SECTION G – CROSS-CONNECTION CONTROL

Contents

- 1. Applicability
- 2. Definitions
- 3. Type and Level of Backflow Prevention Required
- 4. Installation, Replacement, and Relocation Requirements for Backflow Preventers
- 5. Testing, Inspection, and Repair Requirements for Backflow Preventers
- 6. Backflow Prevention Assembly Test Tags
- 7. Water Quality Division Inspection of New Water Services
- 8. Permits to Operate
- 9. Companies Employing Authorized Backflow Prevention Assembly Testers and Authorized Cross-Connection Control Specialists
- 10. Inspection and Testing Requirements for Dual-Plumbed Systems
- 11. Emergency Cross-Connection Response Plan for Standard-Plumbed and Dual-Plumbed Systems
- 12. User Supervisor
- 13. General Manager Notices and Inspections
- 14. Enforcement, Citations, and Fines
- 15. Administrative Review and Appeal
- 16. Variances

Rule 1.

Applicability

- a) As a condition of receiving water service from the Public Water System, all Property Owners and Customers shall comply with this Section G of the SFPUC's Rules and Regulations Governing Water Service to Customers and any other applicable rule or legal requirement under San Francisco, state, or federal law. Section G's requirements also apply to Authorized Backflow Prevention Assembly Testers and Authorized Cross-Connection Control Specialists and the companies that employ them, as well as User Supervisors designated by Property Owners. Section G is promulgated in conformance with the California State Water Resources Control Board's standards for backflow protection and cross-connection control, implemented through the California Cross-Connection Control Policy Handbook (effective July 1, 2024); California Health and Safety Code Division 104, Part 12, Chapter 5, Article 2, section 116800; and San Francisco Health Code Article 12A.
- b) Property Owners and Customers shall properly install and ensure that an approved Backflow Preventer is in use at all times at the Water Service Connection in accordance with Section G's requirements if the Property or location at which they receive water service contains any of the following facilities, serves any of the following functions, or wherever any of the following conditions exists:
 - i. Agricultural Property
 - ii. Airport
 - iii. Auxiliary Water supply
 - iv. Biotech facility
 - v. Business park with a single meter serving multiple businesses

vi. Buildings four stories or more in height or water supply greater than 40 feet above the water meter

vii. Car wash

viii. Cemetery

ix. Chemical plant

x. Dedicated irrigation service

xi. Dental office with water-connected equipment

xii. Dockside watering point or marine facility

xiii. Drinking water storage tank overflow connected to a sump or storm drain

xiv. Dry cleaner facility

xv. Dual-Plumbed Property

xvi. Electronics manufacture

xvii. Fire protection systems

xviii. Fire stationxix. Gas station

xx. Hazardous substances handled in any way the substances could enter the Public Water System

xxi. Hotel/motel

xxii. Industrial or commercial laundry facility

xxiii. Incarceration facility (prison)

xxiv. Intricate plumbing and piping arrangements

xxv. Kidney dialysis facility

xxvi. Laboratory

xxvii. Medical facility/hospital/clinic

xxviii. Metal-plating facility

xxix. Mobile home park, recreational vehicle park, or campgrounds with recreational vehicle hookups

xxx. Mortuary

xxxi. Multiple standard Water Service Connections, at least one of which requires Backflow protection for Containment

xxxii. Pet grooming

xxxiii. Petroleum processing or storage plant

xxxiv. Premises with irrigation system into which fertilizers, herbicides, or pesticides are or can be injected

xxxv. Private water distribution main

xxxvi. Radioactive material storage, processing plant, or nuclear reactor

xxxvii. Railroad maintenance facility

xxxviii. Repeated history of Cross-Connections being established or re-established

xxxix. Restricted entry to a Property or parts of a Property so that Hazard Assessments cannot be made with sufficient frequency or at sufficiently short notice to ensure that Cross-Connections do not exist

xl. Self-contained, self-cleaning public toilet

xli. Sewage handling facility

xlii. Solid waste disposal facility

xliii. Temporary connections to existing water service line during construction (non-standard service)

- xliv. Temporary connection to hydrants for miscellaneous uses, including construction, street sweeping, and special events
- xlv. Veterinarian facility
- xlvi. Wastewater lift stations and pumping stations
- xlvii. Wastewater treatment processes, handling, or pumping equipment that is interconnected with a piping system connected to the Public Water System
- xlviii. Water storage facility not under control of the Public Water System
- xlix. Unabated internal Cross-Connection
- 1. Any other On-Site Hazard that the General Manager identifies as requiring abatement for the protection of the Public Water System

Rule 2. Definitions

The terms used in this Section G have the following meanings.

- a) **Applicant:** A Person who seeks to obtain a Permit to Operate under San Francisco Health Code Article 12A and these Rules and Regulations.
- b) Air Gap Separation (AG): A physical vertical separation of at least two times the effective pipe diameter between the free-flowing discharge end of a potable water supply pipeline and the flood level of an open or non-pressurized receiving vessel, which is in no case less than 1 inch.
- c) **Approved Water Supply:** A water source that the State Water Resources Control Board has approved for domestic use in a Public Water System and is designated as such in a domestic water supply permit issued pursuant to California Health and Safety Code §116525.
- d) Authorized Backflow Prevention Assembly Tester: A Person who possesses a valid certification to test Backflow Prevention Assemblies and to inspect Air Gap Separations and is authorized by the General Manager to do such work in accordance with San Francisco Health Code Article 12A and these Rules and Regulations.
- e) Authorized Cross-Connection Control Specialist: A Person who possesses a valid certification to conduct Hazard Assessments and is authorized by the General Manager to do such work in accordance with San Francisco Health Code Article 12A and these Rules and Regulations.
- f) **Authorized Representative**: A Person designated by a company employing Authorized Backflow Prevention Assembly Testers or Authorized Cross-Connection Control Specialists to obtain Backflow Tags on behalf of the company.
- g) Auxiliary Water: Any water other than that from an Approved Water Supply. This category of water includes, but is not limited to, municipally supplied recycled water, wastewater, graywater, groundwater, rainwater, foundation drainage, black water, and alternate water sources as defined in San Francisco Health Code Article 12C and accompanying rules and regulations.
- h) **Backflow**: An undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into a Public Water System's distribution system or Approved Water Supply.
- i) **Backflow Preventer:** A Backflow Prevention Assembly or an Air Gap Separation.

