

Inland Empire Utilities Agency

Recycled Water User Manual



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Developed by:
Inland Empire Utilities Agency



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THE USE OF RECYCLED WATER IN INLAND EMPIRE

The Inland Empire Utilities Agency was initially formed in 1950 to import supplemental water from Metropolitan Water District of Southern California (MWD) to augment the local stream and groundwater supplies. IEUA has since expanded its service to include sewage, co-composting of manure and municipal bio-solids, energy generation, desalinization of groundwater supplies, disposal of non-reclaimable industrial wastewater and brine, and the production and distribution of recycled water. IEUA currently serves approximately 800,000 residents in a 242-square mile area in San Bernardino County including the cities of Chino, Chino Hills, Fontana, Montclair, Ontario, Rancho Cucamonga, and Upland.

Southern California continues to develop rapidly increasing demand on the limited potable water supply. In the past, local and imported water supplies were sufficient to meet the potable water demands; however due to Colorado River cutbacks, drought conditions, historical overproduction from groundwater, groundwater quality and environmental regulations, the regional water supplies are subject to shortages as the region continues to grow and is currently experiencing the driest year on record and may be entering an extended drought. These drought conditions, coupled with the recent legal decisions affecting the operation of the State Water Project, will significantly reduce the availability of imported water to the Chino Basin, creating immediate water and economic impacts to the cities and water agencies served by the Inland Empire Utilities Agency.

As documented, the economic benefits of accelerating implementation of the recycled water program are very large (in excess of \$1 billion). Chino Basin Watermaster has also documented the economic benefits of additional water supplies (i.e. use of recycled water). The expansion of a recycled water system is an important supply of water that can be used to meet the growing water demands. Due to population increases (about 1.2 million in 2025), the expansion of IEUA's recycled water system offers tremendous opportunities to offset the need for more imported water from MWD.

Recycled water has been identified by the State of California as an alternative that can serve many water uses that are currently served with potable water. The State of California has made water recycling an important element of California's water supply policy and has adopted a statewide goal of achieving 1,000,000 acre-feet of reuse by the year 2010. The use of recycled water has several incentives to IEUA and its member agencies: it is the only source of additional water supply within California, it is reliable during drought and conditions of climate change, it requires significantly less energy to deliver to customers and can reduce greenhouse gas emissions. The State of California has implemented laws and regulations that are fully protective of human health and require a specific level of water quality and treatment.

The Inland Empire Utilities Agency has recognized and embraced the advantages of using recycled water and currently produces over 60 million gallons per day. This high quality recycled water is available for landscape irrigation, industrial cooling, groundwater recharge, environmental enhancement and other uses identified under California law. By using recycled

water the IEUA is helping to ensure that the Chino Basin has water to meet the current and future demands of the growing population and economy.

The Inland Empire Utilities Agency, in partnership with Chino Basin Watermaster and the cities and water agencies, has invested almost \$500 million over the last ten years to increase the availability of local water supplies through water recycled as well as through conservation, recharge improvements, the MWD groundwater storage and recovery project, Chino Desalter, and other water management programs that will reduce the region's need for imported water, especially during drought and other conditions when imported water supplies will not be available.

The IEUA and its member agencies, recognize that the water supply situation facing Southern California is very serious. It is in the best interest of all residents and businesses to prepare for immediate reductions in imported water supplies and encourage all cities, public agencies, and businesses to make every effort to use available recycled water for outdoor irrigation and industrial uses so that drinking water supplies can be conserved for potable uses. They must commit to work together and to offer technical and financial services to help expedite the actions needed to deliver and hook up recycled water for use by all cities, schools, parks and businesses within the Chino Basin.

For California, recycled water will remain an increasingly important component in the water supply picture. Locally, IEUA is committed to the development of this non-traditional resource and have invested millions of dollars in the planning, design and construction of reclamation facilities and distribution infrastructure.

Based on the current water supply picture, recycled water will continue to play an important role in development of this region into the future.

WATER REUSE BENEFITS

- **Dependable Water Supply**
- **Cost Effective Alternative**
- **Resource Conservation**
- **Ocean Discharge Reduction**
- **Wildlife Habitat Enhancement**
- **Nutrient Recovery**

“On-Site” Supervisor Do’s and Don’ts

Do’s

- Install and maintain signage at all points of entry (pedestrian and vehicular)
- Install and maintain labels and tags on recycled and potable water systems
- Operate irrigation system:
 - Between 10pm – 6am if automatically controlled
 - At other times if manually controlled and supervised (someone present)
- Modify irrigation practice to suit type of vegetation and soil
- Use quick couplers instead of hose bibbs
- Contact “provider” if water system modifications are anticipated
- Immediately contact water utility, producer or DPH if any of the following has or is anticipated to occur:
 - A recycled water line break, spill or off-site discharge of recycled water
 - A violation of water recycling requirements
 - A cross-connection between the recycled and potable water systems
- Educate site workers on safe use and restrictions of recycled water
- Keep records and as-built drawings up-to-date and accessible
- Assist during Annual Visual Inspections
- Assist during Periodic Cross-Connection Testing

Don’ts

- Don’t drink recycled water
- Don’t use recycled water to wash hands or any other part of body
- Don’t remove recycled water identification signs, tags or labels
- Don’t cross-connect two dissimilar water systems (recycled to potable)
- Don’t allow recycled water to contact drinking fountains or eating areas
- Don’t allow recycled water to pond/puddle
- Don’t allow recycled water to runoff the use site property by either overspray or overwatering
- No hose bibbs on recycled water systems (unless public access is prohibited)
- Don’t use the same equipment on both recycled water and domestic water systems (for example, quick couplers, tools, etc.)
- Don’t perform system modifications without prior approval of provider/DPH

TABLE OF CONTENTS

SECTION	PAGE
FOREWORD	1
INTRODUCTION	2
PURPOSE.....	3
WHAT IS RECYCLED WATER?.....	3
WHAT ARE "DUAL SOURCE SITES?	3
BENEFITS OF RECYCLED WATER IRRIGATION	4
ARE THERE DISADVANTAGES TO USING RECYCLED WATER?	4
NEED FOR REGULATIONS	4
USER'S SUMMARY	5
A GENERAL PROVISIONS	6
REGULATORY AUTHORITY	6
SYSTEM RESPONSIBILITY	6
USER AGREEMENT AND PERMITS	7
RATE AND FEE SCHEDULE	7
PROTECTION OF PUBLIC HEALTH	7
AUTHORIZED USES.....	7
APPROVED USE AREAS	8
LIABILITY.....	8
CONTINGENCY RESERVATION.....	8
B REQUIREMENTS FOR OPERATION & MAINTENANCE	9
GENERAL.....	9
CONDITIONS OF SERVICE	9
Runoff Conditions.....	9
Ponding Conditions.....	10
Windblown Spray Conditions.....	10
Unapproved Uses	10
Disposal in Unapproved Areas	10
Cross-Connections	10
PROTECTION OF POTABLE WATER SYSTEMS	10
PROTECTION OF GROUNDWATER.....	10
PROTECTION OF THE RECYCLED SYSTEM.....	11
Backup Water Source.....	11
HOSE BIBBS	11
DRINKING FOUNTAINS	11
VIOLATIONS	11
NOTIFICATION	12
CORRECTIVE ACTION	12
ENFORCEMENT	12
DESIGN APPROVAL	12
INITIAL CROSS-CONNECTION TEST	13
CONSTRUCTION	13

	DESIGNATION OF SITE SUPERVISOR	13
	SERVICE STARTUP	14
	FINAL CROSS-CONNECTION TEST	14
	PERIODS OF OPERATION	15
	PERSONNEL TRAINING	15
	MODIFICATIONS	15
	MAINTENANCE	17
	CROSS-CONNECTION CONTROL PROGRAM.....	17
	ANNUAL VISUAL INSPECTIONS	18
	PERIODIC CROSS-CONNECTION TESTING PROGRAM	18
	EMERGENCY PROCEDURES	19
	Emergency Modifications	19
	Unauthorized Discharge.....	19
	Contamination of Drinking Water	19
	EMERGENCY CROSS-CONNECTION RESPONSE PLAN	19
C	MARKING AND EQUIPMENT	21
	GENERAL.....	21
	PIPING	21
	Below-Grade Identification of Recycled Water Lines.....	21
	Below-Grade Identification of Potable Water Lines.....	22
	Non-Potable Water	
	Above-Grade Identification	22
	VALVES.....	22
	Quick Coupling Valves.....	22
	Gate Valves	23
	Remote Control Valves.....	23
	SPRINKLER HEADS	23
	SYSTEM CONTROL DEVICES.....	23
	STORAGE TANKS AND IMPOUNDMENTS.....	23
	OTHER DEVICES	24
	BACKFLOW PREVENTION ASSEMBLIES	24
	VEHICLE IDENTIFICATION	24
	POSTING APPROVED USE AREA.....	24
	ILLUSTRATIONS	25
D	REUSE SITE PRESSURE-TESTING PROTOCOL	27
E	SAMPLE FORMS AND SITE SPECIFIC DETAILS	27
	SUMMARY OF STEPS TO OBTAIN RECYCLED WATER	27
	LOCAL CONTACTS.....	31
	CROSS-CONNECTION TEST NOTIFICATION FORM	32
	SITE INSPECTION REPORT	33
	USER APPLICATION.....	33
F	LOCAL GOVERNING AGENCIES.....	37
G	DEFINITIONS.....	38
H	TITLE 22 AND 17 OF CALIFORNIA CODE OF REGULATION.....	39

FOREWORD

The Recycled Water User's Manual (Manual) has been prepared to convey the rules, regulations and guidelines regarding the safe introduction and use of recycled water in Inland Empire Utilities Agency Service Areas. This document was prepared by the *IEUA* for the use of recycled water.

Regulatory Agencies:

- State of California Department of Public Health (DPH)
- County of San Bernardino Department of Health Services
- Santa Ana Regional Water Quality Control Board

IEUA regional member and non-member agencies:

- City of Ontario
- City of Chino
- City of Chino Hills
- City of Upland
- City of Fontana
- City of Rancho Cucamonga
- Cucamonga Valley Water District
- Monte Vista Water District
- City of Montclair

Other Interested Entities:

- California State Department of Water Resources

Each recycled water customers' representative ("Site Supervisor") is responsible to read and understand the Manual. Questions about the use of recycled water or the Manual should be directed to the "Recycled Water Agency" that serves the customer.

INTRODUCTION

PURPOSE

The purpose of this Manual is to provide the recycled water “User” and its “Site Supervisor” a resource for the day to day operation and control of that system, in order to protect the health and welfare of the personnel involved with its use as well as the general public, and to protect the quality of local water resources. The Manual provides necessary information to meet existing regulations for the operation of the User’s recycled water system. Recycled water is an important resource for the State of California, and its use for nonpotable applications is, in many cases, mandated by State law.

Recycled Water Agencies may not deliver recycled water to Users that do not or will not comply with use site requirements.

Every effort has been made to ensure that this Manual is in compliance with, and is not intended to supersede, existing codes, laws, statutes and regulations of the State of California, Regulatory Agencies and local governing bodies, concerning the currently approved use of recycled water. This Manual is also not intended to supersede the American Water Works Association California-Nevada Section’s Guidelines for Distribution of Nonpotable Water or Guidelines for the On-site Retrofit of Facilities Using Disinfected Tertiary Recycled Water. Since legal and regulatory requirements can change without the express approval or knowledge of the Recycled Water Agency, the Recycled Water Agency assumes no liability for errors in this Manual. It’s the responsibility of the User to

check with its Recycled Water Agency and/or the appropriate Regulatory Agencies before initiating any operational or physical changes to the use site’s system.

This Manual is organized in the following manner.

- The *User’s Summary* provides a brief commentary on major topics and indicates a page number to find additional information.
- *General Provisions* covers the basic administrative requirements including authorities, responsibilities and liabilities.
- *Requirements for Operation and Maintenance* covers the basic conditions for service imposed by the California State Department of Public Health (DPH).
- *Marking and Equipment* gives the basic requirements for marking the recycled water system and signing the area of service.
- *Sample Forms and Site-Specific Details* provides a summary of steps to obtain recycled water, templates of sample forms to help with inspections and contact persons, and a location for information specific to the use-site.
- *Local Governing Agencies* provides the names, addresses and phone numbers of agencies to which questions may be addressed and emergencies or violations must be reported.
- *Exhibits* are supporting documents for the various sections of the manual. Definitions are included for terms used within the Manual.

WHAT IS RECYCLED WATER?

“Recycled water,” (sometimes called “reclaimed water”) as used in this Manual and defined in Title 22, Chapter 3 of the California Code of Regulations, refers to tertiary-treated water produced from the three-stage treatment of municipal wastewater. (Although secondary-treated effluent may also be reused, its applications are limited and subject to much greater restrictions.) The facilities that produce recycled water are known as Water Recycling (or Reclamation) Plants that are owned and operated by “Recycled Water Producers.” The recycled water produced by these plants is delivered to users through distribution systems owned and operated by “Recycled Water Agencies.” Recycled Water Producers and Agencies can be one and the same entity.

Recycled water is colorless, odorless, and is allowable for full-body human contact but **not** for human consumption. The sensible use of recycled water affords an excellent choice for nonpotable applications. Properly managed, recycled water is safe to use with a very minimal health hazard.

WHAT ARE “DUAL SOURCE” SITES?

“Dual source” sites are reuse sites where both potable (domestic) and recycled water are present. Dual sources might be required on sites where water is normally available for public use. For example, a cemetery may use recycled water for irrigation, but would need a separate potable system with hose bibbs to allow visitors to fill flower urns. “Dual plumbed sites” is a separate term which refers specifically to either buildings that have both recycled and potable water serving interior fixtures, or single-family residences that use recycled water for

The Recycled Water Treatment Process

Pretreatment removes or shreds coarse debris and grit.

Primary Treatment removes 70 to 85 percent of the organic and inorganic solids which either settle out or float to the top.

Secondary Treatment mixes the remaining suspended waste solids with microorganisms and air. The microorganisms convert the waste solids to biomass that settles out.

Tertiary Treatment filters out most of the remaining solids through a granular media (for example, sand or anthracite coal) or a membrane, with the final product water being disinfected with chlorine or UV light to kill off any remaining bacteria, virus or other microorganisms.

outside irrigation, and is dealt with later under *Periodic Cross Connection Testing Program* (page 18). The public must not be allowed access to the recycled water system (such as from hose bibbs).

Water quality needs at the use site might call for two water sources. Certain plant life under certain soil conditions may not tolerate the occasionally higher TDS (total dissolved solids), or salt levels, found in some recycled water supplies. Golf courses may elect to use a potable water supply to irrigate the greens and use recycled water on the fairways. (**Note:** The potable water used

for this purpose is referred to as “non-potable irrigation water” after it has passed through the irrigation system backflow preventer. These water lines are to be used only for irrigation and should not be connected to restrooms, drinking fountains, food service areas, etc.).

On sites with dual sources, the potable supply must be protected with an approved backflow prevention device. **Cross-connections between the recycled water system and the potable water system are strictly prohibited.**

BENEFITS OF RECYCLED WATER IRRIGATION

As demand for potable water increases while the supply decreases, the future availability of potable water for irrigation is questionable. Pricing of potable supplies continues to rise making recycled water more attractive. The supply of recycled water is not affected by drought, which means that customers do not risk losing expensive landscaping due to water shortages and potential mandatory rationing. Recycled water may also contain an appreciable nutrient content, such as nitrogen, potassium, calcium, magnesium, sulfur, boron and other macro and micronutrients, which may provide some level of fertilization during the irrigation process. Irrigating with recycled water is making use of a valuable resource that would otherwise be disposed.

ARE THERE DISADVANTAGES TO USING RECYCLED WATER?

Recycled water must be used responsibly within established guidelines. Because of its origins, recycled water is not suitable for human consumption. Unlike potable water, recycled water can only be used for approved uses, at approved locations, under the provisions of established regulations, agreements or permits. However, at the time of this writing, there have been no known cases of illness due to the proper use of recycled water (according to the State DPH).

NEED FOR REGULATIONS

Regulations make the use of recycled water possible. Regulations ensure consistent, reliable water quality while being fully protective of the public health. California Code of Regulations Titles 22 and 17 are the two sets of State DPH regulations that accomplish this. Title 22 establishes the requirements for recycled water treatment, quality and allowable use. Title 17 establishes the requirements for backflow protection of the potable water supply. For the purposes of reference, both of these documents are attached to this Manual in section H.

USER'S SUMMARY

Recycled water is a safe and effective resource for nonpotable use. Properly managed recycled water has a very limited health risk, if any. To help in the proper management of recycled water, the State of California, the local city or county Health Department and the Recycled Water Agency have developed rules and regulations for the safe use of recycled water. These rules and regulations are in place to insure that the User, its Site Supervisor and employees, and the public are protected from any health risk (real or perceived) that might be associated with the use of recycled water.

