

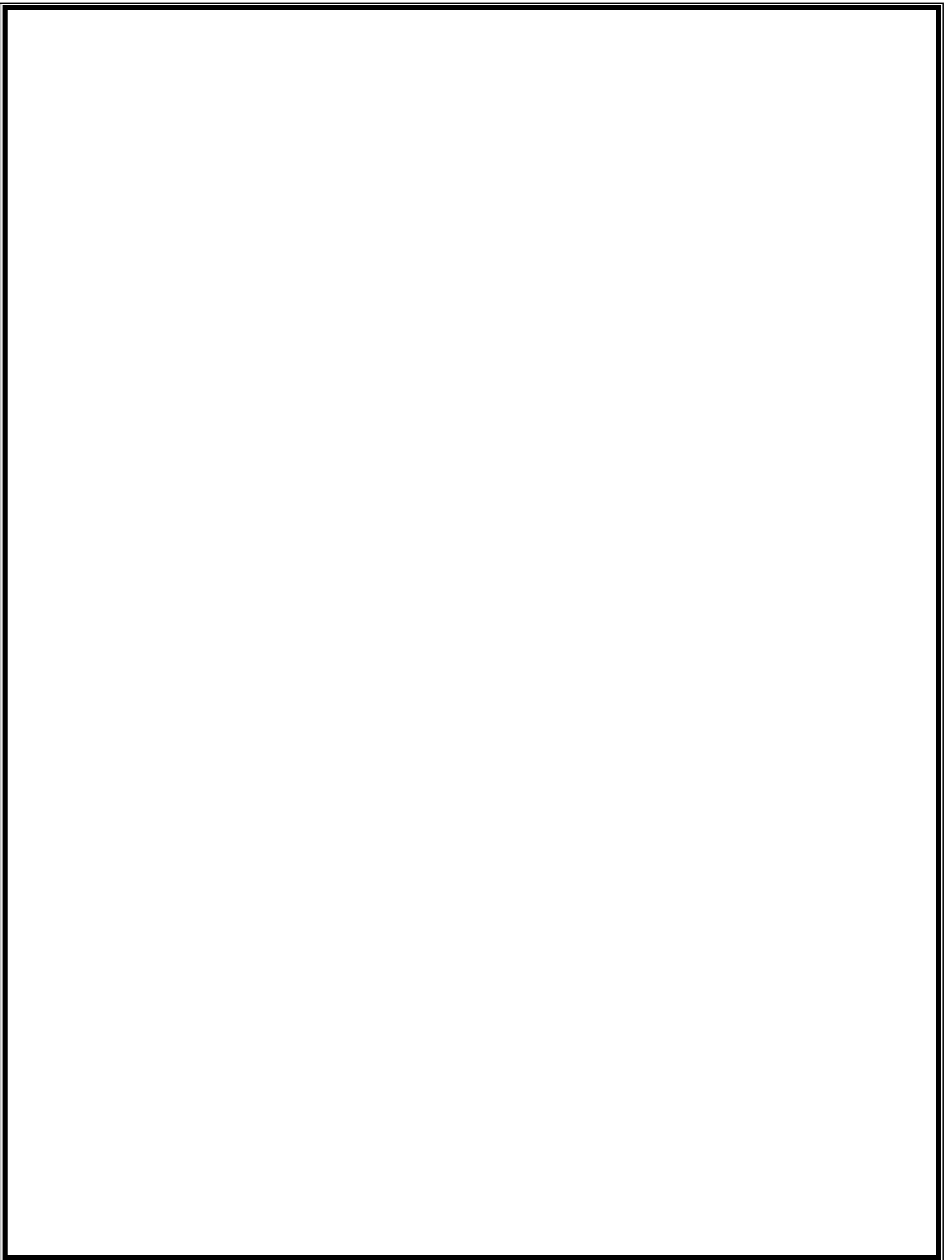
RECYCLED WATER USE PERMIT

Terms and Conditions



TRANSFORMING WASTEWATER TO RESOURCES

Rev. 03/18



RECYCLED WATER USE PERMIT

Terms and Conditions

Table of Contents

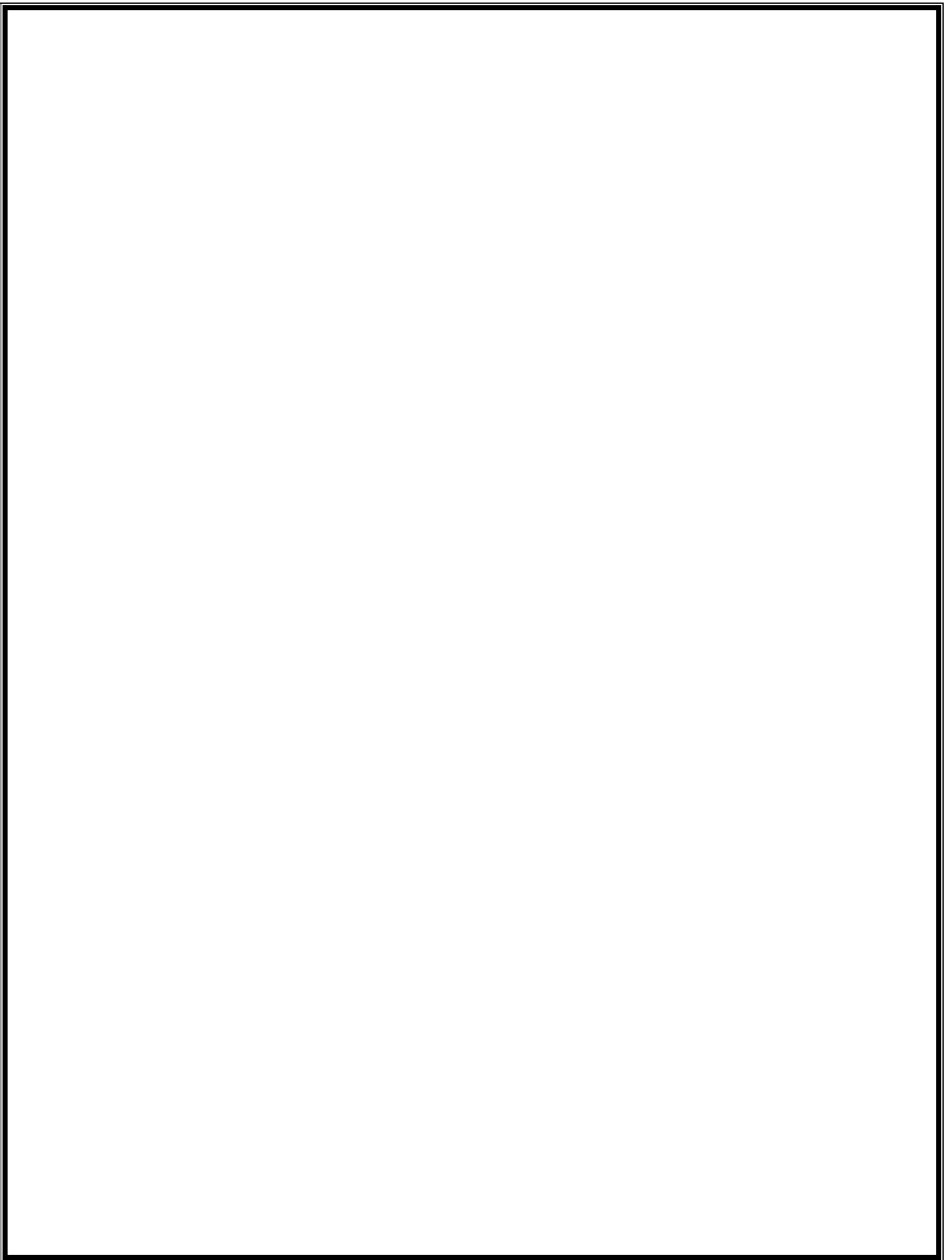
SECTION 1 - GUIDELINES FOR RECYCLED WATER USERS	1-1
1.1 Introduction.....	1-1
1.1.1 Purpose.....	1-1
1.1.2 Suitable Uses of Recycled Water.....	1-1
1.1.3 Table 1-1 Recycled Water Uses by Treatment Level	1-2
1.2 Service Requirements	1-3
1.2.1 Service Areas	1-3
1.2.2 Conditions of Service.....	1-3
1.2.3 Recycled Water Use Permit	1-3
1.3 Protection of Water Resources	1-4
1.3.1 Potable Water System Protection.....	1-4
1.3.2 Groundwater Protection	1-5
1.3.3 Recycled Water System Protection.....	1-5
1.4 Recycled Water User Supervisor.....	1-5
1.4.1 Control of On-Site Uses of Recycled Water	1-5
1.4.2 Training.....	1-6
1.4.3 Contact Information and Notification of Changes	1-6
1.4.4 Failures and Violations	1-6
1.4.5 Monitoring	1-6
1.4.6 Training of Personnel.....	1-6
1.5 Operation and Maintenance Requirements	1-7
1.5.1 Prevention of Cross-Connections	1-7
1.5.2 Unapproved Uses	1-7
1.5.3 Equipment Maintenance	1-7
1.5.4 Runoff	1-7
1.5.5 Ponding	1-7
1.5.6 Windblown Spray	1-7
1.5.7 Overspray.....	1-7
1.5.8 Hours of Operations.....	1-7
1.6 Monitoring and Inspections	1-8

1.7	Notification of Repairs or Modifications	1-8
1.8	Violations	1-8
1.9	Emergency Procedures	1-8
1.10	Technical Requirements and Facilities Design.....	1-9
1.10.1	Recycled Water Signage	1-9
	Posting of Use Areas	1-9
	Signs at Points of Access.....	1-9
