

Section 3

Regulatory Requirements

Section 3: Regulatory Requirements

Production, discharge, distribution, and use of recycled water are subject to federal, state, and local regulations, the primary objectives of which are public health and environmental protection. This section describes the regulatory requirements and their administration.

3.1 Federal Requirements

Two federal acts regulate the discharge and use of recycled water or wastewater: the Clean Water Act and the Safe Drinking Water Act.

3.1.1 Clean Water Act

Federal requirements relevant to the discharge of recycled water, or wastewater, and any other liquid wastes to “navigable waters” are contained in the 1972 amendments to the Federal Water Pollution Control Act of 1956, commonly known as the federal Clean Water Act (CWA) (Public Law 92-500). The CWA created the U.S. Environmental Protection Agency (USEPA) and established the National Pollutant Discharge Elimination System (NPDES), a permit system for discharge of contaminants to navigable waters. NPDES requires that all municipal and industrial dischargers of liquid wastes apply for and obtain a permit prior to initiating discharge.

3.1.2 Safe Drinking Water Act

Federal requirements relevant to the use of recycled water for groundwater recharge are contained in the 1986 amendments to the Safe Drinking Water Act (SDWA) of 1974 (Public Law 93-523). The SDWA focuses on regulation of drinking water and control of public health risks by establishing and enforcing maximum contaminant levels (MCLs) for various compounds in drinking water. The 1986 amendments also established requirements for protection of groundwater supplies through wellhead protection programs and regulation of underground injection of wastes.

3.1.3 Endangered Species Act Compliance

The CCSD has listed as part of its SWRCB diversion permits, compliance with the Environmental Species Act. This is particularly significant due to the presence of tidewater gobies (currently listed as “endangered”), and young-of-the-year south central coast steelhead (currently listed as “threatened”) within the lagoon. Biological evaluations are often required to comply with the Endangered Species Act (ESA). Section 7 of the ESA requires all federal agencies to use their authority to conduct conservation programs and to consult with National Marine Fisheries Service (NMFS) or U.S. Fish and Wildlife Service (USFWS) concerning the potential effects of their actions on any species listed under the ESA. Consultations occur with federal action agencies under Section 7 of the ESA to avoid, minimize, or mitigate the impacts of their activities on listed species. USFWS and NMFS also review non-federal activities which may affect species listed under the ESA and issues permits under Section 10 for the incidental take of those species and for scientific research and enhancement purposes. If diversion of recycled water from the “mound” to future demand sites results in the loss (i.e., “taking”) of listed species, the Section 10 issuance criteria requires NMFS or USFWS to issue an Incidental Take

Permit. In order to receive an incidental take permit, a habitat conservation plan is typically required to ensure the offset of any taking is achieved.

The decision to grant or deny a permit is dependent upon a public interest review of the probable impacts of the proposed activity and its intended use. Benefits and detriments are balanced by considering effects on conservation, economics, wetlands, wildlife, flood hazards, navigation, water quality, and the needs and welfare of the public. Guidelines restrict discharges into aquatic areas when there are less environmentally damaging, practicable alternatives. Reasonable and practicable mitigation of unavoidable impacts will be required. A permit will be granted unless the project is found to be contrary to the public interest or fails to comply with the guidelines. U.S. Army Corp of Engineers (USACE) is required to consult with state and federal wildlife agencies regarding any impacts of a project on aquatic habitats.

3.1.4 Administration

In the State of California, the administration and enforcement of the NPDES and SDWA programs have been delegated to the state.

3.2 State Requirements

State requirements for production, discharge, distribution, and use of recycled water are contained in the California Water Code, Division 7 - Water Quality, Sections 1300 through 13999.16 (Water Code); the California Administrative Code, Title 22-Social Security, Division 4 - Environmental Health, Chapter 3 - Reclamation Criteria, Sections 60301 through 60475 (Title 22); and the California Administrative Code, Title 17 - Public Health, Chapter 5, Subchapter 1, Group 4 - Drinking Water Supplies, Sections 7583 through 7630 (Title 17). In addition, guidelines for production, distribution, and use of recycled water have been prepared or endorsed by state agencies administering the recycled water regulations.

3.2.1 Water Code

The Water Code contains requirements for the production, discharge, and use of recycled water. The Porter-Cologne Water Quality Control Act (Division 7 of the California Water Code), which was promulgated in 1969, established the State Water Resources Control Board (SWRCB) as the state agency with primary responsibility for the coordination and control of water quality, water pollution, and water rights (Division 7, Chapter 1).

