5.0 Regulatory Requirements

The management and regulation of recycled water has been delegated to the states by the United States Environmental Protection Agency (USEPA). The main regulatory agencies for recycled water in California are CDHS and the California State Water Resources Control Board (California State Board). The following sections describe the applicable regulations and permit requirements for this recycled water program.

5.1 Federal

Recycled water quality must meet the standards set by the regulatory agencies, as well as the individual requirements of the potential users. On a federal level, USEPA published its first set of guidelines for recycled water in 1992, which were updated in 2004. However, these are not regulations. Regulations development was left to the individual States.

The USEPA guidelines are entitled *Guidelines for Water Reuse* and were developed based on existing regulations in states such as California and Florida. The USEPA guidelines were designed to be used in a flexible manner that worked with state regulations that encourage water recycling project implementation. These guidelines recommend treatment processes, water quality limits, monitoring frequencies, setback distances, and other controls for water recycling projects. Due to the built-in flexibility of these guidelines, individual state-adopted guidelines vary across the United States.

5.2 State

The state agencies in California with primary responsibility for the regulation of recycled water use are the CDHS and the California State Board. The California State Board is divided into Regional Water Quality Control Boards (Regional Boards) that administer the regulations.

Water reclamation requirements are issued by the applicable Regional Board for specific reuse projects in conformance with the regulations adopted by CDHS. The BBARWA WWTP is located within the area governed by Santa Ana Regional Board, and the existing discharge location in Lucerne Valley is located within the Colorado River Basin Regional Board.

5.2.1 Public Health Regulations

Public health regulation is the responsibility of the CDHS and local county health departments. The CDHS is charged with the responsibility for establishing uniform statewide reclamation criteria to ensure that the use of recycled water will not be detrimental to public health. The local county health departments are responsible for overseeing cross-connection programs.

5.2.1.1 Uses of Recycled Water

California Code of Regulations, Title 22, Reclamation Criteria establish the criteria for water quality standards and treatment reliability related to use of recycled water. These criteria were developed and are regulated by the CDHS. Appendix F, Table F-1, provides a list of applicable public health regulations and guidelines for the level of treatment required for each type of recycled water use. The four levels of treatment are based on the associated use of the recycled water. These four levels are: undisinfected secondary treatment, disinfected "23-standard" secondary treatment, disinfected "2.2-standard" secondary treatment, and tertiary treatment. These levels of required treatment were incorporated as revisions to the *Title 22* standards in 2001.

The disinfected secondary treatment standards are required when recycled water is served to areas with a higher frequency or more potential for direct contact with humans. These standards are based on the total coliform level not exceeding either:

- 23 milligrams (mg) per 100 milliliters (mL) for areas with limited or no direct human contact
- 2.2 mg per 100 mL for areas where incidental human contact may occur

Appendix F, Table F-2, extracted by the WateReuse Association from Title 22 Regulations, provides a breakdown of the different recycled water use types in California along with the level of treatment required for each specific type of use. The total coliform limit and turbidity guidelines for each of the different types of use and treatment levels are listed in Appendix F, Table F-3.

In addition to the treatment levels required for recycled water use, Appendix F Table F-1 also provides a synopsis of the regulations and guidelines governing dual plumbing systems, cross-connection controls, groundwater recharge, and reservoir augmentation. All of these requirements are areas that CDHS is monitoring to ensure that the health and safety of the public are protected.

Based on the proposed treatment plant upgrades, the recycled water from the BBARWA WWTP will be suitable for all applications under the tertiary treatment criteria. The recycled water would be suitable for urban irrigation, commercial/industrial use, environmental impoundment, and artificial surface groundwater replenishment.

5.2.1.2 Use Area Requirements

The CDHS and the Santa Ana Regional Board have developed recycled water use requirements describing appropriate safety precautions and operational procedures, as follows (referenced from Appendix F, Table F-1):

- No irrigation with disinfected tertiary recycled water should take place within 50 feet of any domestic water supply well.
- No impoundment of disinfected tertiary recycled water should occur within 100 feet of any domestic water supply well.
- Discharge of recycled water should be confined to the areas designated for discharge. Ponding and runoff from irrigated areas should be minimized through proper

operational procedures, such as controlling application rates, and recirculation of return flows from surface irrigation.

- All valves and outlets from the recycled water system should be tagged with an appropriate warning, in addition to being color-coded, banded, or otherwise marked for identification.
- Adequate means of notification should be provided to inform the public that recycled water is being used, and should include the posting of conspicuous warning signs.
- The public should be effectively excluded from contacting the recycled water by posting warning signs in rural areas or by erecting fences in populated areas.
- Areas should be managed to prevent the breeding of mosquitoes.

