



CITY OF
**PALO
ALTO**

TO: Persons Interested In Recycled Water
FROM: Palo Alto Regional Water Quality Control Plant
SUBJECT: Recycled Water Application, Permit, and Rules

REUSE OF TERTIARY RECYCLED WATER

The Palo Alto Regional Water Quality Control Plant will provide tertiary recycled water at no charge to permitted contractors, commercial landscapers, industrial and commercial facilities, institutions, and government agencies. The plant produces "TERTIARY" quality water pursuant to state regulations. Acceptable uses are shown on the following page.

RECYCLED WATER PERMIT COST

The Recycled Water Permit Fee is \$50.00 check or money order (no cash) payable to "**City of Palo Alto.**" Payment should be included with the application. Payment of the permit fee allows self-service pickup and use of recycled water for three years on a first come-first served basis up to the capacity of the Recycled Water Plant (4.5 mgd).

STANDPIPE LOCATION & HOURS

The overhead standpipe is located at 2501 Embarcadero Way, Palo Alto, CA 94303. The standpipe provides two connections:

1. An overhead water tank truck fill rate as high as 500-gallons per minute.
2. A 2-inch fire hose for filling smaller tanks

Standpipe fill hours are Monday to Friday 7:00 a.m. to 4:30 p.m. except on Palo Alto public holidays¹ and monthly Household Hazardous Waste collection days (the first Friday of the month from 2:00 p.m. to 5:00 p.m.). The system may be shut down on some occasions for maintenance. Hours may be expanded during exceptional drought conditions. Permittees applying recycled water from the standpipe to use areas outside the plant service area will not have priority to use the water during periods of drought (or other circumstances) where recycled water needs to be rationed to those areas within the plant service area.

WATER QUALITY

The recycled water meets state regulations for safe use of tertiary recycled water. A recent laboratory analysis info sheet is available for analyzing agronomic and other water quality data.

PERMIT AND APPLICATION

Users/distributors are required to fill out and sign the attached recycled water permit² and application and shall be responsible for the proper distribution and use of the recycled water. Recycled water permit applications are available from the Regional Water Quality Control Plant [website](#) or at 2501 Embarcadero Way, Palo Alto, CA 94303 during business hours. Changes in use or use sites will require an updated application to be approved.

¹ See <http://www.cityofpaloalto.org/cals/>

² Palo Alto Municipal Code Chapter 16.12 and San Francisco Bay RWQCB Board Order 93-160

