RECYCLED WATER
USER MANUAL

January 2010

Use Water Wisely
There is Never Enough to Waste

GOLETA WATER DISTRICT
DISCLAIMER

This manual is only a guideline and does not constitute a legal or binding agreement between responsible parties from which liability could occur. Since Santa Barbara County Environmental Health Services ("EHS"), California Regional Water Quality Control Board Central Coast Region ("RWQCB") and other concerned regulatory agencies have jurisdiction over the use of recycled water, additional specific requirements for individual users may apply.

The Goleta Water District provides this user manual for anyone involved in the use of recycled (non potable) water received from the Goleta Water District recycled water distribution system (generated from the Goleta Sanitary District Reclamation Facility.) These guidelines are not intended to be used in place of local laws, State regulations or the design by engineers necessary for the use of recycled water.

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SECTION ONE
INTRODUCTION

1.1 PURPOSE

This user manual provides guidance for working with water from the Goleta Water District ("District") recycled water distribution system. The uses of recycled water include, but are not limited to, landscape irrigation, and construction dust control and soil compaction. The District considers and approves other uses strictly on a case-by-case basis. Please note this manual does not address the use of "gray water" or user on-site treatment systems. The manual's guidelines are organized into six sections followed by appendices:

- Section one provides emergency contacts and a brief introduction to the recycled water system
- Sections two and three provide essential design criteria and specifications for the construction of the on-site transmission and pumping facilities (if needed)
- Section four provides essential design and operating requirements for the water user's on-site facilities
- Section five provides a description of the system management required to assure continued compliance with applicable State and local laws
- Section six provides specific requirements from the California Regional Water Quality Control Board Central Coast Region ("RWQCB") Water Reclamation Requirements, Order No. 97-06

1.2 EMERGENCY PROCEDURES AND CONTACTS

1.2.1 Emergency Procedures

The user supervisor or worker must notify the District immediately if the following occurs:

a. The on-site drinking water-supply appears to have been contaminated due to a connection to the recycled water system.

b. Any emergencies, such as a halt in the recycled water supply or unusual appearance of color and/or odor in the recycled water.

c. Any unauthorized release of recycled water that leaves the user’s site (resulting from breaks and/or leaks. etc.)
1.2.2 Goleta Water District Contact Information

In the event of an emergency (M-F, 8 AM to 5 PM) or to obtain additional information concerning the District’s recycled water or distribution system, please contact the District’s Recycled Water Coordinator at (805) 879-4652. For after-hour emergencies, contact the District's 24-Hour telephone service at (805) 964-6761.

1.3 INTRODUCTION TO RECYCLED WATER

The current term “Recycled Water” is used in place of the older term “Reclaimed Water” which is no longer in common usage in the State of California. The District’s recycled water is highly treated domestic wastewater. It is clear, odorless water that meets the most stringent State and local health agencies' requirements. The District’s recycled water is safe from a health standpoint and is suitable for landscape irrigation and construction dust control and soil compaction. However, this water is non-potable and is not to be used for human consumption. Take precautions to minimize contact with the recycled water.

Detailed requirements regarding the use of recycled water are contained in the Goleta Water District Code, Title 7 Recycled Water System Rules and Regulations (“Rules and Regulations”). The user supervisor in charge of recycled water operations should have a copy of the Rules and Regulations for reference.

SECTION TWO

ON-SITE TRANSMISSION/DISTRIBUTION LINES

This section provides guidelines for the design of user’s on-site transmission/distribution facilities. Cross-connection control is necessary to prevent any element of a recycled water distribution system from mistakenly being connected to a potable water system. The location, depth, mode of identification and types of aboveground appurtenances such as hose connections, air/vacuum assemblies and blow-offs should be studied carefully in order to avoid cross-connections and ensure appropriate use of recycled water.

2.1 PRESSURE

Pressure requirements will be based on user system design. It is intended that the District will maintain minimum pressure at the user’s meter at the peak demand hour.

2.2 MINIMUM SEPARATION

Recycled water lines parallel to potable water or sanitary sewer lines in the user's system shall be installed at least ten feet away horizontally. Recycled water lines perpendicular to potable water lines shall be installed at least one foot below the potable water line. Recycled water lines perpendicular to sanitary sewer lines shall be installed at least one foot higher than the sanitary sewer lines. In situations where separations cannot be maintained, the District may require special construction practices. Approval will be required from EHS, RWQCB and other
concerned regulatory agencies.

