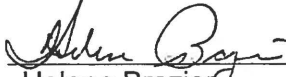




13. ADJOURNMENT

ATTEST TO POSTING:

  
\_\_\_\_\_  
Helene Brazier  
Secretary of the Board

5/19/16 @ 2:00 P.M.  
\_\_\_\_\_  
Date and Time of Posting  
Outside Display Cases

**DRAFT**

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**MINUTES OF THE ENGINEERING COMMITTEE MEETING  
OF THE RAINBOW MUNICIPAL WATER DISTRICT  
MAY 4, 2016**

1. **CALL TO ORDER** – The Engineering Committee Meeting of the Rainbow Municipal Water District on May 4, 2016 was called to order by Chairperson Prince at 3:00 p.m. in the Board Room of the District, 3707 Old Highway 395, Fallbrook, CA 92028. Chairperson Prince, presiding.

2. **PLEDGE OF ALLEGIANCE**

3. **ROLL CALL:**

**Present:** Member Prince, Member Taufer, Member Murray, Member Brazier Member Kirby, Alternate Marnett

**Absent:** Member Stille, Member Ratican, Alternate Robertson

**Also Present:** General Manager Kennedy, Engineering Manager Kirkpatrick, Associate Engineer Powers, Engineering Tech Rubio

There was one member of the public present: Mr. MacFarlane (DLM Consultant)

4. **ADDITIONS/DELETIONS/AMENDMENTS TO THE AGENDA (Government Code §54954.2)**

There were no changes to the agenda.

5. **PUBLIC COMMENT RELATING TO ITEMS NOT ON THE AGENDA**

There were no public comments.

**COMMITTEE ACTION ITEMS**

\*6. **APPROVAL OF MINUTES**

A. April 6, 2016

***Motion: Accept the minutes as drafted.***

***Action: Approve, Moved by Member Brazier, Seconded by Member Murray.***

***Vote: Motion carried by unanimous vote (summary: Ayes = 6).***

***Ayes: Member Prince, Member Taufer, Member Murray, Member Brazier, Member Kirby, Alternate Marnett.***

*DRAFT**DRAFT**DRAFT*

## 7. DISCUSSION AND POSSIBLE ACTION REGARDING URBAN WATER MANAGEMENT PLAN

Mrs. Kirkpatrick said a copy of the preliminary draft Urban Water Management Plan (UWMP) was provided for review and discussion. She stated the public draft would be available on May 10, 2016 followed by a public hearing scheduled at the May 24, 2016 Board Meeting. She said the plan was to adopt the final UWMP at the June 28, 2016 Board Meeting. She introduced Mr. MacFarlane a subconsultant for Atkins to provide a brief summary of the preliminary draft UWMP as follows:

### Summary:

- Plan meets the California Water Code (CWC) and Department of Water Resources (DWR) requirements
- Plan uses latest updated population demand projections based on latest San Diego Association of Governments (SANDAG) forecast
- County Water Authority (CWA) capable of meeting Normal and Dry year demands
- Effective contingency plans, reduction or interruptions
- District met interim 2015 urban use target
- Plan on schedule for submission to DWR by the July 1, 2016 due date

### Background:

- UWMP Act began in 1983
- Involves self-assessment of deliveries and uses, baselines and targets, supplies and reliability, water use efficiency, water shortage contingency planning and demand management
- Updated every five years
- Reviewed by DWR
- Approval required for grant or loan administered by DWR, State Water Board, or Delta Stewardship Council
- Plans provide legal documentation of available water supplies for planned development
- Water conservation act of 2009 to reduce 20% by 2020

### New for 2015:

- More specific data, wastewater (recycled)
- Demand projections to account codes, standards, ordinances, land use plans
- Quantify and report on water loss
- Demand Management Measures (DMM), Implement to achieve targets
- Revised report organization
- Submit electronically with standardized tables

Discussion ensued regarding the UWMP updates.

Mrs. Kirkpatrick stated in summary this water supply reliably plan was required every five years to ensure there was enough water for everyone within the District. She asked for emailed questions and comments to be sent as soon as possible.

***DRAFT***

***DRAFT***

***DRAFT***

**8. DISCUSSION REGARDING CAPITAL PROJECT PHASING FOR MASTER PLAN**

Mrs. Kirkpatrick said the Master Plan was adopted by the Board last month. She provided copies of the draft projected 5 year CIP list for review and discussion. She said the draft CIP list would be reviewed by the Budget and Finance Committee to be incorporated into the budget. She mentioned the water CIP was on schedule for funding, however the wastewater with the Water Reclamation Plant project costs of approximately \$66M would require the District to obtain government grants to offset the costs. Discussion ensued.

**9. LIST OF SUGGESTED AGENDA ITEMS FOR THE NEXT SCHEDULED ENGINEERING COMMITTEE MEETING**

Mrs. Kirkpatrick would bring back the UWMP for Board recommendation.

**10. ADJOURNMENT**

The meeting adjourned at 4:00 p.m.