Suitable Uses* of Recycled Water

Use of Recycled Water	Treatment Level		
	Tertiary Recycled Water	Secondary-2.2 Recycled Water	Secondary-2.3 Recycled Water
Irrigation of:			
Food crops—contact with edible portion of crop	Allowed	Not Allowed	Not Allowed
Parks and playgrounds	Allowed	Not Allowed	Not Allowed
School yards	Allowed	Not Allowed	Not Allowed
Residential landscaping	Allowed	Not Allowed	Not Allowed
Unrestricted access golf courses	Allowed	Not Allowed	Not Allowed
Any other irrigation uses not prohib. by other prov. of CCR	Allowed	Not Allowed	Not Allowed
Food crops—edible portion above gd/not in contact w/ recl. Water	Allowed	Allowed	Not Allowed
Cemetaries	Allowed	Allowed	Allowed
Freeway landscaping	Allowed	Allowed	Allowed
Restricted access golf courses	Allowed	Allowed	Allowed
Ornamental nursery stock and sod farms	Allowed	Allowed	Allowed
Pasture for milk animals	Allowed	Allowed	Allowed
Any nonedible vegetation with access control to prevent use as if it were a park, playground or school yard.	Allowed	Allowed	Allowed
Orchards w/ no contact between edible portion and recl. water.	Allowed	Allowed	Allowed
Vineyards w/ no contact between edible portion and recl. water	Allowed	Allowed	Allowed
Non food-bearing trees not irrigated <14 days of harvest	Allowed	Allowed	Allowed
Fodder crops (e.g. alfalfa) and fiber crops (e.g. cotton)	Allowed	Allowed	Allowed
Seed crops not eaten by humans	Allowed	Allowed	Allowed
Food crops that undergo commercial pathogen-destroying processing before human consumption (e.g. sugar beets)	Allowed	Allowed	Allowed
Supply for impoundments:			
Nonrestricted rec. impound., w/ suppl. monit. for path. org	Allowed**	Not Allowed	Not Allowed
Restricted rec. impound. and fish hatcheries	Allowed	Allowed	Not Allowed
Landscape impound. w/o decorative fountains	Allowed	Allowed	Allowed
Supply for cooling or air cond.:			
Ind. or comm. cooling or air cond. with cooling tower, evaporative condenser, or spraying that creates a mist	Allowed***	Not Allowed	Not Allowed
Ind. or comm. cooling or air cond. w/o cooling tower, evaporative condenser, or spraying that creates a mist	Allowed	Allowed	Allowed
Other uses:			
Flushing toilets and urinals	Allowed	Not Allowed	Not Allowed
Priming drain traps	Allowed	Not Allowed	Not Allowed
Industrial process water that may contact workers	Allowed	Not Allowed	Not Allowed
Structural fire fighting	Allowed	Not Allowed	Not Allowed
Decorative fountains	Allowed	Not Allowed	Not Allowed
Commercial laundries	Allowed	Not Allowed	Not Allowed
Consol. of backfill material around potable water pipelines	Allowed	Not Allowed	Not Allowed
Artificial snow making for commercial outdoor uses	Allowed	Not Allowed	Not Allowed
Industrial boiler feed	Allowed	Allowed	Allowed
Nonstructural fire fighting	Allowed	Allowed	Allowed
Backfill consol. around nonpotable piping	Allowed	Allowed	Allowed
Soil compaction	Allowed	Allowed	Allowed
Mixing concrete	Allowed	Allowed	Allowed
Dust control on roads and streets	Allowed	Allowed	Allowed
Cleaning roads, sidewalks and outdoor work areas	Allowed	Allowed	Allowed
Flushing sanitary sewers	Allowed	Allowed	Allowed

* Refer to the full text of the latest version of Title-22

** With "conventional tertiary treatment" additional monitoring may be necessary

*** Drift eliminators and/or biocides are required if public or employees can be exposed to mist

RULES AND REGULATIONS FOR THE USE OF RECYCLED WATER

A. RECYCLED WATER USE AGREEMENTS

1. Final requirements added to those in this permit packet may be required pursuant to state regulations, the plant's NPDES permit, and other requirements, as warranted and will constitute the Recycled Water Use Agreement³
2. For large scale and long-term projects, a more detailed application meeting State of California Department of Public Health and/or San Francisco Bay Regional Water Quality Control Board requirements may apply and involve additional requirements.

B. RECYCLED WATER USER: PERMIT RULES AND REGULATIONS

1. Recycled Water Production^{4,5}
 - a. The City of Palo Alto is the recycled water producer, producing "TERTIARY" recycled water.
 - b. The permittee is a "USER" and may only use recycled water produced by the city that is filtered, oxidized, and disinfected, meeting the following water quality standards:

5-day biochemical oxygen demand (BOD)	10 mg/l, 30 day average
5-day BOD	20 mg/l, daily maximum
Dissolved Oxygen	1.0 mg/l, daily minimum
Dissolved Sulfide	0.1 mg/l, daily maximum
Turbidity	2 turbidity units, maximum daily average
Turbidity	5 turbidity units, maximum, 5% of any 24-h period
Turbidity	10 turbidity units, maximum
Total Coliform Organisms.	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.