- j) **Backflow Prevention Assembly**: A mechanical assembly designed and constructed to prevent Backflow, such that while in-line, it can be maintained and its ability to prevent Backflow, as designed, can be field tested, inspected, and evaluated.
- k) **Backflow Tag:** The tag provided by the General Manager that an Authorized Backflow Prevention Assembly Tester or Authorized Cross-Connection Control Specialist shall affix to a Backflow Preventer after it has been inspected and passed testing in accordance with San Francisco Health Code Article 12A and these Rules and Regulations.
- l) **Citation:** A written citation issued by the General Manager to a Person that describes the facts and events that are the basis of the Person's violation(s) of San Francisco Health Code Article 12A and these Rules and Regulations, through which the General Manager may enforce Article 12A and these Rules and Regulations.
- m) City: The City and County of San Francisco.
- n) Containment: Protection of the Public Water System's distribution system from Backflow from a Property through the installation of one or more Backflow Preventers, installed as close as practical to the Property's Water Service Connection, in a manner that isolates the Property from the Public Water System's distribution system.
- o) Cross-Connection: Any actual or potential connection or structural arrangement between (1) the Public Water System, including a piping system connected to the Public Water System and located on a Property or available to the Property Owner, and (2) any source or distribution system containing liquid, gas, or other substances not from an Approved Water Supply.
- p) Cross-Connection Test: A test supervised by an Authorized Cross-Connection Control Specialist to verify that no Cross-Connections exist between the potable water piping and any Auxiliary Water piping system.
- q) **Customer:** The Person that receives water service from the SFPUC at a Property and is listed as the customer of record for the Property in the SFPUC Customer Service Bureau database. The Customer may be the Property Owner or the Property Owner's agent.
- r) **Double-Check Detector Backflow Prevention Assembly (DCDA):** A DC that includes a bypass with a water meter and DC, with the bypass's water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow.
- s) **Double-Check Detector Backflow Prevention Assembly Type II (DCDA-II):** A DC that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow.
- t) **Double-Check Valve Backflow Prevention Assembly (DC)**: A Backflow Prevention Assembly consisting of two independently acting, internally loaded check valves, with tightly closing shutoff valves located at each end of the assembly (upstream and downstream of the two check valves) and fitted with test cocks that enable accurate field testing of the assembly.
- u) **Dual-Plumbed System**: A plumbing system that utilizes separate piping systems for Auxiliary Water and potable water within a Property.
- v) **General Manager:** The General Manager of the SFPUC, or any SFPUC employee or City agency designated by the General Manager to act on the General Manager's

- behalf. The Water Quality Division Director is designated to act for the General Manager in relation to this Section G of these Rules and Regulations.
- w) **Hazard Assessment**: An assessment by an Authorized Cross-Connection Control Specialist to evaluate the types and degrees of hazard on a Property.
- x) **High-Hazard Cross-Connection**: A Cross-Connection that poses a threat to the potability or safety of the Public Water System. Materials entering the Public Water System through a High-Hazard Cross-Connection are contaminants, or health hazards.
- y) License Fee: A license fee paid annually to the San Francisco Tax Collector as provided in the San Francisco Business and Tax Regulations Code, Section 249.14.
- z) **Low-Hazard Cross-Connection**: A Cross-Connection that does not pose a threat to the potability or safety of the Public Water System but may adversely affect the aesthetic quality of the Potable Water System. Materials entering the Public Water System through a Low-Hazard Cross-Connection are pollutants, or non-health hazards.
- aa) **On-Site Hazard:** Any actual or potential hazard to the Public Water System that may be created as a result of conditions existing on a Property.
- bb) **Permit to Operate:** A permit issued by the General Manager to a Person to work as an Authorized Backflow Prevention Assembly Tester or as an Authorized Cross-Connection Control Specialist in accordance with San Francisco Health Code Article 12A and these Rules and Regulations.
- cc) **Permittee:** A Person that receives a Permit to Operate from the General Manager in accordance with San Francisco Health Code Article 12A and these Rules and Regulations.
- dd) **Person:** Any individual, company, corporation, firm, partnership, association, organization, or government entity, including local, state and federal governments.
- ee) **Point of Connection:** A Customer's water meter for all SFPUC-provided water services, except for dedicated fire services, for which the Point of Connection is the junction of the SFPUC water supply lateral and the Customer's fire protection system.
- ff) **Property:** Any parcel, premises, building, or other structure that receives potable water service from the Public Water System.
- gg) **Property Owner**: The legal owner of a Property or the agent of the legal owner of a Property.
- hh) **Public Water System (PWS)**: A potable water system as defined in California Health and Safety Code §116275(h). For the purposes of these Rules and Regulations, the term Public Water System refers to the potable water system operated and maintained by the SFPUC.
- ii) **Recycled Water**: Wastewater that, as a result of treatment, is suitable for uses other than potable uses.
- prevention Assembly with two independently acting, internally loaded check valves, with a hydraulically operating, mechanically independent differential-pressure relief valve located between the check valves and below the upstream check valve. The assembly shall have shutoff valves, located upstream and downstream of the two check valves, and test cocks to enable accurate field testing of the assembly.
- kk) Reduced Pressure Principle Detector Assembly (RPDA): An RP that includes a bypass with a water meter and RP, with the bypass's water meter accurately registering

- flow rates up to two gallons per minute and visually showing a registration for all rates of flow.
- Il) Reduced Pressure Principle Detector Assembly Type II (RPDA-II): An RP that includes a bypass around the second check, with the bypass having a single check valve and a water meter accurately registering flow rates up to two gallons per minute and visually showing a registration for all rates of flow.
- mm) Rules and Regulations: The SFPUC Rules and Regulations Governing Water Service to Customers, including but not limited to this Section G, Cross-Connection Control, as may be amended from time to time.
- nn) **SFPUC:** The San Francisco Public Utilities Commission as an operating department of the City and County of San Francisco.
- oo) **Swivel-ell**: An RP combined with a changeover piping configuration (also known as a swivel-ell connection) that is designed and constructed pursuant to the California Cross-Connection Control Policy Handbook.
- pp) **User Supervisor**: A Person designated by a Property Owner to oversee a Property and be responsible for the avoidance of Cross-Connections. This term includes site supervisors in charge of Properties with municipally supplied Recycled Water or Auxiliary Water systems.
- qq) Water Quality Division: The SFPUC Water Quality Division.
- rr) Water Service Connection: A Property's connection to the Public Water System.

