

## Contents

Appendix M. Recycled Water .....	1
M.1 Status of Recycled Water in California .....	2
M.2 Recycled Water Definition .....	2
M.3 Title 22 .....	3
M.4 Levels of Treatment .....	4
M.5 Disposal vs Recycling .....	5
M.6 Direct vs Indirect Use .....	6
M.7 Planned vs Unplanned Beneficial Uses .....	6
M.8 Potable vs Non-potable Reuse.....	7
M.9 Direct Potable and Indirect Potable Reuse.....	7
M.10 Supplemental Water.....	8
M. 11 Quantifying Recycled Water Production and Use within the Area Considered by the UWMP .....	8
M.12 Estimating vs Metering.....	9
M.13 Involved Suppliers .....	9
M.14 Wholesaler vs Retailer .....	9
M.15 Internal Reuse.....	9
M.16 Beneficial Uses .....	10
M.17 Recycled Water Use and Urban Per Capita Water Use Targets.....	14
M.18 Fit for Purpose.....	14
M.19 Tables.....	15
M.21 Collection and Treatment Scenarios for Completing Table 6-2.....	28
M.22 References.....	29

## List of Tables

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020 .....	15
Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020.....	16
Submittal Table 6-3 Wholesale: Wastewater Treatment and Discharge within Service Area in 2020.....	18
Submittal Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses within Service Area.....	20
Submittal Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area .....	22
Submittal Table 6-5 Retail: 2015 UWMP Use Projection Compared to 2020 Actual.....	23
Submittal Table 6-5 Wholesale: 2015 UWMP Use Projection Compared to 2020 Actual.....	24
Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use.....	25

# Appendix M.

## Recycled Water

This appendix describes the various aspects of municipal recycled water to support completion of the urban water management plan (UWMP) recycled water section and tables discussed in Chapter 5. The appendix provides clarification on how to define and document recycled water in the 2020 UWMPs, as well as additional background information that may be helpful for understanding recycled water and, in turn, completing the wastewater and recycled water requirements in the 2020 UWMPs.

The topics covered in Appendix M are as follows:

- Status of Recycled Water in California

- Recycled Water Definition

- Title 22

- Levels of Treatment

- Disposal vs Recycling

- Direct vs Indirect Use

- Planned vs Unplanned Beneficial Uses

- Potable vs Non-potable Reuse

- Direct Potable and Indirect Potable Reuse

- Supplemental Water

- Quantifying Recycled Water Production and Use within the Area Considered by the UWMP

- Estimating vs Metering

- Involved Agencies

Wholesaler vs Retailer

Internal Reuse

Coordination of UWMP and the 2015 Recycled Water Survey Data

Beneficial Uses

Recycled Water Use and Urban Per Capita Water Use Targets

Fit for Purpose

Tables

Figures

## **M.1 Status of Recycled Water in California**

Recycled water as a water supply potentially can provide additional locally available and locally controlled water resources. It has been safely reused in California for more than 100 years and the state, as of 2015, is annually reusing over 714,000 acre-feet (AF) to meet water supply needs (Municipal Wastewater Recycling Survey 2015). Although this is a significant amount of water, there is potential to increase this amount and provide greater local water supply reliability.

## **M.2 Recycled Water Definition**

Municipal recycled water is wastewater that has been treated to a specified quality to enable it to be used again. As defined in Water Code Section 13050(n), recycled water means “water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur and is therefore considered a valuable resource.” Although the legal definition does not specify the source of water, in common use, “recycled water” refers to water originating as municipal wastewater, and it is the reuse of that wastewater that is tracked in UWMPs.

There are two requirements that treated municipal water must meet to be classified as recycled water in UWMPs. It must be reused:

Beneficially, in a manner consistent with recycled water criteria in Title 22 of the California Code of Regulations.

In accordance with a Regional Water Quality Control Board (RWQCB) permit, such as National Pollutant Discharge Elimination System, waste discharge requirements, or water recycling requirements.