- c. The city reserves the right to discontinue the delivery of recycled water at any time it cannot meet its responsibilities as Producer to distribute recycled water meeting the above requirements.⁶
2. Use Rules
 - a. Reuse of recycled water shall not create a nuisance per Water Code⁷, defined as:

³ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.2

⁴ San Francisco Bay RWQCB Board Order 93-160, Section A.1, A.2, and A.4

⁵ Title 22, Division 4, Chapter 3, Section 60301 – 60355

⁶ San Francisco Bay RWQCB Board Order 93-160, Section A.3

⁷ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.1; California Water Code 13050(m)

- i...Is injurious to health, or is indecent or offensive to the senses, or an obstruction to the free use of property, so as to interfere with the comfortable enjoyment of life or property.
 - ii...Affects at the same time an entire community or neighborhood, or any considerable number of persons, although the extent of the annoyance or damage inflicted upon individuals may be unequal.
 - iii...Occurs during, or as a result of, the treatment or disposal of wastes.
- b. No recycled water shall be discharged from the treatment facilities, irrigation holding tanks, storage ponds, man-made marsh, or other containment, other than for irrigation, industrial reuse, or for discharge to a municipal sewage collection system.⁸
- c. Recycled water shall not be used as a domestic or animal water supply.⁹
- d. Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities.¹⁰
- e. Drinking water fountains shall be protected against contact with recycled water spray, mist, or runoff.¹¹
- f. Recycled water shall not be applied in groundwater recharge and wellhead protection areas (so designated by local agencies).¹²

3. Cross Connection Prevention

- a. There shall be no cross-connections between the potable water supply and pipes containing recycled water. Supplementing recycled water with water used for domestic supply shall not be allowed except through an air-gap separation.¹³
- b. An air-gap or reduced pressure principle backflow device shall be provided at all domestic water service connections to recycled water use areas.¹⁴
- c. 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.¹⁵
- d. Cross connection prevention shall be provided, as required, pursuant to state and local regulations.¹⁶

4. Irrigation Rules

- a. No recycled water used for irrigation shall be applied during periods of rainfall or when soils are saturated such that runoff occurs.¹⁷
- b. No recycled water used for irrigation shall be allowed to escape to areas outside the designated use areas by surface flow or by airborne spray.¹⁸
- c. Recycled water shall not be applied to park, golf course, or landscape areas in such a manner or at such times that may expose golf, picnickers, or other

⁸ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.5

⁹ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.6

¹⁰ Title 22, Division 4, Chapter 3, Section 60310 (e) (2)

¹¹ Title 22, Division 4, Chapter 3, Section 60310 (e) (3)

¹² Board Order 96-011 (by reference only)

¹³ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.6

¹⁴ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.6

¹⁵ Title 22, Division 4, Chapter 3, Section 60310 (h)

¹⁶ Title 17, Division 1, Chapter 5, Group 4, Article 2

¹⁷ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.2

¹⁸ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.3

- individuals, or that may cause picnic tables, and other food and drinking outlets to come into contact with airborne spray droplets.¹⁹
- d. 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.²⁰
 - e. To the extent possible, the operation of the irrigation system should be during periods of minimal public use of the approved area.²¹

5. Signs

- a. The User shall assure that all above ground equipment, including pumps, piping, storage reservoir, and valves, etc. which may at any time contain recycled water shall be adequately and clearly identified with warning signs. The User shall make all necessary provisions to inform the public that the liquid being distributed is recycled water and is unfit for human consumption.²²
- b. Warning signs and labels should read "CAUTION: NONPOTABLE WATER – DO NOT DRINK," or "CAUTION: RECYCLED WATER – DO NOT DRINK," or other approved sign.²³
- c. 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 Title 22 regulations, Section 60310-A. The Department of Public Health may accept alternative signage and wording, or an educational program, provided the applicant demonstrates to the Department of Public Health that the alternative approach will assure an equivalent degree of public notification.²⁴

6. On-site Requirements²⁵

- a. Dual plumbed systems for toilet and urinal flushing and floor trap priming shall comply with state regulations.²⁶
- b. Special rules apply to use of recycled water for industrial or commercial cooling or air conditioning that involve the use of a cooling tower, evaporative condenser, spraying or any mechanism that creates a mist.²⁷
- c. Water strainers may be required on-site
- d. Irrigation controllers shall be:
 - i. Automatic
 - ii. Provided with a moisture sensor controller²⁸ to prevent irrigation during periods of rainfall.

