

*CITY OF LIVERMORE
WATER REUSE PROGRAM*

*Guidelines for
the Use
of Recycled Water*

Updated September 2016

*Original 04/1998 Version
Prepared by EOA, Inc.*

TABLE OF CONTENTS

INTRODUCTION.....	1
FREQUENTLY ASKED QUESTIONS ABOUT RECYCLED WATER	1
SERVICE REQUIREMENTS	3
SERVICE AREAS	3
CONDITIONS OF SERVICE.....	3
PERMIT TO USE RECYCLED WATER.....	3
PROTECTION OF WATER RESOURCES	4
USER SUPERVISOR	6
TRAINING OF PERSONNEL	7
OPERATION AND MAINTENANCE REQUIREMENTS	7
EMERGENCY PROCEDURES	9
TECHNICAL REQUIREMENTS & FACILITIES DESIGN.....	10
RECYCLED WATER SIGNAGE	10
COLOR CODING.....	10
SEPARATION OF POTABLE AND RECYCLED WATER SYSTEMS	11
HOSE BIBS	12
CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY	12
CONSTRUCTION ON CUSTOMER’S PROPERTY	12
CONSTRUCTION WATER.....	12
RESIDENTIAL FILL PROGRAM.....	13

LIST OF TABLES

Table 1:	Recycled Water Uses Allowed in California
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APPENDICES

Appendix A

- Application for a Permit to Use Recycled Water

Appendix B

- Requirements for Engineering Reports for Dual-Plumbed Systems

Appendix C

- Examples of Use Area Sign & Installation Requirements
- Examples of Suitable Point of Access Signs
- Example of Taped Recycled Water Pipeline

Appendix D

- Alternative Separation Criteria for Recycled Water Piping

Appendix E

- Water Reuse Permit for Construction Water
- Water Reuse Release Form

Appendix F

- Will There Be a 2016 City of Livermore Residential Recycled Water Program?
- City of Livermore Water Reuse Permit for Residential Use, includes Recycled Water Handling and Use/Precautions)
- Recycled Water Fill Station Use Agreement and Release of Liability.
- Residential Recycled Water Program How-To's
- How to Avoid Hazards and Expensive Fines While Transporting Recycled Water
- Water Board Approves Residential Recycled Water Fill Stations

Introduction

FREQUENTLY ASKED QUESTIONS ABOUT RECYCLED WATER

What is recycled water?

The California Water Code defines recycled water as “water, which as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.” The use of recycled water reduces the amount of fresh water required for non-potable uses, ensuring that the best and purest sources of water will be reserved for the highest use – public drinking water.

What are the benefits of using recycled water?

The use of recycled water in lieu of potable water adds greatly to our ability to manage our existing and future water resources. Using recycled water for approved non-potable purposes, such as irrigation, preserves valuable potable water resources for other future uses. In addition, recycled water is largely "drought resistant." During a drought, when potable water for non-essential uses may be restricted, recycled water use is usually unaffected.

How is the recycled water provided in the City of Livermore produced?

Recycled water distributed within the City of Livermore is disinfected tertiary treated water whose origin is domestic wastewater. It is treated to comply with Title 22, Division 4 of the California Code of Regulations. The recycled water is colorless and odorless, and is suitable for many uses including human contact, but not human consumption.

Wastewater is collected and conveyed via the sewer system to the Livermore Water Reclamation Plant where it undergoes primary, secondary, tertiary treatment and ultraviolet light disinfection. During primary treatment, dense materials, sand, grit, stones, etc. are removed. Secondary treatment uses a biological process where bacteria reduces complex organic matter to less complex matter and metabolizes it, producing CO₂ and bacterial biomass in the process. The bacteria are removed and treated at a later point in the treatment process. Up to 90 percent of the solids and organic material remaining after primary treatment are removed during secondary treatment. Tertiary treatment, the final stage, uses chemical coagulation and filtration to remove any remaining solids. Disinfection destroys bacteria, viruses and other pathogens. The result is a water product that meets the very stringent regulatory standards for disinfected tertiary recycled water.

What regulations govern the use of recycled water?

Legislation governing production, distribution, and use of recycled water is contained in California's Health and Safety Code and Water Code. This legislation is implemented through California Code of Regulations (CCR) Titles 17 and 22. Title 17 establishes backflow protection for potable water supplies, and Title 22 sets the requirements for recycled water treatment, quality, and allowable uses. The regulations ensure consistent, reliable recycled water quality while protecting public health.

Title 22, written and administered by the State Water Resources Control Board (SWRCB) Division of Drinking Water (DDW), is one of the most stringent recycled water regulations in the world and has been used as a model for other states. There is presently no federal legislation that controls recycled water uses. The SWRCB regulates the production, conveyance and use of recycled water through its Regional Water Quality Control Boards (RWQCBs). The RWQCBs issue permits, referred to as “Water Reuse Orders,” to recycled water producers and distributors. For “dual plumbed” systems (use of recycled water within a building) or large/complex recycled water projects, the SWRCB provides input to the RWQCBs regarding permit requirements. Individual customers are authorized to use recycled water through the producer's water reuse order.

Livermore Municipal Water (LMW), of the City’s Water Resources Division, administers the City of Livermore Water Reuse Program. LMW manages the distribution and use of recycled water by issuing a site-specific *Permit to Use Recycled Water* to each recycled water customer. The permitting process is designed to ensure that recycled water use conforms to SWRCB and RWQCB requirements.

Is recycled water safe?

It is very safe for the uses for which it is intended. Recycled water can be used for landscape irrigation, fire protection (indoors & outdoors), construction water, and numerous other applications. To ensure a consistent level of safety, recycled water is continually monitored and tested for compliance with regulations.

While “disinfected tertiary” recycled water is approved for human contact, it is not intended for human consumption.

The Water Reuse Order issued to the City is designed to ensure that the production and use of recycled water is consistent with Title 22 requirements, and that there are no cross-connections between the recycled water and potable water systems.

What are suitable uses of recycled water?

“Table 1: Recycled Water Uses Allowed in California” illustrates the wide variety of reuse applications and the level of treatment required. Title 22 sets bacteriological water quality standards on the basis of the expected degree of public contact with recycled water.

The level of treatment provided by the City of Livermore’s Water Reclamation Plant corresponds to disinfected tertiary recycled water. While this is the highest level of treatment listed on Table 1, and has the greatest number of allowed uses, disinfected tertiary recycled water is not suitable for drinking or for use in food preparation.

Service Requirements

SERVICE AREAS

Recycled water may be provided to all customers within the boundaries of approved service areas for recycled water. **The use of recycled water will be allowed only in accordance with federal, state, and local regulations, and the conditions of recycled water permits.**

CONDITIONS OF SERVICE

- Service to recycled water customers may be terminated or interrupted due to the following:
 - ⇒ The quality of the recycled water does not comply with regulatory requirements.
 - ⇒ The customer's use of the recycled water does not conform to all applicable regulations.
- If the pressure of the recycled water system is higher than the customer needs, it is the responsibility of the customer to provide a pressure-reducing valve downstream of the service meter.

PERMIT TO USE RECYCLED WATER

Prospective recycled water customers must submit an *Application for a Permit to Use Recycled Water* to Livermore Municipal Water (LMW), which administers the City of Livermore Water Reuse Program (Program). An application form is in Appendix A.

The permit application shall include:

- Site address, assessor's block and lot numbers, or property metes and bounds
- Applicant's name and address, owner's name and address (if different), applicant's relationship to the subject property as legal owner, tenant, or lessee
- **Designation of user's recycled water supervisor, the User Supervisor, including address and 24-hr contact number(s)**
- Description of planned recycled water use on the property
- Estimated annual flow and peak flow at point of connection
- If applicable, total irrigated area, expressed in appropriate units
- Other items that could be of concern when using recycled water
- **Signature of the designated User Supervisor, certifying that he or she will comply with permit conditions**
- Signature of owner or duly authorized representative, certifying that information contained in the permit application is true and correct
- Drawing(s) of the property, which show:
 - ⇒ All buildings on the site
 - ⇒ Recycled water use areas

- ⇒ Location, size, and materials of construction for potable and recycled water piping
- ⇒ Location of all service connections, meters, and backflow devices relative to buildings, property lines, or intersections.
- ⇒ Location of outdoor drinking fountains, hose bibs, quick couplers and other points of ready access to recycled or potable water systems
- ⇒ Location of outdoor eating areas
- ⇒ Location of recycled water signage (refer to Recycled Water Signage section of these Guidelines for recommended locations and requirements)
- ⇒ Locations of irrigation controller(s) and irrigation schedule, if applicable
- ⇒ Direction of drainage from irrigated areas, if applicable
- ⇒ Locations of wells, ponds, storage tanks or other impoundments

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

For sites where recycled water is to be used inside a building, a more formal Engineering Report must be filed. Requirements for preparing an Engineering Report are included in Appendix B.