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**Timothy Prince, Committee Chairperson**

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**Dawn M. Washburn, Board Secretary**



**Chapter 8.20**  
**CROSS-CONNECTION CONTROL**

<b>Sections</b>	
<b>8.20.010</b>	<b>Purpose</b>
<b>8.20.020</b>	<b>Legal Basis for Program</b>
<b>8.20.030</b>	<b>Definitions</b>
<b>8.20.031</b>	<b>Degree of Hazard</b>
<b>8.20.040</b>	<b>Backflow Prevention Device-General Requirements</b>
<b>8.20.041</b>	<b>Appeal Procedure</b>
<b>8.20.050</b>	<b>Protection Required Before System Connection</b>
<b>8.20.060</b>	<b>Backflow Prevention Device Installation, Replacement, Relocation, and Repair</b>
<b>8.20.070</b>	<b>Systems to be Open for Inspection and Installation</b>
<b>8.20.080</b>	<b>Backflow Prevention Device Required</b>
<b>8.20.090</b>	<b>Certification of Backflow Prevention Devices</b>
<b>8.20.100</b>	<b>Existing Devices</b>
<b>8.20.110</b>	<b>Inspections and Testing Responsibility</b>
<b>8.20.120</b>	<b>Noncompliance, Penalties</b>
<b>8.20.130</b>	<b>Monthly Charges</b>
<b>8.20.140</b>	<b>Interpretation of Provisions</b>

**Section [TK1] 8.20.010**

**Purpose**

The purpose of this chapter is:

- A. To protect the District system from the possibility of contamination or pollution, by isolating within customer systems such contaminants or pollutants that have the potential to backflow into the District's potable water system; and
- B. To provide for an ongoing program of cross-connection control which will systematically and effectively prevent the contamination or pollution of the District's potable water system; and
- C. To meet or exceed Federal and State regulations pertaining to cross-connection control issues.

**8.20.020**

**Legal Basis for Program**

All legal authorities and references shall be current versions and revisions.

**Authority**

1. Code of Federal Regulations, Safe drinking Water Act most current.
2. Code of California Regulations, Titles 17 and 22
3. State of California Water Code, Chapter 1, Section 110. Chapter 8, Section 500 and Chapter 723, Sections 13553, 13554.2, and 13554.3
4. American Water Works Association Manual of Water Supply Practices M14
5. University of Southern California (USC Manual) – latest or current edition
6. California Plumbing Code (CPC)
7. Rainbow Municipal Water District Administrative Code



**8.20.030****Definitions**

Whenever in this chapter or in any document where they govern, the following terms are used, they shall be defined as follows:

**"Air-Gap"** is a means of backflow prevention utilizing the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the flood level rim of said vessel. An approved air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the rim of the vessel; provided however, that in no case shall the air-gap be less than one inch.

**"Approved"** means accepted by the District as meeting an applicable specification stated or cited in this chapter suitable for the proposed use.

**"Auxiliary Water Supply"** means any water supply, other than the District's system available to a customer system. These **auxiliary** supplies may include water from other purveyor's public potable water supply or any natural source(s) such as a well, spring, river, stream, harbor, etc., or used waters or industrial fluids. These waters may be polluted or contaminated, or they may be objectionable, and constitute an unacceptable water source over which the District does not have control.

**"Agricultural Properties"** is a parcel, lot, grove or residence of any size which is used for an agrarian nature, whether for commercial purposes or not. Typical uses would include, but not be limited to, the practice of cultivating crops, the breeding and raising of livestock, aquaculture and any other form of husbandry.

**"Backflow"** means the reversal of flow of water or mixtures of water and other liquids, gases or other substances into the District's distribution pipes of water from any source or sources.

**"Backflow Preventer"** means a device or means designed to prevent backflow or backsiphonage.

**"Backpressure"** means any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration, which would cause, or tend to cause, a reversal of the normal direction of flow.

**"Backsiphonage"** means the flow of water (or other liquids, mixtures or substances) into the District system from any source caused by the reduction of pressure in the District system.

**"Board"** means Board of Directors of the Rainbow Municipal Water District.

**"Certified Backflow Tester"** means a person who has proven his / her ability to test backflow prevention assemblies to the satisfaction of the District and the San Diego County Department of Environmental Health.

**"Contamination"** means the impairment of the quality of the potable water by sewage, industrial fluids, waste liquids or any other compounds or other materials to a degree which creates an actual hazard to the public health through poisoning or the spreading of disease.

**"Control"** means the right and power over the quality of water.

**"Cross-Connection"** means any physical connection, or arrangement of piping or fixtures, between two otherwise separate piping systems, one of which contains potable water and the other of which contains nonpotable water, industrial fluids, or fluids of questionable safety, through which, or because of which, backflow may occur into the District's system. A water service connection between the District system and a customer system which is cross-connected to a contaminated fixture, industrial fluid system or with a potentially contaminated supply or auxiliary water system, constitutes one type of cross-connection. Other types of cross-connections include connectors such as swing connections, removable sections, four-way plug valves, spools, dummy sections of pipe, swivel or change-over devices, sliding multiport tubes, solid connections, garden hoses, etc.

**"Cross-Connection Control by Containment"** means the installation of an approved backflow prevention device in any customer system chosen as practical for the water service connection.

**"District"** means Rainbow Municipal Water District.

**"Double Check-Detector Backflow Prevention Assembly" (DCDA)** means a specially Designed assembly composed of a line-size approved double check valve assembly with a bypass containing a specific water meter and an approved double check valve assembly. The meter shall register accuracy for only very low rates of flow up to 3 GPM. Any existing devices needing to be replaced ~~should be done~~ shall be replaced with a Reduced Pressure-

Principal Detector Backflow Prevention Assembly.

**"Double Check Valve Backflow Prevention Assembly"** an assembly composed of two (2) independently acting, approved check valves, including tightly closing resilient seated shut-off valves attached at each end of the assembly and fitted with properly located resilient seated test cocks. This assembly shall only be used to protect against non-health hazards.

**"Health Hazard"** means any condition, device or practice in the customer system, or its operation, which endangers, or in the judgment of the District, has the potential to endanger the health and well-being of any water customer.

**"Industrial Fluids System"** means any system containing a fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration such as would constitute a health, system, pollution or plumbing hazard if introduced into the District system.