1.10.2	Color Coding.....	1-9
1.10.3	Separation of Potable and Recycled Water Systems.....	1-10
1.10.4	Hose Bibs	1-10
1.10.5	Construction Water	1-10

SECTION 2 – CROSS-CONNECTION CONTROL AND PREVENTION PROGRAM..... 2-1

2.1	Introduction.....	2-1
2.1.1	Purpose.....	2-1
2.1.2	Background.....	2-1
2.1.3	Program Authority	2-1
2.1.4	User Supervisor.....	2-1
2.1.5	Contact Information and Notification of Changes.....	2-2
2.1.6	Failures and Violations	2-2
2.1.7	Monitoring	2-2
2.2	Training of Personnel	2-2
2.3	Cross-Connection Prevention	2-3
2.3.1	Separation of Potable and Recycled Water Systems	2-3
2.3.2	System Cross-Connection Testing.....	2-3
2.3.3	Backflow Prevention Assemblies	2-4
2.3.4	Air-Gap Separation	2-4
2.3.5	Reduced Pressure Principle Backflow Prevention Assembly (RP)	2-4
2.4	Backflow Device Testing.....	2-4

SECTION 3 - MONITORING & INSPECTION	3-1
3.1 User Site Surveys.....	3-1
3.2 User Self-Monitoring	3-1
3.2.1 System Not In Compliance	3-1
SECTION 4 – EMERGENCY PROCEDURES.....	4-1
4.1 Notification	4-1
4.2 Response.....	4-1
4.3 Emergency Modifications.....	4-1
4.4 Emergency Cross-Connection Response Plan.....	4-2
4.5 Service Termination.....	4-2



Section 1 - Guidelines for Recycled Water Users

1.1 Introduction

1.1.1 Purpose

This document serves as a guidance document for the Delta Diablo Recycled Water Program (Program). The Program issues permits to users of recycled water produced at the Delta Diablo Recycled Water Facility (RWF). The Program monitors user compliance with all governing regulations for recycled water use.