2.3 PIPE IDENTIFICATION

2.3.1 General. Identify all new buried transmission/distribution piping for the on-site recycled water distribution system with the words “CAUTION: RECYCLED WATER.” Use purple identification tape or a purple polyethylene vinyl wrap displaying this message. Use color-coded identification tape differentiating the recycled water piping from other utility lines throughout the site. This includes service lines, valves and other appurtenances.

When converting an existing potable water line to recycled water use, the water line shall be accurately located and tested in coordination with EHS, RWQCB and other concerned regulatory agencies. This will bring the water line and appurtenances into compliance with regulatory standards, including Title 22 of the California Code of Regulations.

Disconnect potable water services from potable water pipelines, which have been converted to recycled water use. If the existing line meets the approval of the District, EHS, RWQCB and other concerned regulatory agencies, except for the pipe identification; the line will be approved for recycled water distribution.

2.3.2 Identification Pipe. Purple colored pipe, or purple polyethylene vinyl wrap, with the words "CAUTION: RECYCLED WATER," printed on the pipe is the preferred method of pipe identification. The warning should be stamped on opposite sides of the pipe, repeated every three feet.

2.3.3 Identification Tape. As an alternative, identification tape may be installed on pressure and/ or non-pressure pipe laterals when identification pipe is unavailable. A purple tape with black or white lettering stating “CAUTION: RECYCLED WATER” shall be fastened directly to the top of the pipe. The tape shall run continuously the entire length of the pipe and shall be at least 3-inches in width, fastened to the pipe at 10-foot intervals.

“CAUTION: RECYCLED WATER”

2.4 IDENTIFICATION OF ALL SURFACE APPURTENANCES, INCLUDING VALVE BOXES

Consistently identify all surface appurtenances, valve boxes and other surfaces. Use color-coded (purple) with the words "CAUTION: RECYCLED WATER" to differentiate recycled water facilities from potable water and wastewater facilities.
2.5 BLOW-OFF ASSEMBLIES

Either an in-line type or end-of-line type blow-off or drain assembly shall be designed and installed for removing water or sediment from the recycled water pipe. The line tap for the assembly shall be no closer than 18-inches to a valve, coupling, joint or fitting unless it is at the end of the line.

Avoid runoff or direct discharge of irrigation water. If there is a potential for runoff or direct discharge to an adjacent surface water feature, the District must be consulted during the design phase in order to determine an acceptable and working alternative.

SECTION THREE

ON-SITE PUMPING

Users with pumping facilities to distribute recycled water on-site shall make special provisions:

- Identify the type of water being handled by the pumping equipment in conformance with paragraph 2.4.
- Provide acceptable backflow protection at the meter, in conformance with Title 22 of the California Code of Regulations.

Uncontrolled releases of recycled water and/or pump packing seal water are not permitted.

3.1 MARKING

Use the color purple to identify all exposed and aboveground piping, fittings, pumps, valves, etc. In addition, clearly label all piping with the words "CAUTION: RECYCLED WATER." For pump stations, post at least one sign on the fence to clearly identify the use of recycled water.

3.2 SURGE PROTECTION

All pumping systems shall have proper surge protection equipment to prevent the loss of recycled water through broken piping resulting from water hammer and pressure surges.
SECTION FOUR

ON-SITE APPLICATIONS

Recycled water users may require special accessories. Since irrigation operations normally occur at night, automatic controllers are required on-site. A backflow prevention device shall be installed at the discharge of the potable water meter when a recycled water system shares a use area with a potable water system. This must be accomplished with the approval of EHS, RWQCB and other concerned regulatory agencies and the District. Recycled water pipelines, equipment and irrigated areas shall be identified and clearly marked in conformance with paragraphs 2.3 and 2.4.

4.1 STRAINERS AT METER/POINT OF CONNECTION

While not normally needed, the installation and operation of strainers on recycled waterlines shall be the responsibility of the user. Strainers should be of sufficient size to remove particles that would otherwise plug irrigation nozzles.

4.2 IRRIGATION CONTROLLERS

The following requirements are needed when irrigation controllers are used to automatically open and close the on-site distribution valves:

- Fully automatic
- Capable of delivering water from five minutes to 60 minutes per each start time
- Color-coded to differentiate the recycled water from the potable water
- Labeled inside and outside to warn others the system is using recycled water

Always alert the system’s maintenance personnel of any important constraints on the operation of the system.

An appropriate sized drawing of the area served by the controller should be sealed in a protective plastic cover, placed in the controller and updated when the system operation or configuration has changed.