**"Locked-off"** means any water service which has been shut off at the meter by the District.

**"Manager"** means General Manager of the Rainbow Municipal Water District or his/her authorized representative.

**"Nonpotable Water"** means water which is not safe for human consumption or which is of questionable potability.

**"Plumbing Hazard"** means An internal or plumbing type cross-connection in a customer/user's potable water system that may be either a pollution or a contamination-type hazard.

**"Pollution"** means the presence of any foreign substance (organic, inorganic or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

**"Pollution Hazard"** means an actual or potential threat to the physical properties, or to the potability, of the District system, which would constitute a nuisance or be aesthetically objectionable or could cause damage to the District system, but would not be dangerous to health.

**"Potable water"** means any water which, according to recognized standards is safe for human consumption.

**"Potable water service connection"** means the terminal end of a service connection from the District system (where the District loses control over the water at its point of delivery to the customer system), being the downstream end of the meter. There should be no unprotected tees/-take-offs from the service line upstream/downstream of any backflow prevention device. Service connections shall also include temporary connections from a fire hydrant and all other temporary or emergency water service connections from the District system.

**"Public Health Agency"** means the State Water Resources Control Board.

**"Reduced Pressure Principle Device"** (RP) means a backflow prevention device consisting of an assembly of two independently operating approved check valves with an automatically operating differential relief valve between the two check valves, tightly closing shut-off valves on either side of the check valves, plus properly located test cocks for the testing of the check and relief valves. The entire assembly shall meet the design and performance specifications and approval of a recognized and approved testing agency for backflow prevention assemblies. The device shall operate to maintain the pressure in the zone between the two check valves at a level less than the pressure of the inlet device. At cessation of normal flow the pressure between the two check valves shall be less than the pressure at the inlet of the device. In case of leakage of

either of the check valves, the differential relief valve shall operate to maintain the reduced pressure in the zone between the check valves by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less, the relief valve shall open to the atmosphere. To be approved, these devices must be readily accessible for inline maintenance and testing and be installed in a location where no part of the device will be submerged.

**"Reduced Pressure Principle-Detector Backflow Assembly (RPDA)"** means a specially designed assembly composed of a line-size approved reduced pressure principle backflow prevention assembly with a bypass containing a specific water meter and an approved reduced pressure principle backflow prevention assembly. The meter shall register for only very low rates of flow up to 3 GPM and shall show a registration for all rates of flow.

**"Residential Properties"** is a parcel or lot with at least one residence regardless of the lot size, with a primary purpose of providing a dwelling that serves as living quarters for one or more families, and does not meet the definition of an "Agricultural Property".

**"Title 17"** means California Code of Regulations, Title 17, Public Health Regulations relating to cross-connection.

**"Unlocked"** means any water service previously shut off by the District which has been turned back on by the District.

**"Used Water"** means any water supplied by the District from the District system to a customer system that has passed through the metered water service connection and is no longer under the control of the District.

**"Water System"** The water system is made up of two parts; namely, the District system and the customer systems:

The District system consists of the storage, treatment and distribution facilities under the complete control of the District, up to the point where the customer system begins (immediately after the water meter).

The customer systems consist of all water components beyond the water meter.

### 8.20.031

#### Degree of Hazard

The District's Cross-Connection Control Specialist will evaluate the degree of potential health hazard to the public water supply as a result of conditions existing on a customer/user's premises. The Cross-Connection Control Specialist will consider the following as a non-exclusive basis for determining if a hazard exists or has the potential to exist:

- The existence of an actual cross-connection;
- The nature of material handled on the property;
- The probability of a backflow occurring;

The degree of piping system complexity and the potential for system modification.

**Commercial:**

All meters serving commercial properties are required to have District approved backflow devices installed.

**Agricultural:**

All meters serving Agricultural Properties are required to have District approved backflow devices installed.

**Residential:** A backflow device would not be required unless one or more of the following conditions apply:

- Pressure in the customers system that may exceed the water pressure in the District system (onsite pumps, etc.)
- Auxiliary water system (well, etc.)
- Storage of chemicals, fertilizers, pesticides or any other substance in sufficient quantities or in a manner that has the potential to contaminate the water system.
- For Residential Properties, the District's Cross-Connection Control Specialist may conduct an inspection of the user's property to determine if potential cross-connections have been mitigated through the use of approved measures, such as the installation of approved anti-siphon hose bibs, air gaps on swimming pool fill lines, anti-siphon backflow preventers on irrigation systems, etc.

**8.20.040**

**Backflow prevention device - General requirements**

The District is responsible for the protection of the potable water system from potential contamination or pollution due to the backflow of contaminants or pollutants through the potable water service connections.

An approved backflow prevention device is required at all potable water service connections except for the following:

- (1) Any water service connection for single or duplex Residential Properties where the connection is one inch (1") or ~~under smaller~~ and the degree of hazard does not rise to the level requiring a backflow device as determined by the District's Cross-Connection Control Specialist.
- (2) Any water service connection which is locked off, provided however, that before water service may be unlocked the customer shall comply with all of the backflow prevention provisions of this chapter.

The Cross-Connection Control Specialist shall give notice in writing to all District customers who are required to install an approved backflow prevention device at each potable water service connection. Within the time prescribed by the General Manager or designate, which shall not be

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less than sixty (60) days, the customer shall install such approved device(s) at the customer's own expense; and failure or refusal or inability on the part of the customer to install said device(s) shall immediately constitute grounds for discontinuing water service to the metered water service connections until the required device(s) have been properly installed.

The District shall maintain records of all approved backflow devices installed in the water system. The District shall also keep records regarding the certification of all devices. The District shall be responsible for notifying each customer/user when a device is required to be installed or tested. Testing of backflow devices shall be done at least annually or more often as the District deems necessary, depending on the degree of hazard. It is the District's primary responsibility to ensure that all testing and record keeping conforms to State Health regulations relating to cross-connections.