Delta Diablo (District) manages the recycled water distribution system and complies with regulatory requirements by issuing, reviewing and enforcing Recycled Water Use Permits. The Permit process ensures that recycled water is used in accordance with the Guidelines for Recycled Water Use, the General Water Reuse Permit (RWQCB Order 96-011), the State Water Resources Control Board (SWRCB) Order 2009-0006 DWQ General Waste Discharge Requirements for Landscape Irrigation Uses of Recycled Water, and the State of California Water Reclamation Criteria (Title 22).

1.1.2 Suitable Uses of Recycled Water

The California Division of Drinking Water (DDW) has designated suitable uses of recycled water based upon the level of treatment received prior to use. These “suitable uses of recycled water” are shown in the table on the following page for three different treatment levels. The level of treatment provided by the RWF corresponds to “tertiary recycled water,” which is the highest level of treatment prescribed by Title 22 and has the greatest number of allowable uses. Tertiary Recycled Water **is not** suitable for drinking or for use in food preparation.

1.1.3 Table 1-1 Recycled Water Uses by Treatment Level

Recycled Water Uses	Treatment Level Required		
	Tertiary	Secondary – 2.2	Secondary – 23
Irrigation of:			
Food crops—contact with edible portion of crop	Allowed	Not Allowed	Not Allowed
Parks and playgrounds	Allowed	Not Allowed	Not Allowed
School yards	Allowed	Not Allowed	Not Allowed
Residential landscaping	Allowed	Not Allowed	Not Allowed
Unrestricted access golf courses	Allowed	Not Allowed	Not Allowed
Any other irrigation uses not prohibited by other provisions. of CCR	Allowed	Not Allowed.	Not Allowed
Food crops—edible portion above ground/not in contact with recycled water	Allowed	Allowed	Not Allowed
Cemeteries	Allowed	Allowed	Allowed
Freeway landscaping	Allowed	Allowed	Allowed
Restricted access golf courses	Allowed	Allowed	Allowed
Ornamental nursery stock and sod farms	Allowed	Allowed	Allowed
Pasture for milk animals	Allowed	Allowed	Allowed
Any non-edible vegetation with access control to prevent use as if it were a park, playground or schoolyard.	Allowed	Allowed	Allowed
Orchards w/ no contact between edible portion and recycled water.	Allowed	Allowed	Allowed
Vineyards w/ no contact between edible portion and recycled water	Allowed	Allowed	Allowed
Non food-bearing trees not irrigated <14 days of harvest	Allowed	Allowed	Allowed
Fodder crops (e.g. alfalfa) and fiber crops (e.g. cotton)	Allowed	Allowed	Allowed
Seed crops not eaten by humans	Allowed	Allowed	Allowed
Food crops that undergo commercial pathogen-destroying processing before human consumption (e.g. sugar beets)	Allowed	Allowed	Allowed
Supply for impoundments:			
Non-restricted rec. impound., w/ supply monitored for pathogenic organisms	Allowed	Not Allowed	Not Allowed
Restricted recreational impoundment and fish hatcheries	Allowed	Allowed	Not Allowed
Landscape impoundments w/o decorative fountains	Allowed	Allowed	Allowed
Supply for cooling or air conditioning			
Industrial or commercial. cooling or air conditioning with cooling tower, evaporative condenser, or spraying that creates a mist	Allowed	Not Allowed	Not Allowed
Industrial or commercial. cooling or air conditioning w/o cooling tower, evaporative condenser, or spraying that creates a mist	Allowed	Allowed	Allowed
Other uses:			
Flushing toilets and urinals	Allowed	Not Allowed	Not Allowed
Priming drain traps	Allowed	Not Allowed	Not Allowed
Industrial process water that may contact workers	Allowed	Not Allowed	Not Allowed
Structural fire fighting	Allowed	Not Allowed	Not Allowed
Decorative fountains	Allowed	Not Allowed	Not Allowed
Commercial laundries	Allowed	Not Mowed	Not Allowed
Consolidation of backfill material around potable water pipelines	Allowed	Not Allowed	Not Allowed
Artificial snow making for commercial outdoor uses	Allowed	Not Allowed	Not Allowed
Industrial boiler feed	Allowed	Allowed	Allowed
Nonstructural fire fighting	Allowed	Allowed	Allowed
Backfill consolidation around non-potable pipelines	Allowed	Allowed	Allowed
Soil compaction	Allowed	Allowed	Allowed
Mixing concrete	Allowed	Allowed	Allowed
Dust control on roads and streets	Allowed	Allowed	Allowed
Cleaning roads, sidewalks and outdoor work areas	Allowed	Allowed	Allowed
Flushing sanitary sewers	Allowed	Allowed	Allowed

1.2 Service Requirements

1.2.1 Service Areas

Recycled water may be provided to all customers within the boundaries of all approved service areas for recycled water. The use of recycled water shall only be allowed in accordance with all Federal, State and local regulations and the Terms and Conditions outlined in this document.

1.2.2 Conditions of Service

Service to recycled water customers may be terminated or interrupted due to the following:

- The quality of the recycled water does not comply with the requirements of the Regulatory Agencies.
- The customer's use of the recycled water does not conform to all applicable regulations, including this permit.
- Water demand exceeds distribution or production limitations

If the pressure of the recycled water system is higher than the customer needs, it is the responsibility of the customer to provide a pressure-reducing valve downstream of the service meter to protect their recycled water system.

If the pressure of the recycled water system is not sufficient, the customer may need to install, at their own expense, a pressure boosting system.

1.2.3 Recycled Water Use Permit

Prospective recycled water customers must submit to the District an Application for a Permit to Use Recycled Water (Form A-1). A copy of the User's application form for each location is included in the corresponding appendix.

