

ATTACHMENT NO. 1

RECYCLED WATER GUIDELINES
AND BEST MANAGEMENT PRACTICES

INTRODUCTION:

As a supplier of recycled water, Olivenhain Municipal Water District must ensure that the District's customers are aware of their responsibilities regarding recycled water use. These guidelines are consistent with those promulgated by the County of San Diego Department of Environmental Health Services, and the State of California Department of Health Services, and in Title 22 of the California Administrative Code.

The implementation of "Best Management Practices" (BMP) is essential in controlling soil erosion, over spray, ponding and efficient irrigation practices.

GENERAL OPERATIONAL CONTROLS:

- A. The use of recycled water must be limited to the areas designated and approved.
- B. All recycled water valves and outlets shall be properly tagged to warn the public and employees that the water is not safe for drinking.
- C. All recycled water piping and appurtenances in new installations and appurtenances in retrofit installations shall be colored purple or distinctively wrapped with purple tape in accordance with Chapter 7.9, section 4049.54 of the California Health and Safety Code.
- D. Where feasible, different piping materials should be used to assist in water system identification.
- E. All recycled water valves, outlets and sprinkler heads should be of a type that can only be operated by designated personnel.
- F. 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.
- G. The recycled water piping system shall not include any hose bibs. The use or installation of hose bibbs on any on-site water system that presently operates or is designed to operate with recycled water, regardless of the hose bibb style, construction or identification is strictly prohibited.
- H. No physical connection shall be made or allowed to exist between any recycled water system and any separate system conveying potable water.
- I. The use of recycled water shall at no time create odors, slime, deposits, become a public or private nuisance or create a trespass of any kind.

- J. The use area shall be maintained to prevent the breeding of flies, mosquitoes or other vectors.
- K. Reclaimed water facilities shall be operated in accordance with best management practices (BMP's) to prevent direct human consumption of reclaimed water and to minimize misting, ponding, and runoff. BMP's shall be implemented that will minimize both public contact and discharge onto areas not under customer control.
- L. Customers shall ensure that all recycled water facilities are maintained, operated and repaired at all times in a manner that does not cause illness or injury to any person and in a manner that does not cause damage or injury to the real or personal property of any person or entity, including the District.

POSTING OF ON-SITE NOTICES:

All use areas where recycled water is used and that are accessible to the public shall be posted with conspicuous signs, in a size no less than 4 inches by 8 inches, that include the following wording and picture in a size no less than 4 inches high by 8 inches wide: "RECYCLED WATER - DO NOT DRINK". See Attachment No. 2 for the acceptable symbol. The sign(s) shall be of a size easily readable by the public. The prescribed wording should also be translated into Spanish and other appropriate languages and included in the required signs.



Figure 1

All water outlets shall be posted as “potable” or “non-potable”, as appropriate

WORKER/PUBLIC PROTECTION:

Workers, residents, and the public shall be made aware of the potential health hazards associated with contact or ingestion of recycled water, and should be educated about proper hygienic practices to protect themselves and their families.

- A. Workers and others must be notified that recycled water is in use, through the posting of signs, etc.
- B. The following measures should be taken to minimize contact with recycled water:
 - 1. Workers/public should not be subjected to recycled water sprays.
 - 2. Workers should be provided with the appropriate clothing during prolonged contact with recycled water.
- C. Potable drinking water should be provided for workers.
- D. Toilet and washing facilities should be provided.
- E. Precautions should be taken to avoid contact with food and food should not be taken into areas that are still wet with recycled water.
- F. A first aid kit should be available on site, to prevent cuts and other injuries to contact recycled water.

GENERAL IRRIGATION USES:

All windblown spray and surface runoff of reclaimed water applied for irrigation onto property not owned or controlled by the discharger or reclaimed water user shall be prevented by implementation of BMP's.

Irrigation with reclaimed water shall be during periods of minimal human use of the service area. Consideration shall be given to allow an adequate dry-out time before the irrigated area will be used by the public.

All drinking fountains located within the approved use area shall be protected by location and/or structure from contact with recycled water spray, mist, or runoff. Protection shall be by design, construction practice, or system operation.

Facilities that may be used by the public, including but not limited to eating surfaces and playground equipment and located within the approved use areas, shall be protected to the maximum extent possible by siting and/or structure from contact by irrigation with recycled water spray, mist, or runoff. Protection shall be by design, construction practice or system operation.

Spray irrigation with recycled water, other than disinfected tertiary recycled water, shall not take place within 100 feet of the property line of a residence or a place where public exposure could be similar to that of a park, playground, or school yard.

EFFICIENT IRRIGATION:

The following methods of irrigation management should be applied to reduce run off, ponding and over spray. When followed, these methods will result in uniform irrigation and efficient operation.

A. Hardware

All irrigation systems must have the appropriate equipment/hardware for the application.

1. Install irrigation system according to the design.
2. Make sure all sprinkler heads are uniform in brand, model and nozzle size. Where different arcs are needed at the same station, match precipitation rates by changing nozzles.
3. Measure spacing between sprinkler heads. Place heads per manufacturer's recommendations.
4. Where lower precipitation rates are required, such as on slopes, reduce nozzle size and spray angle per manufacturer's recommendations.
5. Install booster pumps to increase pressure where needed.
6. Install pressure reducers to decrease pressure where needed, often on steep hillsides where main lines run downhill.
7. Make sure piping is sized to transmit water in the quantity demanded by the system.