#### **8.20.041**

##### **Appeal procedure**

Any customer wishing to appeal a determination of the requirement for installation of a backflow prevention device may do so, in writing, within forty-five (45) days of the date of the **first** written notification. There will be an **Appeal** Hearing scheduled for the customer or customer representative to present his arguments against complying with either the directives or the schedule given in the notification. The **Appeal** Hearing Panel consists of the **Engineering** Manager and the General Manager. The purpose of the hearing is to confirm, **modify or deny** the findings of the **Cross-Connection Control Specialist**. **The decision of the Appeal Hearing Panel is final.**

#### **8.20.050**

##### **Protection required before system connection**

No potable water service connection to any premises shall be placed in service by the District unless the District system is protected as required by this chapter. Service of water to any premises shall be immediately discontinued by the District if a backflow prevention device required by state laws and regulation and by this chapter is not installed, tested and maintained, or if it is found that a backflow prevention device has been removed, by-passed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected.

#### **8.20.060**

##### **Backflow Prevention Device Installation, Replacement, Relocation, and Repair.**

- 1. Installation:** All backflow prevention devices shall be installed directly behind and as close to the meter as practical but no more than eight (8) feet away, per Rainbow Standards Drawing number W-1. ~~The device is to be installed and~~ before any branches, trees, valves and strainers in the water line. Two or more backflow prevention devices of the same type may be installed in parallel when approved by the District. All single device installations shall be the size of the meter or greater. Devices must be installed to the District's specifications. When the street pressure exceeds the maximum working pressure of the backflow device (150 PSI), a pressure regulator can be installed on the upstream leg of the backflow assembly. Pressure regulators can be installed on the

downstream leg of the backflow assembly. The District will be the final authority in determining the required location of a backflow prevention device.

Backflow prevention devices shall be tested by a certified tester immediately after they are installed and not placed into service unless they are functioning as required.

2. **Replacement:** A device may be removed and replaced provided the water use is discontinued until the replacement device is installed and tested. All Replacement devices must be approved by the District, ~~and meet the new "no lead" standards.~~
3. **Relocation:** A device may be relocated following confirmation by the District that the relocation will continue to provide the required protection and satisfy installation requirements. A retest will be required following the relocation of the device;
4. **Repair:** A device may be removed for repair; provided the water use is either discontinued until repair is completed and the device is returned to service, or the service connection is equipped with other backflow protection approved by the District. A retest will be required following the repair of the device.

#### 8.20.070

#### **Systems to be open for inspection, installation and testing**

All customer/user systems shall be available for inspection, installation and testing at all reasonable times to authorized representatives of the District to determine whether cross-connections or other structural or sanitary hazards exist, including violations of this chapter. Refusal of an inspection will result in a mandatory requirement that the water service be locked off until a backflow device is installed or an inspection reveals that no hazard exist. When such a condition becomes known, the District shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the condition(s) in conformance with state laws and District ordinances relating to plumbing and water supplies and with regulations adopted pursuant thereto.

**8.20.080****Backflow prevention device required**

The District will determine which one of the following backflow prevention devices is required: Reduced Pressure Principle Backflow Prevention Device (RP), or Reduced Pressure-Principle-Detector Backflow Assembly (RPDA). Existing nonconforming devices may remain until they need replacement. If a hazard exist an approved device will be required. The District will be the final authority in determining what type of backflow prevention is required.~~[JP4].~~

~~The District will determine which one of the following backflow prevention devices is required: Reduced Pressure Principle Backflow Prevention Device (RP), Reduced Pressure-Principle-Detector Backflow Assembly (RPDA), Double Check Detector Backflow Prevention Assembly (DCDA) [TK5] or and Air Gap Separation (AG) and Double Check (DC). However if a DC needs replacement, an RP is to be installed if a hazard exists. The District will be the final authority in determining what type of backflow prevention is required.~~

**When required, a** reduced pressure backflow preventer shall be installed immediately after the meter at each and every potable water service connection within the District as required by this chapter.

**When required,** Reduced Pressure Principle Backflow Prevention Device (RP) ~~an air-gap separation~~ will be installed as close to the water service connection as possible. Such backflow protection will be required for but not limited to the following conditions:

- Sewage treatment plants ~~[JP6] and pump stations [TK7];~~
- Manufacturing, processing or fabricating plants where toxic materials or water are pumped, processed or treated;
- Any location where the District deems the installation of an Reduced Pressure Principle Backflow Prevention Device (RP) ~~air-gap is~~ necessary.

**8.20.090****Certification of backflow prevention devices**

Any backflow prevention device required by this chapter shall be of a model and size approved by the District. The term "approved backflow prevention device" means a device that has been established by the American Water Works Association, as set forth in its publication entitled, AWWA **C511-89** Standards for Reduce Pressure Principle Backflow Prevention Devices, and **meets the most current edition of the Manual of Cross-Connection Control of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California.**



Final approval shall be evidenced by a certificate of approval issued by an approved testing laboratory, certifying full compliance with said AWWA Standards and FCC&HR Specifications.

The following testing laboratory is approved by the board to test and certify backflow preventers: Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California, KAP-200 University Park MC-2531, Los Angeles, California 90089-2531.

Backflow preventers which may be subjected to back pressure or backsiphonage that have been fully tested and have been granted a certificate of approval by said approved laboratory and are listed on the laboratory's current list of approved devices may be used.