- Because recycled water is not suited for human consumption, every effort must be made to prevent the user's recycled water system from being cross-connected with the potable (drinking) water system.
- Plans must be carefully inspected to ensure against cross-connections and that proper equipment is to be installed (*Design Approval*, page 13).
- A preliminary cross-connection test must be conducted to determine if there are any unknown connections between existing irrigation and potable piping prior to construction of retrofit work (*Initial Cross-Connection Test*, page 13).
- Prior to connection with the recycled water distribution system, a final cross-connection test must be performed to verify that construction or retrofit work was performed correctly (*Final Cross-Connection Test*, page 15).
- The recycled water system must be operated under the authority of a "User's Agreement" (page 7) which outlines any special considerations for the particular site of use.
- The User must designate a "Site Supervisor" (page 14) who is responsible for managing the on-site water system. The Site Supervisor ensures the system is operated within the established guidelines and is properly maintained (*Maintenance*, page 17).
- In cooperation with the User, the Recycled Water Agency will make regular inspections of the site (*Periodic Site Inspections*, page 18).
- The User must instruct all persons using recycled water of its proper use and precautions (*Personnel Training*, page 17).
- In the event of a cross-connection incident, the User must implement an emergency response plan (page 19).
- All piping and points of connection must be labeled with "**Recycled Water -- Do Not Drink**" (*Marking and Equipment*, page 21) and the universal "Do Not Drink" symbol (page 26).
- All recycled water use areas accessible to the public must be posted with signs visible to the public and must include the statement "**Recycled Water -- Do Not Drink**" (page 25) and the universal "Do Not Drink" symbol (page 26).

SECTION A

GENERAL PROVISIONS

REGULATORY AUTHORITY

Rules and regulations for the end use of recycled water are established by the California Regional Water Quality Control Board (Regional Board), the State DPH and the local city or county Health Department. These rules and regulations are typically enforced by the Recycled Water Agency operating under a permit from the Regional Board. All facilities using recycled water must be designed and operated to meet the standards of the local governing codes, rules and regulations.

Various regulations for recycled water use may be outlined in the Recycled Water Agency's Recycled Water Ordinance. However, if recycled water service is provided by an Investor Owned Utility, the various regulations for recycled water use are outlined in the Recycled Water Agency's Tariff Schedules as approved by the California Public Utilities Commission.

From time to time there may be amendments to existing regulations. These amendments may be made without the knowledge or consent of the User or the Recycled Water Agency. These amendments will be enforced upon their effective date. The Recycled Water Agency will make every effort to make sure the User is made aware of these changes.

SYSTEM RESPONSIBILITY

The Recycled Water Agency is responsible for the operation and maintenance of its recycled water distribution system up to the point of connection to the User. However, it's the responsibility of the User to maintain

its recycled water system downstream of the point of connection (usually the meter) with the Recycled Water Agency's distribution system. The User is responsible for ensuring that the recycled water is used on its site according to all the rules and regulations regarding such use. Specifically, the User is responsible for the following:

- Maintaining the use site's recycled water system.
- Ensuring that all materials used during the design, construction and maintenance of the system are approved or recommended for recycled water use by the American Water Works Association California-Nevada Section's Guidelines for Distribution of Nonpotable Water.
- Obtaining all permits and payment of all fees required for the establishment, operation and maintenance of the User's recycled water system. Permitting and/or fee assistance may be available from the Recycled Water Agency.
- Reporting all violations and emergencies to the required local governing agencies. A listing of these agencies is provided in Section F.
- Obtaining prior authorization from the Recycled Water Agency and any required regulatory agency before making any modifications to the approved recycled water system.
- Maintaining all record drawings
- Access to the site at all times

USER AGREEMENT AND PERMITS

All Recycled Water systems must be operated under the conditions set forth by the Recycled Water Agency in its User Agreement. (**Note:** “User Agreement” is the term used to describe any agreement, contract, permit, ordinance, memorandum of understanding or other such document used by the Recycled Water Agency to present the terms and conditions for the use of recycled water by a User.) A potential User must complete all of the Recycled Water Agency’s requirements (for example, permit application) prior to the issuance of a User Agreement. The Agreement then becomes the Permit to operate an on-site recycled water system. The User is responsible for all fees associated with the Permit process. The Recycled Water Agency’s Governing Board reserves the right to alter, on a case-by-case basis, the Permit process with the approval of the appropriate Regulatory Agencies.

RATE AND FEE SCHEDULE

If recycled water is provided by a public entity, such as a water district or municipality, all rates and fees concerning recycled water service will be Established and fixed by the Recycled Water Agency’s Governing Board.

However, if recycled water is provided by an Investor Owned Utility, all rates and fees concerning recycled water service shall be established and fixed by the California Public Utilities Commission.

PROTECTION OF PUBLIC HEALTH

The Recycled Water Agency reserves the right to take any action necessary with respect to the operation of the User’s on-site

recycled water system in order to safeguard the public health.

AUTHORIZED USES

The use of recycled water is limited to those uses approved by the Regional Board, the State DPH, and the local city or county Health Department. Any other use of recycled water is prohibited without the prior approval, on a case-by-case basis, of the Recycled Water Agency and the appropriate Regulatory Agencies.

TITLE 22 USES FOR TERTIARY-TREATED WATER

Urban Landscape – Parks and playgrounds, schoolyards, unrestricted access golf courses, residential landscaping, freeway and roadway landscaping, cemeteries, ornamental nurseries, sod farms.

Agriculture – Food crops for human consumption, orchards, vineyards, fodder, fiber and seed crops, non-fruit bearing trees, pasture for milking animals, water supply for livestock.

Impoundments – Restricted and unrestricted (full-body contact) recreational impoundments, decorative lakes and fountains, fish hatcheries.

Industrial – Cooling towers and air conditioning, industrial processes (e.g., carpet and textile dyeing, paper manufacturing, boiler feed), non-residential toilet, urinal and floor drains, structural and non-structural fire fighting, commercial laundries, commercial car washes, concrete mixing, construction (dust control, soil compaction, backfill consolidation around pipelines, including potable), street and sidewalk cleaning, flushing sanitary sewers, snow making.

APPROVED USE AREAS

Recycled water may only be used in areas approved by the Recycled Water Agency, following the User's completion of the Recycled Water Agency's application procedure and its meeting all of the requirements of the applicable Regulatory Agencies. A User may never supply recycled water to another owner's adjoining property or to the property of the same User across a street or alley without the prior written approval of the Recycled Water Agency. The User may not give or sell recycled water to another party. Should the property become subdivided, the service will be considered as belonging to the parcel it enters directly. In any case, recycled water lines are not permitted to cross lot lines. All recycled water delivered to any site must pass through a recycled water meter.

LIABILITY

The Recycled Water Agency assumes no responsibility for the operation or maintenance of any User's recycled water system downstream of the Recycled Water Agency's point of connection with the User, unless such responsibility is clearly outlined in the User Agreement/Permit (*Enforcement*, page 13). The User assumes all liability and responsibility of every other kind to the end that the Recycled Water Agency shall be held blameless at all times in any claim resulting from matters involving quantities, quality, time or occasion of delivery, or any other phase of the maintenance, operation and service of the User's system. The Recycled Water Agency shall not be liable for any water damage or other damage caused by the User due to defective or broken plumbing or faulty service, nor shall the Recycled Water Agency be liable for damage caused by the User's facilities.

CONTINGENCY RESERVATION

If any times during construction or operation of the recycled water system, real or potential hazards are found, the Recycled Water Agency reserves the right and has the authority to terminate immediately, without notice, recycled water service in the interest of protecting the public health. The Recycled Water Agency may supply water to the affected area either temporarily or permanently from the potable water system with appropriate backflow protection (*Protection of Potable Water Systems*, page 11 and *Cross-connection Control Program*, page 18).

BACKFLOW PROTECTION

The level of protection required is related to the degree of hazard that the IEUA or an agency serving Recycled Water determines exists on the premises served. Listed in increasing levels of protection, the following protective devices may be required: Reduced Pressure Principle Backflow Prevention Device (RPPD), Double Check Valve Assembly (DC) and Air Gap Separation (AG). The user may choose a higher level of protection than required by the County or the State. Minimum types required, relative to various situations, are listed in Section H of this manual, California Code of Regulations, Title 17. Situations not listed shall be evaluated on a case-by-case basis and the appropriate level of protection required shall be determined by the IEUA consultation with the County EMD and the State Department of Public Health.

SECTION B

REQUIREMENTS FOR OPERATION & MAINTENANCE

GENERAL

Recycled water service will be provided by the Recycled Water Agency only to those Users who have a current User Agreement for such service, unless otherwise determined by the Recycled Water Agency's Governing Board. This recycled water service can be revoked any time at the discretion of the Recycled Water Agency.

Recycled water service must be made available only in accordance with all applicable Federal, state, and local statutes, ordinances, regulations and contracts, and other requirements including the California Water Code, the California Code of Regulations Titles 17 and 22, and requirements and regulations imposed by the Regional Board, the State DPH and the local city or county Health Department. The User must comply with the conditions of any User Agreement issued by the Recycled Water Agency.

Recycled Water Agencies may not deliver recycled water to users that do not or will not comply with use site requirements.

CONDITIONS OF SERVICE

The Recycled Water Agency reserves the right to revoke a User's Agreement if any or all of the service conditions are not satisfied at all times. Service to a User may be terminated any time if:

- The Recycled Water Agency's distribution system is not capable of supplying recycled water.

- The quality of the recycled water does not comply with the requirements of the Regulatory Agencies.
- The User's operation does not conform to all appropriate requirements and the terms of the User's agreement.
- There is nonpayment of service fees and charges by the User.

The Recycled Water Agency reserves the right to control and schedule the use of recycled water, if control and scheduling are necessary to maintain acceptable working conditions within that agency's recycled water distribution system. The Recycled Water Agency will administer these and other service conditions.

If the available service pressure is higher than the User can accept, the User shall be responsible for providing a pressure-reducing valve downstream of the service meter. If available pressure is lower than what the User needs, the User shall be responsible for providing booster pumping downstream of the meter. Any pumping of recycled water requires the prior written approval of the Recycled Water Agency.

The User must comply with the following conditions.

Runoff Conditions - The irrigation systems must be designed, constructed and operated to minimize to the fullest extent possible runoff outside the approved use area.

Ponding Conditions - The irrigation systems must be designed, constructed and

operated to minimize to the fullest extent possible ponding within or outside of the approved use area. This does not apply to approved impoundments such as golf course water hazards or decorative lakes.

Windblown Spray Conditions - The irrigation systems must be designed, constructed and operated to minimize to the fullest extent possible windblown spray from leaving the approved use area.

Unapproved Uses - Use of recycled water for any purposes other than those explicitly approved by the Recycled Water Agency and the appropriate Regulatory Agencies is strictly prohibited.

Disposal in Unapproved Areas - Disposal of recycled water for any purpose, including approved uses, in areas other than those explicitly approved in the current effective user permit issued by the Recycled Water Agency and without the prior knowledge and approval of the appropriate Regulatory Agencies, is strictly prohibited.

Cross-Connections - Cross-connections, as defined by the California Code of Regulations, resulting from the use of recycled water or from the physical presence of a recycled water service, whether by design, construction practice, or system operation, **are strictly prohibited**.

If any cross-connection is discovered, the operator shall immediately turn off the system, take action to prevent additional contamination, and notify on-site supervisor.

PROTECTION OF POTABLE WATER SYSTEMS

On “dual source” sites where both potable water and recycled water exist, the potable supply must be protected against accidental cross-connections with an air-gap separation at the point of connection to the User’s system. In lieu of an air-gap a reduced-pressure principal backflow prevention (RP) device may be approved by the State DPH and the Recycled Water Agency. This is done according to the approved site-specific drawings.

Backflow prevention devices must be approved by the Recycled Water Agency and the appropriate regulatory agencies before installation. If an RP is used instead of an air-gap, it must be inspected quarterly and tested annually. The device testing must be done by a backflow prevention device tester certified by the local Health Department. Test reports must be provided to the Recycled Water Agency and the regulatory agency requiring the test. Records must be maintained for at least three (3) years by both the User and the Recycled Water Agency.

Some recycled water use sites may also have separate potable water service connections for dedicated fire protection systems. Depending on the Class of fire protection system on the reuse site, if the fire service includes piping for delivery systems outside of buildings and the manner of on-site recycled water usage, then either single check valve, double check valve or RP backflow assemblies may be required at fire supply meter. Since requirements vary from place to place, the exact requirements will be provided to the User by the Recycled Water Agency and/or the local city or county Health Department.

PROTECTION OF GROUNDWATER

Irrigation with recycled water within 50 feet or impoundment of recycled water within 100 feet of any drinking water reservoir or well is prohibited. Proposed irrigation with recycled water within 50 feet or impounding recycled water within 100 feet of a non-potable water well requires the approval of the appropriate health agency.

PROTECTION OF THE RECYCLED WATER SYSTEM

The Recycled Water Agency must ensure that the quality of the recycled water in its distribution system is not compromised by any User. Therefore the Recycled Water Agency may require backflow protection on the User's recycled water system. This backflow protection might be just downstream of the recycled water meter or at specific, on-site location(s) where an activity of the User (such as industrial process water) could degrade the quality of the recycled water in the distribution system. If necessary, details will be included in the User Agreement.

Backflow prevention devices must be approved by the Recycled Water Agency and the appropriate regulatory agencies. Devices must be properly maintained, inspected quarterly and tested at least annually. Backflow prevention assemblies, when required on recycled water systems, must be conspicuously labeled. Based on the provisions of the User Agreement, the Recycled Water Agency may provide the required test equipment.

Backup Water Source - If potable water is to be used as a backup source to the recycled water system, it must be done only through an air-gap separation between the two

systems and with the prior approval of the State DPH and the local city or county Health Department. The State DPH permits the use of a "swivel-ell" assembly that allows for the use site's water supply to be switched between the recycled and potable water systems, if certain stringent requirements are met. The User must work with the Recycled Water Agency and the appropriate Health Departments to install and use such a device.



Hose bibbs may only be used with recycled water in areas where they cannot be accessed by the general public (such as this commercial nursery), and even those must be properly labeled.

HOSE BIBBS

Hose bibbs or other appurtenances that might allow public access to the recycled water system for unapproved use or for cross-connection to the potable water system, are strictly prohibited in all areas

accessible to the general public. In these areas, only quick-couplers are allowed and must be of a different type than those that may be used on the use site's potable water system (see page 23). Hose bibbs may be used on the recycled water system in areas that do not allow any public access and must be conspicuously labeled ***“RECYCLED WATER -- DO NOT DRINK”*** in both English and Spanish (or any other language determined to be in common use in the area), along with the “Do Not Drink” symbol (page 26). Workers in these areas must be instructed not to drink from these hose bibbs.

DRINKING FOUNTAINS

Drinking fountains located within the approved use area must be protected from contact with recycled water by direct application through irrigation or other approved use. Lack of protection, whether by design, construction practice or system operation, is strictly prohibited.



The pattern on the walls indicates that this drinking fountain is being sprayed by the irrigation water. If recycled water is to be used, then the spray pattern must be altered or the drinking fountain somehow shielded.

FIRE HYDRANTS

No costumer or other party shall use or install fire hydrants and other connections for fire services on any onsite system that presently operates or is designed to operate with recycled water, regardless of the construction and identification of the fire hydrant and other connections for fire services. Specific permit from Recycled Water Agency and California DPH approval is required on a case by case situation.

VIOLATIONS

The Recycled Water Agency reserves the right to decide if a violation of the conditions under which the User Agreement was issued has occurred. Violations may include non-compliance of any of the following prohibitions: runoff conditions, ponding conditions, windblown spray conditions, leaks or spills resulting from broken or damaged pipelines or appurtenances, unapproved uses, disposal in unapproved areas, cross-connections, unprotected drinking fountains and unauthorized or prohibited use of hose bibbs, whether willful or by accident. Any willful or accidental violation of any existing Federal, state or local ordinance, code, law or statute regulating the use of recycled water constitutes a violation.

NOTIFICATION

It is the responsibility of the Site Supervisor to notify the Recycled Water Agency of any failure or cross-connection in his/her recycled or potable water system, whether or not he/she believes a violation has occurred. It is also the responsibility of the Site Supervisor to notify the Recycled Water Agency of any violation he/she believes

might imminently occur because of any action the User's personnel might take during the operation of the recycled or potable water systems.

If there are any doubts whether a violation has occurred, it is the responsibility of the Site Supervisor to report each occurrence to the Recycled Water Agency so a decision can be made. It is then the Recycled Water Agency's responsibility to notify the Recycled Water Producer (if a separate entity), which holds the master water recycling permit from the Regional Board and local governing agencies of any violations. Local governing agencies are listed in Section E.

CORRECTIVE ACTION

If the Recycled Water Agency's investigation reveals that a violation has occurred on the reuse site, that agency must immediately notify the User of the violation and what corrective actions must be taken. It is the responsibility of the User to immediately initiate corrective action to eliminate the violation. If the Recycled Water Agency believes the violation constitutes a hazard to the public health, the Recycled Water Agency must immediately stop recycled water service to the User. It will be at the discretion of the Recycled Water Agency to decide if a violation has been adequately corrected.