4.3 CROSS-CONNECTION CONTROL

Completely separate recycled water systems from the domestic water supply system. Connections between these systems are not allowed. Dual water systems require the prior approval of the District, EHS, RWQCB and other concerned regulatory agencies for air gaps or backflow prevention devices. If potable water is needed as a backup source of supply for the recycled water systems, an approved air gap must be provided to prevent a cross-connection and protect the potable water system.
Backflow prevention devices are not normally used on recycled water systems. However, in order for the District to maintain the water quality in the recycled water distribution system, a backflow prevention device may be required at a specific meter where on-site exposures could affect the quality of the recycled water supply.

If a temporary potable water backup supply to the recycled water system is needed, the connection shall be protected in the same manner as a permanent connection. Exceptions may be necessary under special circumstances, but in any case, they will not be allowed unless approved by the District, EHS, RWQCB and other concerned regulatory agencies.

4.4 SYSTEM IDENTIFICATION

The user's recycled water system shall be clearly identified to differentiate it from the potable water system.

Hose Bibs are not allowed on recycled water irrigation systems. Use quick couplers if hose connections are necessary. Fittings shall be such that interconnection cannot be made between the potable and recycled water systems. Install signs to clearly identify the recycled water quick coupling and potable water quick couplers within 60 feet of a recycled water system. Hoses used for recycled water conveyance shall not be used on potable water systems.

4.5 DRINKING FOUNTAINS

The location and design of potable water drinking fountains must meet the requirements of the District's RWQCB, Order No. 97-06, and California Code of Regulations, Title 22, by means of a stainless steel cover approved by the RWQCB.

4.6 CONSTRUCTION WATER

- Clearly identify water trucks, hoses, drop tanks and related equipment with signage stating recycled water is not suitable for human consumption.

- Obtain advanced approval from the District regarding the use of recycled water for construction purposes. Provide the District sufficient time to review the request before construction begins.

- Carefully instruct equipment operators on the requirements involving the proper use and the potential hazards of recycled water described in the District's User Manual.

- Remember that recycled water cannot be introduced into any domestic water piping system and no connection can be made between equipment containing recycled water and any part of the domestic water system.
4.7 SPECIFIC PROVISIONS

To protect public health and promote good practices, these restrictions are placed for the proper operation of recycled water systems. The District applies the following restrictions:

4.7.1 Runoff Conditions. Direct or indirect runoff of recycled water outside of the approved use area is prohibited.

4.7.2 Ponding Conditions. Direct or indirect ponding of standing water for a period of more than 60 minutes is prohibited.

4.7.3 Overspray Conditions. Overspray of recycled water is prohibited, except to the extent allowed under the District's RWQCB, Order No. 97-06.

4.7.4 Unapproved Uses. Use of recycled water for any purpose other than those explicitly approved in the User Agreement issued by the District, is prohibited.

4.7.5 Reuse/Disposal in Unapproved Areas. Reuse or disposal of recycled water for any purpose, including approved uses, in areas other than those explicitly approved in the User Agreement issued by the District, is prohibited.

4.7.6 Cross-Connection. Cross-connections are not permitted except as indicated in Section 4.3 above.

4.7.7 Hose Bibs. Hose bibs on recycled water systems are prohibited. Use quick couplers for hose connections.

4.7.8 Food Establishments/Public Facilities. In order to prevent food from being exposed to spray from irrigation systems recycled water irrigation systems shall not be operated during periods of food preparation, consumption or clean up.

4.8 IRRIGATION APPLICATION RATE AND PRACTICE

Specify the type of sprinkler, placement of sprinklers, type of soil and type of plants that will be served by the recycled water irrigation system. Every step must be taken to minimize runoff and ponding.

4.8.1 Runoff. Use recycled water at a rate that is compatible with the infiltration rate of the soil. The irrigation system shall not be allowed to operate for a time longer than the landscape's water requirement.

4.8.2 Irrigation Period. To the extent possible, operate the irrigation system during periods of minimal public use of the approved area. Such periods of operation shall remain within any general period of recycled water irrigation operation specified by the District. Recycled water shall be applied when the grounds have had the maximum opportunity to dry before public use, unless provisions are taken to exclude the public from areas during irrigation and while the areas are drying.

Adjust spray heads to eliminate overspray in areas not under the control of the user and minimize overspray onto areas under the control of the user.
4.9 EQUIPMENT AND FACILITIES

Any equipment or facilities involving recycled water such as tanks, temporary piping or valves, as well as portable pumps shall be cleaned and disinfected before removal from the approved use area. This disinfection and cleaning protects public health in the event of any subsequent use as approved by the District. The disinfection process shall be performed in the presence of the District’s Recycled Water Coordinator.