Rule 3.

Type and Level of Backflow Prevention Required

- a) Property Owners shall only install Backflow Preventers and associated pipe, fittings, solder, and flux that are "lead-free," as defined in the California Health and Safety Code §116875.
- b) Property Owners shall only install Backflow Prevention Assemblies that are (1) on the "List of Approved Backflow Prevention Assemblies" maintained by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or (2) certified by a comparable organization approved by the General Manager.
- c) Property Owners shall only install Air Gap Separations that meet the requirements set forth in the San Francisco Plumbing Code, Chapter 6, section 603.3.1.
- d) For Containment at permanent Water Service Connections, Property Owners shall install one the following types of Backflow Preventers, listed in increasing level of protection: (1) a Double-Check Valve Backflow Prevention Assembly (DC), (2) a Reduced Pressure Principle Backflow Prevention Assembly (RP), or (3) an Air Gap Separation (AG). For Containment at temporary connections to the Public Water System, the required level of protection is an RP, AG, or spring-loaded check valve (San Francisco Fire Department only).
 - i. The type of Backflow Preventer installed and in use shall meet at least the minimum level of protection for the applicable hazard at the Property that is identified in Table 1 below. A DC may only be used to protect against Low-Hazard Cross-Connections. An RP or AG is required to protect against High-Hazard Cross-Connections. On fire services, a DCDA/DCDA-II or RPDA/RPDA-II is required in lieu of a DC or RP, respectively.
 - ii. If Table 1 identifies two types of Backflow Preventers as the required level of protection for the same hazard criterion, or does not specify the type, the General Manager shall determine through a Hazard Assessment which is required for the particular hazard criterion.

- iii. If more than one hazard criterion applies to a Property, the hazard criterion requiring the greatest level of protection in Table 1 shall apply.
- iv. If the General Manager is unable to assess a Property to determine the type of hazard(s) present, the Property Owner shall install an RP at the Point of Connection to the Public Water System.
- e) For isolation of a hazard within a Property, Property Owners shall install a Backflow Preventer that meets the minimum level of protection required in Chapter 6 of the California Plumbing Code, unless one or more of the hazard criteria identified in Table 2 applies to the Property, requiring that the Property Owner install an RP or AG.
- f) For Containment protection at Properties that may temporarily switch between municipally supplied Recycled Water and potable water from the Public Water System: A Property Owner may install a Swivel-ell for Containment, in lieu of an Air Gap Separation, as long as the following conditions are met.
 - i. Property Owners shall only install Swivel-ells that are approved by the State Water Resources Control Board and adhere to the design and construction-related requirements in the California Cross-Connection Control Policy Handbook.
 - ii. Property Owners that install Swivel-ells shall:
 - Enter into a legally binding agreement with the SFPUC Water Quality Division regarding the installation and use of the Swivel-ells.
 - Notify the Water Quality Division at least 24 hours before all switchovers to or from potable water and provide an estimate of the timeframe until the next switchover.
 - Ensure that a Water Quality Division Water Service Inspector who is a Cross-Connection Control Specialist is present at each switchover.
 - Have the Swivel-ell RP tested by an Authorized Backflow Prevention Assembly Tester within 72 hours of each switchover to potable water use and at least every 12 weeks the Property is supplied with potable water, with a visual inspection of the RP immediately upon each switchover to potable water use. Documentation of the tests shall be submitted to the Water Quality Division within five business days of each test.
 - Inspect the Swivel-ell at least every 12 months and provide documentation to the Water Quality Division within five business days of the inspection that confirms ongoing compliance with the design and construction-related requirements in the California Cross-Connection Control Policy Handbook.

Table 1: Hazard Criteria and Required Backflow Protection for Containment Attention: See footnotes for important information.

Hazard Criteria	Required Level of Protection
Hazardous Substances/Wastewater	
Hazardous substances handled in any way the substances could enter the Public Water System	
Mobile home park, recreational vehicle park, or campgrounds with recreational vehicle hookups	AG or RP ¹
Self-contained, self-cleaning public toilet	
Sewage handling facility	

Hazard Criteria	Required Level of Protection
Fire station	
 Incarceration facility (prison) 	
Private water distribution main	
Railroad maintenance facility	
Solid waste disposal facility	
Miscellaneous Conditions	
• Intricate plumbing and piping arrangements ³	
• Repeated history of Cross-Connections being established or re-established ²	
Restricted entry to a Property or parts of a Property	
such that Hazard Assessments cannot be made with	
sufficient frequency or at sufficiently short notice to	AG or RP ¹
assure that Cross-Connections do not exist	
 Unabated internal Cross-Connections 	
Any other On-Site Hazard that the General Manager	
identifies as requiring abatement for the protection of	
the Public Water System	
Properties with Multiple Service Connections to the PWS	
 Properties with multiple service connections, 	
excluding fire services, at least one of which requires	Varies ³
Backflow protection for Containment	
Buildings 4 or More Stories High or Water Supply Over 4) Feet Above Water Meter
 Buildings 4 stories or more in height or water supply 	DC
greater than 40 feet above the water meter	
Fire Protection Systems	
 Properties where the fire protection system is supplied from the PWS and interconnected with an onsite Auxiliary Water supply 	AG
• Properties where the fire protection system is supplied from the PWS with no interconnections with Auxiliary Water supplies	DCDA or DCDA-II
Properties where chemicals can be injected into the fire system	RPDA or RPDA-II
Properties under the jurisdiction of the San Francisco Port Authority	RPDA or RPDA-II
Construction/Miscellaneous Hydrant Use	
Temporary connections to hydrants for miscellaneous	
uses, including construction and special events ⁴	RP^4
 Temporary connection to existing water service line 	Ki
during construction (non-standard service)	
 Temporary connections to hydrants for filling water 	RP or AG ⁴
tanks on vehicles, such as for street sweeping	M VI AU