The Recycled Water Agency may impose a startup fee upon resumption of service to a User whose service has been terminated, depending on the provisions of the User Agreement.

ENFORCEMENT

The Recycled Water Agency shall enforce all existing regulations concerning the use of

recycled water and/or recycled water systems. Regulations concerning the use of any recycled water or recycled water system shall be applied with equal force and effect to any person, persons, or firm, public or private. **There will be no deviations from these regulations** except upon written authorization of the Recycled Water Agency, acting within applicable regulations. An appeal procedure may be provided for in the User Agreement and action of the Recycled Water Agency's Governing Board will be final.

DESIGN APPROVAL

Before the construction of any new or major modifications of an existing recycled water system, the design must be submitted for approval by the Recycled Water Agency and the State and local city or county Health Departments. Approval will be contingent upon evidence that all applicable design requirements, rules and regulations for a recycled water system are satisfied. Plans and specifications should include, but not be limited to, the following:

- A detailed description of the intended use of recycled water.
- Details showing the complete potable and recycled water systems. For existing facilities converting to recycled water use, details must include the exact location of all existing water piping systems.
- Details of the intended installation procedures, including as a minimum: backflow preventer locations, color and type of pipe, and additional signage to be used.

INITIAL CROSS-CONNECTION TEST

Prior to retrofit work or construction, a preliminary cross-connection inspection and test must be coordinated by the Recycled Water Agency, with all appropriate health agencies being notified. The preliminary cross-connection test should follow the general guidelines outlined in Section D. The purpose of the test is to determine if there are any unknown connections between the existing irrigation system and the potable water system prior to construction.

CONSTRUCTION

The appropriate regulatory agencies shall have the opportunity to make periodic inspections of the User's site during the construction phase to ensure materials and their installations are according to the approved plans and specifications.

The Recycled Water Agency and/or the State, local city or county Health Department or its authorized agents shall inspect the construction of the User's recycled water system to ensure that it is in compliance with the approved construction plans, rules and regulations. The local city or county Health Department shall be involved in all phases of planning, construction and start up, along with the Recycled Water Agency's representative. In addition, representatives of the Regional Board and the State DPH may be involved.

This site inspection is to ensure that proper equipment was used, spray patterns are adjusted to ensure proper coverage without excessive overlapping, and there are no cross-connections with the on-site potable water system. Conditions that might create runoff, ponding or windblown spray, especially on slopes must be corrected. Spray patterns must be checked to make

sure that they don't encroach upon public facilities such as drinking fountains or areas outside the approved use area. After correction and verification the system will be allowed to use recycled water.

During the lifetime of the recycled water system, the Recycled Water Agency shall periodically inspect the recycled water system to ensure compliance with all applicable rules and regulations. Additionally, the Recycled Water Agency may be required to perform annual inspections of the system for cross-connections (including shut-down tests if appropriate), depending on the use site characteristics.

DESIGNATION OF SITE SUPERVISOR

It is the User's responsibility to provide surveillance and supervision of its on-site recycled water system in a way that assures compliance at all times with current Regulations. The User shall designate, with the approval of the Recycled Water Agency, a Site Supervisor to be the contact person with the Recycled Water Agency. The following are requirements of the Site Supervisor position:

- Be aware of, and familiar with, this Manual.
- Be available to the Recycled Water Agency at all times and have the authority to carry out any requirements of the Recycled Water Agency.
- Be responsible for the installation, operation and maintenance of the recycled and potable water systems, and for the prevention of potential hazards.

- Ensure that notification signs at the use site are properly installed and maintained, and that all recycled and potable water facilities are properly labeled, tagged or otherwise identified.
- Be knowledgeable of the provisions contained in Titles 17 and 22 of the California Code of Regulations relating to the safe use of recycled water and maintaining accurate records, including periodic maintenance of system and certification of backflow device annual testing.
- Ensure that all employees of the use site involved with the use of recycled water are instructed in the safe and responsible use and handling of the recycled water.
- Immediately inform the Recycled Water Agency of all failures, violations and emergencies that occur involving the recycled or potable water systems.
- Be familiar with the basic concepts of backflow and cross-connection prevention, system testing, and related emergency procedures, and participate in any cross-connection tests.

The Recycled Water Agency must be notified immediately of any change in personnel for the Site Supervisor position. The Recycled Water Agency will provide the Site Supervisor with periodic inspections of the User's system and report all violations to the appropriate Regulatory Agency according to applicable procedures established by law, code, permit or practice.

SERVICE STARTUP

Following the acceptance of the User's recycled water system by the Recycled Water Agency; the User may request regular service startup. Upon receipt of the startup request, the Recycled Water Agency will notify the appropriate regulatory agencies, and schedule a final inspection to include regulatory agency representatives. The startup request shall include the appropriate documentation and any payments and/or fees as indicated in the Recycled Water Agency's User Agreement.

FINAL CROSS-CONNECTION TEST

On sites where both recycled and potable water are present, a cross-connection test must be performed using potable water supplied through an approved backflow prevention device before connecting the User's on-site recycled water system to the Recycled Water Agency's distribution system. This on-site test is to ensure the absolute separation of the recycled and potable water systems. The Recycled Water Agency shall coordinate the scheduling of the cross-connection test, which must be performed under the supervision of the State, local city or county Health Department and in the presence of the Site Supervisor, Recycled Water Agency, and any other required regulatory agency. Periodic testing using the same procedures may be required in the future, depending on the use site's characteristics. A written report documenting the test results must be submitted to the Recycled Water Agency, the State DPH and the local city or county Health Department following completion. A pressure (shut down) test protocol is detailed in Section D.

As an alternative to the pressure test described in Section D, a dye test may be

performed by charging the recycled water system with potable water containing a food grade colored dye. The emptied potable water system is then checked for any evidence of the colored dye. If the dye is found, a cross-connection exists. This test itself must be done in a way that does not create a cross-connection.

Upon the successful completion of one of the above tests, insuring no cross-connections between the potable and recycled water systems, the User's recycled water system may be connected to the Recycled Water Agency's distribution system.

PERIODS OF OPERATION

Operation of the User's on-site recycled water system must adhere to the following requirements.

- Irrigation may only occur during periods of least use of the approved area by the general public. This is usually between the hours of 9:00 p.m. and 6 a.m.; however, areas where public access is generally prohibited or minimized, such as commercial nurseries and freeway landscaping, may irrigate at any time.



Inadvertent public contact with recycled water irrigation spray must always be avoided.

- Even though tertiary-treated recycled water is approved for full-body contact by the State DPH, irrigation of public areas during other times may be performed if the irrigation system is operated manually and is constantly supervised to avoid inadvertently exposing any members of the general public. This provision must be strictly followed.
- Consideration should be given to allow a maximum dry-out time before the area is to be used by the public.
- Automatic control systems are to be used and programmed to prevent ponding and runoff of recycled water.
- The recycled water system must not be allowed to operate for periods longer than needed to satisfy the landscape water requirements. Recycled water must never be applied at a rate that is greater than the infiltration rate of the soil. Exceptions to this requirement for purposes such as leaching of soil must be specified in the User Agreement.
- The recycled water system must be operated to prevent overspray or windblown spray into unapproved areas.

PERSONNEL TRAINING

It is the responsibility of the User to train all operations personnel so they are familiar with the use of recycled water. Any training program should include but not be limited to the following:

- Operations personnel must be aware that recycled water, although highly

treated, is nonpotable. **Recycled water may never be used for human consumption.**

- Operations personnel must understand that working with recycled water is safe if common sense is used and appropriate regulations are followed.
- Operations personnel must understand that conditions such as ponding and runoff are not allowed.
- Good personal hygiene must be followed (for example, washing hands after working with recycled water).
- Operations personnel must understand that there is **never** to be a direct connection between the recycled water system and the potable water system.

All new employees must be trained in the proper use of recycled water. Supervisory personnel and the Site Supervisor should be held accountable to ensure that employees are not using recycled water carelessly or hazardingly.

MODIFICATIONS

The User must not make any modifications to its on-site recycled water system without the prior approval of the Recycled Water Agency. This includes modifications to the approved plans or to an operational system. Detailed plans of any modifications should be submitted to the Recycled Water Agency and the modifications inspected by the Recycled Water Agency before their being placed in operation. However, routine maintenance of the irrigation system, such as pipeline repairs, sprinkler replacement and other similar activities that don't result in a substantial change in either the recycled

or potable water systems, or any agreed to operating plans, don't need prior approval by the Recycled Water Agency.

Emergency modifications or repairs that must be made by the User to its system in order to prevent contamination, damage or a public health hazard are covered under *Emergency Procedures* (page 19).

MAINTENANCE

The User must implement a preventive maintenance program that will ensure that the recycled water system always remains in compliance. A preventive maintenance program should include but not be limited to the following:

- Regular inspections should be conducted by the User of the entire recycled water and potable systems including sprinkler heads, spray patterns, lakes, piping and valves, pumps, storage facilities, controllers, signage, backflow devices, etc. Immediately correct any problems.
- All notification signs, labels and/or tags should be checked for their proper placement and readability. Replace damaged or unreadable signs, labels or tags.
- Special attention should be given to spray patterns to eliminate ponding, runoff and wind blown spray conditions.
- Establish and maintain an accurate records-keeping system of all inspections, modifications and repairs.

Broken sprinkler heads, faulty spray patterns, leaking pipes or valves, etc. must be repaired when the malfunction becomes apparent.

CROSS-CONNECTION CONTROL PROGRAM

Cross-connections with the potable water system at any point or any time are strictly prohibited. Any backup supply of potable water for the recycled water system **must** be supplied through an approved (in writing) air-gap separation. Any site or facility that has both potable water and recycled water present in separate systems **must** have the approved level of backflow protection at the potable water supply service connection.

Backflow prevention assemblies must be of the approved type and installed according to approved plans. A maintenance program that includes at least annual testing by a tester certified by the local city or county Health Department must be carried out. Records of annual tests, repairs and overhauls must be kept by the user with copies forwarded to the Recycled Water Agency and the local city or county Health Department.

No device, hose, pipe, meter, valve, etc. which has been used with recycled water may be attached to the potable water system. No truck, tank, pump, pipe, hose or device used for the distribution, transportation or storage of recycled water may be used for potable water.

PERIODIC SITE INSPECTIONS

Periodic site inspections of the User's recycled water irrigation system are mandated in the Water Code (Section 13523.1(b)(5)). Such inspections include, at

a minimum, the visual inspection of all back-flow prevention devices, pump rooms, exposed piping, valves, pressure reducing stations, points of connection, sprinklers, controllers, lakes, storage facilities, signs, labeling, tags, etc. The Site Supervisor's maintenance records should also be inspected.

These inspections are the responsibility of the entity holding the master water recycling permit issued by the Regional Board. This may be the Recycled Water Agency or the Recycled Water Producer, if separate. Whoever the responsible agency is may perform this inspection, or it may be delegated to a third party. The responsible agency will also determine the frequency of these inspections, based on local conditions. The Recycled Water Agency also reserves the right to make unannounced inspections of the use site's facilities.

Upon completion of the inspection, a Site Inspection Report Form (see example, page 32) should be signed and dated by both the Site Supervisor and the entity performing the inspection. The original form should be kept by the inspecting entity with copies going to the Site Supervisor, the Recycled Water Agency and/or Producer and any required regulatory agency.

Should a cross-connection be discovered during the inspection, the **Emergency Cross-Connection Response Plan** (page 19) should be immediately invoked by the Site Supervisor.

PERIODIC CROSS-CONNECTION TESTING (PCCT) PROGRAM

Periodic cross-connection shutdown testing must be done at least once every four (4) years for dual-plumbed sites, unless visual

inspections or major on-site water system changes reveal a need for more frequent testing. The Water Recycling Criteria in Title 22 defines “dual-plumbed” sites as either buildings with fixtures served with recycled and potable water or single-family residences with recycled water in the irrigation system. Other use sites that don’t fall under either of these categories may be required to perform periodic cross-connection tests if the use site characteristics indicate a greater risk of potential cross-connections, or if any reuse site undergoes significant modifications of the potable or recycled water systems. The Recycled Water Agency, in cooperation with the local city or county Health Department, will make the determination if such a test is required.

This test must be done under the supervision of the local city or county Health Department and follow the same procedures use for the final cross-connection test (either shut-down or dye test). Before the test is performed representatives of the State DPH, the local city or county Health Department, Site Supervisor, Recycled Water Agency, and any other required regulatory agency must be notified. The Recycled Water Agency will coordinate the scheduling of the test. A sample Test Notification Form is on page 31.

Written verification of the test results must be provided by the Recycled Water Agency to the Site Supervisor, State DPH, local city or county Health Department, local building authority and any other required regulatory agency. All provisions of Title 17, Chapter 5, Section 7601 of the Code of Regulations, concerning protection of drinking water systems against cross-connections and backflow, must be strictly complied with.

EMERGENCY PROCEDURES

In case of a major earthquake, the Site Supervisor should immediately inspect the potable and recycled water systems for damage. If either system appears damaged, both the potable and recycled water systems should be shut off at their points of connection. The Site Supervisor should immediately contact the Recycled Water Agency for further instruction.

Emergency Modifications - Emergency modifications or repairs can be made by the User to the recycled water system without the prior approval of the Recycled Water Agency to prevent contamination, damage or a public health hazard. As soon as possible the User must notify the Recycled Water Agency of the emergency modifications and file a written report.

Unauthorized Discharge - It’s the responsibility of the User to report to the Recycled Water Agency all system failures that result in an unauthorized discharge of recycled water. An immediate oral report followed by a written report is required.

Contamination of Drinking Water - In case of contamination of the potable water system due to a cross-connection on the User’s premises, the Recycled Water Agency and the local city or county Health Department must be immediately notified by the User (see page 33). The User is to immediately invoke the **Emergency Cross-Connection Response Plan**.

EMERGENCY CROSS-CONNECTION RESPONSE PLAN

In the event that a backflow incident or cross-connection is suspected or occurs the

following procedures must be implemented immediately.

1. Immediately shut down the recycled water supply to the facility at the meter.
2. Keep the potable water system pressurized and post **“DO NOT DRINK”** signs at all potable water fixtures and outlets.
3. Notify the Recycled Water Agency and the State, local city or county Health Department 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).
4. Identify the cause and location of backflow and eliminate the cross-connection(s).
5. Collect water samples from the potable water system and perform a 24-hour bacteriological analysis (as instructed by the Recycled Water Agency). Water samples should be collected from the closest possible point to the cross-connection.
6. Conduct a cross-connection test in coordination with the Recycled Water Agency, and the appropriate Health Departments to verify that all cross-connections have been eliminated.
7. If the bacteriological analysis conducted in Step 4 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.
8. Flush the potable water system after 24 hours and perform standard bacteriological analysis.
9. If the results from Step 8 are acceptable, proceed to Step 10. Otherwise, repeat Steps 7-8.
10. Obtain approval from the Recycled Water Agency and the local city or county Health Department before returning the recycled water system to service.
11. Obtain final approval from the Recycled Water Agency and the State, local city or county Health Department before removing signs.

SECTION C MARKING AND EQUIPMENT

GENERAL

All materials, apparatus, piping, valves, controllers, sprinkler heads, pumps etc. for new recycled water irrigation systems must be approved for use in a pressurized recycled water system and installed according to approved plans. The recycled water system must conform to the AWWA California-Nevada Section's Guidelines for Distribution of Nonpotable Water. Deviations will not be allowed without prior approval. System installation must conform to the Uniform Plumbing Code and all other local codes, rules and regulations.

The approved use area must be clearly marked. All outlets from the recycled water system must be marked ***“CAUTION -- RECYCLED WATER -- DO NOT DRINK.”*** In addition, signs must be posted at all entrances to the use site indicating that recycled water is used for irrigation purposes. The “Do Not Drink” symbol (page 26) must be present on all signs. Recycled Water Agencies may also choose to require the signs to include translations into the appropriate foreign language(s), as not all areas have Spanish as the second language.

PIPING, BELOW GRADE

All new piping must be installed according to the approved plans and marked as required. Installation must be in accordance with the latest edition of International Association of Plumbing and Mechanical Officials (IAPMO) Standard IS-8. Fittings, primers and solvents must be IAPMO listed. All new recycled and potable water lines (pressure/non-pressure), new and existing valve boxes and appurtenances must be

identified to clearly distinguish between recycled water and potable water systems.

Below-Grade Identification of Recycled Water Lines - All new buried recycled water lines (pressure/non-pressure) must be purple-colored Schedule 40 (minimum) PVC pipe with continuous wording ***“CAUTION -- RECYCLED WATER”*** printed on opposite sides of the pipe. The use of continuous lettering on 3-inch minimum width, purple tape with 1-inch black or white contrasting lettering bearing the continuous wording ***“CAUTION -- RECYCLED WATER”*** permanently affixed at 10-foot intervals atop all horizontal piping, laterals and mains is an acceptable alternative. Identification tape must extend to all valve boxes and/or vaults and exposed piping.