¹⁹ San Francisco Bay RWQCB Board Order 93-160, Prohibitions Section B.4

²⁰ Title 22, Division 4, Chapter 3, Section 60310 (e) (1)

²¹ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9, Guidelines for Distribution of Nonpotable Water, California-Nevada Section American Water Works Association (1992), Section 5.10.2

²² San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.8

²³ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9, Guidelines for Distribution of Nonpotable Water, California-Nevada Section American Water Works Association (1992), Section 5.12

²⁴ Title 22, Division 4, Chapter 3, Section 60310 (g)

²⁵ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9, Guidelines for Distribution of Nonpotable Water, California-Nevada Section American Water Works Association (1992), Section 5

²⁶ Title 22, Division 4, Chapter 3, Article 5

²⁷ Title 22, Division 4, Chapter 3, Section 60306

- iii. Color coded differently from potable water controllers.
 - iv. Labeled inside and outside that water is recycled water.
 - v. Provided with any special instructions for recycled water use needed for those managing the system.
- e. Backflow prevention is required if potable water shares the use area with recycled water.
 - f. Pipelines, equipment, and irrigated areas should be clearly identified with purple pipe, warning tape, tape wrap, signs, etc. as follows:
 - i. New systems - Per state regulations
 - ii. Converted onsite systems – By review with RWQCP staff
 - g. Hoses
 - i. Recycled water hose bibbs are not allowed; quick couplers with signage are allowed for recycled water.
 - ii. Nonpotable hoses shall not be compatible with onsite potable hose bibb connections.
 - iii. Potable hose bibbs shall also have a sign when nonpotable water is used onsite.
 - iv. 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.²⁹
 - h. Onsite potable water lines shall also have 3-inch wide warning tape provided on top of the pipe.
 - i. Horizontal / vertical separations are required.
 - j. Any drinking fountains must be outside of nonpotable use areas.
 - k. Applications must indicate that no drinking fountains, picnic tables, or food establishments will exist in the use area.

7. Water Trucks

- a. Trucks shall have a label indicating that they contain recycled water.³⁰

8. Impoundments

- a. Warning signs shall be installed to notify that the water in the impoundment is unsafe to drink.³¹
- b. No impoundment of disinfected tertiary recycled water shall occur within a certain distance of a domestic water supply well.³²

9. System Management

- a. Users will be responsible for the application of recycled water on their respective use areas and associated operations and maintenance.³³

²⁸ A satellite, wireless, or internet based ET controller is an acceptable alternative to a moisture sensor.

²⁹ Title 22, Division 4, Chapter 3, Section 60310 (i)

³⁰ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9, Guidelines for Distribution of Nonpotable Water, California-Nevada Section American Water Works Association (1992), Section 5.8

³¹ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9, Guidelines for Distribution of Nonpotable Water, California-Nevada Section American Water Works Association (1992), Section 5.12

³² Title 22, Division 4, Chapter 3, Section 60310

³³ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.5

- b. The User shall provide employee training to assure proper operation of recycled water facilities, worker protection, and compliance with state rules.³⁴
- c. The USER is responsible for all onsite system maintenance, supervision, user training, noticing RWQCP of system changes, operation in accordance with rules and regulations, and reporting.³⁵
- d. City, county, and state regulatory staff overseeing recycled water will have the right to inspect use areas during reasonable hours for verifying records and proper application of recycled water as well as ensure proper maintenance, supervision, training, and operation of recycled water systems.³⁶
- e. Violations of any of the rules herein should be self-reported to the RWQCP, with corrective actions planned and implemented by the USER. Failure to correct and/or cease violations within a timeframe determined by the Producer may result in termination of the User's permit. Penalties may also be assessed.³⁷
- f. Recycled water customers shall meter and record flow. Recycled water users shall make self-monitoring observations pursuant to any requirements in their permit.³⁸
- g. Recycled water facilities shall be operated in conformance with the California Department of Public Health 'Guidelines for Use of Reclaimed Wastewater for Irrigation and Impoundment' and "Guidelines for Worker Protection at Reclamation Use Areas" and the American Water Works Association California-Nevada Section's Guideline for the Distribution of Nonpotable Water.³⁹
- h. User shall conduct a complete inspection of all irrigation lines, sprinklers, and emitters at least once each year during the dormant season. A report of the findings of these inspections, including descriptions of any significant repairs or modifications made to the distribution systems, shall be submitted annually.⁴⁰
- i. User must carry a copy of the Recycled Water Use Agreement, release form, and Board Order 93-160 and provide them for inspection to state, county, and local officers when requested.⁴¹