5.2.1.3 Operational Requirements

The Water Recycling Regulations contained in Title 22 California Code of Regulations (CCR) include operational requirements and include provisions for redundant facilities and contingency plans to deal with "off-spec" water. Specifically, T22 CCR Section 60329 requires the following:

- Record Keeping
  - Water quality analysis
  - Operational problems
  - Breakdown or failure incidents
  - Diversions to emergency storage or other discharge points
  - Corrective actions taken
- Alarmed equipment failures
- Monthly summary reports
- "Off-spec" water discharges

5.2.1.4 Dual Plumbing

The Development of dual plumbing systems is an important mechanism used in California to increase the allocation of recycled water. The most important component of the *California Health and Safety Code of Regulations* dealing with dual plumbing systems is the protection against cross connection between the potable and recycled water systems. The cross-connection control guidelines, established in Title 17, were developed to ensure that recycled water lines are marked clearly and are easily identifiable (typically by the use of purple pipe) as well as to ensure that recycled water does not enter the potable water system. These guidelines require that a backflow prevention device be installed to protect against possible cross connection. *The Dual Plumbing Plan Design Criteria and Monitoring Criteria* also require that a plan be developed describing the recycled water system. Another component of the criteria requires that any incidents of cross connection must be disclosed to CDHS within 24 hours from time of occurrence.

5.2.1.5 Groundwater Recharge

Another area of revision proposed for California water reuse regulations is the set of rules that govern indirect potable reuse through groundwater recharge. CDHS is currently in the

process of receiving comments on draft changes to the Groundwater Recharge Regulations (July 2003 revision). The proposed changes, if included in the regulations, would require that more stringent treatment standards be met regarding nitrogen removal, total organic compound (TOC) concentrations, and maximum contaminant limits (MCLs). The updated regulations for the use of recycled water for groundwater recharge state that recycled water must undergo filtration and disinfection followed by tertiary treatment. The revised regulations would require that the MCLs be met and that no exceedances occur in concentrations for public health goals of a contaminant, or the level of the contaminant in the receiving groundwater, whichever is higher, unless approved by CDHS. In addition, the updated regulations require that for a "surface spreading project, all the recharge water shall be retained underground for a minimum of 6 months prior to extraction for use as a drinking water supply, and shall not be extracted within 500 feet of a point of recharge." In addition, the draft regulations allow for recycled water contribution (RWC) to be computed based upon a rolling average. If adopted, the new guidelines would allow for an RWC over the 50 percent level currently set. If RWC for a project is proposed to be over 50 percent, the following information would need to be provided to CDHS:

- Groundwater Recharge Reuse Project (GRRP) operations, monitoring, and compliance data
- Demonstration that the recharge water has reached at least one GRRP monitoring well for at least 1 year with an average RWC of at least 0.4, and the GRRP has been in compliance with the existing CDHS-specified maximum average RWC
- Demonstration that the water quality data collected at the monitoring well used in the demonstration meet all the primary drinking water standards for the parameters specified and indicate that the GRRP is not causing the nonregulated contaminants specified to increase over the levels in the recycled water
- Any additional analytical and/or treatment studies requested by the CDHS to make the determination
- Validation of appropriate construction and location of monitoring wells
- Scientific peer review by an advisory panel that includes, as a minimum, a toxicologist, a registered engineering geologist or hydrogeologist, a California-registered engineer who is experienced in the fields of wastewater treatment and public water supply, a microbiologist, and a chemist
- An updated engineering report

In addition, CDHS would require that any project with greater than 50 percent RWC must use advanced oxidation; however, the fluence (measured in millijoules per square centimeter [mJ/cm^2]) and hydrogen peroxide addition dose (measured in mg/L) have not been set. The updated final revisions of these regulations were not available when this document was completed.

Under the proposed regulations, monitoring also will be required for each GRRP. Monitoring wells are to be constructed between the GRRP and downgradient drinking water supply wells. Monitoring will be conducted quarterly, and if any of the monitoring

results indicate that an MCL has been exceeded or that coliform is present, the GRRP will notify the CDHS and Santa Ana Regional Board within 48 hours of receiving the result.

An engineering report will also be required to be submitted, which will include an operations plan to the Santa Ana Regional Board and the CDHS. Recycled water will not be recharged until a complete engineering report is submitted and a permit issued by the Santa Ana Regional Board. The engineering report will consist of a comprehensive investigation and evaluation of the GRRP, impacts on the existing and potential uses of the impacted groundwater basin, and the proposed means for achieving compliance with Title 22 requirements (CDHS, 2003a).

5.2.2 Permitting

5.2.2.1 Existing Permitting

The BBARWA currently operates under a permit issued by the Santa Ana Regional Board in June 2005, which allows BBARWA to deliver and use recycled water for a variety of activities in conformance with the reclamation criteria in Title 22. This current 5-year permit consists of waste discharge requirements that will have to be renewed by June 2010. The waste discharge requirements would allow the BBARWA to extend its recycled water distribution system and supply water for urban irrigation, commercial/industrial use, and environmental impoundment.