The permit application shall include:

- Site address, assessor's block and lot numbers, or property metes and bounds.
- Applicant's name and address, owner's name and address (if different), applicant's relationship to the subject property as legal owner, tenant, or lessee.
- Designation of user's Recycled Water Supervisor, including address and 24-hr contact number(s).
- Description of planned recycled water use on the property.
- Estimated annual volume and peak flow rate at the point of connection.
- If applicable, total irrigated area, expressed in appropriate units.
- Signature of the designated Recycled Water User Supervisor, certifying that he or she will comply with permit conditions.
- Signature of owner or duly authorized representative, certifying that information contained in the permit application is true and correct.

- Drawing(s) of the property, which show:
 - All buildings on the site.
 - Recycled water use areas.
 - Location, size, and materials of construction for potable and recycled water piping.
 - Location of all service connections, meters, and backflow devices relative to buildings, property lines, or intersections.
 - Location of outdoor drinking fountains, hose bibs, quick couplers and other points of ready access to recycled or potable water systems.
 - Location of recycled water signs.
 - Location of outdoor eating areas.
 - Locations of irrigation controller(s) and irrigation schedule, if applicable.
 - Direction of drainage from irrigated areas, if applicable.
 - Locations of wells, ponds, storage tanks or other impoundments.

Generally, the site's construction drawings can be used to meet the above "drawing" requirements, although it may be necessary to annotate the drawings to clearly show all information listed. For retrofit sites, if construction drawings are not available, a site drawing with the above information must be prepared.

For sites where recycled water is to be used inside a building, a more formal Engineering Report must be filed. Requirements for preparing an Engineering Report shall be obtained from the District.

The Application for a Recycled Water Use Permit should be filed concurrently with the application for a building permit. Upon receipt of the permit application and associated fees, the District will conduct a plan check to verify that all design conditions are met. If not, the District may require re-submittal of the missing information and/or drawings. For retrofit sites, the District will conduct a site inspection, and notify the customer of any repairs or modifications required.

Upon completion of construction (or site modifications), the District will conduct a final inspection to verify that all design requirements have been met, and a cross-connection test to verify that there are no interconnections between the potable and recycled water systems. All final conditions must be recorded on the site drawings. Final approval for service shall be indicated by the District issuing a Recycled Water Use Permit. The Permit includes the customer's signed permit application, along with a listing of site-specific requirements, if any. The permit shall be the binding agreement between the District and the User.

1.3 Protection of Water Resources

1.3.1 Potable Water System Protection

On premises using both recycled water and potable water, the potable water supply must be protected against any accidental cross-connections by the use of methods described in Section 2 – Cross-Connection Control and Prevention Program. All assemblies must be, at a minimum, a

Reduced Pressure (RP) assembly and be on the University of Southern California's (USC) list of "Approved Backflow Prevention Assemblies." All backflow devices are required to be tested by an AWWA certified backflow prevention tester. Backflow testing will be conducted annually, at a minimum, however the District may require more frequent testing based on the degree of hazard. The frequency of testing may be quarterly, semi-annual, or annually depending on the site's degree of hazard.

Some recycled water customer sites may have separate dedicated fire protection systems that use potable water. Those systems shall also be protected from cross-connection/backflow with reduced pressure (RP) assemblies at their point of connection.

1.3.2 Groundwater Protection

No irrigation with disinfected tertiary recycled water shall take place within 50 feet of any domestic water supply well unless specific DDW requirements are met. No impoundment of disinfected tertiary recycled water shall occur within 100 feet of any domestic water supply well. No irrigation with, or impoundment of, disinfected secondary-2.2 or disinfected secondary-23 recycled water shall take place within 100 feet of any domestic water supply well.

1.3.3 Recycled Water System Protection

The District must ensure that the recycled water system is not compromised by any customer. Therefore, in some cases the District may require an "Approved Backflow Prevention Assembly" (see above) on the customer's recycled water system. An example of where such protection might be required would be when chemicals may be injected into a recycled water line by the customer. Backflow devices must be properly inspected, maintained, and tested as mentioned above. Backflow devices on the recycled water system shall be marked and color-coded as noted elsewhere in these guidelines. Backflow device testing equipment used in the recycled water system must not be used in the potable water system.

1.4 Recycled Water User Supervisor

A User Supervisor must be designated by the Recycled Water User and approved by the District for every site where recycled water is used. The District's approval will be based on the individual's familiarity with the recycled water system, authority, and reliability. The District will provide training for the User Supervisor as described below. Although the District retains ultimate responsibility for use of recycled water at all sites, the User Supervisor is the primary means for ensuring safe use of recycled water at a given site. Section 1.4.1 through 1.4.6 outline the responsibilities of the User Supervisor.

1.4.1 Control of On-Site Uses of Recycled Water

The User Supervisor is required to be familiar with the entire on-site recycled water system, and of all applicable conditions governing recycled water use at the site. The User Supervisor shall ensure that recycled water use complies with those conditions. The User Supervisor shall also be responsible for proper operation and maintenance of the recycled water system and of all backflow prevention devices.

1.4.2 Training

The District will provide training to the User Supervisor. Training will cover the District's Guidelines for Recycled Water Use, and the District will participate or assist in any additional training, as necessary, for employee training. During the District's inspection of the facility, the District will discuss the customer's method of informing their employees about recycled water use on site.

1.4.3 Contact Information and Notification of Changes

The User Supervisor shall provide the District with an address and phone number(s) where he or she can be contacted at all times. The User Supervisor shall notify the District of any change in the individual designated to be User Supervisor, or of any planned modifications or planned additions to the recycled water system. These shall be reviewed and approved by the District before any modifications are made.

1.4.4 Failures and Violations

The User Supervisor (or their designated emergency contact) is responsible for notifying the District of any failure of the on-site recycled water system, of any cross-connection between the recycled and potable water systems, or of any inappropriate uses that may occur. For any condition which has the potential to endanger public health, such as a cross-connection, the User Supervisor shall notify the District at 925-756-1900 immediately.