The *Application for a Permit to Use Recycled Water* shall be filed concurrently with the application for a building permit. Upon receipt of the permit application, LMW will conduct a plan check to verify that all design conditions to use recycled water are met. If not, LMW will require resubmittal of the missing information and/or drawings. For retrofit sites, LMW will conduct a site inspection, and will notify the customer of any repairs or modifications required.

Upon completion of construction or site modifications, LMW will conduct a final inspection to verify that all design requirements have been met. A cross-connection test will be conducted to verify that there are no interconnections between the potable and recycled water systems.

All final conditions shall be recorded on the site drawings. Final approval for service will be indicated by LMW issuing the customer a *Permit to Use Recycled Water*. The Permit will include the customer's signed permit application, along with a listing of any site-specific requirements. The permit shall be the binding agreement between LMW and the user.

PROTECTION OF WATER RESOURCES

Potable Water System Protection

On premises using both recycled water and potable water, the potable water supply must be protected against any accidental cross connections by the use of a reduced pressure backflow prevention assembly (RP). All backflow devices shall be on the current SWRCB list of "Approved Backflow Prevention Assemblies," and shall be tested and certified prior to final

approval. Testing requirements for backflow devices will be specified by LMW and may be quarterly, semi-annual or annual, depending on the degree of hazard at a particular site.

Some recycled water customer sites may have separate dedicated fire protection systems that use potable water. Those systems shall also be protected with RP assemblies at their point of connection. Those assemblies shall also be inspected and tested as specified by LMW.

Groundwater and Well Protection

Irrigation with recycled water is prohibited within 50 feet of any potable water reservoir or domestic water supply well, unless specific requirements are met (see Title 22 Section 603100). No impoundment of recycled water shall occur within 100 feet of any domestic water supply well.

Recycled Water System Protection

To ensure that customers do not compromise the City's recycled water system, LMW requires "Approved Backflow Devices" on each customer's recycled water system. Backflow devices shall be properly inspected, maintained, and tested as indicated above. Backflow devices on the customer's recycled water system shall be marked and color-coded as noted elsewhere in these Guidelines.

Backflow device testing equipment used in the recycled water system shall not be used in the potable water system.

System Cross-Connection Testing

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

The cross-connection test is coordinated by LMW staff and will be performed in the presence of the User Supervisor. Representatives from the SWRCB may be present as well. A written report will document the test results. Cross connection tests will be conducted periodically, at a minimum frequency of once every four years. LMW may, at its discretion, specify more frequent testing for large or complex sites, following modifications to the site's potable or recycled water systems, or when there is any concern regarding a possible cross connection at the site.

Procedures for conducting cross connection tests, and a form for documenting the test results are contained in the Water Reuse Program *Administrative Procedures for Program Staff*.

USER SUPERVISOR

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

- **Control over on-site uses of recycled water:** The User Supervisor is required to be familiar with the entire on-site recycled water system, and with all applicable conditions governing recycled water use at the site. The User Supervisor shall ensure that recycled water use complies with those conditions. The User Supervisor shall also be responsible for proper operation and maintenance of the recycled water system and of all backflow prevention devices.
- **Training:** LMW will provide training to the User Supervisor. Training will cover the Water Reuse Program's *Guidelines for the Use of Recycled Water*. LMW will participate or assist in any additional training, as necessary, for the customer's employees. During its annual inspection of the facility, LMW will discuss the customer's method of informing employees about recycled water use on site.
- **Contact Information and Notification of Changes:** The User Supervisor shall provide LMW with an address and phone number(s) where he or she can be contacted at all times. The User Supervisor shall notify LMW of any change in the individual designated to be User Supervisor, any change in contact information, and any planned modifications or planned additions to the recycled water system. Approval from the LMW shall be obtained before any modifications are made.
- **Failures and Violations:** The User Supervisor is responsible for notifying LMW of any failure of the on-site recycled water system, any cross-connection between the recycled and potable water systems, or any inappropriate uses that occurs. For any condition which has the potential to endanger public health, such as a cross connection, the User Supervisor shall notify the Water Resources Division immediately at 925-960-8100 (on weekends and from 5 p.m. to 8 a.m., call 925-960-8160).
- **Monitoring:** The User Supervisor shall be responsible for any monitoring specified in the customer's *Permit to Use Recycled Water*, and may participate in monitoring the use of recycled water on-site.

TRAINING OF PERSONNEL

LMW staff will provide training for the User Supervisor. The User Supervisor is responsible for ensuring that on-site operations personnel (i.e. those who use or maintain the recycled water system) are familiar with the proper use of recycled water. The User Supervisor shall review the following requirements with operating personnel prior to their working with recycled water:

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

OPERATION AND MAINTENANCE REQUIREMENTS

Customer use of recycled water shall at all times conform to the following prohibitions and requirements:

- **Prevention of Cross-Connections:** A cross-connection is defined as an unprotected actual or potential connection between a potable water system used to supply water for drinking purposes, and the recycled water system (or any other unapproved water source or substance). Title 17 and Title 22 of the California Code of Regulations strictly prohibit cross-connections between the recycled water system and the potable water system. **There shall never be a physical connection between the recycled water system and the potable water system anywhere on the customer's premises.**
- **Unapproved Uses:** Use of recycled water for any purpose other than those explicitly allowed under the customer's *Permit to Use Recycled* water is strictly prohibited.
- **Equipment Maintenance:** All equipment shall be maintained in good working condition. Broken or faulty irrigation components shall be **promptly** repaired. All signs, equipment identification devices, and color-coding shall be maintained.
- **Runoff:** All irrigation systems shall be designed, constructed, and operated to minimize the runoff of recycled water outside of the approved use area.
- **Ponding:** All irrigation systems shall be designed, constructed, and operated to

minimize the ponding of recycled water both inside and outside of the approved use area.

- **Windblown Spray:** All irrigation systems shall be designed, constructed, and operated to minimize, to the fullest extent, the possibility of recycled water spray being carried outside the approved use area.
- **Overspray:** Recycled water shall not be sprayed on people, designated outdoor eating areas, food handling facilities or drinking fountains.
- **Hours of Operations:** The operation of each customer's recycled water system, if used for irrigation, shall occur during the hours of least use of the area by the public. This will be between the hours of 10 p.m. and 6 a.m., unless otherwise requested by the customer. Requests for operation during other times will be determined on a case-by-case basis, with consideration given to allowing a drying-out period before the public uses the area. The recycled water shall not be used for lengths of time longer than needed to satisfy the watering requirements of the landscaping.

MONITORING AND INSPECTIONS

LMW will inspect each customer's recycled water system annually, or on a more frequent basis if warranted by the size and complexity of the site or other considerations. The inspections will include, at a minimum, a visual inspection of all backflow prevention assemblies, exposed piping, valves, pressure reducing valves, sprinklers, controllers, signs, labels, tags, and all points of connection. The inspection will also check for proper use, e.g., minimization of runoff, overspray, ponding, etc. The User Supervisor's records will be inspected to review the maintenance and education conducted since the last inspection. **The LMW inspector will complete an inspection form, and transmit any deficiencies observed to the User Supervisor for correction.**

In some cases, LMW may require customers to conduct self-monitoring of recycled water use sites. If so, the customer's *Permit to Use Recycled Water* will designate the monitoring frequency and reporting requirements, and will include a form for the customer's use.

NOTIFICATION OF REPAIRS OR MODIFICATIONS

Customers shall notify LMW in writing of any significant proposed repairs or modifications to the on-site recycled water system. Notification shall include a sketch or drawing clearly delineating all changes. Approval shall be obtained from the LMW **prior to implementation** of the proposed repairs or modification. Customers shall record all changes on the site's record drawings and submit a copy to the LMW.