Hazard Criteria	Required Level of Protection
Temporary Connections to Hydrants for Firefighting	
Fire trucks that are connected to low-pressure	Spring-loaded check valve ⁵
hydrants shall not be connected at the same time to	
any high-pressure hydrants that are a part of the San	
Francisco Auxiliary Water Supply System, also	
known as the San Francisco Emergency Firefighting	
System	

Notes for Table 1:

- 1 The General Manager will determine the required level of protection based upon a Hazard Assessment.
- 2 In addition to the required level of protection for the identified hazard criterion, the General Manager may also require the Property Owner to designate a User Supervisor, and the Property Owner and User Supervisor shall comply with the requirements of Rule 12.
- 3 All service connections, excluding fire services, must have at least the same level of protection, which must address the highest degree of hazard on the Property. For example, if one connection requires an RP, then every connection must have an RP.
- 4 All Customer plumbing must be downstream of the SFPUC-issued meter and RP that Customers are required at all times to use when accessing temporary water supply through low-pressured hydrants, in accordance with all SFPUC rules and regulations.
- 5 The State Water Resources Control Board approved the use of spring-loaded check valves on hydrants during firefighting in Compliance Order 02-04-95CO-006. The order requires a Water Quality Division Water Service Inspector who is also a Cross-Connection Control Specialist to respond to all two-alarm and higher fires to check for Cross-Connections between the Public Water System and the San Francisco Auxiliary Water Supply System, also known as the Emergency Firefighting Water System.

Table 2: Hazard Criteria and Required Backflow Protection for Isolation of Hazards within a Property

Hazard Criteria	Required Level of Protection
Auxiliary Water storage tank with potable water makeup supply	AG
Irrigation systems into which fertilizers, herbicides, or pesticides are or can be injected	RP
Carbonators in systems with upstream copper pipe	RP
Industrial water chillers	RP
Sewage and hazardous or potentially hazardous substances: at the connection of potable water piping within a facility to a system conveying a fluid that is not potable	AG

Rule 4.

Installation, Replacement, and Relocation Requirements for Backflow Preventers

a) No Person shall install, replace, or relocate a Backflow Preventer without a valid permit from the City's Department of Building Inspection, Plumbing Inspection Division, unless the Property at which the Backflow Preventer is to be installed, replaced, or relocated is under the jurisdiction of the Port of San Francisco, California Department of Health Care Access

- and Information, California Office of the State Fire Marshal, or federal government. In the latter case, a permit must be obtained from the authority having jurisdiction.
- b) Property Owners shall install Backflow Preventers for Containment as close as practical but in any case within 25 feet of the downstream side of the Point of Connection to the Public Water System. If any part of a service line extends over bay or ocean waters, the Property Owner shall install a Backflow Prevention Assembly upstream of the seawall and within 25 feet of the Point of Connection.
- c) No Person shall make any connection between the Point of Connection and a Backflow Preventer for Containment. Similarly, no appurtenances shall be installed between the Point of Connection and a Backflow Preventer for Containment, except that a Y strainer may be attached directly upstream of the number 1 shutoff valve of a Backflow Prevention Assembly as long as (1) no connections are made to the Y strainer, (2) the Y strainer is protected from tampering, and (3) the Y strainer is inspected at least annually by an Authorized Backflow Prevention Assembly Tester.
- d) Property Owners shall install Backflow Prevention Assemblies in the orientation intended by the manufacturer and approved by the University of Southern California Foundation for Cross-Connection Control and Hydraulic Research or comparable organization approved by the General Manager. No modifications may be made to the approved assembly configuration, except that flanged shutoff valves 2.5 inches or larger may be rotated by one bolt hole.
- e) All Backflow Preventers shall be accessible for field testing, inspection, and maintenance after installation. If a Backflow Preventer is installed in an enclosure, the enclosure shall be large enough or removable to allow for testing and maintenance.
- f) Backflow Preventers shall not be installed below grade in pits, vaults, or confined spaces. DCs, DCDAs, DCDA-IIs, RPs, RPDAs, and RPDA-IIs shall be a minimum of 12 inches and a maximum of 36 inches above grade as measured from the bottom of the assembly.
- g) DCs, DCDAs, DCDA-IIs, RPs, RPDAs, and RPDA-IIs shall have clearances of at least 12 inches on all sides. On the side of the assembly that contains the test cocks, a side clearance of at least 24 inches is required.
- h) Backflow Prevention Assemblies shall be installed so that the make and serial number are visible in a readily accessible location. These identifiers shall not be painted over or otherwise made illegible.
- i) When an RP, RPDA, or RPDA-II is installed indoors, drainage shall also be installed to prevent flooding.
- i) Air Gap Separations used for Containment shall meet the following requirements:
 - i. The receiving water container shall be located on the Property at the Water Service Connection, unless the General Manager approves an alternate location.
 - ii. The Air Gap Separation shall be located outside of the receiving water container.
 - iii. All piping between the Water Service Connection and the discharge location at the receiving water container shall be above finished grade and be accessible for visual inspection, unless the General Manager approves an alternative piping configuration.
 - iv. All new installations of Air Gap Separations at Water Service Connections shall be reviewed and approved by the State Water Board before installation.

Rule 5.

Testing, Inspection, and Repair Requirements for Backflow Preventers

- a) All testing, inspections, and repairs of Backflow Preventers shall be conducted at the sole expense of the Property Owner.
- b) Property Owners shall ensure that their Backflow Preventers are inspected and/or tested at least annually and are in proper working order.
- c) Backflow Prevention Assemblies:
 - i. All Backflow Prevention Assemblies shall be tested by an Authorized Backflow Prevention Assembly Tester following installation, repair, depressurizing for winterizing, or permanent re-location, and at least annually thereafter. The General Manager may also require more frequent testing if determined to be necessary. Property Owners shall comply with all such testing requirements.
 - ii. Any Backflow Prevention Assembly that fails a field test shall be repaired or replaced within 30 days of notification of the failure and immediately retested before being placed into service. If a Backflow Prevention Assembly cannot be repaired or otherwise made functional on the same day as the initial field test, the Authorized Backflow Prevention Assembly Tester shall report the test data to the Water Quality Division by the close of business on that same day. The General Manager may allow an extension of the 30-day requirement for repair or replacement in this paragraph at the General Manager's sole discretion.
 - iii. Authorized Backflow Prevention Assembly Testers shall notify the Water Quality Division if a Backflow Prevention Assembly has been modified from the approved orientation provided in Rule 4(d).
- d) Air Gap Separations:
 - i. All Air Gap Separations shall be visually inspected by an Authorized Backflow Prevention Assembly Tester or Authorized Cross-Connection Control Specialist at least annually. The General Manager may require more frequent inspections if determined to be necessary. Property Owners shall comply with all such requirements.
 - ii. If an inspection reveals that an Air Gap Separation is not in compliance with the requirements of Chapter 6 of the California Plumbing Code, the Authorized Backflow Prevention Assembly Tester or Authorized Cross-Connection Control Specialist that conducted the inspection shall report the deficiency to the Water Quality Division by the close of business on that same day.
 - iii. The Property Owner shall have an Air Gap Separation inspected and repaired when notified by the General Manager to do so.
- e) After a Backflow Preventer has passed a test/inspection, the Authorized Backflow Prevention Assembly Tester or Authorized Cross-Connection Control Specialist (Air Gap Separations only) shall affix a Backflow Tag to it.