Recycled water pipeline installation with continuous purple warning tape.

Piping buried under pavement must be sleeved with the sleeve being twice the diameter of the irrigation pipe, that is, a 2-inch sleeve required for a 1-inch irrigation pipe.

When recycled and potable water lines cross, the recycled water line must be located at least 1-foot below the potable water line. If this separation is not possible, then either the recycled or potable water line must be sleeved to 10-feet on either side of the crossover. Parallel recycled and potable water lines must be at least 10 feet apart, or at least 4 feet, if the recycled line is enclosed in a sleeve.

Existing Below-Grade - Existing below-grade piping need not be marked unless the piping becomes exposed, such as during installation of new pipeline or maintenance of existing pipe. The exposed section should be appropriately marked to the extent feasible.

Below-Grade Identification of Potable Water Lines - New buried potable lines must be identified by continuous lettering on 3-inch minimum width blue tape with 1-inch white lettering bearing the continuous wording ***"POTABLE WATER"*** permanently affixed at 10-foot intervals atop all horizontal piping, laterals and mains. Identification tape must extend to all valve boxes, vaults and exposed piping.

Identification tape is not necessary for extruded blue-colored PVC with continuous wording ***"POTABLE WATER"*** printed in contrasting lettering on opposite sides of the pipe.

Existing Below-Grade - Existing below-grade piping need not be marked unless the piping becomes exposed, such as during installation of new pipe or maintenance of

existing pipe. The exposed section should be appropriately marked to the extent feasible.

Below-Grade Identification of Non-Potable Water Lines – Non-potable water is water supplied from the potable water system through an appropriate backflow preventer. All non-potable irrigation/industrial water lines (pressure/non-pressure) must be identified by continuous lettering on 3-inch minimum width yellow tape with 1-inch contrasting lettering bearing the continuous wording ***"NON-POTABLE WATER -- DO NOT DRINK"*** permanently affixed at 10 foot intervals atop all horizontal piping, laterals and mains. Identification tape must extend to all valve boxes and/or vaults, exposed piping, hydrants and quick couplers.

Existing Below-Grade - Existing below-grade piping need not be marked unless the piping becomes exposed, such as during installation of new pipe or maintenance of existing pipe. The exposed section should be appropriately marked to the extent feasible.

Above-Grade Identification - All above-grade recycled water pipelines must be appropriately labeled and color-coded purple to differentiate recycled water pipelines from potable and non-potable water pipelines. Recycled water pipelines may be wrapped with purple warning tape having the words ***"CAUTION -- RECYCLED WATER"*** visible in contrasting black letters. Flexible conduits or hoses must be clearly marked ***"CAUTION -- RECYCLED WATER"*** with each adapter or fitting painted purple.

Above-grade potable water pipelines must also be labeled and color-coded blue to differentiate potable water pipelines from

recycled and non-potable water pipelines. Potable water pipelines may be wrapped with blue identification tape having the words **“POTABLE WATER”** visible in contrasting white letters.

Above-grade non-potable water pipelines must be appropriately labeled and color-coded yellow to differentiate non-potable water lines from recycled water and potable water lines. Non-potable water lines may be wrapped with yellow identification tape having the words **“NON-POTABLE WATER -- DO NOT DRINK”** visible in contrasting letters.

Exposed piping, valve boxes, vaults, quick coupling valves, outlets and related appurtenances must be color-coded, labeled or tagged, to differentiate recycled water from potable water (that is, **“CAUTION -- RECYCLED WATER -- DO NOT DRINK”** in black or white contrasting lettering on a purple background, or **“POTABLE WATER”** in white lettering on a blue background) or **“NON-POTABLE WATER -- DO NOT DRINK”** in contrasting lettering on a yellow background.

Tags must be identified with the appropriate wording on both sides. Tags identifying recycled water must have the appropriate wording on one side and the symbol on the opposite side.

VALVES

Quick Coupling Valves - New quick coupling valves must be the Nelson 42 with 40K key or approved equal made specifically for recycled water use. New quick coupling valves should be 3/4-inch or 1-inch nominal size and of brass construction with a normal working

pressure of 150 psi. The covers on all new quick coupling valves must be permanently attached and made of purple rubber or vinyl with the words **“RECYCLED WATER”** imprinted on the cover, and must be provided with a lock. To prevent unauthorized use, the valve should be operated only with a special coupler key with an acme thread for opening and closing the valve. New quick coupling valves should be installed approximately 12 inches from walks, curbs, headboards or paved areas. All new and existing quick coupling valves must be identified with an identification tag and installed in a marked valve box.



Quick coupler and valve box

Gate Valves - New gate valves should be installed in a marked valve box with crushed rock in the base and a notification tag on the valve operator.

Remote Control Valves - New and existing remote control valves should be installed in a marked valve box with crushed rock in the base and an identification tag on the operator. For each valve system, remote control valves should be adjusted so the most remote sprinkler heads operate at the pressure recommended by the manufacturer giving a uniform distribution of water.

SPRINKLER HEADS

New sprinkler heads must be of the size, type, pressure, radius of throw and discharge as indicated on the approved plans. All new sprinkler heads, either permanent or temporary, should be of the approved type for use with recycled water, creating the minimum amount of mist. Drainage through sprinkler heads is prohibited, and an anti-drain valve must be installed in the sprinkler riser as needed. Anchors on sprinkler risers should be provided as needed and maintained. Sprinkler heads must be kept in good repair at all times. All existing CAPS shall be purple or painted purple.

SYSTEM CONTROL DEVICES

New system controllers must be automatic with multiple start/stop times for any 24-hour period and installed according to the approved plans and local codes. Two, color-coded diagrams must be prepared for the station and system for each controller. Each diagram should be sealed in plastic with one copy placed in the controller box and the other given to the Recycled Water Agency. All controllers must be marked with the words ***“RECYCLED WATER”*** in black 1-inch high letters on a purple background.

STORAGE TANKS & IMPOUNDMENTS

All storage tanks, either stationary or portable, must be structurally sound and free from leaks. Each tank must be conspicuously marked with signs with the words ***“RECYCLED WATER -- DO NOT DRINK”*** in black letters 2-inches high on a purple background. The “Do Not Drink”

symbol (page 27) should be present on all recycled water storage tanks.

Impoundments (lakes) that receive recycled water are classified as “unrestricted” (swimming and body contact allowed), “restricted” (no swimming or body contact, but noncontact activities such as fishing and boating allowed) or “ornamental” (no recreational activities allowed). All of these impoundments must have the recycled water valves and outlets marked or tagged with the words ***“RECYCLED WATER -- DO NOT DRINK.”*** At restricted and ornamental impoundments, adequate measures must be taken to prevent body contact. All recycled water impoundments must be kept separate from potable water wells and reservoirs.

If any storage tank or impoundment receives both recycled and potable water, the potable water supply must be properly air-gapped to avoid a cross-connection.

OTHER DEVICES

All air/vacuum relief valves, valves, pressure reducing valves, pumps, pump control valves, etc., must be tagged or labeled indicating whether it is on the recycled water, non-potable water or potable water system. Recycled water tags or labels must have a purple background with black lettering stating ***“RECYCLED WATER -- DO NOT DRINK.”*** The “Do Not Drink” symbol (page 26) must be present.

Potable water tags or labels must have a blue background with ***“POTABLE WATER”*** in white lettering.

Non-potable water tags or labels must have a yellow background with ***“NON-POTABLE”*** in black lettering.

BACKFLOW PREVENTION ASSEMBLIES

Backflow prevention assemblies at recycled water use sites must be of an approved type and installed according to approved plans. Backflow prevention assemblies must be maintained to assure satisfactory operating condition. This includes annual testing of backflow prevention assemblies by a tester certified by the local city or county Health Department and the keeping of accurate records.

VEHICLE IDENTIFICATION

Any vehicle used to transport recycled water must be clearly marked with labels or signs that contain the words ***“RECYCLED WATER -- DO NOT DRINK”*** in black 2-inch high letters on a purple background and include the “Do Not Drink” symbol (page 26). One label or sign should be placed on the tank closest to the driver’s door, with a second label or sign being placed on the rear surface of the tank. All labels and signs must be placed where they can easily be seen by the personnel using the vehicle.

Any vehicle used for the transportation or storage of recycled water must not be reused for the transportation or storage of potable water.

POSTING APPROVED USE AREA

Posting the use of recycled water is required at all entrances to the User's facility, and placed where they can be easily seen. Additional signing may be required by the Regulatory Agency on a case-by-case basis.

The signs must indicate that ***“RECYCLED WATER”*** is in use. In addition, all signs must include the “Do Not Drink” symbol (page 26) and use the words “do not drink,” in both English and Spanish (or other locally used language).



Recycled water notification signs do not need to include such words as “Caution,” “Warning” or “Danger.”

“DO NOT DRINK” SYMBOL



“RECYCLED WATER – DO NOT DRINK”

In case of Emergency Contact City of _____

Phone: _____

SECTION D

REUSE SITE PRESSURE-TESTING PROTOCOL

The following are general guidelines for the testing procedure and may be modified with the approval of the State, local city or county Health Department.

1. Potable water must be used during the initial testing of the on-site recycled water system, with the potable water supply separated from the proposed recycled water system by an approved reduced pressure principle backflow prevention assembly until the system has been checked for cross-connections.
2. The recycled water system should be completely drained and remain deactivated for an adequate period of time to be specified by the State, local city or county Health Department.
3. At the end of the shutdown period, all of the recycled water outlets should be tested throughout the entire site for cross-connections by checking each outlet for flow.
4. The recycled water system should then be checked at the quick couplers (located on the normally pressurized main irrigation line) or by cycling the irrigation clocks (observing the spray decrease) to determine if there is any flow. If there is no flow detected in any of the outlets that would suggest a cross-connection, the recycled water connection may then be reactivated.
5. The potable water to the use site will be shut off at the potable water meter. The potable water system must be completely drained and the system remains deactivated for an adequate period of time to be specified by the State, local city or county Health Department.
5. At the end of the shutdown period, all of the use site's potable water fixtures should be tested for cross-connections by operating each fixture and checking for flow.
6. The potable water inlet should then be checked to detect if there is backpressure or significant backflow. If no flow is detected at the inlet or in any of the fixtures that would suggest a cross-connection, the potable water connection may then be reactivated.

Cross-Connection Control Test Methodology

There are currently nine methods of conducting the cross-connection control test in. The various methods have been developed as modifications of the basic test procedure to accommodate various use site requirements.

The method used on the test will be based on the site considerations. For example, is this a new site or retrofit site with plans? What are the points of connection for potable and recycled water lines? Do the points of connection have backflow prevention assemblies or other means to connect pressure gauges? See Attachment 6 for a General Cross-Connection Control Checklist for All Use Sites.

Method 1 is for systems that have a means to attach a pressure recorder at the potable and recycled water service meters. This can be either backflow prevention assemblies, a fitting or a combination of the two.

Method 2 -- is for systems without pressure recorder fittings.

Method 3 -- is for systems without pressure recorder fittings and where recycled water is being used on the site.

Method 4 -- can be used at sites containing occupied residences.

Method 5 -- involves exposing all potable water lines.

Method 6 -- involves the use of a dye test.

Method 7 -- is based on the 1998 California Plumbing Code for testing dual plumbed buildings.

Method 8 -- was developed for dual plumbed buildings and involves a combination of dye testing and pressure recorder testing.

Method 9 -- was developed for homeowners associations (HOAs) with no backflow prevention assemblies and a single potable lateral feeding a small (house) water system.

When doing the cross-connection control test on a irrigation system, all stations must be operated. A lateral may be tied into another system that is not part of the rested system. This was observed when a street median strip system was operated and an adjacent apartment complex irrigation system came on at the same time. The irrigation water at the apartment complex was being paid for by the potable water purveyor. This is also happened at a private home when the house irrigation system was unaccountably tied into adjacent street slope irrigation.

Method 1:

This method is based on the availability of backflow prevention assemblies at the potable water meter(s). Other methods of attaching pressure recorders, such as installed fittings, may also be considered. On large sites with multiples meters, the existence of different pressure zones must be reviewed.

First, the recycled water service meter is secured and the recycled system is depressurized. A complete drain down of the system is not required. The system should be depressurizing to 30 to 40 percent of line pressure, although most irrigation systems will quickly lose pressure-which is normal. When the service meter is shut off to depressurize the system it should also be locked if possible. This will prevent an unauthorized turn on of the meter. In the event that a site is served by a combination meter or meters, the depressurization of the irrigation system will be accomplished by shutting of the valve at the backflow prevention assembly. Also, if there is a backflow preventing assembly present, open the number one test cock. If there is flow through the closed service meter valve due to a leaking shutoff valve, the water will flow out of the number one test cock and not affect the pressure recorder.

A pressure recorder is attached to the number four test cock of the backflow prevention assembly at the secured meter. The pressure recorder is run for 24 hours while the potable system is operated normally. Test spikes should be recorded before depressurizing and at the end of the test to confirm that the recorder is in good working condition. Even though the irrigation system is depressurized, it must be operated through the normal irrigation cycle because an isolated lateral may be cross-connected into the potable system. If this is the case, it will show up on the pressure recorder graph.

For the second part of the test, the test method is reversed with the pressure recorder attached to the number four test cock of the backflow prevention assembly on the secured potable water meter. The irrigation system is pressurized and all stations are operated during this phase of the test. At least two pressure recorders should be used for each phase of the test, both as a backup if one recorder quits working and to get better test coverage.

If the site is served by a combination meter or meters, the depressurization of the potable water system will depressurized the entire water system. Provisions must be made to provide a temporary high line to serve the irrigation system while the potable system is being tested. This will typically be done by connecting the irrigation system to a nearby fire hydrant using a construction meter, backflow prevention assembly and a fire hose (see Attachment 24). This will also serve as the overspray and ponding phase of the test and it will require someone with on-site knowledge in the activation of the irrigation master control panel.

The regulatory agency should accompany the water purveyor's representative to ensure that the potable water system is depressurized and all depressurizing devices are secured before starting this portion of the test. This is critical, because this phase of the test will be concerned with the actual contamination of the site's drinking water. Ideally, this test should also run for 24 hours. However, since this phase of the test will frequently directly affect site operations, the

regulatory agency can decide on a reduced time frame. This is a judgment call on the part of the regulatory agency, depending upon the complexity of the potable distribution system. The decision must be based on all available information, expertise and experience to determine the actual cross-connection control test duration.

If there are increases in pressure, the reason(s) must be determined. Initially, walk the system to ensure that all devices that maybe cause re-pressurization have been disabled. Next, attempt to isolate the cross-connection within the system. It may be possible to isolate specific areas of the distribution system by using isolation valves. Consequently, flow to one or more faucets or hose bibs may be traceable to areas where the potable line feeding these faucets or hose bibs is in close proximity to the recycled water system. This phase of the test should be repeated to determine if the pressure increase can be duplicated (see page 18, Potential Cross Connections). If there are not pressure increases observed on the recycled and potable systems and any additional testing has been successfully completed, the cross-connection control test can be considered complete, with no cross-connections discovered at the time of the test.

If this is an initial test or retrofit, the following test may also be completed. This test is not usually necessary, and its use should be at the discretion of the regulatory agency.

All taps and hose bibs should be slowly drained. The slow draining will minimize air locks in overhead water lines. After draining, the taps and hose bibs should be closed. Upon completion of the test, all hose bibs and taps should be checked for flow, using a paper cup to determine flow quantity. Some flow will be expected due to the air locks breaking loose. The amount of flow to cause concern is a judgment call. As a general rule, filling a quarter of a 12 oz. cup can be considered the result of an air lock breaking free. Quantities greater than that would lead to an investigation to determine the cause of the flow. This is site specific, and items such as the use of multiple overhead water lines must be considered. If this is a site using recycled water, the TDS of the flow can be checked using the TDS meter. It must be remembered that if a cross-connection exists, the TDS will probably be lower than that of the recycled water due to dilution.

Method 2:

Method 2 can be used on sites with no connections for pressure recorders. The potable water system shall be activated and pressurized. Depressurized the recycled water system. The potable water system must remain pressurized while the recycled water system is depressurized. The minimum period of time the recycled water system is to remain depressurized shall be determined on a case-by-case basis by the regulatory agency, taking into consideration the size and complexity of the potable and recycled water systems. If this is an irrigation system, it should be depressurized for 24 hours.

If there is a drain on the recycled water system, it should be checked for flow during the test and at the end of the test period. Before re-pressurizing the irrigation system, operate all stations of the system for a short period of time to determine if any stations have re-pressurized.

Depressurized the potable water system. The recycled water system is then activated and pressurized. The recycled water system must remain pressurized while the potable water system is depressurized. The minimum period of time that the potable water system is to remain depressurized shall be determined on a case-by-case basis.