SECTION FIVE

SYSTEM MANAGEMENT

Compliance with the District regulations involves careful management of quality control, use control, operation and maintenance control, cross-connection prevention. These practices assure against violation of the District’s requirements.

5.1 QUALITY CONTROL

All recycled water delivered to users from District facilities conforms to the requirements established by EHS, RWQCB, and other regulatory agencies. In the event that unsuitable water is distributed through the recycled water system, users will be notified by the District of specific interim requirements for recycled water use.

5.2 CONTROL OF ON-SITE USE

5.2.1 On-site Use Requirements. Once a User Agreement has been executed and authorization has been granted by the District, the recycled water will be provided for the intended uses.

5.2.2 User Supervisor. Provide the District with the name, email, cell number, office phone and address of a user supervisor and/or designated representative for consideration. This recommendation is subject to District approval. The user is responsible for notifying the District of changes regarding the user supervisor position.

The user supervisor is responsible for the entire system and all recycled water use. This includes installation, operation and maintenance of pipelines and cross-connection equipment.

5.2.3 Authorized Uses for Recycled Water. Recycled water uses may include, but are not limited to, landscape irrigation and construction water purposes. The District, EHS, RWQCB, and other concerned regulatory agencies will consider other uses, which are not included, for approval. The District will determine whether it is necessary or desirable to furnish recycled water for a specific use.

The specific use must be in accordance with the standards of treatment and water quality regulations contained in Title 22 of the California Code of Regulations. The District may provide specific requirements as conditions prior to approving any such uses, and/or require specific
prior approval from EHS, RWQCB, and other concerned regulatory agencies.

5.2.4 Responsibility for Maintenance. The user is responsible for maintaining all on-site facilities (downstream of the user’s service meter). Unless otherwise specified, all on-site facilities are under the ownership of parties other than the District.

5.3 FACILITIES OPERATION

5.3.1 On-site Facilities - General. The user is responsible for the operation and surveillance of on-site domestic water distribution and recycled water distribution facilities to avoid cross-connections.

5.3.2 District Recycled Water Coordinator. The District is responsible for the operation of the off-site distribution system, for the surveillance of all users and for the determination of water quality as it relates to compliance with requirements of EHS, RWQCB and other concerned regulatory agencies.

The District Recycled Water Coordinator is the primary contact person for the District in all matters between the user and the District and between the District and the EHS, RWQCB, and other regulatory agencies concerning the operation of the recycled water system.

5.3.3 User Supervisor. The operation and surveillance of all on-site recycled water system facilities is under the management of the user supervisor designated by the user and approved by the District. The District requires that the user supervisor receive instruction in recycled water use, which will be provided or approved by the District.

The user supervisor needs to address the following responsibilities:

- Make sure that all operations personnel are trained in and familiarized with the proper recycled water use
- Provide operations personnel with maintenance instructions, controller charts and record drawings to insure proper operation in accordance with the onsite facilities design
- Prepare and submit required record drawings to the District
- Notify the District of updates or changes to the on-site facilities
- Operate and control the system to prevent direct human consumption of recycled water and to control and limit runoff
- Report any and all failures in the recycled water system that causes an unauthorized discharge of recycled water to the District (see Section 1.2.1c)
- Comply with all applicable Federal, State and local statutes, ordinances, regulations, contracts and requirements prescribed by the District. In the event of violation, any charges and penalties may be applied and collected by the District
- Install and maintain signs at all facilities

Please note that significant updates and changes may require the submittal of an application for water service with Goleta Water District. Significant changes do not
include routine maintenance.

5.4 RECYCLED WATER SYSTEMS

The District monitors and inspects the entire recycled water system, including both on-site and off-site facilities, at the time of construction, annually and when necessary. The District conducts system-monitoring programs, maintains all off-site systems, and provides reports as requested by ERS, RWQCB, and other regulatory agencies. The District, in monitoring, record keeping and providing reports, has the right to enter upon the user’s premises during working hours. The purpose of inspecting on-site recycled water facilities and areas of recycled water use is to assist the user in complying with requirements.

5.5 VIOLATIONS

5.5.1 Determination. The District reserves the right to determine whether a violation of the guidelines has resulted from any action or occurrence, which is the responsibility of a user. Insofar as a violation of these guidelines constitutes a violation of any EHS, RWQCB, or other concerned regulatory agency requirement, the District will make its determination on behalf of the concerned regulatory agency. If a violation is verified, the District will notify the user to confirm that whatever caused the violation is corrected.