Rule 6.

Backflow Prevention Assembly Test Tags

- a) Backflow Tags may only be obtained from the SFPUC by Authorized Backflow Prevention Assembly Testers, Authorized Cross-Connection Control Specialists, and Authorized Representatives.
- b) Backflow Tags may be purchased in person at the SFPUC Customer Service Bureau or by mail. The form for purchases by mail is available at sfpuc.gov/backflow.

c) The cost of Backflow Tags is set forth in the SFPUC's *Rate Schedules & Fees for Water and Sewer Service*, Schedule W-45, which is available on the SFPUC website and is subject to change at the beginning of each fiscal year (July 1 to June 30).

Rule 7.

Water Quality Division Inspections of New Water Services

- a) All new water services that require a Backflow Preventer at the Water Service Connection to the Public Water System under San Francisco Health Code Article 12A and these Rules and Regulations must receive and pass an initial and final inspection by the Water Quality Division. The Property Owner shall call the Water Quality Division at (650) 652-3199 to schedule these inspections in the timeframes specified in (b) and (c) below. These inspections are separate from those required by other City departments for other purposes.
- b) An initial inspection is required after the installation of a Backflow Preventer at the Water Service Connection to the Public Water System. The SFPUC will not provide a water service line and meter until the Backflow Preventer has passed the initial inspection.
- c) A final inspection is required within 48 hours of the start of receiving water service. If this inspection is not conducted within this timeframe, water service will be turned off and will not be restored until the final inspection has been passed.
- d) The fee for the Water Quality Division's inspections is set forth in the SFPUC's *Rate Schedules & Fees for Water and Sewer Service*, Schedule W-41A, which is available on the SFPUC website and is subject to change at the beginning of each fiscal year.

Rule 8.

Permits to Operate

- a) A valid Permit to Operate as an Authorized Backflow Prevention Assembly Tester is required at all times for any Person to test Backflow Prevention Assemblies at a Property.
- b) A valid Permit to Operate as an Authorized Cross-Connection Control Specialist is required at all times for any Person to conduct Hazard Assessments and Cross-Connection Tests at a Property.
- c) A Person may apply for a Permit to Operate as either an Authorized Backflow Prevention Assembly Tester or an Authorized Cross-Connection Control Specialist. A Person that seeks a Permit to Operate as both a tester and a specialist shall submit two separate applications for two separate Permits to Operate.
- d) Application Process: To apply for a Permit to Operate, an Applicant shall:
 - i. Submit a completed application form and application fee as instructed on the SFPUC's website at *sfpuc.gov/backflow*.
 - ii. Provide a copy of the Applicant's current certification as a backflow prevention assembly tester or a cross-connection control specialist, as applicable, from one of the following organizations:
 - American Society of Sanitary Engineers
 - California-Nevada section of the American Water Works Association
 - Other organization approved by the General Manager
 - iii. Provide proof of use of a calibrated test kit (Authorized Cross-Connection Control Testers only).
 - iv. Provide the Applicant's certificate of general liability insurance in full force and effect, at the Applicant's expense, for all activities to be performed under the Permit to Operate,

unless the Applicant is a City employee. Such insurance shall include coverage for bodily injury, personal injury, including death resulting therefrom, and property damage (including water damage) insurance, with limits not less than \$2 million each occurrence combined single limit. The City, its officers, and employees shall be named as additional insureds under the policy, and a cross-liability clause shall be attached. Such insurance shall provide 10-day prior written notice of cancellation, non-renewal, or material change to the General Manager.

- v. Complete a written examination administered by the General Manager with a passing grade of at least 70 percent.
- e) Permit Approval and Issuance: The decision whether to approve or deny any application for a Permit to Operate shall be at the sole and absolute discretion of the General Manager. Upon approval, Applicant information is forwarded to the City's Office of the Treasurer and Tax Collector, which will accept the Applicant's payment of the License Fee. The Permit to Operate is issued upon the Applicant's payment of the License Fee.
- f) Maintaining a Permit to Operate: The duration of a Permit to Operate is one year. To maintain a Permit to Operate in good standing, the Permittee shall:
 - i. Maintain a current certificate of competency and current general liability insurance meeting the requirements of these Rules and Regulations. If an Authorized Backflow Prevention Assembly Tester, the Permittee shall also maintain proof of use of a calibrated test kit.
 - ii. Notify the Water Quality Division within 24 hours of becoming aware of either of the following conditions:
 - The Permittee's certificate of competency has expired or been revoked.
 - The Permittee's general liability insurance has been cancelled, not renewed, or changed materially.
 - iii. Maintain all documentation required under these Rules and Regulations and any other local or state law or regulation and make all such documentation available for inspection at the request of the General Manager.
 - iv. Attend the Water Quality Division's Annual Meeting for Authorized Backflow Prevention Assembly Testers or complete alternative annual training provided by the Water Quality Division.
 - v. Comply with all other requirements of these Rules and Regulations, San Francisco Health Code Article 12A, and any other applicable rule or legal requirement under local, state, or federal law.
 - vi. Follow all procedures in the Water Quality Division's Instructions for Authorized Backflow Prevention Assembly Testers and Instructions for Authorized Cross-Connection Control Specialists, which are available on the SFPUC's website at *sfpuc.gov/backflow* and may be periodically updated to reflect current policies and procedures.
- g) Annual Renewal: To annually renew a Permit to Operate, the Permittee shall:
 - i. Have a Permit to Operate in good standing.
 - ii. Pay the License Fee to the City's Office of the Treasurer and Tax Collector before the current expiration date of the Permit to Operate.
 - iii. Provide to the General Manager before the current expiration date of the Permit to Operate:

- A copy of the Permittee's renewed certificate of competency, if the previous certificate has expired.
- A certificate of general liability insurance in full force and effect meeting the requirements of Rule 8(d)(iv).
- Proof of use of a calibrated test kit (Authorized Cross-Connection Control Testers only).
- h) No Transfer: Permits to Operate are issued to individual persons and are not transferable. If a Permittee ceases to work for an employer that held the Permittee's certificate of liability insurance, the Permittee shall submit to the General Manager within five business days valid evidence of liability insurance, as described in Rule 8(d)(iv) above, to maintain a valid Permit to Operate.
- i) Suspension and Revocation of Permits to Operate:
 - i. The General Manager may suspend or revoke any Permit to Operate upon a determination that the Permittee has failed to meet any of the requirements in this Rule 8; has violated any other requirement of these Rules and Regulations or San Francisco Health Code Article 12A; has engaged in conduct in connection with activities covered by the Permit to Operate that violates other local, state, or federal laws; or has made a material misrepresentation when applying for a Permit to Operate.
 - ii. Before the suspension or revocation of any Permit to Operate, the General Manager will issue a written notice to the Permittee at the Permittee's address on record specifying the reason why the General Manager intends to suspend or revoke the Permit to Operate and provide the Permittee with an opportunity to challenge the suspension or revocation in accordance with the administrative review procedure outlined in Rule 15. Notwithstanding the foregoing, the General Manager may immediately suspend any Permit to Operate pending a noticed hearing on suspension or revocation when, in the opinion of the General Manager, the public health or safety requires such immediate suspension. The General Manager will issue written notice of such immediate suspension to the Permittee in person or by registered letter to the Permittee's address on record.
- j) Appeals: The final decision of the General Manager to grant, deny, suspend, or revoke a Permit to Operate in accordance with these Rules and Regulations may be appealed to the San Francisco Board of Appeals in the manner prescribed in San Francisco Business and Tax Regulations Code Article 1.

Rule 9.

Companies Employing Authorized Backflow Prevention Assembly Testers and Authorized Cross-Connection Control Specialists

- a) Companies that employ Authorized Backflow Prevention Assembly Testers and Authorized Cross-Connection Control Specialists shall register with the General Manager as instructed on the SFPUC's website at *sfpuc.gov/backflow*. Companies must provide a business name, contact phone number and email address, website, and proof of liability insurance meeting the requirements of Rule 8(d)(iv).
- b) Companies shall maintain general liability insurance in full force and effect, at company expense, for all activities performed by the Authorized Backflow Prevention Assembly Testers and Authorized Cross-Connection Control Specialists that they employ. Such insurance shall include coverage for bodily injury, personal injury, including death resulting

- therefrom, and property damage (including water damage) insurance, with limits not less than \$2 million each occurrence combined single limit. The City, its officers, and employees shall be named as additional insureds under the policy, and a cross-liability clause must be attached. The insurance shall provide 10-day prior written notice of cancellation, non-renewal, or material change to the General Manager.
- c) Companies shall provide the names of the Authorized Backflow Prevention Assembly Testers and Authorized Cross-Connection Control Specialists that they employ at the time of registration. Companies shall notify the General Manager by email within five business days of a tester or specialist's first or last day of employment.
- d) Companies may designate up to two people to act as Authorized Representatives for the purchase of Backflow Tags on behalf of the company. Companies shall provide written notice to the General Manager of the names of those authorized as well as written notice of any changes in designation when they occur.
- e) Companies shall maintain continuous records of all activities that they and the Authorized Backflow Prevention Assembly Testers and Authorized Cross-Connection Control Specialists that they employ perform in relation to Backflow prevention for a period of three years. These records shall include the dates and locations of all tests, repairs, and inspections of Backflow Preventers; Hazard Assessments and Cross-Connection Tests; and the names of the individuals who performed them. Companies shall make these records available to the General Manager within five business days of the General Manager's request.

Rule 10.

Inspection and Testing Requirements for Dual-Plumbed Systems

- a) All inspections, testing, and repairs of Dual-Plumbed Systems shall be conducted at the sole expense of the Property Owner.
- b) Before being put into service, all Dual-Plumbed Systems shall pass an initial inspection and Cross-Connection Test supervised by an Authorized Cross-Connection Control Specialist in the presence of a representative of the Water Quality Division. The initial Cross-Connection Test shall be a shutdown test.
- c) After the initial inspection and Cross-Connection Test, Property Owners shall conduct Cross-Connection Tests of Dual-Plumbed Systems with the frequency set forth in Table 3 below. Subsequent Cross-Connection Tests shall be shutdown tests, unless a Property Owner submits a request in writing to the General Manager to conduct a pressure differential test in lieu of a shutdown test, and the General Manager approves the request, at the General Manager's sole discretion. Property Owners shall also conduct additional inspections and Cross-Connection Tests under the following circumstances:
 - i. Whenever directed by the General Manager to do so.
 - ii. Whenever there is material reason to believe that the separation between the Property's potable and non-potable systems has been compromised, for example, based on a visual inspection or following water quality complaints.
 - iii. Immediately after remediation of a discovered Cross-Connection.