Nine Regional Water Quality Control Boards (RWQCB) were established to represent the SWRCB regionally and carry out the enforcement of water quality and pollution control measures (Division 7, Chapter 4). In addition, each RWQCB was required to formulate and adopt water quality control plans and establish requirements for waste discharge to waters of the state. In 1972, Chapter 5.5 was added to Division 7 to provide the RWQCBs with the authority to carry out the provisions of the federal CWA. The Central Coast RWQCB has jurisdiction over Cambria. CCSD currently has WDR from the RWQCB, which would need to be amended for the recycled water diversions. As mentioned previously, this may require proof that the use of recycled water would not negatively impact the basin.

Division 7, Chapter 7 - Water Reclamation, was included in the Porter-Cologne Water Quality Control Act in 1969. Subsequent amendments required the Department of Health Services

(DHS) to establish water reclamation criteria, gave the RWQCB the responsibility of prescribing specific water reclamation requirements for water which is used or proposed to be used as recycled water, provided for the regulation of injection of waste into the ground, and required the use of recycled water, if available, rather than potable water for irrigation of greenbelt areas.

In addition to Division 7, Chapter 7, Sections 1210 through 1212 of the Water Code, added in 1980, focus on the ownership of treated wastewater and require that the owner of a wastewater treatment plant obtain approval from the SWRCB prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater. Thus before CCSD could incorporate a recycled water system, approval from the SWRCB must be obtained.

3.2.2 Title 22

In 1975, Title 22 was prepared by DHS in accordance with the requirements of Division 7, Chapter 7 of the Water Code. In 1978, Title 22 was revised to conform with the 1977 amendment to the federal CWA. The requirements of Title 22, as revised in 1978, 1990, and 2001, regulate production and use of recycled water in California. Title 22 requirements are summarized in Figure 3-1.

Title 22 establishes the quality and/or treatment processes required for an effluent to be used for a specific non-potable application. The following categories of recycled water are identified:

- Disinfected tertiary recycled water
- Disinfected secondary-2.2 recycled water⁴
- Disinfected secondary-23 recycled water⁵
- Undisinfected secondary recycled water

In addition to recycled water uses and treatment requirements, Title 22 addresses sampling and analysis requirements at the treatment plant, preparation of an engineering report prior to production or use of recycled water, general treatment design requirements, reliability requirements, and alternative methods of treatment.

A draft regulation issued 23 April 2001 specifically addresses Groundwater Recharge Reuse. The regulations address requirements for the engineering report and monitoring and reporting for projects that use recycled water for groundwater recharge.