VIOLATIONS

Violations may result in suspension or revocation of Use Permit

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

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

EMERGENCY PROCEDURES

In the event of an emergency involving the recycled water system, the user shall immediately notify LMW by calling the Water Resources Division at 925-960-8100 Monday through Friday, 8 a.m. to 5 p.m. (call 925-960-8160 on weekends or during other hours).

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

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

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

A customer may make emergency modifications or repairs to their system without prior approval of LMW when this action will prevent contamination, damage to the system, or a public health hazard. The User Supervisor shall notify LMW of the modifications as soon as possible in order to set up an appointment for a follow-up inspection.

Technical Requirements & Facilities Design

RECYCLED WATER SIGNAGE



Signs may be purchased from Livermore Municipal Water

Posting of Use Areas

Recycled water use areas shall have one or more signs visibly posted to inform the public that recycled water is used at that location. Signs shall measure no less than 8" x 8" with white type against a purple background. Examples of use area sign and installation requirements are in Appendix C.

Restroom Facilities

All rooms in commercial, industrial, and institutional occupancies using recycled water for toilets and urinals shall be identified with signs. Each sign will contain one-half inch letters of a highly visible color on a contrasting background. The location of the sign shall be visible to all users. The sign shall contain the following text: **"To Conserve Water This Building Uses Recycled Water To Flush Toilets And Urinals."**

Signs at Points of Access

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

COLOR CODING

Recycled water facilities shall be color-coded as follows:

Fire Hydrants

All recycled water fire hydrants shall be colored purple. Each such fire hydrant shall also be posted as required in the Recycled Water Signage section above.

Pipe Material

All pipe material used for the distribution of recycled water shall be purple. For PVC pipe, this requirement is met through the use of commercially available purple pipe. For other types of piping, and for valves and other appurtenances, this requirement shall be met using purple paint or purple adhesive tape wrap. The tape wrap must be labeled with the words **"Recycled Water-Do Not Drink."**

Valve lids

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

Water meters

All recycled water meters shall be painted purple.

Marking tape

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

Adhesive tape

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

Irrigation Controllers

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

Other components

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

SEPARATION OF POTABLE AND RECYCLED WATER SYSTEMS

In accordance with SWRCB guidelines, the separation of potable and recycled water piping **shall be maintained to the greatest extent possible** in both new construction and retrofit applications. The basic separation standards are as follows:

Within the Public Right-of-Way

- Parallel Construction: The horizontal distance between pressurized potable water and recycled water lines shall be at least 10 feet. Potable and recycled water lines shall not be installed in a common trench.
- Perpendicular Construction (crossings): Potable water lines shall be at least one foot above recycled water lines where these lines cross

Inside Buildings

- Parallel Construction: There are no separation requirements. Recycled water lines shall be manufactured with purple color integral to the material or wrapped with purple adhesive tape as described in the Color Coding section above. An example of the taping is in Appendix C.
- Perpendicular Construction (crossings): There are no separation requirements. Recycled water lines must be manufactured with purple color integral to the material or wrapped with purple adhesive tape.

Where it is not possible to meet the basic separation standards, alternative construction criteria may be applied. The alternative separation criteria for construction of mains are

illustrated in Appendix D. Exceptions to the alternative criteria will be evaluated by LMW on a case-by-case basis. Exceptions will be allowed only when it has been demonstrated that neither the basic nor the alternative criteria can be met.

HOSE BIBS

Hose bibs on the recycled water system are prohibited. If used, quick couplers on the recycled water system shall be different from those used on the potable water system. Quick couplers on the recycled water system shall be labeled **“Recycled Water - Do Not Drink”** as described in the Recycled Water Signage section of these Guidelines.

CONSTRUCTION IN THE PUBLIC RIGHT-OF-WAY

Construction of recycled water facilities in the public right-of-way shall adhere to the City of Livermore Standard Details & Specifications, as described below. (Contact the City’s Engineering Division to obtain a copy of the Standard Details & Specifications.)

Pipe Material, 1/2” through 3”, used for the distribution of recycled water shall be PVC schedule 40 or schedule 80. All material shall be **Alertline** purple pipe, **PWPurple Plus**, or approved equal.

Pipe Material, 4” through 24”, used for the distribution of recycled water shall be PVC C900 (Class 150 DR 18 or Class 200 DR 14) or C905 PR 165 DR25. All pipe material shall be purple. All material shall be **PWPurple Plus** or approved equal.

Water Valves shall have Christy G-5 or approved equal boxes and lids. The lids shall be colored purple and marked **“Recycled Water”** per LMW Standard Specifications.

CONSTRUCTION ON CUSTOMER’S PROPERTY

Construction of recycled water facilities on customer’s property shall conform to the requirements for signage, color-coding, separation, and identification as delineated in these Guidelines. All new recycled water piping shall be purple.

CONSTRUCTION WATER

Recycled water shall be used, if available, for construction purposes (soil compaction, dust control, roadway landscaping, etc). A different type of permit from that issued for permanent recycled water uses is required. The permit form for construction water is in Appendix E.

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

Residential Fill Program

The City's Residential Recycled Water Program was implemented in 2014 as a temporary measure in response to the State Water Board's imposition of emergency mandatory conservation measures on the City of Livermore. The purpose of the Program was to provide City of Livermore residents with access to recycled water, if needed, to supplement their potable water irrigation in order to keep trees, residential landscaping, and vegetable and fruit bearing plants alive during hot summer months. The Program allows residents to fill containers (300 gallons maximum per visit) at a residential fill station located at the Livermore Water Reclamation Plant.

The City may, at its option, operate the Program in future years in response to drought conditions and/or mandatory conservation measures. The Program operates on a limited schedule from June through September. Program participants must complete the *City of Livermore Water Reuse Permit for Residential Use* and the *City of Livermore Recycled Water Fill Station Use Agreement and Release of Liability* forms. Personal ID and current water bill are required to apply for and obtain a permit. Participant must also read and initial the *Recycled Water Handling and Use/Precautions*.

Appendix F contains information and form related to the Residential Recycled Water Program, including:

- 1) *Will There Be a 2016 City of Livermore Residential Recycled Water Program?* This document replicates information available on the drought information page of the City's web site. In subsequent years, the web site should be consulted in the event that schedules or other Program requirements change.
http://www.cityoflivermore.net/citygov/pw/public_works_divisions/wrd/drought.htm
- 2) *City of Livermore Water Reuse Permit for Residential Use.* (Two page document consisting of a form for customer and use area information, plus *Recycled Water Handling and Use/Precautions*)
- 3) *Recycled Water Fill Station Use Agreement and Release of Liability.* (One page form)
- 4) *Residential Recycled Water Program How-To's* (One page instructions for use of the fill station)
- 5) *How to Avoid Hazards and Expensive Fines While Transporting Recycled Water* (Two page document with information for the safe transport of recycled water).
- 6) *Water Board Approves Residential Recycled Water Fill Stations* (Two page press release from Regional Water Board regarding Bay Area Recycled Water Residential Fill Programs)

Table 1: Recycled Water Uses Allowed in California¹

Irrigation	Disinfected Tertiary	Disinfected Secondary-2.2	Disinfected Secondary-23	Undisinfected Secondary
Food crops where recycled water contacts edible portion of crop, including all root crops	Allowed	Not allowed	Not allowed	Not allowed
Parks and playgrounds	Allowed	Not allowed	Not allowed	Not allowed
School yards	Allowed	Not allowed	Not allowed	Not allowed
Residential landscaping	Allowed	Not allowed	Not allowed	Not allowed
Unrestricted access golf courses	Allowed	Not allowed	Not allowed	Not allowed
Any other irrigation uses not prohibited by other provisions of Calif. Code of Regulations	Allowed	Not allowed	Not allowed	Not allowed
Food crops where edible portion is produced above ground and not contacted by recycled water	Allowed	Allowed	Not allowed	Not allowed
Cemeteries	Allowed	Allowed	Allowed	Not allowed
Freeway landscaping	Allowed	Allowed	Allowed	Not allowed
Restricted access golf courses	Allowed	Allowed	Allowed	Not allowed
Ornamental nursery stock and sod farms	Allowed	Allowed	Allowed	Not allowed
Pasture for milk animals	Allowed	Allowed	Allowed	Not allowed
Non-edible vegetation w/ access control to prevent use as a park, playground or school yard	Allowed	Allowed	Allowed	Not allowed
Orchards w/ no contact between edible portion & recycled water	Allowed	Allowed	Allowed	Allowed
Vineyards w/ no contact between edible portion and recycled water	Allowed	Allowed	Allowed	Allowed
Nonfood-bearing trees incl. Christmas trees not irrigated <14 days before harvest	Allowed	Allowed	Allowed	Allowed
Fodder crops (e.g. alfalfa) and fiber crops (e.g. cotton)	Allowed	Allowed	Allowed	Allowed
Seed crops not eaten by humans	Allowed	Allowed	Allowed	Allowed
Food crops that undergo commercial pathogen-destroying processing before consumption by humans	Allowed	Allowed	Allowed	Allowed
Ornamental nursery stock, sod farms not irrigated <14 days before harvest	Allowed	Allowed	Allowed	Allowed