Under the BBARWA 2005 WDR permit, which was just renewed, prior to delivering recycled water to any new user, a new or an update to an existing Title 22 Engineering Report for water reuse permit site specific permit needs to be completed and approved by the CDHS. This process exists because the BBARWA initially applied for individual permits for homeowners and businesses to use recycled water. However, based on the number of proposed permits, it became impractical for the BBARWA and the CDHS to prepare, process, review, and permit hundreds of individual "site-specific" projects. To replace this process, a regional approach was developed to issue the necessary permits for the recycled water program, which resulted in three "master" permits being issued to the BBARWA.

The first permit was issued for outdoor landscape irrigation at single-family residences in the Lake Williams area. Because there is no recycled water distribution system to the Lake Williams area, the recycled water is trucked via water haulers to the residential users, stored onsite, and applied by individual property owners.

The second permit was for the use of recycled water at various construction sites within the Valley area. The recycled water is used for compaction, dust control, and other construction-related activities. Recycled water under this permit is distributed directly to water trucks provided by the construction users at the BBARWA WWTP.

The third "master" permit, issued in July 2004 by the CDHS, expanded the existing recycled water program to provide tertiary treated recycled water to all residential and commercial users in the Big Bear Valley on a temporary basis during the current drought. Under the new permit, the BBARWA manages the pilot program, but the individual homeowners and business owners are responsible to operate and supervise their own recycled water use. The water is delivered to the users, stored onsite, and applied by individual property owners. It

was the first time that CDHS had approved a pilot program that allowed individual homeowners/business owners to operate and supervise their own recycled water.

5.2.2.2 New Permits

The proposed recycled water program includes upgrades to the WWTP, extension of the recycled water distribution system, and supply of recycled water for urban irrigation, industrial/commercial uses, environmental impoundment, and groundwater recharge. To implement the project, the BBARWA will need to obtain permits from the Santa Ana Regional Board and approval from the CDHS and the County Health Department for this use of recycled water. Permitting and approval from these agencies will require a sub-scale pilot test program that demonstrates the effectiveness of the proposed advanced treatment system on the BBARWA effluent. The BBARWA plans to perform pilot testing in 2005.

All of the recycled water uses identified herein are covered under the existing waste discharge requirements, with the exception of artificial surface groundwater recharge. However, the BBARWA should obtain a new "blanket" WDR permit for all proposed uses of recycled water. Supply to the groundwater recharge sites will require approval from CDHS, as well as a separate permit from the Santa Ana Regional Board covering water reclamation requirements specific to groundwater recharge. After CDHS approval, water reclamation requirements will be prescribed by the Regional Board in consultation with the CDHS and other interested parties.

As a part of the waste discharge permit issued to the BBARWA, from the Santa Ana Regional Board, a water reclamation permit will be developed. This will list the BBARWA as the primary permit holder and contain water quality and operational conditions. All real and potential recycling projects will be listed in the application to allow new uses to proceed without revising the waste discharge requirements.

CDHS requires the development of the Engineering Report, with specific elements describing the wastewater sources, pretreatment requirements, if applicable, treatment and operation, proposed uses of the recycled water, and other operational controls including contingency plans for diversion of "off-spec" water.

5.3 Local

Even though the CDHS and the County Health Department will inspect the recycled water system initially and when new uses come on line, the BBARWA will serve as the designated regulatory agency to ensure that all of the users adhere to permit requirements. In locations where potable water is replaced with recycled water, the local water agencies in the area (DWP and BBCCSD) are responsible for inspecting the recycled water system and use area within each facility. The DWP and BBCCSD will be responsible for inspecting the dual-plumbed system and test for possible cross connections with the potable water system. Thereafter, the dual-plumbed system should be inspected annually, and will be tested for possible cross connections at least once every 4 years unless documentation can be provided to show that there have been no plumbing changes in the dual-plumbed system. The inspections will include a hazard assessment. The water agencies will be responsible for determining the minimum backflow protection, if any, to install. Information collected during the inspections must be available to the CDHS on request for a minimum of 3 years.

The water agencies will be responsible for notifying the CDHS of any known incident of backflow into the public water system within 24 hours of discovery of the incident.

The majority of public water systems in the Valley are regulated by the CDHS with the exception of the Lake Williams area, which is regulated by the County of San Bernardino. In the Lake Williams area, information collected by the local water agencies during inspections will be reviewed by the Environmental Health Services Department of the County of San Bernardino (EHSD). In addition, EHSD will be contacted during the implementation of this project to determine if any other issues need to be addressed as part of this project.

(This page left intentionally blank)