not include chlorine disinfection †			
Parameter	Units	Water Quality Limits	Monitoring Frequency
<i>Escherichia coli</i>	CFU/100 mL	No sample shall exceed 100 CFU/100 ml at any time.	Weekly, Monthly*
Turbidity	NTU	No sample shall exceed 10 NTU at any time.	Weekly, Monthly*
Odor	n/a	The system shall not emit offensive odors.	n/a
Flow	gallons per day	At least one flow meter must be installed.	Continuously

* Systems shall be sampled once weekly for E. Coli bacteria during the Conditional Startup Mode period during initial system startup, after which monthly sampling shall be performed.

†Disinfection with chlorine, ozone, ultraviolet radiation, or other approved agent is required for all uses with potential for human contact.

Table 2b: Monitoring for Rainwater Treatment Systems with chlorine disinfection			
Parameter	Units	Water Quality Limits	Monitoring Frequency
<i>Escherichia coli</i>	CFU/100 mL	No sample shall exceed 100 CFU/100 ml at any time.	Monthly
Turbidity	NTU	No sample shall exceed 10 NTU at any time.	Monthly
Chlorine Residual	mg/L	Over any 24 hour period, the average chlorine residual shall be within the range 0.5 -2.5 mg/L.	Continuously
Odor	n/a	The system shall not emit offensive odors.	n/a
Flow	gallons per day	At least one flow meter must be installed.	Continuously

Table 2.1: REPORTING FOR RAINWATER SYSTEMS
<p>Routine Reporting Frequencies: Conditional (Initial Startup): Monthly Ongoing: Annually</p>

Operational changes, system malfunctions, and/or monitoring results which are outside of the applicable water quality limits shall be reported within 24 hours.

Rainwater systems that, at a minimum, include a first flush diverter, and a 100 µm filter and are used for subsurface irrigation, drip irrigation, or non-spray surface irrigation do not require water quality monitoring or reporting.

Table 3. Water Quality Monitoring Requirements for Stormwater Treatment Systems

Parameter	Units	Water Quality Limits	Monitoring Frequency †
<i>Escherichia coli</i>	CFU/100 mL	No sample shall exceed 100 CFU/100 ml at any time.	Weekly, Monthly*
Turbidity	NTU	No sample shall exceed 10 NTU at any time.	Monthly
Odor	n/a	The system shall not emit offensive odors.	n/a
Chlorine Residual	mg/L	Over any 24 hour period, the average chlorine residual shall be within the range 0.5 -2.5 mg/L.	Continuously
VOCs	mg/L	See Table 5	Quarterly†
Flow	gallons per day	At least one flow meter must be installed	Continuously

* Systems shall be sampled once weekly for E. Coli bacteria during the Conditional Startup Mode period during initial system startup, after which monthly sampling shall be performed.

† The Director may reduce the frequency of VOC monitoring for stormwater systems that show consistent evidence of minimal risk of contamination by VOC's through monitoring results and/or demonstration of low risk stormwater collection environment.

Table 3.1: REPORTING FOR STORMWATER SYSTEMS

Routine Reporting Frequencies:
 Conditional (Initial Startup): Monthly
 Ongoing: Annually

Operational changes, system malfunctions, and/or monitoring results which are outside of the applicable water quality limits shall be reported within 24 hours.

Table 4. Water Quality Monitoring Requirements for Foundation Drainage Water Treatment Systems

Parameter	Units	Water Quality Limits	Monitoring Frequency
<i>Escherichia coli</i>	CFU/100 mL	No sample shall exceed 200 CFU/100 ml at any time; and The median concentration shall not exceed 2.2 CFU/100 mL utilizing the bacteriological results of the last 4 weeks for which analyses have been completed.	Weekly, Monthly*
Turbidity	NTU	The median concentration shall not exceed 2 NTU utilizing the results of the last 7 days for which analysis have been completed; and No sample shall exceed 10 NTU at any time.	Monthly
Odor	n/a	The system shall not emit offensive odors.	n/a
Chlorine Residual†	mg/L	Over any 24 hour period, the average chlorine residual shall be within the range 0.5 -2.5 mg/L.	Continuously
VOCs	mg/L	See Table 5	Quarterly
Flow	gallons per day	At least one flow meter must be installed	Continuously

* Systems shall be sampled once weekly for E. Coli bacteria during the **Conditional Startup Mode period during initial system start-up**, after which monthly sampling shall be performed.