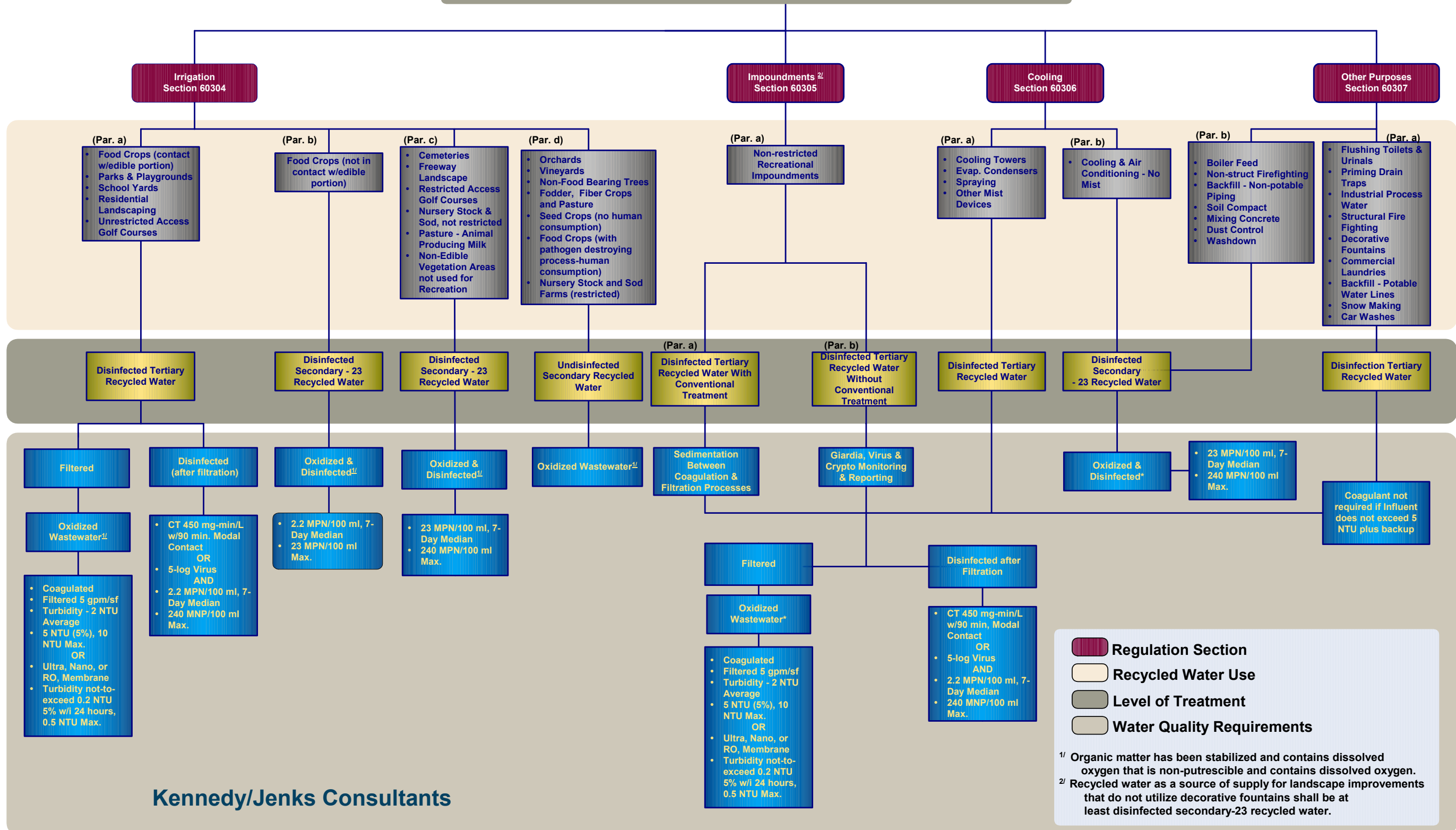
3.2.3 Title 17

Title 17 focuses upon the protection of drinking (potable) water supplies through control of cross-connections with potential contaminants, including non-potable water supplies such as recycled water. Title 17, Group 4, Article 2 - Protection of Water System, Table 1, specifies the minimum backflow protection required on the potable water system for situations in which there is potential for contamination to the potable water supply.

⁴ The 2.2 refers to the coliform count requirement for the water – 2.2 MPN/100 mL.

⁵ The 23 refers to the coliform count requirement for the water – 23 MPN/100 mL.

Title 22, Article 3 - Uses of Recycled Water



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 Cambria Community Services District
 Recycled Water System Modeling
Understanding Recycled Water Regulations
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Figure 3-1

Recycled water is addressed as follows:

- An air-gap separation is required on “Premises where the public water system is used to supplement the recycled water supply.”
- A reduced pressure principle backflow prevention device is required on “Premises where recycled water is used...and there is no interconnection with the potable water system.”
- A double-check valve assembly may be used for “Residences using recycled water for landscape irrigation as part of an approved dual plumbed use area established pursuant to Sections 60313 through 60316 unless the recycled water supplier obtains approval for the local public water supplier, or [DHS] if the water supplier is also the supplier of the recycled water, to utilize an alternative backflow prevention plan that includes an annual inspection and annual shutdown test of the recycled water and potable water systems pursuant to subsection 60316(a).”

3.2.4 Guidelines

To assist in compliance with Title 22, DHS has prepared a number of guidelines for production, distribution, and use of recycled water. Additionally, DHS recommends use of guidelines prepared by the California-Nevada Section of the American Water Works Association (AWWA). These guidelines are summarized below.