All taps and hose bibs should be slowly drained. The slow draining will minimize air locks in overhead water lines. The taps and hose bibs should then be closed. Upon completion of the test, all those bibs and taps should be checked for flow using a paper cup to determine flow quantity. Some flow will be expected due to air locks breaking loose. The amount of flow to cause concern is a judgment call. As a general rule, filling a 12 oz. cup to a quarter full can be considered the result of an air lock breaking free. Quantities greater than that would lead to an investigation to determine the cause for the flow. Again, this is site-specific and items such as the existence of multiple overhead water lines must be considered. If this is a site using recycled water the TDS of the flow can be checked using the TDS meter. Keep in mind that if a cross-connection exists the TDS will probably be lower than that of the recycled water due to dilution. If there are indications of a cross-connection; the reason(s) must be determined. Initially, walk the distribution system to ensure that all devices that may cause re-pressurization have been disabled. Next, attempt to isolate the cross-connection within the system. It may be possible to isolate specific areas of the system by using isolation valves. Consequently, flow to one or more faucets or hose bibs may be traceable to areas where the potable water line feeding these faucets or hose bibs is in close proximity to the recycled water system. This phase of the test should be repeated to determine if the pressure increase can be duplicated.

Method 3:

This method can be used on sites with no backflow devices or connections for pressure recorders, but where recycled water is being currently used in the irrigation system. This test method is based on the difference in the concentration of TDS (total dissolved solids) in potable and recycled water. This method is commonly used at residential sites where the yard areas are controlled by a homeowner association (see also Method 9)

The number of TDS test meters should be based on the size of the project. This methods depends on a significant difference in the TDS of the potable and recycled water. However, this test method may not be applicable if potable water is blended with recycled water before delivery or if low TDS is a significant constituent of the recycled water.

First, follow method 1 for the recycled water system cross-connection control testing. Determine the TDS concentration of potable water in the area of the test. This can be provided by the water purveyor. The reading needs to be as close to the day of the test as possible due to the variations in TDS of the delivered water.

Shut off the potable water at the service meter(s). Drain each individual building through the hose bib. The graining should be done slowly to avoid air locks in the water lines. Secure (shut off) the hose bib to close the drained system.

Turn on the recycled water system for at least one hour or until runoff occurs. Activate all the stations. Secure (shut off) the recycled water system. Then go to each individual building and check the hose bib for flow. If there is flow, test the flow with the TDS meter. If the TDS is identical to the reading taken earlier, there is no detectable cross-connection noted at the time of the test. If the water in the house has not been used for a period of time, the TDS of the “old” water maybe be significantly different from the TDS noted on the day of the TDS reading. If the TDS is significantly different from the earlier recorded reading, action must be taken to determine the reason for the difference. One way of doing this is to trench the potable water lateral from the service meter to the hose bib because this is the most likely area for a cross-connection.

Method 4:

This method is a modification of method 3, for use on sites where there are no connections for pressure recorders and the irrigation is still charged with potable water prior to conversion. This procedure can be used at sites containing occupied residences since it is the least intrusive of the test methods. However, in most cases this will be a retrofit situation. The irrigation system should be tested for 24 hours. The period of cross-connection control of the potable system should be at least 4 to 12 hours for the initial test, based upon site complexity.

First, follow Method 1 for the recycled water system cross-connection control and testing. Shut off the potable water at the service meter(s).

Drain each individual building through the hose bib. The draining should be done slowly to avoid air locks in the water lines. Secure (shut off) the hose bib to close the drained system. Turn of the recycled water system for at least one hour or until extensive runoff occurs. Activate all the stations.

Secure (shut off) the recycled water system. Go to each individual building and check the hose bib for flow.

Note: Although this method is the least intrusive because the exterior hose bibs are the only fittings tested for flow, it is the least certain of the test methods. This method places a great deal of reliance on the knowledge and judgment of the specialist conducting the test.

One method to increase the level of safety for the recycled irrigation system is to require the purveyor to install master shutoff valves at the irrigation service meter. As a result, the irrigation system would be depressurized any time it was not in actual use.

Method 5:

This method can be used on new construction sites where the building(s) are located close to the potable service meter. Immediately before the conversion to recycled water, the contractor can expose the potable water line(s) to the building(s) for visual inspection. Future cross-connection control shutdown tests must be done by acceptable methods or uncovering the potable water line.

Method 6:

The dye testing method was developed by Tucson Water in Tucson, Arizona. It has been successfully used for cross-connection control tests for a number of years in Arizona.

Dye testing is simple and quick. If set up properly, the test can be completed in only one to two hours which minimizes the inconvenience to use site tenants. It can give results that are seemingly more certain than the pressure differential test. However, it is only a one way test and will not reveal a cross-connection from the recycled system protected by a one way check valve. Another potential problem is that the dye may stain the hardscape and adjacent structures. The food safe dye fades when exposed to ultraviolet light, as found with exposure of the dye to the hot sun in the Tucson, Arizona area. However, the dye may not fade in shaded areas and in areas without maximum exposure to sunlight. Also, the quantity of dye to be used is based on the size of the use site and must be quantified. Dye testing can be used in specific cases where the inconvenience to tenants through shutting down the potable water system is the overriding issue and staining is not a concern.

To comply with the two way test requirements, follow Method 1 for the recycled water system cross-connection control and testing. Shut off the potable water supply at the RP. Open the number four test cock. Note: All RPs must have been tested successfully as illustrated by a current test report prior to dye testing.

Open all potable water outlets and fixtures on the proposed recycled water site. These are left open until the dye test is completed. Charge the proposed recycled water system(s) with potable water and dye. Use powder dye to immediately color the system. Tablets or cakes can also be utilized and will be retained in a strainer to dye incoming water to the proposed recycled water system.

Check for water and dye at the RP #4 test cock and at all potable water fixtures and outlets. Open all potable water fixtures that could not be left open and check for water and dye while proposed recycled system(s) are under pressure.

If the systems check out OK, return the potable water system(s) to normal operation. The proposed recycled system may now be connected to the recycled water service if site evaluation (ponding and overspray) is complete and the recycled water use signs are posted.

Should the site fail any of the above criteria, the recycled water service to the site is prohibited until full site compliance is completed.

Method 7:

Method 7 is used for dual plumbed buildings. The test methods were developed based upon the 1998 California Plumbing Code. The procedure should be followed by the applicant in the presence of the regulatory authority and other authorities having jurisdiction.

The potable water system shall be activated and pressurized. The recycled water system shall be shut down and completely drained. The potable water system shall remain pressurized for a minimum period of time specified by the regulatory authority while the recycled water system is empty. The minimum period of the recycled water system is to remain depressurized shall be determined on a case-by-case basis, taking into account the size and complexity of the potable and recycled water systems. In no case shall that period be less than one hour.

All fixtures, potable and recycled, shall be tested and inspected for flow. Flow from any recycled water system outlet shall indicate a cross-connection. No flow from a potable water outlet would indicate that it may be connected to the recycled water system.

The drain on the recycled water system shall be checked for flow during the test and at the end of the period. The potable water system shall then be completely drained. The recycled water system shall then be activated and pressurized.

The recycled water system shall remain pressurized for a minimum period of time specified by the regulatory authority while the potable water system is empty. The minimum period the potable water system is to remain depressurized shall be determined on a case-by-case basis. In no case shall that period be less than one hour.

All fixtures, both potable and recycled, shall be tested and inspected for flow. Flow from any potable water system outlet shall indicate that it may be connected to the recycled water system. The drain on the potable water system shall be checked for flow during the test and at the end of the period.

If there is no flow detected in any of the fixtures which would have indicated a cross-connection, the potable water system shall be pressurized.

Method 8:

Method 8 is a modification of method 6 and 7 for dual-plumbed buildings. This method uses a food-safe dye. The basic procedure is the same as Method 7, with the following modifications:

- Pressure recorders are installed on the recycled water system prior to depressurization.
- The recycled water system is depressurized to a pressure of at least 50% of the potable water pressure.
- The potable system is operated normally for at least 4 hours
- The recycled water system is pressurized
- The potable water system is depressurized to at least 50% of the recycled water pressure.
- A food-safe dye is added through a valved standpipe to the recycled water fixture.
- The system is flushed until the dye appears in the last recycled water fixture.
- All fixtures are checked on the potable system for the appearance of the dye.
- The length of time for this phase of the test is the amount of time it takes to check all fixtures on the potable water system.

Method 9:

Recycled Water Cross-Connection Control Shutdown Test at Homeowners Association (HOAs) with No Backflow Prevention Assemblies

The purveyor notifies the HOA of the scheduled test and homeowners know that the water will be turned off for a period of time. The purveyor is to have the total dissolved solids (TDS) reading for both the potable and the recycled water for the day of the test.

The test can be done in sections to minimize the water shutoff times.

Uncover each water meter in a section and turn off the curb stop. If the site is old, both the curb stop and the customer shutoff valve maybe have to be closed to stop water bleed-by.

Once the water in a section is shut off, open all exterior hose bibs to drain the water from the homes. Open the hose bibs slowly to minimize the creation of air locks in the plumbing system. Close all hose bibs in the rested section.

Run all irrigation valves in the tested section for a minimum of two minutes each-this is the usual test cycle on the controller.

Open each hose bib and if there is any water flow, test it for TDS with the TDS meter. A paper or plastic cup is needed to collect the water flow. A cross-connection is indicated if the TDS of the house water is at or near the TDS of the recycled water.

Be aware that if the house has been unoccupied for some time, the TDS of the house water may vary from the test day potable water TDS. If the TDS is near that of the recycled water TDS, purveyor records should be consulted for previous (historical) TDS readings when the house was last occupied. Water softeners and where the softeners are located in the house water system also must be considered in this test method.

Be aware that the purveyor may be augmenting the recycled water supply with potable water to meet the demand. This will make the readings increasingly difficult to interpret as the TDS of the recycled water approaches the TDS of the potable water.

Note unprotected (without a backflow prevention assembly) connections off the potable line feeding the house that extend to potable backyard irrigation. The purveyor should notify the HOA on how to make the connection legal.

To assist the on-site purveyor staff, the regulator may help the purveyor shut off the water to the homes and check the hose bibs. However, it is the purveyor's responsibility to turn the water back on. If the home is unoccupied and the water continues to flow (as indicated by the meter tattletale), flooding may occur in the home. If the tattletale indicates continued flow, it is advised that the meter be shut off and a note left for the homeowner to contact the purveyor for meter turn on.

SECTION E

SAMPLE FORMS AND SITE SPECIFIC DETAILS

SUMMARY OF STEPS TO OBTAIN RECYCLED WATER

Potential User contacts the Recycled Water Agency for recycled water service.

Potential User must have irrigation plans stamped by a registered landscape architect or a registered civil engineer.

Potential User submits a recycled water application (an example is shown on page 34) and pays the application fee. The User agreement is explained and signed at this time.

The potential User shall apply to the Recycled Water Agency for a recycled water meter. If a potable construction meter is needed it is to be requested via a separate application. A construction meter for potable water and an appropriate backflow prevention device may be required for temporary water and system testing before being served recycled water.

Recycled Water Agency notifies the State, local city or county Health Department of the submitted application.

Potential User submits two sets of plans each to the Recycled Water Agency, State DPH, and the local city or county Health Department for plan check and pays the applicable plan check fees.

Recycled Water Agency, State DPH, and the local city or county Health Department complete plan check and return plans to the potential User for corrections.

After all corrections are made the potential User resubmits the marked plan checked prints along with a final set of plans. If no more corrections are to be made, the Recycled Water Agency, State DPH, and the local city or county Health Department will approve the original plans. Four (4) sets of prints of the signed plans each should be submitted to these agencies.

A pre-job meeting (preliminary inspection) is held before construction with the Recycled Water Agency's representative, potential User, the contractor and state and county (or city) health agencies. This meeting is to cover the plan's general notes, specific job requirements and cover any questions. A preliminary cross-connection test is also conducted at this time on existing systems.

The potential User may begin construction, according to the approved plans, contingent upon any other required permits or approvals being obtained. Approvals for deviations in the approved plans are to be sought as they occur.

All work during construction must be inspected by the Recycled Water Agency and/or the local city or county Health Department before backfilling any buried piping. If any Recycled or potable water piping is installed before plan check approval and/or inspection, all or any portion of the piping system may be required to be exposed and corrected as necessary.

After construction is completed, the Recycled Water Agency, State DPH, and the local city or county Health Department must be notified for the final inspection and cross-connection test utilizing potable water supplied through an approved backflow prevention device on dual plumbed sites. The recycled water meter is installed, potable water severed and conversion made to recycled water. During this walk through flow adjustments are made, tagging is inspected, and coverage is checked. A thorough cross-connection test is conducted at this time to verify that construction was performed correctly. The Recycled Water Agency and the local city or county Health Department will generate a punch list of corrections to be made if necessary.

A follow-up walk through will be called for after all corrections from the first walk-through are completed if required. This walk-through will inspect to see that all corrections are complete, including color-coded plans for each controller that are accurate and placed at each controller cabinet. Upon the successful completion of the inspection and cross-connection tests, the User will be granted permission for the normal operation of the system. At this time the Recycled Water Agency's inspector will discuss with the User and the User's Site Supervisor conditions for operation, inspections etc.

LOCAL CONTACTS

SITE:

LOCATION:

SUPERVISOR:

PHONE:

RECYCLED WATER AGENCY CONTACTS

WATER OPERATIONS:

PHONE:

SUPERVISOR:

PHONE:

RECYCLED WATER INSPECTOR:

PHONE:

RECYCLED WATER AGENCY'S ENGINEER:

PHONE:

**CROSS-CONNECTION TEST
NOTIFICATION FORM**

Test Date: _____ Test Time: _____

Site Name: _____

Site Address: _____

Recycled Water Agency: _____

Contact Person: _____ Phone: _____

Agencies Notified: California Department of Public Health, Drinking Water Field
Operations Branch

**CROSS-CONNECTION NOTIFICATION
RSVP FORM**

Site Address: _____

Test Date: _____

Agency/Company: _____

Representatives Attending: _____

(Please return to requesting party within 10 days of scheduled test)

**RECYCLED WATER
SITE INSPECTION REPORT**

Site: _____ Date: _____

Inspected By: _____

Title: _____ Agency: _____

AREA INSPECTED	NO	YES
- PIPING -		
Piping properly marked?	_____	_____
Valves etc. properly marked?	_____	_____
Has piping been modified?	_____	_____
If yes, are modifications approved?	_____	_____
Points of connection properly marked?	_____	_____
Piping System "Leak"?	_____	_____
- SIGNING -		
Are all signs properly placed?	_____	_____
Are all signs legible?	_____	_____
Are tags visible and legible?	_____	_____
- BACKFLOW PREVENTION -		
Backflow Prevention Device installed?	_____	_____
Does the device appear damaged?	_____	_____
Is the device leaking?	_____	_____
Is the device unobstructed?	_____	_____
Is Recycled Water being used for its approved purpose?	_____	_____

Comments:

Signed: _____ Date: _____

**RECYCLED WATER IRRIGATION
USER APPLICATION**

Today's Date: _____
Tract No. _____ Project Name: _____
Location: _____ or Brief Legal Description: _____

Type _____ of _____ Development: _____

Description of proposed uses of recycled water:

Expected date to commence recycled water service (Month/Year) _____

Estimated Water Requirements:

	<u>Acres</u>	<u>Average AF/YR</u>	<u>Peak Demand (GPM)</u>
Landscape Irrigation:	_____	_____	_____
Park:	_____	_____	_____
Open Space:	_____	_____	_____
School:	_____	_____	_____

Owner: _____	Engineer: _____
Address: _____	Address: _____
City: _____	City: _____
State: _____ Zip: _____	State: _____ Zip: _____
Phone: (____) _____	Phone: (____) _____
Contact: _____	Contact: _____

SECTION F LOCAL GOVERNING AGENCIES

California Regional Water Quality Control Board

Santa Ana Region
3737 Main Street, Suite 500
Riverside, CA 92501-3339
(951) 782-3258

State of California Department of Public Health

Drinking Water Field Operations Branch
464 West 4th Street, Suite 437
San Bernardino, CA 92401
(909) 884-4056

Inland Empire Utilities Agency

A Municipal Water Agency
6075 Kimball Avenue
Chino, CA 91708
(909) 993-1600

County of Los Angeles Department of Health Services

Cross Connection and Water Pollution Control
5050 Commerce Drive
Baldwin Park, CA 91706
(626) 430-5290

SECTION G DEFINITIONS

Whenever the following terms, or pronouns used in their place, occur in this Manual the intent and meaning shall be interpreted as follows:

Air Gap Separation – A physical break between a water line and a receiving tank or reservoir which is at least double the diameter of the pipeline vertically above the rim of the tank or reservoir, and in no case less than one-inch.

Applicant – An Owner or authorized representative who applies for recycled water service under terms of the appropriate regulations. An approved Applicant becomes a User.