Table 1: Recycled Water Uses Allowed in California¹
(Continued-2)

Impoundments	Disinfected Tertiary	Disinfected Secondary – 2.2	Disinfected Secondary – 23	Undisinfected Secondary
Non-restricted recreational impoundments, with supplemental monitoring for pathogenic organisms	Allowed²	Not allowed	Not allowed	Not allowed
Restricted recreational impoundments and publicly accessible fish hatcheries	Allowed	Allowed	Not allowed	Not allowed
Landscape impoundments without decorative fountains	Allowed	Allowed	Allowed	Not allowed
Cooling or Air Conditioning	Disinfected Tertiary	Disinfected Secondary – 2.2	Disinfected Secondary – 23	Undisinfected Secondary
Industrial or commercial cooling or air conditioning involving cooling tower, evaporative condenser, or spraying that creates a mist	Allowed³	Not allowed	Not allowed	Not allowed
Industrial or commercial cooling or air conditioning not involving a cooling tower, evaporative condenser, or spraying that creates a mist	Allowed	Allowed	Allowed	Not allowed
Other Uses	Disinfected Tertiary	Disinfected Secondary – 2.2	Disinfected Secondary – 23	Undisinfected Secondary
Groundwater recharge	Allowed under special case-by-case permits by RWQCB⁴			
Flushing toilets and urinals	Allowed	Not allowed	Not allowed	Not allowed
Priming drain traps	Allowed	Not allowed	Not allowed	Not allowed
Industrial process water that may contact workers	Allowed	Not allowed	Not allowed	Not allowed
Structural fire fighting	Allowed	Not allowed	Not allowed	Not allowed
Decorative fountains	Allowed	Not allowed	Not allowed	Not allowed
Commercial laundries	Allowed	Not allowed	Not allowed	Not allowed
Consolidation of backfill material around potable water pipelines	Allowed	Not allowed	Not allowed	Not allowed
Artificial snow making for commercial outdoor uses	Allowed	Not allowed	Not allowed	Not allowed

Table 1: Recycled Water Uses Allowed in California¹
(Continued-3)

Other Uses (continued)	Disinfected Tertiary	Disinfected Secondary – 2.2	Disinfected Secondary – 23	Undisinfected Secondary
Commercial car washes not done by hand & excluding the general public from washing process	Allowed	Not allowed	Not allowed	Not allowed
Industrial boiler feed	Allowed	Allowed	Allowed	Not allowed
Nonstructural fire fighting	Allowed	Allowed	Allowed	Not allowed
Backfill consolidation around nonpotable piping	Allowed	Allowed	Allowed	Not allowed
Soil compaction	Allowed	Allowed	Allowed	Not allowed
Mixing concrete	Allowed	Allowed	Allowed	Not allowed
Dust control on roads and streets	Allowed	Allowed	Allowed	Not allowed
Cleaning roads, sidewalks and outdoor work areas	Allowed	Allowed	Allowed	Not allowed
Flushing sanitary sewers	Allowed	Allowed	Allowed	Allowed

¹ Table prepared by WaterReuse Association as a guide. Refer to the full text of the latest version of Title-22.

² With "conventional tertiary treatment." Additional monitoring for two years or more is necessary with direct filtration.

³ Drift Eliminators and/or biocides are required if public or employees can be exposed to mist.

⁴ Refer to Groundwater Recharge Guidelines, California Department of Health Services.

Appendix A

Application for a Permit to Use Recycled Water

CITY OF LIVERMORE WATER REUSE PROGRAM APPLICATION FOR A PERMIT TO USE RECYCLED WATER	
SITE WHERE USE IS PROPOSED	(Program Use Only)
Name or Description:	Date Received / /
	Date Distributed / /
Location or Address:	Date of Determination / /
	<input type="checkbox"/> Accepted <input type="checkbox"/> Returned <input type="checkbox"/> Rejected
	Customer Number:
	Notes:
APPLICANT INFORMATION	
Applicant is <input type="checkbox"/> Owner <input type="checkbox"/> Lessee <input type="checkbox"/> Other (describe)	
Applicant's Name	Title
Address	Telephone No.
City	State Zip
Owner's Name (if different)	
Contact Person	Telephone No.
Address	
City	State Zip
CUSTOMER'S DESIGNATED RECYCLED WATER SUPERVISOR (See Note 1)	
Relationship to Applicant: <input type="checkbox"/> Same <input type="checkbox"/> Partner <input type="checkbox"/> Employee <input type="checkbox"/> Other:	
Name	Title
Business Address	
City	State Zip
The Customer's Recycled Water Supervisor must be reachable at all times in case of emergency. All numbers are for City use only.	
Telephone number during regular business hours:	
EMERGENCY NUMBERS: <input type="checkbox"/> Evening: <input type="checkbox"/> Message:	
<input type="checkbox"/> Beeper: <input type="checkbox"/> Cellular:	
PROPOSED RECYCLED WATER USES	
<input type="checkbox"/> Landscape Irrigation: Approx. area _____	<input type="checkbox"/> Ornamental Pond <input type="checkbox"/> Recreational <input type="checkbox"/> Fire Suppression
<input type="checkbox"/> Agriculture: Approx. area _____	<input type="checkbox"/> Industrial <input type="checkbox"/> Construction
Briefly describe the proposed use checked above. Include types of plants to be irrigated, industrial process served, etc. _____ _____ _____ _____ _____ _____	

RECYCLED WATER DEMAND ESTIMATES		FIRE SUPPRESSION	
Estimated Annual Use <input type="checkbox"/> CCF <input type="checkbox"/> Gallons		Service Line Size in inches	
Peak Use in Gallons/Minute (GPM)			
Hours of Use			
Days of Use			
<input type="checkbox"/> Dry Season Only <input type="checkbox"/> Year-round			
ATTACHMENTS <input type="checkbox"/> Site Drawing (all projects) <input type="checkbox"/> Impoundment O&M Plan (if serving a reservoir or pond) <input type="checkbox"/> Other:			
IS RECYCLED WATER TO BE PIPED OR USED WITHIN AN OCCUPIED BUILDING? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, a Building Permit is required, and an Engineering Report must be submitted.)			
CUSTOMER'S RECYCLED WATER SUPERVISOR SIGNS		APPLICANT SIGNS	
I have read and understand the <i>City of Livermore Water Reuse Program Guidelines for the Use of Recycled Water</i> . I will operate the recycled water system in compliance with all conditions of the Permit to Use Recycled Water.		I designate the named person as the User's Recycled Water Supervisor in accordance with the <i>City of Livermore Water Reuse Program Guidelines for the Use of Recycled Water</i> . I am a principal owner of this site or a duly authorized representative, and certify that the information contained in this application is true and correct to the best of my knowledge.	
Print _____		Print _____	
Signature _____		Signature _____	
Date _____		Date _____	

Note 1: Customer's Recycled Water Supervisor: It is the responsibility of the Customer to provide surveillance and supervision of the recycled water system in a way that assures compliance at all times with current regulations. In order to accomplish this, the Customer shall designate, with the approval of the City, Recycled Water Supervisor (User Supervisor) to provide liaison with the Program. This person may represent the owner, tenant, or property manager as appropriate; however, he/she must be responsible for the recycled water system at the site and available at all times, with authority to carry out any requirements of the Water Reuse Program.

Refer to the "City of Livermore's Guidelines for the Use of Recycled Water" Section II for a more comprehensive description of the responsibilities of the recycled water supervisor. The Guidelines are available on the City of Livermore Website at - www.ci.livermore.ca.us/wrd/rw_guide.html.