8. Use check valves either in-line or built into the sprinkler head assembly to virtually eliminate low head drainage after the valve has closed. THESE DEVICES SUBSTANTIALLY REDUCE RUN OFF AND PONDING FROM INDIVIDUAL SPRINKLER HEADS.
9. Use automatic flow control devices that shut down a system if a break or other similar high flow/low pressure situation develops during irrigation. THESE DEVICES CAN SAVE SIGNIFICANT AMOUNTS OF WATER AND ELIMINATE RUN OFF OR PONDING IF A BREAK SHOULD OCCUR.
10. The use of centralized control systems or controllers that measure or can be programmed to use evaporation rates, or systems that use controls such as moisture sensors is recommended.

B. Maintenance

Maintenance is often the most overlooked irrigation system component. Perform the following routinely, and to fix a problem with the irrigation system.

1. Adjust sprinkler heads so they achieve 80% head to head coverage though out their intended arc. There should be no obstruction that would interfere with the free rotation and smooth operation of any sprinkler, such as trees, tall grass, shrubs, signs, etc. The system should be tested during the daytime so adjustments can be made.
2. Adjust valves or pressure regulators so that the systems are operating at the pressure required by the sprinkler heads or emitters. Test pressures periodically with a pressure gauge to maintain appropriate pressure levels.
3. Routinely test the accuracy of time clocks. Have the time clock recalibrated or repaired as necessary.
4. Repair or replace broken risers, sprinklers, valves, etc. as soon as they are discovered. Replace with appropriate make and model of equipment to maintain uniformity through out the system.
5. Routinely check backflow devices, pumps, etc. for leaks and repair or replace as necessary.
6. Routinely clean screens and backwash filters to keep systems operating optimally.

C. Management:

System management determines; 1) the appropriate duration of the irrigation cycle, and 2) the frequency at which irrigation occurs.

1. Duration: The duration or length of an irrigation cycle (run time) should be long enough to fill up the root zone reservoir. If total run times are longer than required, then deep percolation losses occur. There are exceptions to this general rule. A common and important exception to this rule is to reduce levels of salts in the root zone reservoir. This is accomplished by applying additional water to force salts down past the root zone. This process, called leaching, is a common use of irrigation water. Run times are also dependent on distribution uniformity (DU). DU is a measurement of how evenly water is applied to the irrigated area. Run times are reduced by higher levels of DU.
2. Frequency: The frequency of an irrigation cycle should be as often as necessary to meet the water requirements of the vegetation. This is determined by measuring the amount of moisture remaining in the root zone reservoir between irrigation cycles. When an appropriate moisture level is determined, the irrigation cycles should be scheduled to ensure watering frequency is such to maintain that level.
3. Practices for optimizing management of an irrigation system:
 - a) Use tensiometers, gypsum blocks, soil probes, the “feel method”, and or the California Irrigation Management Information System to estimate soil moisture levels. Inspect and maintain regularly to ensure accuracy and reliability.
 - b) Use automatic rain shut-off devices to reduce irrigation if significant rainfall occurs.
 - c) Use multiple rain shut-off devices to reduce ponding if precipitation rate is higher than the infiltration rate of the soil.
 - d) Irrigate in the evening or early morning to avoid the heat and/or windy parts of the day. This will reduce evaporation losses and minimize windblown spray from entering unintended areas.
 - e) Group irrigated areas into zones of similar water use. For example, irrigate grass areas separately from shrub areas, sunny areas separately from shady areas, etc.

- f) As needed, aerate the soil to improve infiltration of air and water into the soil.
- g) Provide as much flexibility as possible into the design of the irrigation system. Built in ability to make changes as necessary can add to the efficiency of the system.
- h) Perform good horticultural practices; fertilization, mowing, de-thatching, aeration, and pest control, as necessary to create the best growing environment for landscape vegetation.

Because irrigation systems have constant wear and tear, periodic checks and adjustments are all part of good landscape water management programs.

USE OF RECYCLED WATER ADJACENT TO POTABLE WELLS

- A. Irrigation with disinfected tertiary recycled water shall not take place within 50 feet of any domestic water supply well unless all of the following conditions have been met:
 - 1. A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface.
 - 2. The well contains an annular seal that extends from the surface into the aquitard.
 - 3. The well is housed to prevent any recycled water spray from coming into contact with the wellhead facilities.
 - 4. The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the well.
 - 5. The owner of the well approves of the elimination of the buffer zone requirement.
- B. Impoundment of disinfected tertiary recycled water shall not occur within 100 feet of any domestic water supply well.
- C. Irrigation with, or impoundment of, disinfected secondary-2.2 or disinfected secondary-23 recycled water shall not take place within 100 feet of any domestic water supply well.
- D. Irrigation with, or impoundment of, undisinfected secondary recycled water shall not take place within 150 feet of any domestic water supply well.