1.4.5 Monitoring

The User Supervisor shall be responsible for any monitoring specified in the customer's Recycled Water Use Permit, and may participate in monitoring the use of recycled water on-site.

1.4.6 Training of Personnel

The District will provide training for the User Supervisor. The User Supervisor is responsible for ensuring that on-site operations personnel (i.e. those who use or maintain the recycled water system) are familiar with the proper use of recycled water. Operations personnel need to be aware of the following:

- There is never to be a direct connection between the recycled water system and any other water system.
- Recycled water, though highly treated, is non-potable. Recycled water is never to be used for human consumption.
- Working with recycled water is safe if the appropriate regulations are followed. Personnel should exercise good hygiene when working around recycled water, e.g. wash hands before eating or drinking.
- The operation and maintenance of the recycled water system must conform to requirements describe elsewhere in these Guidelines.

The User Supervisor should review these requirements with operating personnel prior to working with recycled water.

1.5 Operation and Maintenance Requirements

Customer use of recycled water shall at all times conform to the prohibitions and requirements outlined in section 1.5 of these Terms and Conditions.

1.5.1 Prevention of Cross-Connections

A cross-connection is defined as an unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and the recycled water system (or any other unapproved water source or substance). Cross-connections between the recycled water system and the potable water system are strictly prohibited by Title 17, California Code of Regulations. There shall never be a physical connection between the recycled water system and the potable water system anywhere on the customer's premises.

1.5.2 Unapproved Uses

Use of recycled water for any purpose other than those explicitly allowed under the customer's Recycled Water Use Permit is strictly prohibited.

1.5.3 Equipment Maintenance

All equipment shall be kept in good working condition. Broken or faulty irrigation component shall be promptly repaired. All signs, equipment identification devices, and color-coding shall be maintained.

1.5.4 Runoff

All systems shall be designed, constructed, and operated to minimize to the fullest extent the runoff of recycled water outside of the approved use area.

1.5.5 Ponding

All systems shall be designed, constructed, and operated to minimize to the fullest extent the ponding of recycled water both inside and outside the approved use area.

1.5.6 Windblown Spray

All systems shall be designed, constructed, and operated to minimize to the fullest extent the possibility of recycled water spray being carried outside the approved use area.

1.5.7 Overspray

Recycled water shall not be sprayed on people, food handling facilities, drinking fountains, or eating areas.

1.5.8 Hours of Operations

The use of recycled water for irrigation shall be limited to the hours of least use of the area by the public. This is usually between hours of 10 p.m. and 6 a.m. The operation of the system at other times may be requested and considered on a case-by-case basis. Consideration shall be given to allow a maximum dry out period, before the area is used by the public. The recycled water shall

not be used for periods of time that are greater than that needed to satisfy the watering requirements of the landscaping.

1.6 Monitoring and Inspections

The District will inspect customer's recycled water systems annually, or on a more frequent basis if warranted by the size and complexity of the site or other considerations. The inspections will include (at a minimum) a visual inspection of all backflow prevention assemblies, exposed piping, valves, pressure reducing valves, sprinklers, controllers, signs, labels, tags, and all points of connection. The inspection will also check for proper use (minimization of runoff, overspray, ponding, etc). The User Supervisor's records will be inspected to review the maintenance and education done since the last inspection. The District inspector will complete an inspection form, and transmit any deficiencies observed to the User Supervisor for correction. In some cases, the District may require customers to conduct self-monitoring of recycled water use sites. If so the customer's Recycled Water Use Permit will designate the monitoring frequency and reporting requirements, and will include a form for the Customer's use.

1.7 Notification of Repairs or Modifications

Customers shall notify the District in writing of any significant proposed repairs and of all proposed modifications to the on-site recycled water system. Notification shall include a sketch or drawing clearly delineating all changes. Repairs and modifications must be reviewed and approved by the District prior to implementation. Customers shall record all changes on the site's record drawings and provide the District with an updated copy.

1.8 Violations

Violations of the customer's Recycled Water Use Permit include, but are not limited to, the following:

- Failure to maintain equipment and identification devices (signs, coatings, etc) in good working condition.
- Use of recycled water which results in excessive run-off, overspray, or ponding.
- Failure to report changes to recycled water system to the District, including a change in the site's User Supervisor.
- Use of recycled water for purposes other than specified in customer's permit.
- Use of hose bibs on the recycled water system.
- Creating an interconnection between the potable and recycled water systems.

1.9 Emergency Procedures

In the event of an emergency involving the recycled water system, the user shall immediately notify the District by calling 925-756-1900. Emergencies include, but are not limited to, line breaks in the distribution system and cross-connections between the user's potable and recycled water systems.

In the event of a cross-connection on the user's site, the user shall immediately stop using potable water at the site, and shall isolate the on-site potable water system from the public supply at the point of connection. Before potable water service can be resumed, the cross-connection must be removed, and the site inspected and approved by the District. If it is determined that recycled water has entered the user's potable water system, the system must also be disinfected and tested before service can be resumed. The District may, at its discretion, perform such disinfection and testing and charge the user, or may provide instructions to a qualified contractor retained by the user.

In the case of a major earthquake, the User Supervisor should inspect the recycled water and potable water systems. If either of the systems is damaged, both the potable water system and the recycled water system should be shut off at their respective points of connection. The User Supervisor should then notify the District for further instructions.

Emergency modifications or repairs may be made by the customer to their system without the prior approval of the District when this action will prevent contamination, other damage to the systems, or prevent a public health hazard. The customer will document and take pictures of all repairs to provide to the District. The customer shall notify the District of the modifications as soon as possible, but not later than 48 hours following the completion of the modification or repair.