† Foundation drainage systems that are used for surface non-spray irrigation, or drip irrigation do not require disinfection and do not require chlorine monitoring or reporting.

Table 4.1: REPORTING FOR FOUNDATION DRAINAGE

Routine Reporting Frequencies:

Conditional (Initial Startup): Monthly

Ongoing: Annually

Operational changes, system malfunctions, and/or monitoring results which are outside of the applicable water quality limits shall be reported within 24 hours.

Table 5: Volatile Organic Compound Unacceptable Concentrations	
VOC	Unacceptable Concentration (mg/L)[†]
Benzene	0.1
Carbon Tetrachloride	0.5
1,2-Dichlorobenzene	5.4
1,4-Dichlorobenzene	5.4
1,1-Dichloroethane	14.4
1,2-Dichloroethane	0.1
1,1-Dichloroethylene	0.1
cis-1,2-Dichloroethylene	28.4
trans-1,2-Dichloroethylene	28.4
Dichloromethane	3.1
1,2-Dichloropropane	12.6
1,3-Dichloropropene	0.2
Ethylbenzene	15.6
Methyl-tert-butyl ether	5.2
Monochlorobenzene	1.7
Styrene	7.7
1,1,2,2-Tetrachloroethane	0.3
Tetrachloroethylene	6.1
Toluene	6.8
1,2,4-Trichlorobenzene	1.4
1,1,1-Trichloroethane	68.2
1,1,2-Trichloroethane	1.6
Trichloroethylene	4.8
Trichlorofluoromethane	201.1
1,1,2-Trichloro-1,2,2-Trifluoroethane	272.9
Vinyl Chloride	0.1
Xylenes	15.6

[†] SFDPH derived estimated unacceptable concentrations of VOC's from the U.S. Occupational Safety and Health Administration Permissible Exposure Limits for 8-hour inhalation exposures to selected VOCs.

Table 6. Water Quality Monitoring Requirements for Graywater Treatment Systems in Buildings

Parameter	Units	Water Quality Limits	Monitoring Frequency†
<i>Escherichia coli</i>	CFU/100 mL	The median concentration shall not exceed 2.2 CFU/100 mL utilizing the bacteriological results of the last 4 weeks for which analyses have been completed; and No sample shall exceed 200 CFU/100 ml at any time.	Weekly, Monthly*
Turbidity	NTU	The median shall not exceed 2 NTU utilizing the results of the last 7 days for which analysis have been completed; and No sample shall exceed 10 NTU at any time.	Continuously
Odor	n/a	The system shall not emit offensive odors.	n/a
Chlorine Residual	mg/L	Over any 24 hour period, the average chlorine residual shall be within the range 0.5 -2.5 mg/L.	Continuously
pH	n/a	At any time, the pH shall be between 6 and 9.	Weekly
Flow	gallons per day	At least one flow meter must be installed.	Continuously

* Systems shall be sampled once weekly for E. Coli bacteria during the Conditional Startup Mode period during initial system startup, after which monthly sampling shall be performed.

† Based on system design, blowdown and cooling water source systems may qualify for reduced a reduced monitoring frequency.

Table 6.1: REPORTING FOR GRAYWATER SYSTEMS

Routine Reporting Frequencies:

Conditional (Initial Startup): Monthly

Ongoing: Annually

Notes:

Operational changes, system malfunctions, and/or monitoring results which are outside of the applicable water quality limits shall be reported within 24 hours.

For Graywater systems the Director may require a bypass diversion during the first 90 days of the Conditional Startup Mode period during initial system startup. During the bypass period graywater shall be treated, sampled, analyzed for all parameters shown in Table 6, and the treated water shall be disposed to the sanitary sewer.