The terms “recycled water” and “reclaimed water” have the same meaning and can be used interchangeably. But, recycled water is used more commonly and implies a municipal wastewater source. The process by which a facility (industrial or otherwise) uses process water multiple times is usually referred to as internal reuse to distinguish it from municipal recycled water.

The quality of most water discharged from a wastewater facility in California is suitable to be recycled for some beneficial use. Recycled water encompasses a range of water qualities, depending on the level of treatment provided at the wastewater facility. The distinction between discharged or disposed wastewater effluent and recycled water is the act of the planned beneficial reuse that makes the treated effluent “recycled water”. The term “recycled water” indicates a beneficial use after wastewater treatment. It does not mean or imply a certain level of treatment, such as “tertiary-treatment.”

Municipal wastewater originates primarily from domestic (household) sources, but it can include commercial, industrial, and institutional wastewater discharged to a sanitary sewer. Industrial water is considered municipal recycled water when it is comingled with other municipal wastewater or treated by a municipal wastewater treatment facility. Industrial wastewater that is separately treated and reused is not categorized as municipal recycled water.

### **M.3 Title 22**

Title 22 (California Code of Regulations, Division 4, Chapter 3, Section 60301 et seq.) is the regulation overseeing reuse or “recycling” of municipal wastewater to protect public health. Level of treatment and bacteriological water quality standards are used in Title 22 to define what uses are legally allowed, based on the probability of public contact to protect public health. Title 22 identifies uses for a range of wastewater treatment levels, from undisinfected secondary treatment through water that has undergone advanced treatment. Title 22 regulations also specify monitoring and reporting requirements and onsite use area requirements.

The State Water Resource Control Board's (SWRCB's) Division of Drinking Water administers the adoption of Title 22 regulations and oversees their application. The applicable provisions of Title 22 are incorporated into permits issued by RWQCB or statewide general permits issued by SWRCB. These permits are the mechanism for enforcement of Title 22 regulations.

## **M.4 Levels of Treatment**

Municipal wastewater that can be beneficially reused is classified by its level of treatment in accordance with Title 22. Primary-treated water, that which has removed 70 to 85 percent of the organic and inorganic solids through either settling or floating, is not able to be recycled in California. When reporting level of treatment in Tables 6-3 and 6-4, one of the five treatment categories specified in Title 22 must be used. The specific requirements for each level of treatment are included in Title 22, but are briefly summarized, as follows:

Secondary, Undisinfected (California Code of Regulations [CCR] Section 60301.900) — Oxidized wastewater.

Secondary, Disinfected-23 (CCR Section 60301.225) — Oxidized and disinfected wastewater.

Secondary, Disinfected-2.2 (CCR Section 60301.220) — Oxidized and disinfected to a higher level than Secondary, Disinfected-23.

Tertiary (CCR Section 60301.230) — Oxidized, filtered, and disinfected wastewater to achieve both bacterial and virus removal.

Advanced (CCR Section 60320.201) — Treatment technologies beyond conventional coagulation, filtration and disinfection, including reverse osmosis, micro- or nanofiltration, ozonation, or advanced oxidation. Refer to the CCR for specific requirements.

Tables at the end of this appendix summarize uses allowed for levels of municipal recycled water treatment specified in Title 22. Although Title 22 lists specific allowed uses, other uses are permitted and approved on a case-by-case evaluation by the SWRCB's Division of Drinking Water (DDW). Examples of other specific allowed non-potable recycled water applications are geothermal power production and carpet dying. In general, the linkage between level of recycled water treatment and potential uses specified in

Title 22 is strongly influenced by the potential for direct human contact and ingestion, with higher levels of treatment (tertiary or advanced) required for open public access and worker contact conditions.