For questions regarding the Water Reuse Program, please call 925-960-8100.

Copies: _____
Field Inspector
File (Original)

Appendix B

Requirements for Engineering Reports for Dual-Plumbed Systems

City of Livermore Water Reuse Program Requirements for Engineering Reports for Dual Plumbed Systems

Facilities where both recycled water and potable water are present inside a building are referred to as “dual plumbed systems.” Examples include facilities that use recycled water for toilet flushing or in industrial processes. California recycled water regulations require the submittal of a special report to the Regional Water Quality Control Board for dual-plumbed systems. The use of recycled water for fire suppression within a building is not technically defined as a dual plumbed system in the current version of Title 22. However, the City of Livermore requires recycled water users to submit of an engineering report to Livermore Municipal Water for **all** “in building” uses of recycled water. The City’s Water Reuse Program places responsibility for preparing this report on the recycled water user. The report must include:

- 1) A detailed discussion of the facility including the following:¹
 - The location and type of facility proposing to use a dual plumbed system.
 - The average number of persons estimated to be served by the facility on a daily basis.
 - The specific boundaries of the facility. This is best delineated using a site map.
 - The person(s) responsible for operation of the dual plumbed system. A facility must have a designated recycled water supervisor, who is familiar with and responsible for the proper use of recycled water. Requirements for proper use are described in the City of Livermore Water Reuse Program’s *Guidelines for the Use of Recycled Water*.
 - The specific use of recycled water at the facility.
- 2) Plans and specification which describe the following:
 - Proposed recycled water piping system(s) to be used.
 - Pipe locations for both the recycled and potable systems.
 - Type and locations of the outlets and plumbing fixtures that will be accessible to the public.
 - Methods and devices to be used to prevent backflow of recycled water into the public (potable) system.

If construction plans and specifications are used to meet this requirement, only the relevant plan sheets and specification sections should be included in the report. Drawings should be “as-built” versions. The recycled and potable water systems should be clearly delineated (and differentiated from each other) using highlighters or other suitable means. Show points-of-connection to City mains, meters, and backflow devices.

- 3) The methods to be used to assure that the installation and operation of the dual plumbed system will not result in cross connections between the recycled water system and the potable water system. This would typically include a description of “in-house” controls and procedures to prevent cross-connection, and a description of procedures for initial and periodic cross connection testing. For the latter, recycled water users may use the procedure specified in the Uniform Plumbing Code (1994) Appendix J. Cross-connection testing must be done by an AWWA-certified Cross Connection Control Specialist, and shall be performed at a minimum of every four years, or more frequently if required by the City.

¹ From Article 5, section 60314 of Title 22. If the reclaimed water use area includes more than one facility with a dual plumbed system, provide the required information for each facility.

Appendix C

Examples of Use Area Sign & Installation Requirements

Examples of Suitable Point of Access Signs

Example of Taped Recycled Water Pipeline



Recycled Hydrant Sign Installation Examples



3"x3" Potable Water Valve Sign



3"x3" Recycled Water Sign



Landscape Driveway Entry Sign



Recycled Hydrant Sign



3"x3" Potable Water Valve Sign Installation Examples



3"x3" Recycled Water Sign Installation Examples



2" Fire Drain Line



**Fire Line Inspector's
Test Port**



Quick Connect Box



Quick Connect Box

3"x3" Recycled Water Sign Installation Examples



Recycled Meter Box Installations



Landscape Driveway Entry Sign Installation Examples



Employee Entry Sign Installation Examples



Public/Employee Entry Sign

Public Entry Sign Installation Examples

Appendix D

Alternative Separation Criteria for Recycled Water Piping

BASIC SEPARATION STANDARDS:

1. Parallel construction: The horizontal clear distance between pressure domestic water and reclaimed water mains and sewer lines shall be at least 10 feet clear.
2. Perpendicular construction (Crossing): Pressure water mains shall be at least one (1) foot clear above sanitary sewer and reclaimed water lines where these lines must cross.
3. The basic separation standard are applicable under normal conditions for sewer lines and water distribution lines. More stringent requirements as determined by the State Health Department may be necessary if conditions, such as, high ground water exist.
4. Special Provisions: Alternative construction criteria where the basic separation standards cannot be attained are shown below and on G-2B:

SPECIAL PROVISIONS GENERAL NOTES (SEE G-2B):

1. No pipe joints shall be permitted within Zones C and D.
2. All DIP must have hot DIP bituminous coating and all Class 200 PVC must meet DR-14 per AWWA C900 or equivalent.
3. Sewer force mains shall not be permitted in Zones A through D.
4. This criteria does not apply for a reclaimed water line crossing another reclaimed water line.
5. The construction criteria should apply to the house laterals that cross above a pressure water main but not to those house laterals that cross below a pressure water main.
6. Construction for sewer and domestic water or reclaimed water lines 24" diameter or larger will not be allowed without the approval of the Engineer and the State Health Department.
7. See G-2B for applicable situations.

User note:

These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

REQUIRED SEPARATION
BETWEEN WATER, SEWER
AND RECLAIMED WATER
PIPELINES

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY

Date: April-01

No.

Spec.
Ckd: Committee

Scale: None

G-2A

City Engineer

Date: By: Rev:

SITUATION: Location of NEW

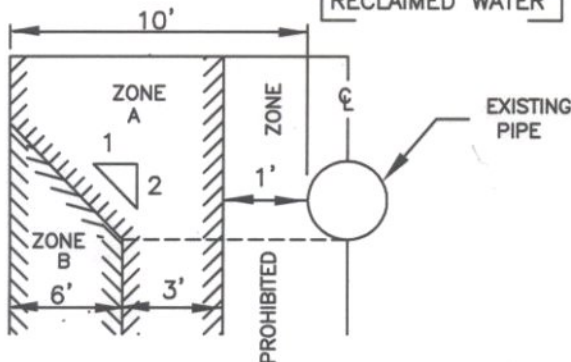
SEWER
RECLAIMED WATER

lines to EXISTING

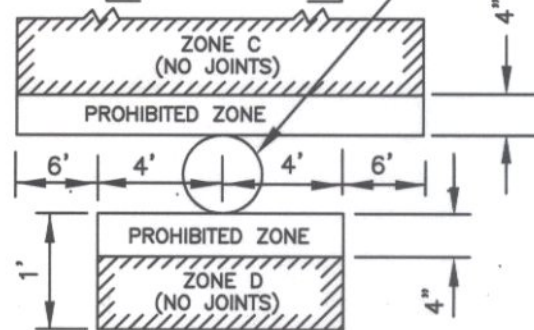
DOMESTIC WATER
RECLAIMED WATER

line.

EXISTING
PIPE



PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION

If any sewer or reclaimed water pipelines are to be constructed within any of the above indicated Zones, special construction shall be required as described below.

Construction Requirements

ZONE NEW SEWER:

- A Do not locate any parallel sewer lines in this area without State and Local Health Department Approval.
- B Use VCP, PVC sewer pipe with rubber ring joints, or DIP with compression joints.
- C Use DIP with mechanical joints or PVC Class 200 - AWWA C900
- D Use DIP or PVC Class 200 - AWWA C900

ZONE NEW RECLAIMED WATER:

- A Do not locate any parallel reclaimed water line in this area without State and Local Health Department Approval.
- B Use DIP or PVC Class 200 - AWWA C900
- C Use DIP or PVC Class 200 - AWWA C900
- D Use DIP or PVC Class 200 - AWWA C900

SITUATION: Location of NEW

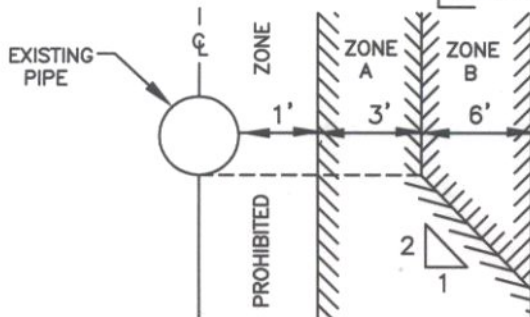
DOMESTIC WATER
RECLAIMED WATER

lines to EXISTING

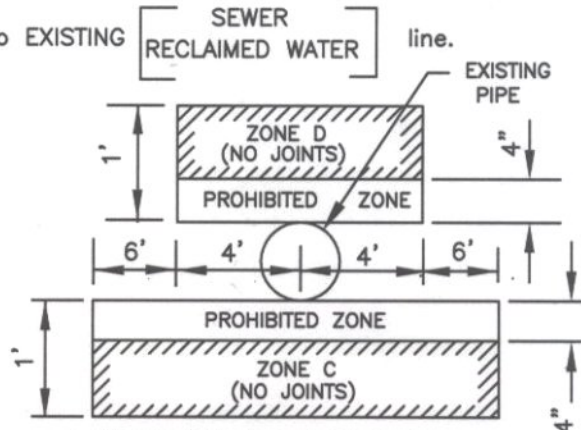
SEWER
RECLAIMED WATER

line.