Table 7. Water Quality Monitoring Requirements for Blackwater Treatment Systems

Parameter	Units	Water Quality Limits	Monitoring Frequency
Total Coliform	MPN	The median concentration shall not exceed an MPN of 2.2 /100 mL utilizing the bacteriological results of the last seven days for which analyses have been completed; and The maximum number shall not exceed an MPN of 23 /100 mL in more than one sample in any 30 day period; and No sample shall exceed an MPN of 240 /100 ml at any time.	Daily
Turbidity	NTU	The average shall not exceed 2 NTU within a 24-hour period; and The maximum shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period; and No sample shall exceed 10 NTU at any time.	Continuously
Odor	n/a	The system shall not emit offensive odors.	n/a
Chlorine Residual	mg/L	Over any 24 hour period, the average chlorine residual shall be within the range 0.5 -2.5 mg/L.	Continuously
pH	n/a	The minimum shall exceed 6 at all times; and The maximum shall not exceed 9 at any time.	Weekly
BOD ₅	mg/L	The maximum concentration shall not exceed 25 mg/L at any time; and The average concentration shall not exceed 10 mg/L utilizing the results of the last 4 weeks for which analyses have been completed (Start-Up).	Weekly, Monthly*
TSS	mg/L	The maximum concentration shall not exceed 30 mg/L at any time; and The average concentration shall not exceed 10 mg/L utilizing the results of the last 4 weeks for which analyses have been completed (Start-Up).	Weekly, Monthly*
Flow	gallons per day	At least one flow meter must be installed.	Continuously

* Systems shall be sampled once weekly for BOD and TSS during the Conditional Startup Mode period during initial system startup, after which monthly sampling shall be performed.

Table 7.1: REPORTING FOR BLACKWATER SYSTEMS
Routine Reporting Frequency:
Monthly

Notes:

Operational changes, system malfunctions, and/or monitoring results which are outside of the applicable water quality limits shall be reported within 24 hours.

For Blackwater systems the Director may require a bypass diversion during the first 90 days of the Conditional Startup Mode period during initial system startup. During the bypass period blackwater shall be treated, sampled, analyzed for all parameters shown in Table 7, and the treated water shall be disposed to the sanitary sewer.

Table 8. Water Quality Monitoring Sample Port and Parameter Measurement Location Requirements					
Parameter	Rainwater	Stormwater	Foundation Drainage	Graywater ^{1, 2, 3}	Blackwater ^{1, 2, 3}
<i>Escherichia coli</i>	Entry point to distribution system (following treatment and storage)				N/A
Total Coliform	N/A	N/A	N/A	N/A	Entry point to distribution system (following treatment and storage)
Turbidity	If UV equipment is used, turbidity must be measured prior to UV equipment ; if UV equipment is not used, turbidity must be measured at the entry point to the distribution system (following treatment and storage)			If UV equipment is used, continuous turbidimeter must be installed prior to UV equipment ; if UV equipment is not used, continuous turbidity should be measured at the inlet to finished water storage.	
Odor	Treated onsite water is not allowed to have any detectable odor; this requirement may be filled by subjective assessment of treated, stored and/or distributed water by the treatment system manager and complaint tracking; laboratory odor analysis may be required at the discretion of the Director				
Chlorine Residual	Systems using chlorine must provide continuous chlorine measurement in the break or storage tank ; ORP device may be used and measurements mathematically converted to chlorine residual				
pH	N/A	N/A	N/A	Entry point to distribution system (following treatment and storage)	
VOC	N/A	At point of collection of source water		N/A	N/A
Flow	Treated effluent to break tank, distribution system or end use				

N/A: Not Applicable

Notes:

1. Except during bypass mode during Conditional Startup, when a system is being supplied 100% municipal makeup water sampling need not be undertaken. When municipal makeup water is mixed with the treated onsite alternative water source prior to distribution, water quality sampling must still be performed and reported according to the frequency requirements shown in Tables 2-7 and 2.1-7.1. The Director will consider the duration and volume of makeup water use when assessing compliance with water quality requirements.

2. During bypass mode during Conditional Startup, sampling of treated effluent is required prior to discharge to sewer. Samples should be collected at a location closest to the end of the treatment chain.

3. To assess water quality prior to return to service when a system is put in bypass mode due to water quality non-compliance or treatment system malfunction, the Director will consider results from samples collected at a location closest to the end of the treatment chain.