Approved Backflow Prevention Assembly – A device installed to protect the potable water supply from contamination by nonpotable water and is approved by the State of California.

Approved Use – An application of recycled water in a manner, and for a purpose, designed in a user agreement issued by the Recycled Water Agency and in compliance with all applicable Regulatory Agency requirements.

Approved Use Area – A site with well-defined boundaries, designated in a user agreement issued by the Recycled Water Agency to receive recycled water for an approved use and acknowledged by all applicable Regulatory Agencies.

Chief Executive Officer – The highest-ranking management official of the Recycled Water Agency.

Construction Use – An approved use of recycled water to support approved construction activities, such as soil compaction and dust control during grading.

Cross-Connection – Any physical connection between any part of a water system used or intended to supply water for drinking purposes and any source or system containing water or substance that is not or cannot be approved as safe, wholesome and potable for human consumption.

Governing Board – An elected or appointed group or person whose responsibility it is to establish and enforce the Recycled Water Agency's policy.

Infiltration Rate – The rate at which the soil will accept water as applied during irrigation, expressed in inches per hour.

Inspector – Any person authorized by the Recycled Water Agency or the local health agencies to perform inspections on or off the Users site before construction, during construction, after construction and during operation.

Irrigation Period – The time, from start of water flow to cessation, which a specific area receives recycled water by direct irrigation application, no matter how often the specific area is irrigated - that is length of the duty cycle.

Irrigation Use – An approved use of recycled water for landscape irrigation as defined for recycled water under Title 22, Chapter 3 of the California Code of Regulations.

Landscape Impoundment – An open body of recycled water on a use site that is utilized for aesthetic enjoyment or which otherwise serves a function not intended to include public contact.

Local City or County Health Department – This agency is the local health protection agency for the municipality in question.

Nonpotable Water – The water that has not been treated for human consumption in conformance with the latest edition of *the United States Public Health Service Drinking Water Standards*, the California Safe Drinking Water Act, or any other applicable standards. This also refers to irrigation or industrial process water derived from a potable water system through an approved backflow prevention device that may be subject to contamination (e.g., through back-siphonage).

Off-site – Designates or relates to recycled water facilities up to and including the water meter that are owned and operated by the Recycled Water Agency.

On-site – Designates or relates to facilities owned and operated by a User.

Operations Personnel – Any employee of a User, whether permanent or temporary, or any contracted worker whose regular or assigned work involves the supervision, operation or maintenance of equipment on any portion of on-site facilities using recycled water.

Operator – Any person, persons or firm, who by entering into an agreement with a User is responsible for operating on-site facilities.

Owner – Any holder of legal title, contract purchaser, or lessee under a lease with an unexpired term of more than one (1) year, for property for which recycled water service has been requested or established.

Point of Connection – This is the point where the User's system ties to the Recycled Water Agency's system. This is usually at the water meter.

Ponding – Retention of recycled water on the surface of the ground or other natural or manmade surface for a period following the cessation of an approved recycled water use activity such that a hazard or potential hazard to the public health results.

Potable Water – That water that is pure and wholesome, does not endanger the lives or health of human beings, and conforms to the latest edition of the California Safe Drinking Water Act, or other applicable standards.

Public – Any person or persons at large who may come in contact with facilities and/or areas where recycled water is approved for use.

Rate and Fee Schedule – The schedule of all rates, charges, fees and assessments to be made concerning the use of recycled water served by the Recycled Water Agency as approved or as amended by the Recycled Water Agency.

Note: If the recycled water provided by an investor-owned utility functioning as the Recycled Water Agency, rates and fees are approved or amended by the California Public Utilities Commission.

Recreational Impoundment – An open body of recycled water located on a use site that may be used for unrestricted body contact (e.g., swimming, wading) or restricted non-body contact (e.g., boating, fishing) recreation.

Recycled Water – Nonpotable water that is highly treated to the California Code of Regulations, Title 22, Chapter 3 and used for approved purposes other than drinking water.

Recycled Water Agency – The local purveyor of recycled water for the specified service area (public or private).

Regulatory Agencies – Those public agencies legally constituted to protect the public health and water quality, such as the State Department of Health Services, the California Regional Water Quality Control Board and the local city or county Health Department.

Runoff – When recycled water is allowed to drain outside the approved irrigation area.

Service – The furnishing of recycled water to a User through a metered connection to the on-site facilities.

Site Supervisor – A qualified person designated by the User with the approval of the Recycled Water Agency to provide liaison with the Recycled Water Agency. This person should be available to the Recycled Water Agency at all times, should have the knowledge and authority to carry out any requirements of the Recycled Water Agency, and should be responsible for the installation, operation and maintenance of the reclaimed and potable water systems and also prevention of potential hazards.

State Department of Public Health – Shall be the State of California Department of Health Services, Drinking Water Field Operations Branch.

Unauthorized Discharge – Any release of recycled water that violates the rules and regulations of the Recycled Water Agency or all applicable Federal, State or local statutes, regulations, ordinances, contracts or other requirements.

User – Any person, persons or firm including any public utility, municipality or other public body or institution issued a recycled water Users' Permit by the Recycled Water Agency. The User and Owner may be the same.

User Agreement – An agreement issued by the Recycled Water Agency to a recycled water service Applicant after the satisfactory completion of the service application procedures. This Agreement forms a service agreement between the User and the Recycled Water Agency that legally binds the User to all conditions stated in the Agreement and all applicable Regulatory Agency requirements.

User Agreement (For Users Served by an Investor-Owned Utility) – An agreement shall consist of the signed Application, the User Manual, and the California Public Utilities Commission approved Tariff Schedules. These form a service agreement between the User and the Recycled Water Agency that legally binds the User to all conditions stated in the Agreement and all applicable Regulatory Agency requirements.

Violation – Noncompliance with any condition or conditions of the User Agreement and/or Title 22, Chapter 3 of the California Code of Regulations by any person, action or occurrence, whether willfully or by accident.

Windblown Spray – Dispersed, airborne particles of recycled water that can be transmitted through the air to locations other than those approved for the direct use of recycled water.

SECTION H

TITLE

17 AND 22

California Department of Public Health Regulations Related to Recycled Water January 2009

TITLE 17 CODE OF REGULATIONS	3
Division 1. State Department of Health Services	3
Chapter 5. Sanitation (Environmental)	3
Group 4. Drinking Water Supplies	3
Article 1. General	3
§7583. Definitions	3
§7584. Responsibility and scope of program	5
§7585. Evaluation of hazard	5
§7586. User supervisor	6
Article 2. Protection of Water System	6
§7601. Approval of backflow preventers	6
§7602. Construction of backflow preventers	6
§7603. Location of backflow preventers	7
§7604. Type of protection required	7
§7605. Testing and maintenance of backflow preventers	9
 TITLE 22 CODE OF REGULATIONS	 10
Division 4. Environmental Health	10
Chapter 1. Introduction	10
Article 1. Definitions	10
§60001. Department	10
§60003. Director	10
Chapter 2. Regulations for the Implementation of the California Environmental Quality	 10
Article 1. General Requirements and Categorical Exemptions	10
§60100. General requirements	10
§60101. Specific activities within categorical exempt classes	11
Chapter 3. Water Recycling Criteria	12
Article 1. Definitions	12
§60301. Definitions	12
§60301.100. Approved laboratory	12
§60301.160. Coagulated wastewater	12
§60301.170. Conventional treatment	12
§60301.200. Direct beneficial use	12
§60301.220. Disinfected secondary-2.2 recycled water	12

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2

*Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations
California Department of Public Health’s Recycled Water Regulations*

§60301.225. Disinfected secondary-23 recycled water	12
§60301.230. Disinfected tertiary recycled water	13
§60301.240. Drift	13
§60301.245. Drift eliminator	13
§60301.250. Dual plumbed system	13
§60301.300. F-Specific bacteriophage MS-2	14
§60301.310. Facility	14
§60301.320. Filtered wastewater	14
§60301.330. Food crops	14
§60301.400. Hose bibb	15
§60301.550. Landscape impoundment	15
§60301.600. Modal contact time	15
§60301.620. Nonrestricted recreational impoundment	15
§60301.630. NTU	15
§60301.650. Oxidized wastewater	15
§60301.660. Peak dry weather design flow	15
§60301.700. Recycled water agency	15
§60301.710. Recycling plant	16
§60301.740. Regulatory agency	16
§60301.750. Restricted access golf course	16
§60301.760. Restricted recreational impoundment	16
§60301.800. Spray irrigation	16
§60301.830. Standby unit process	16
§60301.900. Undisinfected secondary recycled water	16
§60301.920. Use area	16
Article 2. Sources of Recycled Water	17
§60302. Source specifications	17
Article 3. Uses of Recycled Water	17
§60303. Exceptions	17
§60304. Use of recycled water for irrigation	17
§60305. Use of recycled water for impoundments	18
§60306. Use of recycled water for cooling	19
§60307. Use of recycled water for other purposes	20
Article 4. Use Area Requirements	20
§60310. Use area requirements	20
Article 5. Dual Plumbed Recycled Water Systems	24
§60313. General requirements	24

§60314. Report submittal	24
§60315. Design requirements	25
§60316. Operation requirements	25
Article 5.1. Groundwater recharge	26
§60320. Groundwater recharge	26
Article 5.5. Other Methods of Treatment	26

NOTE: This publication is meant to be an aid to the staff of the CDPH—formerly the Department of Health Services (DHS)—Drinking Water Program and cannot be relied upon by the regulated community as the State of California’s representation of the law. The published codes are the only official representation of the law. Refer to the published codes—in this case, 22 and 17 CCR—whenever specific citations are required.

3

*Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations
California Department of Public Health’s Recycled Water Regulations*

§60320.5. Other methods of treatment	26
Article 6. Sampling and Analysis	26
§60321. Sampling and analysis	26
Article 7. Engineering Report and Operational Requirements	27
§60323. Engineering report	27
§60325. Personnel	27
§60327. Maintenance	28
§60329. Operating records and reports	28
§60331. Bypass	28
Article 8. General Requirements of Design	28
§60333. Flexibility of design	28
§60335. Alarms	28
§60337. Power supply	29
Article 9. Reliability Requirements for Primary Effluent	30
§60339. Primary treatment	30
Article 10. Reliability Requirements for Full Treatment	30
§60341. Emergency storage or disposal	30
§60343. Primary treatment	31
§60345. Biological treatment	31
§60347. Secondary sedimentation	31
§60349. Coagulation	32
§60351. Filtration	32
§60353. Disinfection	33
§60355. Other alternatives to reliability requirements	33

TITLE 17 CODE OF REGULATIONS

Division 1. State Department of Health Services

Chapter 5. Sanitation (Environmental)

Group 4. Drinking Water Supplies

Article 1. General.

§7583. Definitions.

In addition to the definitions in Section 4010.1 of the Health and Safety Code, the following terms are defined for the purpose of this Chapter:

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4

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

(a) "Approved Water Supply" is a water supply whose potability is regulated by a State or local health agency.

(b) "Auxiliary Water Supply" is any water supply other than that received from a public water system.

(c) "Air-gap Separation (AG)" is a physical break between the supply line and a receiving vessel.

(d) "AWWA Standard" is an official standard developed and approved by the American Water Works Association (AWWA).

(e) "Cross-Connection" is an unprotected actual or potential connection between a potable water system used to supply water for drinking purposes and any source or system containing unapproved water or a substance that is not or cannot be approved as safe, wholesome, and potable. By-pass arrangements, jumper connections, removable sections, swivel or changeover devices, or other devices through which backflow could occur, shall be considered to be crossconnections.

(f) "Double Check Valve Assembly (DC)" is an assembly of at least two independently acting check valves including tightly closing shut-off valves on each side of the check valve assembly and test cocks available for testing the watertightness of each check valve.

(g) "Health Agency" means the California Department of Health Services, or the local health officer with respect to a small water system.

(h) "Local Health Agency" means the county or city health authority.

(i) "Reclaimed Water" is a wastewater which as a result of treatment is suitable for uses other than potable use.

(j) "Reduced Pressure Principle Backflow Prevention Device (RP)" is a backflow preventer incorporating not less than two check valves, an automatically operated differential relief valve located between the two check valves, a tightly closing shut-off valve on each side of the check valve assembly, and equipped with necessary test cocks for testing.

(k) "User Connection" is the point of connection of a user's piping to the water supplier's facilities.

(l) "Water Supplier" is the person who owns or operates the public water system.

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5

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(m) "Water User" is any person obtaining water from a public water supply.

§7584. Responsibility and scope of program.

The water supplier shall protect the public water supply from contamination by implementation of a cross-connection control program. The program, or any portion thereof, may be implemented directly by the water supplier or by means of a contract with the local health agency, or with another agency approved by the health agency. The water supplier's cross-connection control program shall for the purpose of addressing the requirements of Sections 7585 through 7605 include, but not be limited to, the following elements:

(a) The adoption of operating rules or ordinances to implement the crossconnection program.

(b) The conducting of surveys to identify water user premises where crossconnections are likely to occur,

(c) The provisions of backflow protection by the water user at the user's connection or within the user's premises or both,

(d) The provision of at least one person trained in cross-connection control to carry out the cross-connection program,

(e) The establishment of a procedure or system for testing backflow preventers, and

(f) The maintenance of records of locations, tests, and repairs of backflow preventers.

§7585. Evaluation of hazard.

The water supplier shall evaluate the degree of potential health hazard to the public water supply which may be created as a result of conditions existing on a user's premises. The water supplier, however, shall not be responsible for abatement of cross-connections which may exist within a user's premises. As a minimum, the evaluation should consider: the existence of cross-connections, the nature of materials handled on the property, the probability of a backflow occurring, the degree of piping system complexity and the potential for piping system modification. Special consideration shall be given to the premises of the following types of water users:

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6

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(a) Premises where substances harmful to health are handled under pressure in a manner which could permit their entry into the public water system. This includes chemical or biological process waters and water from public water supplies which have deteriorated in sanitary quality.

- (b) Premises having an auxiliary water supply, unless the auxiliary supply is accepted as an additional source by the water supplier and is approved by the health agency.
- (c) Premises that have internal cross-connections that are not abated to the satisfaction of the water supplier or the health agency.
- (d) Premises where cross-connections are likely to occur and entry is restricted so that cross-connection inspections cannot be made with sufficient frequency or at sufficiently short notice to assure that cross-connections do not exist.
- (e) Premises having a repeated history of cross-connections being established or re-established.

§7586. User supervisor.

The health agency and water supplier may, at their discretion, require an industrial water user to designate a user supervisor when the water user's premises has a multipiping system that convey various types of fluids, some of which may be hazardous and where changes in the piping system are frequently made. The user supervisor shall be responsible for the avoidance of crossconnections during the installation, operation and maintenance of the water user's pipelines and equipment.

Article 2. Protection of Water System.

§7601. Approval of backflow preventers.

Backflow preventers required by this Chapter shall have passed laboratory and field evaluation tests performed by a recognized testing organization which has demonstrated their competency to perform such tests to the Department.

§7602. Construction of backflow preventers.

(a) Air-gap Separation. An Air-gap separation (AG) shall be at least double the diameter of the supply pipe, measured vertically from the flood rim of the receiving vessel to the supply pipe; however, in no case shall this separation be less than one inch.

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7

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(b) Double Check Valve Assembly. A required double check valve assembly (DC) shall, as a minimum, conform to the AWWA Standard C506-78 (R83) adopted on January 28, 1978 for Double Check Valve Type Backflow Preventive Devices which is herein incorporated by reference.

(c) Reduced Pressure Principle Backflow Prevention Device. A required reduced pressure principle backflow prevention device (RP) shall, as a minimum, conform to the AWWA Standard C506-78 (R83) adopted on January 28, 1978 for Reduced Pressure Principle Type Backflow Prevention Devices which is herein incorporated by reference.

§7603. Location of backflow preventers.

(a) Air-gap Separation. An air-gap separation shall be located as close as practical to the user's connection and all piping between the user's connection and the receiving tank shall be entirely visible unless otherwise approved in writing by the water supplier and the health agency.

(b) Double Check Valve Assembly. A double check valve assembly shall be located as close as practical to the user's connection and shall be installed above grade, if possible, and in a manner where it is readily accessible for testing and maintenance.

(c) Reduced Pressure Principle Backflow Prevention Device. A reduced pressure principle backflow prevention device shall be located as close as practical to the user's connection and shall be installed a minimum of twelve inches (12") above grade and not more than thirty-six inches (36") above grade measured from the bottom of the device and with a minimum of twelve inches (12") side clearance.

§7604. Type of protection required.

The type of protection that shall be provided to prevent backflow into the public water supply shall be commensurate with the degree of hazard that exists on the consumer's premises. The type of protective device that may be required (listed in an increasing level of protection) includes: Double check Valve Assembly-- (DC), Reduced Pressure Principle Backflow Prevention Device--(RP) and an Air gap Separation--(AG). The water user may choose a higher level of protection than required by the water supplier. The minimum types of backflow protection required to protect the public water supply, at the water user's connection to premises with various degrees of hazard, are given in Table 1. Situations not covered in Table 1 shall be evaluated on a case-by-case basis and the appropriate backflow protection shall be determined by the water supplier or health agency.