EXISTING
PIPE



PARALLEL CONSTRUCTION



PERPENDICULAR CONSTRUCTION

If any water or reclaimed water pipelines are to be constructed within any of the above indicated Zones, special construction shall be required as described below.

Construction Requirements

ZONE NEW DOMESTIC OR RECLAIMED WATER:

- A Do not locate any parallel domestic water or reclaimed water main in this area without State and Local Health Department Approval.
- B Use DIP or PVC Class 200 - AWWA C900
- C Use DIP or PVC Class 200 - AWWA C900
- D Use DIP or PVC Class 200 - AWWA C900

User note:

These details shall be used in conjunction with all the City standard details and specifications. Refer to the City standard specifications for the materials, installation, testing, protective coatings, and other requirements.

REQUIRED SEPARATION
BETWEEN WATER, SEWER
AND RECLAIMED WATER
PIPELINES

CITY OF LIVERMORE
STANDARD DETAIL

Dwn: KY

Date: April-01

No.

Ckd: Spec.
Committee

Scale: "None"

G-2B

City Engineer

Date: By: Rev:

Appendix E

Water Reuse Permit for Construction Water

Water Reuse Release Form

City of Livermore Water Reuse Program
WATER REUSE PERMIT
For Construction Water

This Use Permit must be available for inspection at all times. The recycled water Distributor must carry a copy in the tanker truck at all times and present it to the Discharger for water pickups. Permit is subject to RWQCB Order 96-011.

NAME OF PRODUCER _____

ADDRESS _____

EFFECTIVE DATE OF PERMIT _____ EXPIRATION DATE _____

PRODUCER INFORMATION

LEVEL OF TREATMENT: ☐ 23 MPN ☐ 2.2 MPN

VOLUME OF RECYCLED WATER AUTHORIZED PER DAY _____

METHOD OF WATER DISTRIBUTION: ☐ TANKER TRUCK ☐ OTHER _____

USER INFORMATION

NAME OF USER _____ PHONE: _____

ADDRESS _____

DISTRIBUTOR INFORMATION

DISTRIBUTOR (if different from above) _____ PHONE: _____

ADDRESS _____

A Water Reuse Release Form must be filled out on each water pickup and retained at the application site or distribution vehicle. Users and Distributors shall also follow the City of Livermore's Guidelines for the Use of Recycled Water.

TYPE OF WATER REUSE

APPLICATION METHOD: ☐ Tank Truck ☐ Spray ☐ Wash Water ☐ Other _____

USE OF WATER

WHERE APPLIED: COUNTY _____ CITY _____

CERTIFICATION

I HEREBY CERTIFY UNDER PENALTY OF PERJURY THAT THE INFORMATION PROVIDED IN THIS APPLICATION AND IN ANY ATTACHMENT IS TRUE AND ACCURATE TO THE BEST OF MY KNOWLEDGE. I ALSO CERTIFY THAT I HAVE READ AND AGREE TO ABIDE BY ALL APPLICABLE RULES & REGULATIONS.

SIGNATURE OF DISCHARGER _____ TITLE _____ DATE _____

SIGNATURE OF USER _____ TITLE _____ DATE _____

SIGNATURE OF DISTRIBUTOR _____ TITLE _____ DATE _____

City of Livermore Water Reuse Program WATER REUSE RELEASE FORM

DISCHARGER

FACILITY _____

ADDRESS _____

PHONE _____

DISTRIBUTOR*

FACILITY _____

ADDRESS _____

PHONE _____

* User name if different

DATE _____

VOLUME COLLECTED

TRUCK LIC. #

DISCHARGER SIG.

[illegible]

COPIES OF THIS FORM SHALL BE KEPT AT PRODUCING FACILITY AND IN TRANSPORT VEHICLE

Appendix F

Will There Be a 2016 City of Livermore Residential Recycled Water Program?

City of Livermore Water Reuse Permit for Residential Use, includes Recycled Water Handling and Use/Precautions)

Recycled Water Fill Station Use Agreement and Release of Liability.

Residential Recycled Water Program How-To's

How to Avoid Hazards and Expensive Fines While Transporting Recycled Water

Water Board Approves Residential Recycled Water Fill Stations

**Despite Adequate Water Supplies,
Residential Recycled Water Fill Stations
To Open On Limited & Temporary Basis**

The State Water Board revised its emergency drought regulation in May to reflect differing water supply conditions across California, and an urban water supplier is allowed to determine the appropriate conservation standard based on its specific water supply conditions. According to the new State regulations, there are adequate water supplies to meet Livermore's and the rest of the Tri-Valley's water demands; there is no current need for mandatory water conservation. Based on the assessment, wholesaler Zone 7 Water Agency and the Tri-Valley water retailers, including City of Livermore, have repealed local mandated conservation measures; voluntary conservation was enacted at the 10 percent level to promote continued wise water use. The Livermore City Council took this action, repealing Stage 2 and enacting Stage 1 of the Livermore Municipal Water Water Shortage Contingency Plan, at its June 27 meeting. Visit www.cityoflivermore.net/drought for information on Stage 1 voluntary conservation measures.

Despite the finding of adequate water supplies and no need for mandatory conservation, the City of Livermore is offering recycled water for pick up by residents on a limited and temporary basis. The purpose is to provide residents with access to recycled water **to SUPPLEMENT potable water irrigation ONLY if needed to keep their residence's trees, landscaping, and vegetable and fruit bearing plants alive** during hot summer months. In his most recent executive order, Governor Brown called for all Californians to transition to actions that result in permanent, long-term water use efficiency. Outdoor irrigation traditionally accounts for more than half of water used. Rethink your landscape. For more information, visit www.cityoflivermore.net/conservation.

Only residential water customers of the City of Livermore Municipal Water system and the California Water Service Company-Livermore District are eligible for the residential recycled water program. Interested residents, including past permit holders, must complete the 2016 permit application process. This includes the completion of the *City of Livermore Water Reuse Permit for Residential Use* and the *City of Livermore Recycled Water Fill Station Use Agreement and Release of Liability* forms.

IMPORTANT

- **Personal ID and current water bill are required to apply for and obtain a permit.**
- **Personal ID and Water Reuse Permit for Residential Use must be presented at fill station to pick up recycled water.**

Permit Applications Accepted*

Tue-Thu	8 am to 3 pm
---------	--------------

*At the Administration Building, Water Resources Division, 101 W. Jack London Blvd.

Fill Station Hours*

August 9 to October 1, 2016	
Tue-Thu	Noon to 7 pm
Sat	6:30 am to 12:30 pm

*Follow signs to west side of Livermore Water Reclamation Plant. Fill station closed on holidays, and day of and day after measurable rainfall. Schedule is subject to change.

City of Livermore Water Reuse Program

WATER REUSE PERMIT

For Residential Use

(Open to residential water customers in City of Livermore)

This Permit must be available for inspection at all times, and must be presented to City of Livermore for recycled water pickup.

Expiration Date: 10/01/2016

OFFICIAL USE ONLY

Effective Date of Permit: _____

Permit No. _____

City of Livermore Recycled Water Fill Station Use Agreement and Release of Liability received by _____

CUSTOMER INFORMATION

Water Provider: ___ City of Livermore Municipal Water ___ California Water Service Company

Customer Name: _____

Service Address: _____

Phone No.: _____ Email Address: _____

Make/Model/License Plate of Vehicle(s) Used to Transport Recycled Water:

1) _____ 2) _____

TYPE OF RECYCLED WATER USE (check all that apply)

(Note: Recycled water is intended to supplement and not replace the allowed potable watering)

___ Irrigation of trees with hose/bucket

___ Irrigation of gardens with hose/bucket

___ Irrigation of turf with hose/bucket

___ Other _____

TYPE, CAPACITY AND NUMBER OF CONTAINER(S) USED TO COLLECT/TRANSPORT RECYCLED WATER (all containers must be labeled and secured with a tight-fitting lid)

I understand that this Permit is not valid unless I have completed and signed the City of Livermore Recycled Water Fill Station Use Agreement and Release of Liability.