1.10 Technical Requirements and Facilities Design

1.10.1 Recycled Water Signage

Posting of Use Areas

Recycled water use areas shall have one or more signs posted to inform the public that recycled water is used at that location. Signs shall be measured no less than 4" high by 8" wide with white type against a purple background. Such sign shall include the words: "**Recycled Water – Do Not Drink**" and shall display the international "**Do Not Drink**" symbol. An example of a use area sign is included in Appendix C.

Signs at Points of Access

In addition to use area signs, individual fixtures and points of access to the recycled water system, such as fire hydrants, quick connects, blow-off points, inspection ports, etc. shall have signs with "**Recycled Water – Do Not Drink**" superimposed over the international "**Do Not Drink**" symbol.

In cases where there is potential for an improper interconnection to the recycled water system, the sign shall also include the wording "**Recycled Water – Do Not Interconnect**". Examples of suitable signs are included in Appendix C.

1.10.2 Color Coding

Recycled water facilities shall be color coded as follows:

Fire Hydrants – All recycled water fire hydrants shall be colored purple. Each fire hydrant shall also be posted as required in the section on signage.

Pipe Material – All pipe material used for the distribution of recycled water shall be purple. For PVC pipe, this requirement is met through the use of commercially available purple pipe. For other types of piping, and for valves and other appurtenances, this requirement shall be met using purple paint or purple adhesive tape wrap.

Valve Lids – All recycled water valve lids will be colored purple and marked “**Recycled Water**” in the center of the lid. Valve lids for fire hydrants using recycled water shall be purple.

Water Meter Lids – All recycled water meter lids shall be painted purple.

Marking Tape – All marking tape for recycled water facilities shall be purple, with white lettering stating “**Caution: Recycled Water – Do Not Drink.**”

Adhesive Tape – All adhesive tape for wrapping recycled water piping shall be purple, with white lettering stating “**Caution: Recycled Water – Do Not Drink.**”

Irrigation Controllers – Irrigation controllers shall be posted with a purple recycled water tag. The message on the tag will be printed in both English and Spanish. An example of an irrigation controller tag is included in Appendix C.

Other Components – Other components of the recycled water system shall be identified by purple paint, adhesive wrap, or means of identification approved by the District.

1.10.3 Separation of Potable and Recycled Water Systems

The separation of potable and recycled water piping shall be in accordance with the California Code of Regulations Title 22 Division 4 as well as Section 2 – Cross-Connection Control and Prevention Program of these Guidelines.

1.10.4 Hose Bibs

Hose bibs on the recycled water system are prohibited. Quick couplers may be used for recycled water, but must be different from those used on the potable water system. Quick couplers on the recycled water system shall have locking lids and be labeled with “**Recycled Water – Do Not Drink**” as described elsewhere in these Guidelines.

1.10.5 Construction Water

Recycled water may be used for construction purposes (soil compaction, dust control, roadway landscaping, etc). A different type of permit from that issued for permanent uses is required, and these forms shall be obtained from the District.

If authorized by the permit, trucks may be filled with recycled water from designated hydrants. Filling operation shall be monitored at all times. Recycled water shall be used only for purposes designated in the permit, and water shall be transported in a manner that prevents spillage. Drivers shall be apprised of procedures for safe handling of recycled water, as describe in the “Training of Personnel” provisions of these Guidelines. Trucks must have signs clearly identifying the water as either recycled water or non-potable and stating, “**Do Not Drink.**”

Section 2 – Cross-Connection Control and Prevention Program

2.1 Introduction

2.1.1 Purpose

The purpose of this section is to define Delta Diablo's (District's) Cross-Connection Control and Prevention Program (Program) for the delivery and use of recycled water from the Recycled Water Facility (RWF). This document establishes the role of the District, the Recycled Water Users (Users) and the regulatory agencies involved with the protection of potable water supplies from contamination by cross-connection with recycled water system pipelines. The installation, maintenance, and testing of approved backflow prevention devices is described, as well as the required monitoring, testing, and reporting procedures.

2.1.2 Background

This document was prepared in accordance with the State of California Division of Drinking Water (DDW) Guidance Manual for Cross-Connection Control Programs. The Program is in accordance with the California Code of Regulations Title 17 requirements for backflow prevention.

2.1.3 Program Authority

The Cross-Connection Control Program will be maintained by the District. The District's responsibility for the recycled water system begins at the RWF and ends at the User connection as defined in each User's Permit issued by the District. The User has the primary responsibility for protecting the potable water system. This responsibility begins at the User connection and includes all of the water distribution piping on the User premises. A User Supervisor will be designated by the User to monitor and enforce compliance with the Program. The District's Program staff will be responsible for training of the User Supervisor.

The California Division of Drinking Water (DDW) has the responsibility for promulgating and enforcing the laws, rules, regulations, and policies to be followed in controlling cross-connections. In addition, the local health agency has the authority to ensure that adequate protection is provided within a User's premises. The District will administer the entire Program, including cross-connection testing and backflow prevention assembly testing. Program costs will be recovered by the District through charges to the affected user for the costs of testing as part of their recycled water bill.

2.1.4 User Supervisor

A User Supervisor must be designated by the User and approved by the District for every site where recycled water is used. The District's approval will be based on the individual's familiarity with the recycled water system, authority, and reliability. The District will provide training for the User Supervisor as described below. Although the District retains ultimate responsibility for use of recycled water at all sites, the User Supervisor is the primary means for ensuring safe use of recycled water at a given site. User Supervisor responsibilities are described in Section 1, Guidelines for Recycled Water Users, and are summarized as follows:

- Knowledge of the entire on-site recycled water system.
- Knowledge of applicable conditions governing recycled water use at the site.
- Assurance that recycled water use complies with the conditions governing use at the site.
- Proper operation and maintenance of the recycled water system and of all backflow prevention devices.
- Assurance that cross-connections are not made during the installation, operation, and maintenance of the User's piping and equipment.
- Knowledge of the practices and regulations regarding cross-connection control and plumbing.