- Guideline for the Preparation of an Engineering Report on the Production, Distribution, and Use of Recycled Water. According to Title 22, prior to implementation of a water reclamation project (production, distribution, or use) an engineering report must be prepared and submitted to DHS. This guideline, prepared by DHS and dated March 2001, specifies the contents of an engineering report. The report should describe the production process, including the treated (effluent) water quality, the raw water quality, the treatment process, the plant reliability features the supplemental water supply, the monitoring program, and a contingency plan to prevent distribution of inadequately treated water. The report should include maps of the distribution system and describe how the system will comply with DHS and AWWA guidelines and Title 17. The report should include maps of proposed use areas and should describe the use areas, the types of uses proposed, the people responsible for supervising the uses, the design of the user systems, and the proposed user inspection and monitoring programs.
- Manual of Cross Connection Control/Procedures and Practices. This manual, dated July 1981, focuses on establishing a cross-connection control program to protect the public against backflow and back-siphonage of contamination. Main elements of the manual include areas where protection is required; causes of backflow; approved backflow preventers; procedures, installation, and certification of backflow preventers; and water shutoff procedures (for conditions which pose a hazard to the potable water supply).
- Guidelines for the Distribution of Nonpotable Water. These guidelines were prepared by the California-Nevada Section of AWWA in 1992. The purpose of these guidelines is to provide guidance for planning, designing, constructing, and operating non-potable water systems, including recycled water systems. Distribution lines, storage and supply,

pumping, on-site (user) applications, and system management are discussed. DHS guidelines reference these guidelines.

- Guidelines for the On-Site Retrofit of Facilities Using Disinfected Tertiary Recycled Water. The California-Nevada Section of AWWA prepared these guidelines in 1997 to provide guidance on modifying existing on-site facilities for conversion to use of recycled water, including recommendations for signage, backflow prevention, and separation standards, for landscape irrigation, agricultural irrigation, industrial uses, and impoundments

3.2.5 Emerging Recycled Water Quality Concerns

In addition to the existing Title 22 regulations, there are some emerging developments within the water supply industry that are subject of recent discussion. Most noteworthy are the unregulated substances of N-Nitrosodimethylamine (NDMA), 1,4 Dioxane, and trace pharmaceuticals. Although these substances are not currently regulated, they may be in the near future.

3.2.5.1 N-Nitrosodimethylamine (NDMA)

N-Nitrosodimethylamine (NDMA), is a probable carcinogen and has been linked to various forms of liver cancer. It has a history of use as a research chemical as well as an intermediate compound formed in the production of rocket fuel. Currently, the DHS has set a very low action level of 0.01 micrograms for NDMA. In addition to the low action level, NDMA is also very difficult to measure in low concentrations. NDMA is also suspected as being formed as a disinfection byproduct under certain conditions. To date, research is ongoing on NDMA, and its potential formation. As a result, regulations on NDMA are currently in a state of flux and are subject to change as more information becomes available.

During calendar year 2000, groundwater recharge wells using treated wastewater effluent were shutdown in Orange County after the discovery of minute levels of NDMA. To address NDMA concerns, alternative forms of disinfection are being considered due to concerns that chlorine disinfection may increase the potential for NDMA formation. For example, the use of ultra-violet radiation coupled with the addition of hydrogen peroxide has been found effective in reducing NDMA levels⁶.

At this writing, the fate and transport of NDMA in the natural environment is unknown. It is also unknown whether any minute quantities of NDMA could be found in CCSD effluent. If found in treated effluent, alternative disinfection systems to ensure NDMA is not created, could be necessary.

3.2.5.2 1,4 Dioxane

1,4 Dioxane has attracted attention due to it being a known carcinogen, and its use in personal care products such as shampoos. It is also a solvent stabilizer and has been found in groundwater remediation efforts involving trichloroethane (TCA), a cleaning solvent. 1,4 Dioxane may eventually be regulated out of consumer products. However, until such time, wastewater treatment processes, such as advanced oxidation systems, could be required.

⁶ May 9, 2002. Association of California Water Agencies Conference, Monterey, California.

3.2.5.3 Trace Pharmaceuticals

The discovery of trace pharmaceuticals in the water supplies of Europe and the United States has been drawing much interest among water professionals due to potential health concerns. Trace pharmaceuticals could be the result of outdated medicines being flushed down the toilet, and incompletely metabolized medicines passing as waste. Pharmaceuticals could include hormone supplements, antibiotics, anti-depressants, various stimulants, painkillers, etc. Scientists are at odds over the potential health effects of such minute quantities in water supplies. Concerns have also been raised over the potential impact trace pharmaceuticals could have in the aquatic environment. To date, there are no regulations governing trace pharmaceuticals. Additionally, little information exists on the removal efficiency of wastewater treatment processes. The United States Geological Survey is currently conducting a significant study effort on trace pharmaceuticals as part of its Toxic Substances Hydrology Program. Depending upon the outcome of scientific studies, future regulations could follow governing the treatment and reuse of wastewater as it relates to the removal of trace pharmaceuticals.