**8.20.100  
Existing devices**

All presently installed backflow prevention devices previously approved by the District shall be deemed to comply with the requirements of this chapter provided such devices meet current performance and testing requirements. Existing devices which do not meet current performance or testing requirements shall be repaired or replaced by a backflow prevention device meeting the requirements of this chapter. Any such replacement cost will be borne by the customer/user.

Existing nonconforming devices may remain until they need replacement. If a hazard exists an approved device will be required. The District will be the final authority in determining what type of backflow prevention is required.JP8].

~~Existing double-check backflow preventers previously approved by the District may substitute for a reduced pressure principle backflow preventer if, in the opinion of the District's Cross-Connection Control Specialist, the device can be tested and it adequately protects the District's water system from contamination. (This does not apply to two (2) swing-check valves mounted in series.)~~TK9]

Existing devices not required by this ordinance may be:

- Maintained and tested at owners expense
- Removed at owners expense if District determines no hazard exist

It is the customer's responsibility to notify the District if they wish to withdraw from the testing program under this provision. An inspection would be required before withdrawing or removing from the program.

**8.20.110  
Inspections and testing responsibility**

The **customer/user** is responsible for insuring the annual testing and making any necessary repairs if necessary to pass the test is performed. - **The District will maintain a record of testing performed and a calendar indicating when the next test is required. The District has retained the services of a licensed contractor to administer the testing and monitoring program. Customers may elect to be included in this monitoring group and their devices will be tested**

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nance No. 14-08\DRAFT

annually by the contractor. The District shall pass its actual cost for the testing on to the customer in a monthly cross-connection control fee.

All other expenses where backflow prevention devices are installed, replaced, relocated, repaired or overhauled are the responsibility of the customer. All inspections and operational tests will be made by a certified tester. In those instances where the District deems the hazard to be great enough, it may require certified inspections at more frequent intervals. These inspections and tests shall be at the expense of the customer/user, and shall be performed by a District-approved certified tester. It shall be the duty of the District to see that these timely tests are to be undertaken so that District personnel may witness the tests if it is so desired. These devices shall be repaired, overhauled or replaced at the expense of the customer/user whenever said devices are found to be defective. Records of such tests, repairs and overhaul shall be kept on file with the District.

#### **8.20.120**

##### **Noncompliance, penalties**

In the event a customer is notified that a backflow device shall be installed or tested on the customer's service connection and a reasonable compliance time has been allowed by the District in which the customer has not complied with the District's request, then the customer's water service shall be locked off. The customer's water service shall remain locked until an approved backflow device is installed and/or tested by a certified backflow tester; and all unlock fees are paid.

If a device is found to be tampered with or any deliberate action to impede the function of the backflow device, the service will be locked immediately and the customer will be responsible for paying all costs and fines associated with the violation.

#### **8.20.130**

##### **Monthly charges**

Monthly charges will be established by the District as necessary. The purpose of such charges will be to cover the cost incurred by the District for regulation and enforcement of the cross-connection control regulations and annual testing of customer backflow devices and the repair if necessary to pass test.

#### **8.20.140**

##### **Interpretation of provisions**

This chapter and Title 17 of the California Code of Regulations shall guide the District in the implementing and functioning of its backflow prevention program. In instances where this chapter does not define the application of the backflow prevention program the District shall reply on Title 17 of the California Code of Regulations for definition. In instances where this chapter or said Title 17 does not give definition then the District shall rely on the State **Water Resources Control Board**.

**Chapter 8.20  
CROSS-CONNECTION CONTROL**

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**Section 8.20.010**

**Purpose**

The purpose of this chapter is:

- A. To protect the District system from the possibility of contamination or pollution, by isolating within customer systems such contaminants or pollutants that have the potential to backflow into the District's potable water system; and
- B. To provide for an ongoing program of cross-connection control which will systematically and effectively prevent the contamination or pollution of the District's potable water system; and
- C. To meet or exceed Federal and State regulations pertaining to cross-connection control issues.

**8.20.020**

**Legal Basis for Program**

All legal authorities and references shall be current versions and revisions.

**Authority**

- 1. Code of Federal Regulations, Safe drinking Water Act - most current
- 2. Code of California Regulations, Titles 17 and 22
- 3. State of California Water Code, Chapter 1, Section 110. Chapter 8, Section 500 and Chapter 723, Sections 13553, 13554.2, and 13554.3
- 4. American Water Works Association Manual of Water Supply Practices M14
- 5. University of Southern California (USC Manual) – latest or current edition
- 6. California Plumbing Code (CPC)
- 7. Rainbow Municipal Water District Administrative Code

**8.20.030**

**Definitions**

Whenever in this chapter or in any document where they govern, the following terms are used, they shall be defined as follows:

**"Air-Gap"** is a means of backflow prevention utilizing the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture or other device and the flood level rim of said vessel. An approved air-gap shall be at least double the diameter of the supply pipe, measured vertically, above the top of the rim of the vessel; provided however, that in no case shall the air-gap be less than one inch.

**"Approved"** means accepted by the District as meeting an applicable specification stated or cited in this chapter suitable for the proposed use.

**"Auxiliary Water Supply"** means any water supply, other than the District's system available to a customer system. These auxiliary supplies may include water from other purveyor's public potable water supply or any natural source(s) such as a well, spring, river, stream, harbor, etc., or used waters or industrial fluids. These waters may be polluted or contaminated, or they may be objectionable, and constitute an unacceptable water source over which the District does not have control.

**"Agricultural Properties"** is a parcel, lot, grove or residence of any size which is used for an agrarian nature, whether for commercial purposes or not. Typical uses would include, but not be limited to, the practice of cultivating crops, the breeding and raising of livestock, aquaculture and any other form of husbandry.

**"Backflow"** means the reversal of flow of water or mixtures of water and other liquids, gases or other substances into the District's distribution pipes of water from any source or sources.