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8

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

TABLE 1

TYPE OF BACKFLOW PROTECTION REQUIRED

Degree of Hazard Minimum

Type of Backflow Prevention

(a) Sewage and Hazardous Substances

(1) Premises where there are waste water pumping and/or treatment plants and there is no interconnection with the potable water system. This does not include a single-family residence that has a sewage lift pump. A RP be provided in lieu of an AG if approved by the health agency and water supplier. AG

(2) Premises where hazardous substances are handled in any manner in which the substances may enter the potable water system. This does not include a single-family residence that has a sewage lift pump. A RP may be provided in lieu of an AG if approved by the health agency and water supplier. AG

(3) Premises where there are irrigation systems into which fertilizers, herbicides, or pesticides are, or can be, injected. RP

(b) Auxiliary Water Supplies

(1) Premises where there is an unapproved auxiliary water supply which is interconnected with the public water system. A RP or DC may be provided in lieu of an AG if approved by the health agency and water supplier AG.

(2) Premises where there is an unapproved auxiliary RP water supply and there are no interconnections with the public water system. A DC may be provided in lieu of a RP if approved by the health agency and water supplier. RP

(c) Recycled water

(1) Premises where the public water system is used to supplement the recycled water supply. AG

(2) Premises where recycled water is used, other than as allowed in paragraph (3), and there is no interconnection with the potable water system.

RP

(3) Residences using recycled water for landscape irrigation as part of an approved dual plumbed use area established pursuant to sections 60313 through 60316 unless the recycled water supplier obtains approval of the local public water supplier, or the Department if the water

DC

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9

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

supplier is also the supplier of the recycled water, to utilize an alternative backflow protection plan that includes an annual inspection and annual shutdown test of the recycled water and potable water systems pursuant to subsection 60316(a).

(d) Fire Protection Systems

(1) Premises where the fire system is directly supplied from the public water system and there is an unapproved auxiliary water supply on or to the premises (not interconnected). DC

(2) Premises where the fire system is supplied from the public water system and interconnected with an unapproved auxiliary water supply. A RP may be provided in lieu of an AG if approved by the health agency and water supplier. AG

(3) Premises where the fire system is supplied from the public water system and where either elevated storage tanks or fire pumps which take suction from private reservoirs or tanks are used. DC

(4) Premises where the fire system is supplied from the public water system and where recycled water is used in a separate piping system within the same building.

DC

(e) Dockside Watering Points and Marine Facilities

(1) Pier hydrants for supplying water to vessels for any purpose. RP

(2) Premises where there are marine facilities. RP

(f) Premises where entry is restricted so that inspections for cross-connections cannot be made with sufficient frequency or at sufficiently short notice to assure that do not exist. RP

(g) Premises where there is a repeated history of cross-connections being established or re-established. RP

RP

§7605. Testing and maintenance of backflow preventers.

(a) The water supplier shall assure that adequate maintenance and periodic testing are provided by the water user to ensure their proper operation.

(b) Backflow preventers shall be tested by persons who have demonstrated their competency in testing of these devices to the water supplier or health agency.

(c) Backflow preventers shall be tested at least annually or more frequently if

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10

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determined to be necessary by the health agency or water supplier. When devices are found to be defective, they shall be repaired or replaced in accordance with the provisions of this Chapter.

(d) Backflow preventers shall be tested immediately after they are installed, relocated or repaired and not placed in service unless they are functioning as required.

(e) The water supplier shall notify the water user when testing of backflow preventers is needed. The notice shall contain the date when the test must be completed.

(f) Reports of testing and maintenance shall be maintained by the water supplier for a minimum of three years.

TITLE 22 CODE OF REGULATIONS

Division 4. Environmental Health

Chapter 1. Introduction

Article 1. Definitions

§60001. Department.

Whenever the term "department" is used in this division, it means the State Department of Health Services, unless otherwise specified.

§60003. Director.

Whenever the term "director" is used in this division, it means the Director, State Department of Health Services, unless otherwise specified.

Chapter 2. Regulations for the

Implementation of the California Environmental Quality

Article 1. General Requirements and Categorical Exemptions

§60100. General requirements.

The Department of Health Services incorporates by reference the objectives, criteria, and procedures as delineated in Chapters 1, 2, 2.5, 2.6, 3, 4, 5, and 6, Division 13, Public Resources Code, Sections 21000 et seq., and the Guidelines

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11

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for the Implementation of the California Environmental Quality Act, Title 14, Division 6, Chapter 3, California Administrative Code, Sections 15000 et seq.

§60101. Specific activities within categorical exempt classes.

The following specific activities are determined by the Department to fall within the classes of categorical exemptions set forth in Sections 15300 et seq. of Title 14 of the California Administrative Code:

(a) Class 1: Existing Facilities.

(1) Any interior or exterior alteration of water treatment units, water supply systems, and pump station buildings where the alteration involves the addition, deletion, or modification of mechanical, electrical, or hydraulic controls.

(2) Maintenance, repair, replacement, or reconstruction to any water treatment process units, including structures, filters, pumps, and chlorinators.

(b) Class 2: Replacement or Reconstruction.

(1) Repair or replacement of any water service connections, meters, and valves for backflow prevention, air release, pressure regulating, shut-off and blow-off or flushing.

(2) Replacement or reconstruction of any existing water supply distribution lines, storage tanks and reservoirs of substantially the same size.

(3) Replacement or reconstruction of any water wells, pump stations and related appurtenances.

(c) Class 3: New Construction of Small Structures.

(1) Construction of any water supply and distribution lines of less than sixteen inches in diameter, and related appurtenances.

(2) Construction of any water storage tanks and reservoirs of less than 100,000 gallon capacity.

(d) Class 4: Minor Alterations to Land.

(1) Minor alterations to land, water, or vegetation on any officially existing designated wildlife management areas or fish production facilities for the purpose of reducing the environmental potential for nuisances or vector production.

(2) Any minor alterations to highway crossings for water supply and distribution lines.

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12

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Chapter 3. Water Recycling Criteria

Article 1. Definitions.

§60301. Definitions.

§60301.100. Approved laboratory.

"Approved laboratory" means a laboratory that has been certified by the Department to perform microbiological analyses pursuant to section 116390, Health and Safety Code.

§60301.160. Coagulated wastewater.

"Coagulated wastewater" means oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated upstream from a filter by the addition of suitable floc-forming chemicals.

§60301.170. Conventional treatment.

"Conventional treatment" means a treatment chain that utilizes a sedimentation unit process between the coagulation and filtration processes and produces an effluent that meets the definition for disinfected tertiary recycled water.

§60301.200. Direct beneficial use.

"Direct beneficial use" means the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to waters of the State.

§60301.220. Disinfected secondary-2.2 recycled water.

"Disinfected secondary-2.2 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period.

§60301.225. Disinfected secondary-23 recycled water.

"Disinfected secondary-23 recycled water" means recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period.

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13

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§60301.230. Disinfected tertiary recycled water.

"Disinfected tertiary recycled water" means a filtered and subsequently disinfected wastewater that meets the following criteria:

(a) The filtered wastewater has been disinfected by either: (1) A chlorine disinfection process following filtration that provides a CT (the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or (2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaqueforming units of F-specific bacteriophage MS2, or polio virus in the wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.

(b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than

one sample in any 30 day period. No sample shall exceed an MPN of 240 total coliform bacteria per 100 milliliters.

§60301.240. Drift.

"Drift" means the water that escapes to the atmosphere as water droplets from a cooling system.

§60301.245. Drift eliminator.

"Drift eliminator" means a feature of a cooling system that reduces to a minimum the generation of drift from the system.

§60301.250. Dual plumbed system.

"Dual plumbed system" or "dual plumbed" means a system that utilizes separate piping systems for recycled water and potable water within a facility and where the recycled water is used for either of the following purposes: (a) To serve plumbing outlets (excluding fire suppression systems) within a building or (b) Outdoor landscape irrigation at individual residences.

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14

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

§60301.300. F-Specific bacteriophage MS-2.

"F-specific bacteriophage MS-2" means a strain of a specific type of virus that infects coliform bacteria that is traceable to the American Type Culture Collection (ATCC15597B1) and is grown on lawns of E. coli (ATCC 15597).

§60301.310. Facility.

"Facility" means any type of building or structure, or a defined area of specific use that receives water for domestic use from a public water system as defined in section 116275 of the Health and Safety Code.

§60301.320. Filtered wastewater.

"Filtered wastewater" means an oxidized wastewater that meets the criteria in subsection (a) or (b):

(a) Has been coagulated and passed through natural undisturbed soils or a bed of filter media pursuant to the following: (1) At a rate that does not exceed 5 gallons per minute per square foot of surface area in mono, dual or mixed media gravity, upflow or pressure filtration systems, or does not exceed 2 gallons per minute per square foot of surface area in traveling bridge automatic backwash filters; and (2) So that the turbidity of the filtered wastewater does not exceed any of the following: (A) An average of 2 NTU within a 24-hour period; (B) 5 NTU more than 5 percent of the time within a 24-hour period; and (C) 10 NTU at any time.

(b) Has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed any of the following: (1) 0.2 NTU more than 5 percent of the time within a 24-hour period; and (2) 0.5 NTU at any time.

§60301.330. Food crops.

"Food crops" means any crops intended for human consumption.

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15

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

§60301.400. Hose bibb.

"Hose bibb" means a faucet or similar device to which a common garden hose can be readily attached.

§60301.550. Landscape impoundment.

"Landscape impoundment" means an impoundment in which recycled water is stored or used for aesthetic enjoyment or landscape irrigation, or which otherwise serves a similar function and is not intended to include public contact.

§60301.600. Modal contact time.

"Modal contact time" means the amount of time elapsed between the time that a tracer, such as salt or dye, is injected into the influent at the entrance to a chamber and the time that the highest concentration of the tracer is observed in the effluent from the chamber.

§60301.620. Nonrestricted recreational impoundment.

"Nonrestricted recreational impoundment" means an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.

§60301.630. NTU.

"NTU" (Nephelometric turbidity unit) means a measurement of turbidity as determined by the ratio of the intensity of light scattered by the sample to the intensity of incident light as measured by method 2130 B. in Standard Methods for the Examination of Water and Wastewater, 20th ed.; Eaton, A. D., Clesceri, L.S., and Greenberg, A. E., Eds; American Public Health Association: Washington, DC, 1995; p. 2-8.

§60301.650. Oxidized wastewater.

"Oxidized wastewater" means wastewater in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen.

§60301.660. Peak dry weather design flow.

"Peak Dry Weather Design Flow" means the arithmetic mean of the maximum peak flow rates sustained over some period of time (for example three hours) during the maximum 24-hour dry weather period. Dry weather period is defined as periods of little or no rainfall.

§60301.700. Recycled water agency.

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16

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

"Recycled water agency" means the public water system, or a publicly or privately owned or operated recycled water system, that delivers or proposes to deliver recycled water to a facility.

§60301.710. Recycling plant.

"Recycling plant" means an arrangement of devices, structures, equipment, processes and controls which produce recycled water.

§60301.740. Regulatory agency.

"Regulatory agency" means the California Regional Water Quality Control Board(s) that have jurisdiction over the recycling plant and use areas.

§60301.750. Restricted access golf course.

"Restricted access golf course" means a golf course where public access is controlled so that areas irrigated with recycled water cannot be used as if they were part of a park, playground, or school yard and where irrigation is conducted only in areas and during periods when the golf course is not being used by golfers.

§60301.760. Restricted recreational impoundment.

"Restricted recreational impoundment" means an impoundment of recycled water in which recreation is limited to fishing, boating, and other non-body-contact water recreational activities.

§60301.800. Spray irrigation.

"Spray irrigation" means the application of recycled water to crops to maintain vegetation or support growth of vegetation by applying it from sprinklers.

§60301.830. Standby unit process.

"Standby unit process" means an alternate unit process or an equivalent alternative process which is maintained in operable condition and which is capable of providing comparable treatment of the actual flow through the unit for which it is a substitute.

§60301.900. Undisinfected secondary recycled water.

"Undisinfected secondary recycled water" means oxidized wastewater.

§60301.920. Use area.

"Use area" means an area of recycled water use with defined boundaries. A use area may contain one or more facilities.

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17

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

Article 2. Sources of Recycled Water.

§60302. Source specifications.

The requirements in this chapter shall only apply to recycled water from sources that contain domestic waste, in whole or in part.

Article 3. Uses of Recycled Water.

§60303. Exceptions.

The requirements set forth in this chapter shall not apply to the use of recycled water onsite at a water recycling plant, or wastewater treatment plant, provided access by the public to the area of onsite recycled water use is restricted.

§60304. Use of recycled water for irrigation.

(a) Recycled water used for the surface irrigation of the following shall be a disinfected tertiary recycled water, except that for filtration pursuant to Section 60301.320(a) coagulation need not be used as part of the treatment process provided that the filter effluent turbidity does not exceed 2 NTU, the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed 5 NTU for more than 15 minutes and never exceeds 10 NTU, and that there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed 5 NTU for more than 15 minutes: (1) Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop, (2) Parks and playgrounds, (3) School yards, (4) Residential landscaping, (5) Unrestricted access golf courses, and (6) Any other irrigation use not specified in this section and not prohibited by other sections of the California Code of Regulations.

(b) Recycled water used for the surface irrigation of food crops where the edible portion is produced above ground and not contacted by the recycled water shall be at least disinfected secondary-2.2 recycled water.

(c) Recycled water used for the surface irrigation of the following shall be at least disinfected secondary-23 recycled water: (1) Cemeteries, (2) Freeway landscaping, (3) Restricted access golf courses, (4) Ornamental nursery stock and sod farms where access by the general public is not restricted, (5) Pasture for animals producing milk for human consumption, and (6) Any nonedible vegetation where access is controlled so that the irrigated area cannot be used as if it were part of a park, playground or school yard.

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18

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

(d) Recycled wastewater used for the surface irrigation of the following shall be at least undisinfected secondary recycled water: (1) Orchards where the recycled water does not come into contact with the edible portion of the crop, (2) Vineyards where the recycled water does not come into contact with the edible portion of the crop, (3) Non food-bearing trees (Christmas tree farms are included in this category provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting or allowing access by the general public), (4) Fodder and fiber crops and pasture for animals not producing milk for human consumption, (5) Seed crops not eaten by humans, (6) Food crops that must undergo commercial pathogen-destroying processing before being consumed by humans, and (7) Ornamental nursery stock and sod farms provided no irrigation with recycled water occurs for a period of 14 days prior to harvesting, retail sale, or allowing access by the general public.

(e) No recycled water used for irrigation, or soil that has been irrigated with recycled water, shall come into contact with the edible portion of food crops eaten raw by humans unless the recycled water complies with subsection (a).

§60305. Use of recycled water for impoundments.

(a) Except as provided in subsection (b), recycled water used as a source of water supply for nonrestricted recreational impoundments shall be disinfected tertiary recycled water that has been subjected to conventional treatment.

(b) Disinfected tertiary recycled water that has not received conventional treatment may be used for nonrestricted recreational impoundments provided the recycled water is monitored for the presence of pathogenic organisms in accordance with the following:

(1) During the first 12 months of operation and use the recycled water shall be sampled and analyzed monthly for *Giardia*, enteric viruses, and *Cryptosporidium*. Following the first 12 months of use, the recycled water shall be sampled and analyzed quarterly for *Giardia*, enteric viruses, and *Cryptosporidium*. The ongoing monitoring may be discontinued after the first two years of operation with the approval of the department. This monitoring shall be in addition to the monitoring set forth in section 60321.

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19

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

(2) The samples shall be taken at a point following disinfection and prior to the point where the recycled water enters the use impoundment. The samples shall be analyzed by an approved laboratory and the results submitted quarterly to the regulatory agency.

(c) The total coliform bacteria concentrations in recycled water used for nonrestricted recreational impoundments, measured at a point between the disinfection process and the point of entry to the use impoundment, shall comply with the criteria specified in section 60301.230 (b) for disinfected tertiary recycled water.

(d) Recycled water used as a source of supply for restricted recreational impoundments and for any publicly accessible impoundments at fish hatcheries shall be at least disinfected secondary-2.2 recycled water.

(e) Recycled water used as a source of supply for landscape impoundments that do not utilize decorative fountains shall be at least disinfected secondary-23 recycled water.

§60306. Use of recycled water for cooling.

(a) Recycled water used for industrial or commercial cooling or air conditioning that involves the use of a cooling tower, evaporative condenser, spraying or any mechanism that creates a mist shall be a disinfected tertiary recycled water.

(b) Use of recycled water for industrial or commercial cooling or air conditioning that does not involve the use of a cooling tower, evaporative condenser, spraying, or any mechanism that creates a mist shall be at least disinfected secondary-23 recycled water.