Signature _____ Date _____

Print Name _____

California Driver License Number: _____

Recycled Water Handling and Use Requirements/Precautions

1. The recycled water provided has been treated to a quality that makes it suitable for many uses including human contact but **not** human consumption. Do **not** drink the recycled water or use it for food preparation.
2. Recycled water users should apply hand sanitizer or wash their hands with soap and potable water after working with recycled water and especially before eating or smoking. Cuts or abrasions should be promptly washed, disinfected, and bandaged.
3. Precautions should be taken to avoid food coming into contact with recycled water while the use site is still wet.
4. Recycled water shall not be applied where it could contact or enter passing vehicles, buildings, areas where food is handled or eaten, or storm drains. Hand watering is allowed during daytime hours, provided that recycled water does not spray the public.
5. Recycled water users shall take adequate measures to prevent overspray, ponding, or run-off of recycled water from the authorized recycled water use.
6. There shall be no irrigation or impoundment of recycled water within a minimum of 50 feet of any domestic (drinking water) well.
7. Recycled water must not be introduced into any permanent piping system and no connection shall be made to any part of a potable water system. City of Livermore will conduct random cross-connection inspections. _____ *Initials*
8. Container used for transportation of recycled water must not leak and must be secured with a tight-fitting lid during transport. Container shall be labeled with Recycled Water sticker provided by the City of Livermore.
9. All equipment (hoses, spray nozzles, containers, etc.) that comes into contact with recycled water shall be dedicated for use only with recycled water. Equipment shall not be re-connected to a potable water system unless it has been thoroughly cleaned and disinfected.
10. Minimum volume per load is 5 gallons. Maximum volume per load is 300 gallons.
11. Recycled water weighs 8.34 pounds per gallon, e.g., 100 gallons weighs approximately 834 pounds. City of Livermore is not liable for any damage to you or your vehicle(s). **See attached Livermore Police Department information.**
12. When waiting to fill containers, driver must ensure that their vehicle does not extend onto West Jack London Boulevard or cause a hazardous condition.

I have read, understand and agree to comply with the above. _____ (initials)

Recycled water will be available for pickup only during the days and times listed below. Staff will be ready to check you in when you arrive.

You must show this permit and personal ID to obtain water.

Fill station opens Tuesday, Aug. 9, 2016. Final day is Saturday, Oct. 1, 2016. Schedule is subject to change. Fill station is closed on holidays, and on the day of and day after measurable rainfall.

Tue, Wed and Thu
12 noon to 7 p.m.

Sat
6:30 a.m. to 12:30 p.m.

City of Livermore
Recycled Water Fill Station Use Agreement and Release of Liability

In exchange for the City of Livermore's agreement to allow me to obtain recycled water at the City's Recycled Water Fill Station ("Fill Station"), I agree to all of the following, and I am initialing to verify the truth of each statement:

____ I have received, read, understand, and will comply with all of requirements presented in the following documents:

City of Livermore Water Reuse Permit for Residential Use, Permit No.
_____ issued to me. ("Permit").

[03/01/2016] **Livermore Police Department wants you to know – How to Avoid Hazards and Expensive Fines While Transporting Recycled Water** ("Police Warnings").

[06/16/2016] **"City of Livermore, Residential Recycled Water Program How-To's"** ("How To's").

____ **Injury to Vehicles, People and Property.** According to the procedures described in the Permit, Police Warnings, and How To's, I understand I am responsible to determine whether I am physically capable of safely filling my own water tank and determining whether my vehicle is capable of transporting the amount of water I obtain from the Fill Station and that, even if I follow all of these procedures, my use of the Fill Station and/or transportation of recycled water may result in damage to my vehicle, vehicular accidents, injury to me, other people and/or property.

____ **Improper Use of Recycled Water.** I understand that recycled water is safe only for the uses stated in my Permit and in the How To's document, and that people and animals may become sick or injured if I use recycled water for any purpose not listed as approved in my Permit or in the How To's.

____ **Release and Waiver of Liability.**

In exchange for the City's willingness to allow me to obtain water at the Fill Station, except for liability for gross negligence, I release and hold harmless the City of Livermore, its employees, elected officials, agents, and volunteers from any damages to me, my family, my vehicle(s) or others due to my use of the Fill Station.

Under the penalty of perjury pursuant to the laws of the State of California, I certify that I read and understood all of the above information and that each statement is true and correct.

Print Name

Signature

Date Signed

City of Livermore

Residential Recycled Water Program How-To's

Welcome to the City of Livermore's Residential Recycled Water Program. The program is open to residential water customers in the City of Livermore. Participants must obtain a *Water Reuse Permit for Residential Water* from the City of Livermore's Water Resources Division at 101 W. Jack London Blvd., Livermore.

Please read this flyer to familiarize yourself with the program, and learn how to safely obtain recycled water. Remember, recycled water is being provided temporarily during the drought for residents to supplement, not replace, potable water irrigation, only if needed to keep plants and trees alive during hot summer months.

1. Your *Water Reuse Permit for Residential Water* is just the first step to safely obtaining recycled water for residential use. Be sure to read "Recycled Water Handling and Use Requirements/Precautions" on the backside of the Permit.
 - a. You may obtain a minimum 5 gallons and maximum 300 gallons per visit.
 - b. Container(s) used for recycled water must be secured with a tight-fitting lid during transport, and must be labeled with the Recycled Water sticker provided by the City of Livermore.
 - c. Container(s) must be tied down and vehicles used to transport the container(s) must meet Vehicle Code requirements. See Livermore Police Department's "How to Avoid Hazards and Expensive Fines While Transporting Recycled Water".
2. With permit, container(s) and vehicle ready, how do you obtain the recycled water?
 - a. The City of Livermore Residential Recycled Water Fill Station is located on the west side of the Livermore Water Reclamation Plant at 101 W. Jack London Blvd. in Livermore. Follow the signs to turn into the driveway on the north side of the W. Jack London Blvd/Voyager intersection (there is a traffic light at that intersection).
 - b. Pull up to the attendant in the orange safety vest to check in. **For safety, if there is a line of vehicles already waiting so that your vehicle extends out into the travelled way of W. Jack London Blvd., please return at a less busy time.**
 - c. Show your recycled water permit and ID to the attendant. The attendant will record the date, time, permit number and gallons of recycled water to be obtained, and then direct you to an open spigot.
 - d. Carefully back your vehicle into place, watching for people, vehicles and other obstacles. Set the parking brake and turn off the engine before exiting the vehicle. **For safety, minors and pets must remain in the vehicle at the Fill Station.**
 - e. **Caution: Watch your step. There may be slip (e.g., wet pavement or surfaces) or trip (e.g., hoses, uneven surfaces) hazards.**
 - f. **Caution: If you have a large tote on the back of your vehicle, use care when climbing onto and off of the vehicle.**
 - g. Place the spigot into the container and start the flow of recycled water, adjusting flow if needed and maintain control of the hose at all times.
 - h. Pay attention while the container is filling. When complete, close the valve to stop the flow of recycled water. Secure the lid on the container(s) and return the spigot into place for the next resident's use.
 - i. Drive carefully as you leave the Fill Station, watching for people, vehicles and other obstructions.



Have questions? Contact the City of Livermore Water Resources Division at wrд_info@cityoflivermore.net or 960-8100.

***The Livermore Police Department wants you to know –
How to Avoid Hazards and Expensive Fines
While Transporting Recycled Water***

Transporting Tanks Filled With Liquid Can Be Hazardous

Vehicles transporting liquids carry a new set of hazards that simply do not exist with other types of loads. Those individuals who drive tanker trucks for a living are aware of these hazards, and are required by the DMV to obtain a special endorsement on their driver's license.

With the drought, people may opt to obtain recycled water from treatment plants to supplement potable water for home irrigation needs. Unfortunately, most individuals do not receive the proper training, and often underestimate the hazards of driving vehicles carrying large tanks of liquid.