Table 3: Inspection and Testing Requirements for Dual-Plumbed Systems

Туре	Initial Inspection and Shutdown Test	Subsequent Cross- Connection Test
Municipally supplied Recycled Water	Yes	Every four years (need not be shutdown test)
Blackwater	Yes	Every four years (need not be shutdown test)
Other Auxiliary Water supply	Yes	No

- d) All Cross-Connection Tests for Dual-Plumbed Systems shall be administered by an Authorized Cross-Connection Control Specialist in the presence of the User Supervisor for the Property. The Authorized Cross-Connection Control Specialist shall submit a written report documenting the results of each test to the Water Quality Division within five business days following completion of the test and include a verification within the report that the User Supervisor was present.
- e) Fees for Cross-Connection Tests overseen by the Water Quality Division are set forth in the SFPUC's *Rate Schedules & Fees for Water and Sewer Service*, Schedule W-45, available on the SFPUC website and subject to change at the beginning of each fiscal year.
- f) Any changes to Auxiliary Water systems shall be done under permit from the San Francisco City's Department of Building Inspection and in conformance with the requirements of the California Plumbing Code, the SFPUC Rules and Regulations for Users Receiving Recycled Water Service in the City and County of San Francisco, San Francisco Health Code Article 12C, and any other state or local law or regulations, as applicable. In the case of conflicting requirements, the more stringent requirements shall apply. If the change to the Auxiliary Water system will alter the existing degree of hazard (e.g., a blackwater treatment system will be installed), the Property Owner shall inform the Water Quality Division at least 30 calendar days before the change is made.
- g) Property Owners shall maintain records of all inspections and Cross-Connection Tests of Dual-Plumbed Systems on their Properties for a period of three years and shall make all records available to the General Manager within five business days of the General Manager's request.

Rule 11. Emergency Cross-Connection Response Plan for Standard-Plumbed and Dual-Plumbed Systems

- a) All emergency response activities and repairs on the Customer side of the water meter for standard-plumbed systems and for operating Dual-Plumbed Systems shall be conducted at the sole expense of the Property Owner.
- b) Upon the discovery of any Cross-Connection, the Property Owner shall immediately notify the SFPUC by calling Millbrae Dispatch at (650) 872-5900 and asking to speak with the on-call Water Quality Division Water Service Inspector. The Property Owner shall inform the Water Service Inspector of the nature of the Cross-Connection, the date and time it was discovered, and the contact information of the Person reporting the Cross-Connection.

- c) The Property Owner shall also submit written notification to the Water Quality Division within 24 hours of the incident and include an explanation of the nature of the Cross-Connection, the date and time it was discovered, and the contact information of the Person reporting the Cross-Connection.
- d) For Dual-Plumbed systems, the Property Owner shall shut down and drain the Auxiliary Water system.
- e) For Dual-Plumbed systems, the General Manager shall shut down the potable water supply at the Point of Connection. For standard-plumbed systems, the General Manager may shut down the potable water supply at the Point of Connection.
- f) The Property Owner shall immediately locate and disconnect the Cross-Connection. If necessary, the Property Owner shall obtain a plumbing permit from the appropriate jurisdiction, as described in Rule 4(a).
- g) The Property Owner shall provide potable drinking water for the Property's occupants, if applicable, until the Property's internal potable water system is deemed safe to drink.
- h) After the Cross-Connection has been remediated, a Property Owner with a standard-plumbed system shall contact the Water Quality Division, which may conduct a visual inspection of the Property to confirm that the Cross-Connection has been eliminated; a Property Owner with a Dual-Plumbed System shall itself conduct a visual inspection and Cross-Connection Test, in accordance with Rule 10.
- i) The Property Owner shall disinfect the Property's internal potable water plumbing system in accordance with the California Plumbing Code, section 609.10.
- j) Twenty-four hours after disinfection, the Property Owner shall flush the Property's internal potable water system and conduct a standard bacteriological test. The Property Owner may request that the Water Quality Division conduct the standard bacteriological test for the fee specified in the SFPUC's *Rate Schedules & Fees for Water and Sewer Service*, Schedule W-43, available on the SFPUC website and subject to change at the beginning of each fiscal year.
- k) If the results of the bacteriological test are acceptable, the General Manager will restore potable water service.
- 1) The Property Owner shall prepare a written report and include an explanation of the nature of the Cross-Connection, the date and time it was discovered, the remedial action taken, and the results of the Cross-Connection Test and bacteriological test. The report shall be submitted to the Water Quality Division within two business days of resumption of potable water service.

Rule 12.

User Supervisor

- a) If required by the Water Quality Division, the Property Owner shall designate a User Supervisor when the Property has a multi-piping system that conveys various types of fluids, some of which may be hazardous, and where changes in the piping system are frequently made.
- b) The Property Owner shall provide the Water Quality Division with written notice of the User Supervisor's designation within five business days of the designation. The Property Owner shall promptly communicate any changes in designation to the Water Quality Division and ensure that the current contact information of the User Supervisor is on file with the Water Quality Division at all times.

- c) The User Supervisor shall be responsible for the avoidance of Cross-Connections during the installation, operation, and maintenance of a Property Owner's pipelines and equipment.
- d) The Property Owner shall ensure that the User Supervisor has, at a minimum, the following qualifications:
 - Understanding of the safe, effective operation of the piping systems and components on the Property.
 - Understanding of how to avoid Cross-Connections between piping systems on the Property.
 - Training on the fluids used on the Property.
- e) The Property Owner shall ensure that User Supervisors attend an initial training provided by the SFPUC. If there are significant changes to these Rules and Regulations or applicable laws, rules, or regulations, or there are significant changes to the piping systems on the Property, the SFPUC may require User Supervisors to attend an updated training.
- f) The User Supervisor shall inform the Water Quality Division of changes in piping by contacting the Water Quality Division at least 15 calendar days before making the changes.
- g) If a Cross-Connection is discovered at the Property, the User Supervisor shall follow the emergency response plan described in Rule 11.
- h) The Property Owner is responsible for the User Supervisor's compliance with the requirements of this Rule 12. Property Owners who fail to comply with this Rule may be subject to enforcement as described in Rule 14.

Rule 13.