(c) Whenever a cooling system, using recycled water in conjunction with an air conditioning facility, utilizes a cooling tower or otherwise creates a mist that could come into contact with employees or members of the public, the cooling system shall comply with the following: (1) A drift eliminator shall be used whenever the cooling system is in operation. (2) A chlorine, or other, biocide shall be used to treat the cooling system recirculating water to minimize the growth of *Legionella* and other microorganisms.

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20

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

§60307. Use of recycled water for other purposes.

(a) Recycled water used for the following shall be disinfected tertiary recycled water, except that for filtration being provided pursuant to Section 60301.320(a) coagulation need not be used as part of the treatment process provided that the filter effluent turbidity does not exceed 2 NTU, the turbidity of the influent to the filters is continuously measured, the influent turbidity does not exceed 5 NTU for more than 15 minutes and never exceeds 10 NTU, and that there is the capability to automatically activate chemical addition or divert the wastewater should the filter influent turbidity exceed 5 NTU for more than 15 minutes: (1) Flushing toilets and urinals, (2) Priming drain traps, (3) Industrial process water that may come into contact with workers, (4) Structural fire fighting, (5) Decorative fountains, (6) Commercial laundries, (7) Consolidation of backfill around potable water pipelines, (8) Artificial snow making for commercial outdoor use, and (9) Commercial car washes, including hand washes if the recycled water is not heated, where the general public is excluded from the washing process.

(b) Recycled water used for the following uses shall be at least disinfected secondary-23 recycled water: (1) Industrial boiler feed, (2) Nonstructural fire fighting, (3) Backfill consolidation around nonpotable piping, (4) Soil compaction, (5) Mixing concrete, (6) Dust control on roads and streets, (7) Cleaning roads, sidewalks and outdoor work areas and (8) Industrial process water that will not come into contact with workers.

(c) Recycled water used for flushing sanitary sewers shall be at least undisinfected secondary recycled water.

Article 4. Use Area Requirements.

§60310. Use area requirements.

(a) No irrigation with disinfected tertiary recycled water shall take place within 50 feet of any domestic water supply well unless all of the following conditions have been met:

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21

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

(1) A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface. (2) The well contains an annular seal that extends from the surface into the aquitard. (3) The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities. (4) The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well. (5) The owner of the well approves of the elimination of the buffer zone requirement.

(b) No impoundment of disinfected tertiary recycled water shall occur within 100 feet of any domestic water supply well.

(c) 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.

(d) No irrigation with, or impoundment of, undisinfected secondary recycled water shall take place within 150 feet of any domestic water supply well.

(e) Any use of recycled water shall comply with the following: (1) Any irrigation runoff shall be confined to the recycled water use area, unless the runoff does not pose a public health threat and is authorized by the regulatory agency. (2) Spray, mist, or runoff shall not enter dwellings, designated outdoor eating, areas, or food handling facilities.

(3) Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.

(f) No spray irrigation of any recycled water, other than disinfected tertiary recycled water, shall take place within 100 feet of a residence or a place where public exposure could be similar to that of a park, playground, or school yard.

(g) All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public, in a size no less than 4 inches high by 8 inches wide, that include the following wording: "RECYCLED WATER - DO NOT DRINK". Each sign shall display an international symbol similar to that shown in figure 60310-A. The Department may accept alternative signage and wording, or an educational program, provided the applicant ongoing monitoring may be discontinued after the first two years of operation with the approval of the department. This monitoring shall be in addition to the monitoring set forth in section 60321.

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22

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

(h) Except as allowed under section 7604 of title 17, California Code of Regulations, no physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water.

(i) The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibbs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access.

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23

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

Water Recycling Criteria FIGURE 60310-A

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Article 5. Dual Plumbed Recycled Water Systems.

§60313. General requirements.

(a) No person other than a recycled water agency shall deliver recycled water to a dual plumbed facility.

(b) No recycled water agency shall deliver recycled water for any internal use to any individually-owned residential units including free-standing structures, multiplexes, or condominiums. *(Note: AB 1046, Chapter 537, Statutes of 2007, Water Code 13533, et seq., allows condominiums to be plumbed with recycled water, subject to a number of provisions. This regulation will be changed in future CDPH rulemaking to be consistent with the revised statutory requirements.)*

(c) No recycled water agency shall deliver recycled water for internal use except for fire suppression systems, to any facility that produces or processes food products or beverages. For purposes of this Subsection, cafeterias or snack bars in a facility whose primary function does not involve the production or processing of foods or beverages are not considered facilities that produce or process foods or beverages.

(d) No recycled water agency shall deliver recycled water to a facility using a dual plumbed system unless the report required pursuant to section 13522.5 of the Water Code, and which meets the requirements set forth in section 60314, has been submitted to, and approved by, the regulatory agency.

§60314. Report submittal.

(a) For dual-plumbed recycled water systems, the report submitted pursuant to section 13522.5 of the Water Code shall contain the following information in addition to the information required by section 60323: (1) A detailed description of the intended use area identifying the following: (A) The number, location, and type of facilities within the use area proposing to use dual plumbed systems, (B) The average number of persons estimated to be served by each facility on a daily basis, (C) The specific boundaries of the proposed use area including a map showing the location of each facility to be served, (D) The person or persons responsible for operation of the dual plumbed system at each facility, and (E) The specific use to be made of the recycled water at each facility.

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(2) Plans and specifications describing the following:

(A) Proposed piping system to be used,

(B) Pipe locations of both the recycled and potable systems,

(C) Type and location of the outlets and plumbing fixtures that will be accessible to the public, and

(D) The methods and devices to be used to prevent backflow of recycled water into the public water system.

(3) The methods to be used by the recycled water agency to assure that the installation and operation of the dual plumbed system will not result in cross connections between the recycled water piping system and the potable water piping system. This shall include a description of pressure, dye or other test methods to be used to test the system every four years.

(b) A master plan report that covers more than one facility or use site may be submitted provided the report includes the information required by this section. Plans and specifications for individual facilities covered by the report may be submitted at any time prior to the delivery of recycled water to the facility.

§60315. Design requirements.

The public water supply shall not be used as a backup or supplemental source of water for a dual-plumbed recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of sections 7602 (a) and 7603 (a) of title 17, California Code of Regulations, and the approval of the public water system has been obtained.

§60316. Operation requirements.

(a) Prior to the initial operation of the dual-plumbed recycled water system and annually thereafter, the Recycled Water Agency shall ensure that the dual plumbed system within each facility and use area is inspected for possible cross connections with the potable water system. The recycled water system shall also be tested for possible cross connections at least once every four years. The testing shall be conducted in accordance with the method described in the report submitted pursuant to section 60314. The inspections and the testing shall be performed by a cross connection control specialist certified by the California-Nevada section of the American Water Works Association or an organization with equivalent certification requirements. A written report documenting the result of the inspection or testing for the prior year shall be submitted to the department within 30 days following completion of the inspection or testing.

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26

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(b) The recycled water agency shall notify the department of any incidence of backflow from the dual-plumbed recycled water system into the potable water system within 24 hours of the discovery of the incident.

(c) Any backflow prevention device installed to protect the public water system serving the dual-plumbed recycled water system shall be inspected and maintained in accordance with section 7605 of Title 17, California Code of Regulations.

Article 5.1. Groundwater recharge.

§60320. Groundwater recharge.

(a) Reclaimed water used for groundwater recharge of domestic water supply aquifers by surface spreading shall be at all times of a quality that fully protects public health.

The State Department of Health Services' recommendations to the Regional Water Quality Control Boards for proposed groundwater recharge projects and for expansion of existing projects will be made on an individual case basis where the use of reclaimed water involves a potential risk to public health.

(b) The State Department of Health Services' recommendations will be based on all relevant aspects of each project, including the following factors: treatment provided; effluent quality and quantity; spreading area operations; soil characteristics; hydrogeology; residence time; and distance to withdrawal.

(c) The State Department of Health Services will hold a public hearing prior to making the final determination regarding the public health aspects of each groundwater recharge project. Final recommendations will be submitted to the Regional Water Quality Control Board in an expeditious manner.

Article 5.5. Other Methods of Treatment.

§60320.5. Other methods of treatment.

Methods of treatment other than those included in this chapter and their reliability features may be accepted if the applicant demonstrates to the satisfaction of the State Department of Health that the methods of treatment and reliability features will assure an equal degree of treatment and reliability.

Article 6. Sampling and Analysis.

§60321. Sampling and analysis.

(a) Disinfected secondary-23, disinfected secondary-2.2, and disinfected tertiary

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27

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health's Recycled Water Regulations

recycled water shall be sampled at least once daily for total coliform bacteria. The samples shall be taken from the disinfected effluent and shall be analyzed by an approved laboratory.

(b) Disinfected tertiary recycled water shall be continuously sampled for turbidity using a continuous turbidity meter and recorder following filtration. Compliance with the daily average operating filter effluent turbidity shall be determined by averaging the levels of recorded turbidity taken at four-hour intervals over a 24-hour period. Compliance with turbidity pursuant to section 60301.320 (a)(2)(B) and (b)(1) shall be determined using the levels of recorded turbidity taken at intervals of no more than 1.2-hours over a 24-hour period. Should the continuous turbidity meter and recorder fail, grab sampling at a minimum frequency of 1.2-hours may be substituted for a period of up to 24-hours. The results of the daily average turbidity determinations shall be reported quarterly to the regulatory agency.

(c) The producer or supplier of the recycled water shall conduct the sampling required in subsections (a) and (b).

Article 7. Engineering Report and Operational Requirements.

§60323. Engineering report.

(a) No person shall produce or supply reclaimed water for direct reuse from a proposed water reclamation plant unless he files an engineering report.

(b) The report shall be prepared by a properly qualified engineer registered in California and experienced in the field of wastewater treatment, and shall contain a description of the design of the proposed reclamation system. The report shall clearly indicate the means for compliance with these regulations and any other features specified by the regulatory agency.

(c) The report shall contain a contingency plan which will assure that no untreated or inadequately treated wastewater will be delivered to the use area.

§60325. Personnel.

(a) Each reclamation plant shall be provided with a sufficient number of qualified personnel to operate the facility effectively so as to achieve the required level of treatment at all times.

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28

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

(b) Qualified personnel shall be those meeting requirements established pursuant to Chapter 9 (commencing with Section 13625) of the Water Code.

§60327. Maintenance.

A preventive maintenance program shall be provided at each reclamation plant to ensure that all equipment is kept in a reliable operating condition.

§60329. Operating records and reports.

(a) Operating records shall be maintained at the reclamation plant or a central depository within the operating agency. These shall include: all analyses specified in the reclamation criteria; records of operational problems, plant and equipment breakdowns, and diversions to emergency storage or disposal; all corrective or preventive action taken.

(b) Process or equipment failures triggering an alarm shall be recorded and maintained as a separate record file. The recorded information shall include the time and cause of failure and corrective action taken.

(c) A monthly summary of operating records as specified under (a) of this section shall be filed monthly with the regulatory agency.

(d) Any discharge of untreated or partially treated wastewater to the use area, and the cessation of same, shall be reported immediately by telephone to the regulatory agency, the State Department of Health, and the local health officer.

§60331. Bypass.

There shall be no bypassing of untreated or partially treated wastewater from the reclamation plant or any intermediate unit processes to the point of use.

Article 8. General Requirements of Design.

§60333. Flexibility of design.

The design of process piping, equipment arrangement, and unit structures in the reclamation plant must allow for efficiency and convenience in operation and

maintenance and provide flexibility of operation to permit the highest possible degree of treatment to be obtained under varying circumstances.

§60335. Alarms.

(a) Alarm devices required for various unit processes as specified in other sections of these regulations shall be installed to provide warning of: (1) Loss of power from the normal power supply. (2) Failure of a biological treatment process. (3) Failure of a disinfection process. (4) Failure of a coagulation process. (5) Failure of a filtration process. (6) Any other specific process failure for which warning is required by the regulatory agency.

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29

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

(b) All required alarm devices shall be independent of the normal power supply of the reclamation plant.

(c) The person to be warned shall be the plant operator, superintendent, or any other responsible person designated by the management of the reclamation plant and capable of taking prompt corrective action.

(d) Individual alarm devices may be connected to a master alarm to sound at a location where it can be conveniently observed by the attendant. In case the reclamation plant is not attended full time, the alarm(s) shall be connected to sound at a police station, fire station or other full time service unit with which arrangements have been made to alert the person in charge at times that the reclamation plant is unattended.

§60337. Power supply.

The power supply shall be provided with one of the following reliability features:

(a) Alarm and standby power source.

(b) Alarm and automatically actuated short-term retention or disposal provisions as specified in Section 60341.

(c) Automatically actuated long-term storage or disposal provisions as specified in Section 60341.

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30

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

Article 9. Reliability Requirements for Primary Effluent.

§60339. Primary treatment.

Reclamation plants producing reclaimed water exclusively for uses for which primary effluent is permitted shall be provided with one of the following reliability features:

(a) Multiple primary treatment units capable of producing primary effluent with one unit not in operation.

(b) Long-term storage or disposal provisions as specified in Section 60341.

Note: Use of primary effluent for recycled water is no longer allowed. [repeal of Section 60309, effective December 2000]

Article 10. Reliability Requirements for Full Treatment.

§60341. Emergency storage or disposal.

(a) Where short-term retention or disposal provisions are used as a reliability feature, these shall consist of facilities reserved for the purpose of storing or disposing of untreated or partially treated wastewater for at least a 24-hour period. The facilities shall include all the necessary diversion devices, provisions for odor control, conduits, and pumping and pump back equipment. All of the equipment other than the pump back equipment shall be either independent of the normal power supply or provided with a standby power source.

(b) Where long-term storage or disposal provisions are used as a reliability feature, these shall consist of ponds, reservoirs, percolation areas, downstream sewers leading to other treatment or disposal facilities or any other facilities reserved for the purpose of emergency storage or disposal of untreated or partially treated wastewater. These facilities shall be of sufficient capacity to provide disposal or storage of wastewater for at least 20 days, and shall include all the necessary diversion works, provisions for odor and nuisance control, conduits, and pumping and pump back equipment. All of the equipment other than the pump back equipment shall be either independent of the normal power supply or provided with a standby power source.

(c) Diversion to a less demanding reuse is an acceptable alternative to emergency disposal of partially treated wastewater provided that the quality of the partially treated wastewater is suitable for the less demanding reuse.

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31

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

(d) Subject to prior approval by the regulatory agency, diversion to a discharge point which requires lesser quality of wastewater is an acceptable alternative to emergency disposal of partially treated wastewater.

(e) Automatically actuated short-term retention or disposal provisions and automatically actuated long-term storage or disposal provisions shall include, in addition to provisions of (a), (b), (c), or (d) of this section, all the necessary sensors, instruments, valves and other devices to enable fully automatic diversion of untreated or partially treated wastewater to approved emergency storage or disposal in the event of failure of a treatment process and a manual reset to prevent automatic restart until the failure is corrected.

§60343. Primary treatment.

All primary treatment unit processes shall be provided with one of the following reliability features:

(a) Multiple primary treatment units capable of producing primary effluent with one unit not in operation.

(b) Standby primary treatment unit process.

(c) Long-term storage or disposal provisions.

§60345. Biological treatment.

All biological treatment unit processes shall be provided with one of the following reliability features:

(a) Alarm and multiple biological treatment units capable of producing oxidized wastewater with one unit not in operation.

(b) Alarm, short-term retention or disposal provisions, and standby replacement equipment.

(c) Alarm and long-term storage or disposal provisions.

(d) Automatically actuated long-term storage or disposal provisions.

§60347. Secondary sedimentation.

All secondary sedimentation unit processes shall be provided with one of the following reliability features:

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32

Last updated January 1, 2009—from Titles 22 and 17 California Code of Regulations California Department of Public Health’s Recycled Water Regulations

(a) Multiple sedimentation units capable of treating the entire flow with one unit not in operation.

(b) Standby sedimentation unit process.

(c) Long-term storage or disposal provisions.

§60349. Coagulation.

(a) All coagulation unit processes shall be provided with the following mandatory features for uninterrupted coagulant feed: (1) Standby feeders, (2) Adequate chemical storage and conveyance facilities, (3) Adequate reserve chemical supply, and (4) Automatic dosage control.

(b) All coagulation unit processes shall be provided with one of the following reliability features: (1) Alarm and multiple coagulation units capable of treating the entire flow with one unit not in operation; (2) Alarm, short-term retention or disposal provisions, and standby replacement equipment; (3) Alarm and long-term storage or disposal provisions; (4) Automatically actuated long-term storage or disposal provisions, or (5) Alarm and standby coagulation process.

§60351. Filtration.

All filtration unit processes shall be provided with one of the following reliability features:

(a) Alarm and multiple filter units capable of treating the entire flow with one unit not in operation.

(b) Alarm, short-term retention or disposal provisions and standby replacement equipment.

(c) Alarm and long-term storage or disposal provisions.

(d) Automatically actuated long-term storage or disposal provisions.

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