How Much Do I Load?

One gallon of water weighs 8.34 lbs. The tank size often used to transport recycled water can hold 275 gallons of water and will therefore weigh over 2,300 pounds. To ensure you do not overload your vehicle and exceed the vehicle's weight limit, make sure you know your vehicle's GVWR (Gross Vehicle Weight Rating). Exceeding your vehicle's GVWR can cause the tires to fail, the brakes to malfunction, and the engine to overheat, any of which can lead to a potential catastrophe.

Before you load, make sure you know:

- The weight of the liquid;
- The GVWR limit for your vehicle and the weight limits of the roadways you'll be using;
- The weight ratings of your tires; and
- The maximum weight capacity of your trailer.

You may find your vehicle's GVWR on the driver's side doorframe. Or, check with your local dealership – they can check using your vehicle's VIN number.

How to secure your load

For safety, secure your load with at least four heavy-duty ratchet straps, one strap on each corner of your load, empty or full.

High Center of Gravity

Tank vehicles, and other vehicles that temporarily transport tanks, have a much higher center of gravity than most other vehicles. This is because the load is carried much higher above the road than normal, making the vehicle top-heavy and more susceptible to roll-overs. Tests have shown that tank vehicles often roll over at posted speed limits on curves.

- Take on/off-ramps and other curves in the roadway well below posted speed limits.

Outage

Cargo tanks must never be fully filled. Liquids can expand and contract as they warm and cool. A completely filled tank has no place for the liquid to go when it expands, potentially causing the tank to explode or fail. “Outage” is the amount of space needed for the liquid to have sufficient room to expand and contract.

Liquid Surge

Liquid surge happens in partially-filled tanks, and can have significant effects on vehicle handling. For example, when coming to a stop, the liquid will surge back and forth in the tank. When the wave hits the sides of the tank, it tends to push the vehicle in the direction the wave is moving. With enough momentum, this force can push even a stopped vehicle forward, especially on slippery roads.

- Leave plenty of following and stopping distance when transporting liquids.

Safe Driving Rules and Tips

1. Drive Smoothly

- Start, slow down, and stop smoothly, and make smooth turns and lane changes to control the surge of the liquid, and to compensate for a higher center of gravity.

2. Control Liquid Surge

- Maintain adequate following and stopping distance. Accelerate and brake smoothly.

3. Slow Down in Curves

- Slow down well before a curve, and accelerate slightly through the curve.
- The posted speed limit for a curve is likely too fast for a tank vehicle.

4. Increase Following and Stopping Distance

- Remember that heavier vehicles take longer to stop.

5. Avoid Vehicle Skids and Losses of Control

- Avoid excessive steering, accelerating and braking.

6. Know your Vehicle/Trailer Weight Limits

- A regular ½ ton pick-up truck GVWR is approximately 6800 lbs, and weighs 4800 lbs when empty. In order to figure out how much water you can carry, you need to add up all the additional weight you are carrying in your vehicle, i.e. gas, oil, passengers, tools etc. You may be already at your maximum GVWR without even hauling a tank of water.

Fines and Penalties

You may be cited for an unsafe vehicle, 24002 (a) VC, if you exceed the vehicle’s GVWR or tire rating, or if it is loaded in an unsafe manner. The fine is \$238.00 and a point on your driver’s license. Minimally, if you lose your load, 23114 (a) VC, this fine is also \$238.00.

San Francisco Bay Regional Water Quality Control Board

August 12, 2015

Water Board Approves Residential Recycled Water Fill Stations

In response to the current drought, municipal recycled water programs in the San Francisco Bay Region have initiated the use of residential recycled water fill stations. In essence, the stations allow residential customers to drive up, fill up, and take the water home (Figures 2a and 2b).



Figures 2a and 2b. *Examples of recycled water fill stations.*

There are currently eight recycled water programs offering fill station pick-ups in the Region, with several more in development (see table below). The recycled water being distributed is high quality, disinfected tertiary-treated recycled water, and suitable for many uses, including irrigation of landscape plants, parks, playgrounds, food crops, in decorative fountains, and for fire-fighting. The primary use is for landscape plants and trees, in response to mandatory reductions of potable water for such uses.

Water recyclers in the San Francisco Bay Region have been producing and distributing high quality recycled water for more than three decades. Distribution for large-scale projects is through permanent buried pipelines and constructed irrigation systems, often identifiable because of the purple pipe used for such systems. Those projects take a long time to design and build. Distribution by truck-hauling is also used, and is particularly useful for short-term work such as on construction sites or difficult-to-access projects such as watering trees along a busy street.

The current interest in residential recycled water fill stations in this Region started in 2014 with Dublin San Ramon Services District (DSRSD). Permitting of the residential fill stations follows the same pathway as the commercial truck-fill stations: an engineering report describing the project must be approved by the State Board's Division of Drinking Water and the Regional Water Board, then the local recycled water agency trains each user and issues permits. The local water agency tracks water use by volume, date, and location. The residential fill programs, while only active since 2014, have already implemented lessons learned, such as using dual-valved fill-hoses, providing stick-on labels for each recycled water container, establishing a maximum allowed volume per vehicle (water is heavy, 50 gallons is about 400 pounds, plenty for most home cars!), and even traffic control due to the large number of interested customers.

To date, the residential recycled water fill station projects have been tremendously popular. For water recyclers, it is an opportunity to showcase the benefits of recycled water and for homeowners, the opportunity to preserve landscape plants and trees despite serious potable water use restrictions during drought. Still, the volume of recycled water distributed from residential fill stations is small compared to pipeline-projects and commercial truck-hauling. For example, DSRSD reported as of July, their 2,500 residential pick-up customers have hauled 12 million gallons, versus about 1,500 million gallons used by fixed-pipeline projects in the same time. Livermore reported residential customer pick-ups of 2.2 million gallons. But the objective is not to maximize the volume served, but rather to provide recycled water to widely distributed residential property end-uses, in timely manner, now, during the drought. One recycled water agency noted the most satisfying benefit of their residential fill station program is educational outreach, with their customers now well-educated about recycled water, and even active advocates for increased use of this valuable and available resource. Tempering those benefits, another agency noted that some customers are using the water to maintain lawns in near-pre-drought conditions; for those customers, the availability of recycled water may be reducing the perceived need to switch to drought-tolerant, water-efficient landscapes.

Residential Recycled Water Fill Station Projects in SF Bay Region, as of July 2015

LOCATION	ADDRESS	DAYS	TIMES
Central Contra Costa Sanitation District, Martinez	At Household Hazardous Waste Facility, 4797 Imhoff Place, Martinez	M, T, W, Th, F and Saturday	8 am to 6 pm
Delta Diablo Sanitation District, Pittsburg/Antioch	2500 Pittsburg-Antioch Hwy.	S & S	9 am to 3 pm
Dublin San Ramon Services District: Pleasanton:	7399 Johnson Drive, Pleasanton	M, T, W, Th, F S & S	10 am to 7 pm 8 am to 3 pm
	Dublin: Dublin Blvd at Clark Avenue, Dublin	M, W, F	9 am to 4 pm
City of Livermore	At Livermore Water Reclamation Plant, 101 W. Jack London Blvd., Livermore	M, T, W, Th, F T, W & F M & Th	6:30 am to 8:30 am 2:00 pm to 4:00 pm 12 Noon to 7:00 pm
North Coast County Water District, Pacifica	At NCCWD office, 2400 Francisco Blvd. Pacifica		
North Marin Water District, Novato	At NMWD office, 999 Rush Creek Place, Novato	M, T, W, Th, F	8 am to 4 pm
Palo Alto	Palo Alto Regional Water Quality Control Plant, 2501 Embarcadero Way, Palo Alto	M, T, W, Th, F	5:30 am to 5:30 pm
Redwood City	Public Works Corp Yard, 1400 Broadway, Redwood City		

There are also numerous recycled water fill stations in the Region for municipal and commercial truck operators. The Bay Area Clean Water Agencies (BACWAA) compiled a Commercial Truck Fill Guide, most recently updated in June, available on BACWA's website, www.bacwa.org, under 'Documents'.

For questions about recycled water uses and permits, please contact Water Board staff engineer Blair Allen, at 510-622-2305, or ballen@waterboards.ca.gov.