**"Backflow Preventer"** means a device or means designed to prevent backflow or backsiphonage.

**"Backpressure"** means any elevation of pressure in the downstream piping system (by pump, elevation of piping, or steam and/or air pressure) above the supply pressure at the point of consideration, which would cause, or tend to cause, a reversal of the normal direction of flow.

**"Backsiphonage"** means the flow of water (or other liquids, mixtures or substances) into the District system from any source caused by the reduction of pressure in the District system.

**"Board"** means Board of Directors of the Rainbow Municipal Water District.

**"Certified Backflow Tester"** means a person who has proven his / her ability to test backflow prevention assemblies to the satisfaction of the District and the San Diego County Department of Environmental Health.

**"Contamination"** means the impairment of the quality of the potable water by sewage, industrial fluids, waste liquids or any other compounds or other materials to a degree which creates an actual hazard to the public health through poisoning or the spreading of disease.

**"Control"** means the right and power over the quality of water.

**"Cross-Connection"** means any physical connection, or arrangement of piping or fixtures, between two otherwise separate piping systems, one of which contains potable water and the other of which contains nonpotable water, industrial fluids, or fluids of questionable safety, through which, or because of which, backflow may occur into the District's system. A water service connection between the District system and a customer system which is cross-connected to a contaminated fixture, industrial fluid system or with a potentially contaminated supply or auxiliary water system, constitutes one type of cross-connection. Other types of cross-connections include connectors such as swing connections, removable sections, four-way plug valves, spools, dummy sections of pipe, swivel or change-over devices, sliding multiport tubes, solid connections, garden hoses, etc.

**"Cross-Connection Control by Containment"** means the installation of an approved backflow prevention device in any customer system chosen as practical for the water service connection.

**"District"** means Rainbow Municipal Water District.

**"Double Check-Detector Backflow Prevention Assembly" (DCDA)** means a specially Designed assembly composed of a line-size approved double check valve assembly with a bypass containing a specific water meter and an approved double check valve assembly. The meter shall register accuracy for only very low rates of flow up to 3 GPM. Any existing devices needing to be replaced shall be replaced with a Reduced Pressure Principal Detector Backflow Prevention Assembly.

**"Double Check Valve Backflow Prevention Assembly"** an assembly composed of two (2) independently acting, approved check valves, including tightly closing resilient seated shut-off valves attached at each end of the assembly and fitted with properly located resilient seated test cocks. This assembly shall only be used to protect against non-health hazards.

**"Health Hazard"** means any condition, device or practice in the customer system, or its operation, which endangers, or in the judgment of the District, has the potential to endanger the health and well-being of any water customer.

**"Industrial Fluids System"** means any system containing a fluid or solution which may be chemically, biologically or otherwise contaminated or polluted in a form or concentration such as would constitute a health, system, pollution or plumbing hazard if introduced into the District system.

**"Locked-off"** means any water service which has been shut off at the meter by the District.

**"Manager"** means General Manager of the Rainbow Municipal Water District or his/her authorized representative.

**"Nonpotable Water"** means water which is not safe for human consumption or which is of questionable potability.

**"Plumbing Hazard"** means an internal or plumbing type cross-connection in a customer/user's potable water system that may be either a pollution or a contamination-type hazard.

**"Pollution"** means the presence of any foreign substance (organic, inorganic or biological) in water which tends to degrade its quality so as to constitute a hazard or impair the usefulness or quality of the water to a degree which does not create an actual hazard to the public health but which does adversely and unreasonably affect such waters for domestic use.

**"Pollution Hazard"** means an actual or potential threat to the physical properties, or to the potability, of the District system, which would constitute a nuisance or be aesthetically objectionable or could cause damage to the District system, but would not be dangerous to health.

**"Potable water"** means any water which, according to recognized standards is safe for human consumption.

**"Potable water service connection"** means the terminal end of a service connection from the District system (where the District loses control over the water at its point of delivery to the customer system), being the downstream end of the meter. There should be no unprotected tees/take-offs from the service line upstream of any backflow prevention device. Service connections shall also include temporary connections from a fire hydrant and all other temporary or emergency water service connections from the District system.

**"Public Health Agency"** means the State Water Resources Control Board.

**"Reduced Pressure Principle Device"** (RP) means a backflow prevention device consisting of an assembly of two independently operating approved check valves with an automatically operating differential relief valve between the two check valves, tightly closing shut-off valves on either side of the check valves, plus properly located test cocks for the testing of the check and relief valves. The entire assembly shall meet the design and performance specifications and approval of a recognized and approved testing agency for backflow prevention assemblies. The device shall operate to maintain the pressure in the zone between the two check valves at a level less than the pressure of the inlet device. At cessation of normal flow the pressure between the two check valves shall be less than the pressure at the inlet of the device. In case of leakage of either of the check valves, the differential relief valve shall operate to maintain the reduced pressure in the zone between the check valves by discharging to the atmosphere. When the inlet pressure is two pounds per square inch or less, the relief valve shall open to the atmosphere. To be approved, these devices must be readily accessible for inline maintenance and testing and be installed in a location where no part of the device will be submerged.

**"Reduced Pressure Principle-Detector Backflow Assembly (RPDA)"** means a specially designed assembly composed of a line-size approved reduced pressure principle backflow prevention assembly with a bypass containing a specific water meter and an approved reduced pressure principle backflow prevention assembly. The meter shall register for only very low rates of flow up to 3 GPM and shall show a registration for all rates of flow.

**"Residential Properties"** is a parcel or lot with at least one residence regardless of the lot size, with a primary purpose of providing a dwelling that serves as living quarters for one or more families, and does not meet the definition of an "Agricultural Property".