2.1.5 Contact Information and Notification of Changes

The User Supervisor shall provide the District with the address and phone number(s) where he or she can be contacted at all times. The User Supervisor shall notify the District of any change in the individual designated to be User Supervisor, or of any planned modifications or planned additions to the recycled water system. These shall be reviewed and approved by the District before any modifications are made.

2.1.6 Failures and Violations

The User Supervisor is responsible for notifying the District of any failure of the on-site recycled water system, of any cross-connection between the recycled and potable water systems, or of any inappropriate uses that may occur. For any condition that has the potential to endanger public health, such as a cross-connection, the User Supervisor shall notify the District immediately.

2.1.7 Monitoring

The User Supervisor shall be responsible for any monitoring specified in the User's *Recycled Water Use Permit* issued by the District.

2.2 Training of Personnel

The District will provide training for the User Supervisor. The User Supervisor is responsible for ensuring that on-site operations personnel (i.e. those who use or maintain the recycled water system) are familiar with the proper use of recycled water. The User's operations personnel need to be aware of the following:

- There is never to be a direct connection between the recycled water system and the potable water system
- Recycled water, though highly treated, is non-potable, and is never to be used for human consumption
- Working with recycled water is safe if both common sense is used and the appropriate regulations are followed
- Personnel should exercise good hygiene when working around recycled water, e.g. wash hands before eating or drinking.

- The operation and maintenance of the recycled water system must conform to all requirements set forth by the District.

The User Supervisor should review these requirements with operating personnel prior to working with recycled water.

2.3 Cross-Connection Prevention

A cross-connection is defined as an unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and the recycled water system. Cross-connections between the recycled water system and the potable water system are strictly prohibited by California Code of Regulations Title 17. There shall never be a physical connection between the recycled water system and the potable water system anywhere on the User's premises.

2.3.1 Separation of Potable and Recycled Water Systems

The separation of potable and recycled water piping shall be in accordance with California Code of Regulations Title 22 Division 4 guidelines, and shall be maintained to the greatest extent possible in both new construction and retrofit applications. The minimum separation standards are as follows:

The horizontal distance between pressurized potable water and recycled water lines shall be at least four (4) feet. Potable and recycled lines should not be installed in a common trench. Potable water lines shall be at least one (1) foot above recycled water lines where these lines cross.

Where it is not possible to meet the minimum separation requirements, alternative construction criteria may be applied. The District will evaluate alternative construction options on a case-by-case basis, and only when it has been demonstrated that neither of the basic criteria can be met.

2.3.2 System Cross-Connection Testing

At sites where both recycled water and potable water systems are present, a cross-connection test shall be performed before final approval is given to connect to the recycled water system. This test is to ensure that there is absolute separation between the two systems. During the test, the potable system is pressurized, while the other recycled system is depressurized. All outlets are then checked for presence or absence of flow. The test is then reversed, recycled system is pressurized, and the potable system is depressurized, and all outlets are again checked for the presence or absence of flow.

The District, in the presence of the User Supervisor, coordinates the cross-connection test. The cross-connection test shall be conducted or observed by the District's Cross-Connection Control Specialist (Specialist) by the methods specified in the UPC, Appendix J 8 (2) and J (8) 3.

The *Cross-Connection Test Report* (Form C-2) prepared by the Specialist documents the results of the test (Appendix A). Cross-connection tests must be conducted prior to approving operation of the recycled water and potable water systems, and periodically thereafter, at a minimum frequency of once every four years. The District may specify more frequent tests for large or complex sites, after modifications to the User's potable or recycled water systems, or when there is any concern regarding a possible cross-connection at the site.

2.3.3 Backflow Prevention Assemblies

On premises using both recycled water and potable water, the potable water supply must be protected against any accidental cross-connections by the use of an approved backflow prevention assembly. At a minimum there shall be a Reduced Pressure (RP) backflow prevention device required at all potable water connections to the local potable water distribution system at the meter on a site where recycled water is present. The DDW regulations allow two types of assemblies for abatement of cross-connection hazards at a User's service connection where recycled water is present. Approved types of backflow prevention assemblies for recycled water use areas include the following listed in Sections 2.3.4 and 2.3.5 below.

2.3.4 Air-Gap Separation

An air gap must be at least double the diameter of the supply pipe measured vertically above the top rim of the receiving vessel, and in no case less than one-inch. An air gap must be located as close as practical to the User's connection, and all piping between the User's connection and receiving tank must be entirely visible unless otherwise approved in writing by the District and the Division of Drinking Water.

2.3.5 Reduced Pressure Principle Backflow Prevention Assembly (RP)

The regulations require that all RPs conform to AWWA Standard C506-78(R83). An RP must be located as close as practical to the User's connection. This type of assembly must be installed at least twelve inches and not more than thirty-six inches above grade (measured from the lowest point of the assembly), and must have adequate side and top clearance to allow access for testing and maintenance. A minimum side and top clearance of twelve inches should be allowed.

2.4 Backflow Device Testing

All assemblies must be on the University of Southern California (USC) "Approved Backflow Prevention Assemblies" list. The regulations require that assemblies be tested immediately after they are installed, relocated, or repaired, and not be placed in service unless they are functioning as required. The testing requirements for backflow devices will be specified by the District, at a frequency that may be quarterly, semi-annual, or annually depending on the site's degree of hazard.

The regulations require that all backflow assemblies are tested at least annually by an AWWA certified backflow prevention tester. The District Cross-Connection Control Specialist will conduct or observe all backflow prevention tests on the recycled water system including at the recycled water User sites. Backflow device testing equipment used in the recycled water system must not be used in the potable water system. Repair or replacement of the backflow prevention assembly is the responsibility of the recycled water User.

Any site using a swivel type connection, allowing the User to switch between potable and recycled water is required to test all backflow devices when switching from recycled to potable water. Such site shall not be permitted to stay on domestic water for a period of time greater than ninety (90) days without written approval from the District.