C. MISCELLANEOUS RULES

- 1. Recycled water shall not be allowed to escape from the designated use area as surface flow to either pond or to enter waters of the state.
- 2. Adequate measures shall be taken to minimize public contact with recycled water and to prevent the breeding of flies, mosquitoes, and other vectors of public health significance during the process of reuse.
- 3. Signs
 - a. Adequate means of notification shall be provided to inform the public that recycled water is being used. Conspicuous warning signs with proper wording of sufficient size to be clearly read shall be posted at adequate intervals around the use area, unless public access is otherwise restricted.

³⁴ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.7

³⁵ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.6

³⁶ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.10; California Water Code 13267 (c)

³⁷ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9, Guidelines for Distribution of Nonpotable Water, California-Nevada Section American Water Works Association (1992), Section 6.5 and 6.6

³⁸ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.4

³⁹ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9

⁴⁰ San Francisco Bay RWQCB Board Order 93-160, Self Monitoring Program Section VI.2

⁴¹ San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.3

- b. All recycled water valves, outlets and sprinkler heads should be appropriately tagged to warn the public that the water is not safe for drinking or direct contact. Tank trucks used for carrying or spraying recycled water should be identified as such.
4. Use: Recycled water shall not be applied on walkways, passing vehicles, buildings, or areas not under the control of the user.
5. Irrigation: The landscape irrigation must be done during periods when the grounds will have maximum opportunity to dry before use by the public. Irrigated areas shall be properly graded to minimize ponded water.

D. MISCELLANEOUS RULES FOR IMPOUNDMENTS

1. Distribution (filling) would occur from tank truck manually with the operator present at all times.
2. Appropriate signs would be posted to identify the water as being recycled water and no wading allowed.
3. Algae growth due to nutrients in recycled water to be controlled by manual removal or other appropriate means.
4. It is not recommended to use chemicals containing metals.

GUIDELINES FOR WORKER PROTECTION⁴²
(State Department of Public Health Guidelines)

The following guidelines pertain to all categories of recycled water:

A. Workers should be informed that although recycled water has been treated to lower health risks, bacterial and viral contamination may be present and potentially may cause illness or infection. Contact with recycled water by ingestion, inhalation of mist, or on cuts or abrasions should be avoided, and the precautionary measures listed below should be carefully reviewed and followed.

B. Precautionary measures should be taken to minimize worker contact with constituents of recycled water.

1. Workers should not be subjected to recycled water sprays, mists or aerosols.
2. Workers should be protected with protective clothing when there will be more than casual contact with the recycled water.
3. Where oxidized, coagulated, clarified, filtered, or disinfected recycled water is used, less stringent precautions may be allowed. [Note: City provides recycled water meeting this criteria.]

C. Safe drinking water should be supplied for workers. Where bottled water is provided, the water should be in contamination-proof containers and protected from recycled water and dust.

D. Hand-washing facilities should be provided consisting of potable water supply, hand-washing soap, and single use sanitary paper towels. The importance of hand washing should be stressed when working with recycled water, especially before eating or smoking.

E. Workers should not apply recycled water by hand held nozzles or other hand held devices that can produce sprays, mists or aerosols.

F. Precautions should be taken to avoid contamination of food taken into recycled water use areas. Food should not be taken into areas still wet with recycled water.

G. Workers should be notified that recycled water is in use. Notification should include the posting of conspicuous warning signs with proper wording of sufficient size to be clearly read.

In those locations where English is not the primary language of the workers, the signs should be in the appropriate language as well as English.

H. An adequate First Aid kit should be available on location. Cuts and abrasions should be promptly washed, disinfected, and bandaged.

⁴² San Francisco Bay RWQCB Board Order 93-160, Provisions Section C.9, Guidelines for Worker Protection, California Department of Public Health