5.5.2 Specific Violations. Specific violations include those causing noncompliance with any of the specific prohibitions as listed in the User Agreement issued by the District. However, by definition, noncompliance with any condition or guideline of EHS, RWQCB, and other regulatory agencies, whether willfully or by accident constitutes a violation.

5.5.3 Notification. The user is responsible for notifying the District Recycled Water Coordinator of all failures in a recycled water system or violations of applicable regulations.

Notification of failures and violations shall be made as soon as possible or, in any event, no later than 8:00 AM on the next regular working day following the occurrence. Such notification shall be made by e-mail and/or telephone to the District Recycled Water Coordinator.

5.5.4 Corrective Action. If the District Recycled Water Coordinator’s investigation determines a violation, it is the responsibility of the user to correct the conditions, which caused the violation. The user shall develop a timetable for completing corrections for approval by the Recycled Water Coordinator. Corrections may involve human factors, such as additional training or procedures modifications, as well as physical alterations to the system.

If corrective actions are required, the user will provide the District Recycled Water Coordinator a written statement describing the violation or violations, summarizing the corrective actions and a timetable for completing the correction. Until the corrections are completed and approved by the District, the use of recycled water shall only continue to the extent permitted by the District, EHS, RWQCB and other regulatory agencies.

A written log of all system failures, violations and corrective actions is to be prepared and updated for the District to review.

5.5.5 Appeal. The user may appeal in writing the violation determined by the District Recycled
Water Coordinator to the District General Manager. State the conditions that the District Recycled Water Coordinator has determined to be a violation and the opinion to the contrary.

SECTION 6

SPECIFIC REQUIREMENTS FROM THE RWQCB WATER RECLAMATION REQUIREMENTS, ORDER NO. 97-06

A complete copy of the RWQCB, Order No. 97-06 is included in the following Appendix. The Executive Officer of the RWQCB recommends that the user supervisor at each site take particular note of the following two requirements in that Order:

1. Do not use recycled water for irrigation during periods of extended rainfall and/or runoff.

2. Use clear signage in visible areas to inform the public that recycled water is being stored or used.
APPENDICES

A. California Regional Water Quality Control Board Water Reclamation Requirements, Order No. 97-06 (ATTACHED)

B. Title 22 California Code of Regulations (ATTACHED)

C. Goleta Water District Code, Title 7 Recycled Water Rules and Regulations (ATTACHED)
Frequently Asked Questions

Is recycled water safe?

Water recycling is a safe way to preserve our natural water resource. In addition, recycled water projects are designed and operated to protect public health. Careful monitoring by responsible local health authorities and water quality control agencies also ensures a highly treated, filtered and disinfected product that meets the State Department of Health Services criteria.

Does recycled water smell or look different than tap water?

Recycled water is the end product of a three-stage treatment process in which municipal wastewater is settled out, biologically oxidized, clarified, chemically coagulated, filtered and disinfected. The resulting water is clear and colorless. Although recycled water may have a slight chlorine smell, it is visibly indistinguishable from tap water to the human eye. Beyond what the senses can perceive, recycled water does not contain any constituents that exceed federal and state drinking water standards for heavy metals, minerals, trace organic compounds, pesticides and microorganisms. However, this process does not treat recycled water to drinking water standards.

Are there any health or water quality laws that apply to recycled water?

There are very stringent water quality laws that apply to recycled water. The State Department of Health Services standards for recycled water are referred to as "Title 22." These standards are incorporated in Title 22, Chapter 3, Division 4 of the California Code of Regulations, with stipulations applying to various types of reuse, and levels of required treatment.

What uses does California Code of Regulations Title 22 allow?

Title 22 allows for many uses of recycle water. The uses for recycled water include irrigation of food crops, parks, playgrounds, school yards, residential landscaping, cemeteries, freeway landscaping, golf courses, ornamental nurseries, pasture for animals, orchards, and vineyards. In addition, recycled water can be used for fishing or boating recreational impoundments, fish hatcheries, cooling towers and decorative fountains. Other allowable uses include flushing toilets and urinals, industrial process water, commercial laundries, making artificial snow, soil compaction, mixing concrete and flushing sanitary sewers.

Will constituents in the water, such as salts, harm landscaping?

There are various constituents in recycled water that exceed those found in the drinking water supply, including total dissolved solids (or salts). For example, although recycled water contains a slightly higher salt content, turf grass irrigated with recycled water will continue to flourish. With proper drainage and good management, landscape irrigated with recycled water will continue to thrive. Moreover, there are some constituents, such as nitrogen and phosphorus found in recycled water. These constituents are beneficial for plant growth, and will serve as an additional "fertilizing" source.