Section 3 - Monitoring & Inspection

3.1 User Site Surveys

the District will inspect the User's recycled water system, as a requirement of the User's *Recycled Water Use Permit*. The permit will specify the inspection frequency however it shall be, at a minimum, annually. The inspections will include a visual inspection of all backflow prevention assemblies, exposed piping, valves, pressure reducing valves, sprinklers, controllers, signs, labels, tags, and all points of connections. The User Supervisor's records will be inspected to review the maintenance and education done since the last inspection. The District's inspector will complete an inspection form, and transmit any deficiencies observed to the User Supervisor for correction. The District inspector's report will include the following:

- The service location and identification.
- The backflow prevention assembly or assemblies required for minimum protection.
- A list of backflow prevention assemblies that are acceptable to the utility and the health agency.
- The requirements for installing the backflow prevention assembly or assemblies.
- The requirements for testing backflow prevention assemblies.
- The date by which corrective action must be completed.
- The authority under which the backflow protection requirement is made.
- The contact person at the District, including address and phone number.
- The consequence of failure to install, test, or maintain backflow prevention assemblies.

The District, the local health agency, and the RWQCB reserve the right to make unannounced inspections of the User's site and recycled water system.

3.2 User Self-Monitoring

The User may be required under their *Recycled Water Use Permit* to submit a Self-Monitoring Report to the District. If so, the permit will specify the monitoring frequency and reporting requirements. In this report, the User will document the condition of the on-site recycled water system and all backflow prevention devices. See Appendix A for a sample Self-Monitoring Report.

3.2.1 System Not In Compliance

If at any time the recycled water system is found to be out of compliance, the District shall issue a Notice of Violation (NOV) specifying the corrections required to bring the system into compliance. A site inspection shall be scheduled after a reasonable period of time to ensure compliance with the Order. Failure to comply with the Order within the period of time specified will result in the District terminating delivery of recycled water to the User.

Section 4 – Emergency Procedures

Emergencies include, but are not limited to, line breaks in the distribution system and cross-connections between the User's potable and recycled water systems.

4.1 Notification

It is the responsibility of the User Supervisor to notify the District of any failure or cross-connection in the recycled water or potable water system, whether or not the User Supervisor believes a violation has occurred. It is also the responsibility of the User Supervisor to notify the District of any violation that might occur because of any action the User personnel might take during the operation of the recycled water or potable water systems. If there are any doubts whether a violation has occurred, it is the responsibility of the User Supervisor to report each occurrence to the District so a decision can be made.

Any person who, without regard to intent or negligence, causes or permits an unauthorized discharge of more than 50,000 gallons (region 2), 1,000 gallons (region 5) of recycled water or, that discharges to a surface waterbody, drainage ditch, or storm drain, shall, as soon as

1. that person has knowledge of the discharge,
2. notification is possible, and
3. notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the appropriate Regional Water Board.

The User shall report any unauthorized discharge described above to the Regional Water Board by phone and email within 24 hours, followed by a written report within 15 days describing corrective actions taken.

4.2 Response

In case of a major earthquake, flood, fire, tornado, structural failure, or other incident that could likely damage the recycled or potable water systems, the User Supervisor should inspect the domestic and recycled water systems for damage as soon as it is safe to do so. If either system appears damaged, both the domestic and recycled water systems should be shut off at their points of connection. If the User Supervisor cannot inspect the site and damage is expected, then both water systems should be shut off at their points of connection. The User Supervisor should immediately contact the District and implement the *Emergency Cross-Connection Response Plan* described below.

4.3 Emergency Modifications

Emergency modifications or repairs can be made by the User to said system without the prior approval of the District to prevent contamination, damage, or a public health hazard. As soon as possible after the modification, but no more than 48 hours after the modification, the User shall notify the District of the emergency modifications and file a written description of action taken with pictures of the work completed and all repairs.

4.4 Emergency Cross-Connection Response Plan

In the event that a backflow incident or cross-connection is suspected or occurs, the following procedures shall be implemented immediately.

1. Notify the District and the State DDW by phone. This notification is to be followed by a written notice within 24 hours. The written notice is to include an explanation of the nature of the cross-connection, date and time discovered, and the steps taken to mitigate the cross-connection(s).
2. Keep the potable water system pressurized and post "Do Not Drink" signs at all potable water fixtures and outlets.
3. Immediately shut down the recycled water supply to the facility at the meter.
4. Provide bottled water for employees until the potable water system is deemed safe to drink.
5. Collect water samples from the potable water system and perform a 24-hour bacteriological analysis. Water samples should be collected from the closest acceptable point to the cross-connection. The District may supply the appropriate sample bottles, obtain the samples, and arrange for laboratory analysis. See Form C-1, *Cross-Connection Testing and Discovery Procedures*, in Appendix A for more information.
6. Identify the cause and location of backflow and eliminate the cross-connection(s).
7. Conduct a cross-connection test to verify that all cross-connections were eliminated.
8. Obtain approval from the District and the State DDW before bringing the recycled water system back into service.
9. If the bacteriological analysis conducted in Step 5 is positive, chlorinate the potable water system maintaining a chlorine residual of at least 50 mg/l for 24 hours. Otherwise proceed to Step 11.
10. Flush the potable water system after 24 hours and perform standard bacteriological analysis.
11. If the results from Step 10 are acceptable, proceed to Step 12. Otherwise, repeat Steps 9-10.
12. Obtain final approval from the District and the State DDW before removing signs.

4.5 Service Termination

The District and the local health agency reserve the right to take any action necessary with respect to the operation of the User's recycled water system to safeguard the public health. If at any time during construction or operation of the recycled water system, real or potential hazards are evidenced, the District reserves the right and has the authority to terminate immediately, without notice, recycled water service in the interest of protecting the public health. These hazards could include situations such as cross-connections with the potable system, improper tagging, signing, or marking, or unapproved/prohibited uses.