**"Title 17"** means California Code of Regulations, Title 17, Public Health Regulations relating to cross-connection.

**"Unlocked"** means any water service previously shut off by the District which has been turned back on by the District.

**"Used Water"** means any water supplied by the District from the District system to a customer system that has passed through the metered water service connection and is no longer under the control of the District.

**"Water System"** The water system is made up of two parts; namely, the District system and the customer systems:

The District system consists of the storage, treatment and distribution facilities under the complete control of the District, up to the point where the customer system begins (immediately after the water meter).

The customer systems consist of all water components beyond the water meter.

#### **8.20.031**

##### **Degree of Hazard**

The District's Cross-Connection Control Specialist will evaluate the degree of potential health hazard to the public water supply as a result of conditions existing on a customer/user's premises. The Cross-Connection Control Specialist will consider the following as a non-exclusive basis for determining if a hazard exists or has the potential to exist:

- The existence of an actual cross-connection;
- The nature of material handled on the property;
- The probability of a backflow occurring;
- The degree of piping system complexity and the potential for system modification.

##### **Commercial:**

All meters serving commercial properties are required to have District approved backflow devices installed.



**Agricultural:**

All meters serving Agricultural Properties are required to have District approved backflow devices installed.

**Residential:**

A backflow device would not be required unless one or more of the following conditions apply:

- Pressure in the customers system that may exceed the water pressure in the District system (onsite pumps, etc.)
- Auxiliary water system (well, etc.)
- Storage of chemicals, fertilizers, pesticides or any other substance in sufficient quantities or in a manner that has the potential to contaminate the water system.
- For Residential Properties, the District's Cross-Connection Control Specialist may conduct an inspection of the user's property to determine if potential cross-connections have been mitigated through the use of approved measures, such as the installation of approved anti-siphon hose bibs, air gaps on swimming pool fill lines, anti-siphon backflow preventers on irrigation systems, etc.

**8.20.040**

**Backflow Prevention Device - General Requirements**

The District is responsible for the protection of the potable water system from potential contamination or pollution due to the backflow of contaminants or pollutants through the potable water service connections.

An approved backflow prevention device is required at all potable water service connections except for the following:

- (1) Any water service connection for single or duplex Residential Properties where the connection is one inch (1") or smaller and the degree of hazard does not rise to the level requiring a backflow device as determined by the District's Cross-Connection Control Specialist.
- (2) Any water service connection which is locked off, provided however, that before water service may be unlocked the customer shall comply with all of the backflow prevention provisions of this chapter.

The Cross-Connection Control Specialist shall give notice in writing to all District customers who are required to install an approved backflow prevention device at each potable water service connection. Within the time prescribed by the General Manager or designate, which shall not be less than sixty (60) days, the customer shall install such approved device(s) at the customer's own expense; and failure or refusal or inability on the part of the customer to install said device(s) shall immediately constitute grounds for discontinuing water service to the metered water service connections until the required device(s) have been properly installed.

The District shall maintain records of all approved backflow devices installed in the water system. The District shall also keep records regarding the certification of all devices. The District shall be responsible for notifying each customer/user when a device is required to be installed or tested. Testing of backflow devices shall be done at least annually or more often as the District deems necessary, depending on the degree of hazard. It is the District's primary responsibility to ensure that all testing and record keeping conforms to State Health regulations relating to cross-connections.

#### **8.20.041**

##### **Appeal Procedure**

Any customer wishing to appeal a determination of the requirement for installation of a backflow prevention device may do so, in writing, within forty-five (45) days of the date of the first written notification. There will be an Appeal Hearing scheduled for the customer or customer representative to present his arguments against complying with either the directives or the schedule given in the notification. The Appeal Hearing Panel consists of the Engineering Manager and the General Manager. The purpose of the hearing is to confirm, modify or deny the findings of the Cross-Connection Control Specialist. The decision of the Appeal Hearing Panel is final.

#### **8.20.050**

##### **Protection Required Before System Connection**

No potable water service connection to any premises shall be placed in service by the District unless the District system is protected as required by this chapter. Service of water to any premises shall be immediately discontinued by the District if a backflow prevention device required by state laws and regulation and by this chapter is not installed, tested and maintained, or if it is found that a backflow prevention device has been removed, by-passed, or if an unprotected cross-connection exists on the premises. Service will not be restored until such conditions or defects are corrected.

#### **8.20.060**

##### **Backflow Prevention Device Installation, Replacement, Relocation, and Repair**

- 1. Installation:** All backflow prevention devices shall be installed directly behind and as close to the meter as practical but no more than eight (8) feet away, per Rainbow Standards Drawing number W-1. The device is to be installed before any branches, trees, valves and strainers in the water line. Two or more backflow prevention devices of the same type may be installed in parallel when approved by the District. All single device installations shall be the size of the meter or greater. Devices must be installed to the District's specifications. When the street pressure exceeds the maximum working pressure of the backflow device (150 PSI), a pressure regulator can be installed on the upstream leg of the backflow assembly. Pressure regulators can be installed on the downstream leg of the backflow assembly. The District will be the final authority in determining the required location of a backflow prevention device.

Backflow prevention devices shall be tested by a certified tester immediately after they are installed and not placed into service unless they are functioning as required.

2. **Replacement:** A device may be removed and replaced provided the water use is discontinued until the replacement device is installed and tested. All Replacement devices must be approved by the District.
3. **Relocation:** A device may be relocated following confirmation by the District that the relocation will continue to provide the required protection and satisfy installation requirements. A retest will be required following the relocation of the device;
4. **Repair:** A device may be removed for repair; provided the water use is either discontinued until repair is completed and the device is returned to service, or the service connection is equipped with other backflow protection approved by the District. A retest will be required following the repair of the device.