General Manager Notices and Inspections

- a) A Property Owner shall eliminate any unprotected Cross-Connection within seven calendar days of receipt of a notice from the General Manager regarding the unprotected Cross-Connection, unless the General Manager authorizes an alternate deadline for remediation within the notice. If a Property Owner refuses or fails to eliminate a Cross-Connection within the timeframe required in the General Manager's notice, the General Manager may proceed with enforcement activities in accordance with Rule 14.
- b) A Property Owner shall provide information about water uses within its Property to the General Manager as directed in any notice from the General Manager requesting such information, as necessary to comply with State of California regulatory requirements for Hazard Assessments. Any Property Owner that does not comply with the General Manager's request for information within the timeframe specified in the notice will be subject to enforcement activities in accordance with Rule 14. Enforcement actions may include, but are not limited to, requiring the Property Owner to install a Reduced Pressure Principal Backflow Prevention Assembly, at the Property Owner's expense, at the Point of Connection to the Public Water System.
- c) Right of Entry: As a condition of receiving water service, a Property Owner shall permit the General Manager to inspect any Property subject to these Rules and Regulations and the requirements of San Francisco Health Code Article 12A to determine compliance with these Rules and Regulations, Article 12A, and any other applicable laws and regulations. The General Manager may exercise this right of entry during normal business hours in the absence of advance notice.
- d) High Risk of Hazard: Whenever the General Manager determines that an existing or potential unprotected Cross-Connection at the Property poses a high risk of hazard to the

Public Water System and requires immediate abatement, the General Manager may immediately terminate water service to the subject Property without notice until the Cross-Connection has been eliminated and charge the Property Owner applicable fees.

Rule 14.

Enforcement, Citations, and Fines

- a) The General Manager may enforce the requirements of San Francisco Health Code Article 12A and these Rules and Regulations by issuance of a written notice establishing a deadline for compliance; modification or termination of water service with the assessment of applicable fees; issuance of Citations; imposition of administrative fines and penalties; and any other available enforcement action. Any action that the General Manager takes may be in addition to, and is not exclusive of or preclusive of, any other available remedy that the SFPUC may pursue in a particular case to ensure a Person's compliance with Article 12A, these Rules and Regulations, and any other applicable law or regulation.
- b) Deadline for Compliance: The General Manager may issue a written notice advising the Person that has violated San Francisco Health Code Article 12A and these Rules and Regulations of the required corrective action and establish a deadline for compliance. The Person may seek to meet and confer with the Water Quality Division to establish a plan for compliance.
- c) Modification or Termination of Water Service: The General Manager may modify or terminate water service, with written notice to the Property Owner, as well as the Customer if the Property Owner is not the Customer, by:
 - i. Installing a flow restrictor on all non-fire service lines to the Property to minimize the Backflow hazards until they have been corrected, with appropriate fees applied to the Customer's water bill.
 - ii. Disconnecting the noncompliant water service(s) until the Cross-Connection has been eliminated, with appropriate fees applied to the Customer's water bill.
 - iii. Testing the Backflow Prevention Assembly installed at the Property or otherwise correcting the Cross-Connection, with the cost of the test or correction applied to the Customer's water bill.
 - iv. Any other action related to the modification or termination of water service deemed necessary by the General Manager to protect the Public Water System.
- d) Citations and Fines: Where the General Manager has determined that a Person has violated any provision of San Francisco Health Code Article 12A or any of these Rules and Regulations, the General Manager may enforce Article 12A and these Rules and Regulations by issuing a Citation to the Person in a manner consistent with Chapter 100 of the San Francisco Administrative Code, "Procedures Governing the Imposition of Administrative Fines," as that Chapter may be amended from time to time, and the enforcement provisions of Article 12A. The Citation will be served upon the Person and will specify the amount of the fine imposed for each violation, which shall be up to \$1,000 per violation per day. Each day that a violation continues or there is non-compliance shall constitute a separate violation that may be subject to a separate fine. All violations and respective fines may be cumulative of each other (one Citation may contain multiple fines) and shall be imposed in addition to, and neither exclusive nor preclusive of, any other civil or criminal federal, state, or local fine or penalty under the law or of any other remedy available to the SFPUC under the law. Administrative fines shall be paid to the Treasurer of the City and County of San Francisco.

e) The General Manager may recover any costs and fees, including but not limited to attorney fees, for enforcement initiated through and authorized under San Francisco Health Code Article 12A and these Rules and Regulations. Fees related to enforcement actions under this Rule will be applied to the Customer's water bill.

Rule 15.

Administrative Review and Appeal

- a) Any Person who has been served with a Citation may seek administrative review of the Citation by filing an appeal with the SFPUC in accordance with the appeal procedures outlined in Chapter 100 of the San Francisco Administrative Code. Consistent with San Francisco Health Code Article 12A, the General Manager shall appoint a hearing officer to conduct the hearing for the appeal, who will determine the time and place of the hearing and provide appropriate notice. The hearing officer shall be an SFPUC employee with no personal knowledge of the incident resulting in the Citation being challenged, and the hearing officer's regular job duties will be outside the direct chain of command of the citing official. The hearing officer may request additional information from the appellant; appellant's failure to provide the information within the time specified by the hearing officer shall result in a decision based on the information available. The hearing officer may, at the hearing officer's sole discretion, invite both the appellant and a representative of the SFPUC Water Enterprise or other City department with knowledge of the Citation to the hearing to state their respective positions and answer questions posed by the hearing officer. Any such hearing may be in person, virtual, or submitted in writing as directed by the hearing officer. The hearing officer shall issue an administrative decision upholding, modifying, or vacating the Citation. The hearing officer's decision shall be final on the date issued. The hearing officer shall issue a decision within 60 calendar days of the date of the receipt of the written appeal.
- b) Any Permittee who has been served with a notice of suspension or revocation of a Permit to Operate may seek administrative review of the suspension or revocation by submitting a request for review to the General Manager, with a written explanation and supporting documentation, as instructed on the notice. A request for review must be received within 30 days of issuance of the notice. Failure to submit a timely request for review shall be deemed acceptance of the suspension or revocation. The General Manager shall appoint a hearing officer, and the hearing officer shall conduct a hearing on the suspension or revocation, as described in Rule 15(a). The hearing officer shall issue an administrative decision upholding, modifying, or vacating the suspension or revocation. The hearing officer's decision shall be final on the date issued. The hearing officer shall issue a decision within 60 calendar days of the date of the receipt of the request for review, which may be appealed to the San Francisco Board of Appeals in the manner prescribed in San Francisco Business and Tax Regulations Code Article 1.

Rule 16.

Variances

Any request for a variance from the requirements of these Rules and Regulations shall be made in writing and submitted to the General Manager. The General Manager may, at the General Manager's sole discretion, grant variances from specific requirements of these Rules and Regulations on a limited basis provided that the variances do not pose a threat to the Public Water System and are consistent with applicable state and local laws and regulations. All

variances are subject to additional mitigation that the Property Owner will be required to implement and maintain.				