#### **8.20.070**

##### **Systems to be Open for Inspection, Installation and Testing**

All customer/user systems shall be available for inspection, installation and testing at all reasonable times to authorized representatives of the District to determine whether cross-connections or other structural or sanitary hazards exist, including violations of this chapter. Refusal of an inspection will result in a mandatory requirement that the water service be locked off until a backflow device is installed or an inspection reveals that no hazard exist. When such a condition becomes known, the District shall deny or immediately discontinue service to the premises by providing for a physical break in the service line until the customer has corrected the condition(s) in conformance with state laws and District ordinances relating to plumbing and water supplies and with regulations adopted pursuant thereto.

#### **8.20.080**

##### **Backflow Prevention Device Required**

The District will determine which one of the following backflow prevention devices is required: Reduced Pressure Principle Backflow Prevention Device (RP) or Reduced Pressure-Principle-Detector Backflow Assembly (RPDA). Existing nonconforming devices may remain until they need replacement. If a hazard exist an approved device will be required. The District will be the final authority in determining what type of backflow prevention is required.

When required, a reduced pressure backflow preventer shall be installed immediately after the meter at each and every potable water service connection within the District as required by this chapter.

When required, Reduced Pressure Principle Backflow Prevention Device (RP) will be installed as close to the water service connection as possible. Such backflow protection will be required for but not limited to the following conditions:

- Sewage treatment plants;
- Manufacturing, processing or fabricating plants where toxic materials or water are pumped, processed or treated;
- Any location where the District deems the installation of a Reduced Pressure Principle Backflow Prevention Device (RP) is necessary.

#### **8.20.090**

##### **Certification of Backflow Prevention Devices**

Any backflow prevention device required by this chapter shall be of a model and size approved by the District. The term "approved backflow prevention device" means a device that has been established by the American Water Works Association, as set forth in its publication entitled, AWWA C511-89 Standards for Reduce Pressure Principle Backflow Prevention Devices, and meets the most current edition of the Manual of Cross-Connection Control of the Foundation for Cross-Connection Control and Hydraulic Research of the University of Southern California.

Final approval shall be evidenced by a certificate of approval issued by an approved testing laboratory, certifying full compliance with said AWWA Standards and FCC&HR Specifications.

The following testing laboratory is approved by the board to test and certify backflow preventers: Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California, KAP-200 University Park MC-2531, Los Angeles, California 90089-2531.

Backflow preventers which may be subjected to back pressure or backsiphonage that have been fully tested and have been granted a certificate of approval by said approved laboratory and are listed on the laboratory's current list of approved devices may be used.

#### **8.20.100**

##### **Existing Devices**

All presently installed backflow prevention devices previously approved by the District shall be deemed to comply with the requirements of this chapter provided such devices meet current performance and testing requirements. Existing devices which do not meet current performance or testing requirements shall be repaired or replaced by a backflow prevention device meeting the requirements of this chapter. Any such replacement cost will be borne by the customer/user.

Existing nonconforming devices may remain until they need replacement. If a hazard exists an approved device will be required. The District will be the final authority in determining what type of backflow prevention is required.

Existing devices not required by this ordinance may be:

- Maintained and tested at owners expense
- Removed at owners expense if District determines no hazard exist

It is the customer's responsibility to notify the District if they wish to withdraw from the testing program under this provision. An inspection would be required before withdrawing or removing from the program.

### **8.20.110 Inspections and Testing Responsibility**

The customer/user is responsible for insuring the annual testing and making any necessary repairs to pass the test. The District will maintain a record of testing performed and a calendar indicating when the next test is required. The District has retained the services of a licensed contractor to administer the testing and monitoring program. Customers may elect to be included in this monitoring group and their devices will be tested annually by the contractor. The District shall pass its actual cost for the testing on to the customer in a monthly cross-connection control fee.

All other expenses where backflow prevention devices are installed, replaced, relocated, repaired or overhauled are the responsibility of the customer. All inspections and operational tests will be made by a certified tester. In those instances where the District deems the hazard to be great enough, it may require certified inspections at more frequent intervals. These inspections and tests shall be at the expense of the customer/user, and shall be performed by a District-approved certified tester. It shall be the duty of the District to see that these timely tests are to be undertaken so that District personnel may witness the tests if it is so desired. These devices shall be repaired, overhauled or replaced at the expense of the customer/user whenever said devices are found to be defective. Records of such tests, repairs and overhaul shall be kept on file with the District.

### **8.20.120 Noncompliance, Penalties**

In the event a customer is notified that a backflow device shall be installed or tested on the customer's service connection and a reasonable compliance time has been allowed by the District in which the customer has not complied with the District's request, then the customer's water service shall be locked off. The customer's water service shall remain locked until an approved backflow device is installed and/or tested by a certified backflow tester; and all unlock fees are paid.

If a device is found to be tampered with or any deliberate action to impede the function of the backflow device, the service will be locked immediately and the customer will be responsible for paying all costs and fines associated with the violation.

**8.20.130**

**Monthly Charges**

Monthly charges will be established by the District as necessary. The purpose of such charges will be to cover the cost incurred by the District for regulation and enforcement of the cross-connection control regulations and annual testing of customer backflow devices and the repair if necessary to pass test.

**8.20.140**

**Interpretation of Provisions**

This chapter and Title 17 of the California Code of Regulations shall guide the District in the implementing and functioning of its backflow prevention program. In instances where this chapter does not define the application of the backflow prevention program the District shall rely on Title 17 of the California Code of Regulations for definition. In instances where this chapter or said Title 17 does not give definition then the District shall rely on the State Water Resources Control Board.