A key component of incorporating municipal recycled water into water supply is aligning potential uses to the availability of various levels of treated municipal recycled water. Determining municipal recycled water availability requires coordination with both the local water and wastewater agencies, because each jurisdiction has its own roles, authorities, and service areas with respect to municipal recycled water generation and distribution.

### **M.5 Disposal vs Recycling**

There are three situations where misconceptions may occur about the distinction between wastewater disposal and recycled water:

- Release of treated municipal wastewater into a receiving water body.

- Land application of treated municipal wastewater onto a field for the primary purpose of disposal.

- Treated wastewater percolation ponds.

Once the treatment process is complete and the effluent is released into a receiving water body, the effluent becomes part of the receiving water body and is considered disposal unless there is a contractual arrangement to use the river to convey the treated water from the discharger to a downstream user. If a downstream user extracts water from the water body without a contractual relationship with the upstream discharger, the reuse of the treated effluent would be considered an incidental use (see below for further discussion of incidental use).

If a wastewater treatment plant uses land application to dispose of its treated effluent, how the irrigated field is subsequently used distinguishes whether the disposal can also be considered as water recycling. If the field has a planned use for pastureland or crop cultivation, then the effluent would be classified as recycling for agricultural irrigation. If there is no use of the field, then the effluent discharge is considered disposal without recycling.

Percolation disposal ponds may be adding water to a usable aquifer, but that incidental recharge is not a planned purpose of such ponds and these ponds are not regulated as a water supply source. Thus, percolation from disposal ponds is not counted as groundwater recharge or recycled water use.

## **M.6 Direct vs Indirect Use**

Direct beneficial use is defined in the CCR Section 60301.200 as the use of recycled water that has been transported from the point of treatment or production to the point of use without an intervening discharge to waters of the State. Direct reuse involves a conveyance structure, such as a pipe or canal, to take treated wastewater from the point of treatment to the point of use. Typically, treated wastewater is discharged into rivers and streams as part of permitted disposal practices. Discharged water then commingles with the stream or river that may be a water source for downstream communities or agricultural users. These downstream uses are considered indirect reuse. Groundwater recharge and surface water augmentation with recycled water are two forms of planned indirect reuse for potable use; these are discussed below.

## **M.7 Planned vs Unplanned Beneficial Uses**

Treated municipal wastewater is integrated into California's water supply through both planned and unplanned applications. A planned reuse is an intentional use of recycled water without relinquishing control. Planned reuses are generally identified in planning studies and permit applications. They also generally involve agreement between the recycled water supplier and the recycled water user.

An unplanned reuse occurs when water is discharged and subsequently reused by an entity that is not the discharger without a continuity of custody of the water. Indirect reuse is often also unplanned reuse, with the major exception of indirect potable reuse, which is discussed below. Non-potable indirect reuse may also be planned if treated wastewater is discharged — usually into a surface water body — and there is prearranged agreement or intention between the producer and user that treated wastewater discharge will be maintained in specified quantities and times for use by downstream diverters. Discharged treated wastewater supplements river flow and can be a downstream benefit for wetland or aquatic habitat, or withdrawn by a downstream river water user. In the case of the latter, the wastewater

discharge is regulated to protect the all beneficial uses of the receiving water (Recycled Water Task Force 2003). The instream benefits of treated wastewater discharge and indirect reuse by downstream diversions are both important components of managing California's water resources, but they are distinguished from planned reuse.

### **M.8 Potable vs Non-potable Reuse**

Non-potable recycling includes any application not involving drinking water for human consumption, such as landscape or agricultural irrigation, commercial applications such as car washes or dual-plumbed office buildings, or industrial process such as oil refineries or cooling towers. Examples of non-potable uses are given in the Beneficial Uses section below. Potable reuse results in augmentation to drinking water supplies. Potable reuse can be either direct reuse or indirect reuse.

### **M.9 Direct Potable and Indirect Potable Reuse**

Direct potable reuse is the planned introduction of recycled water either directly into a public water system, as defined in Section 116275 of the California Health and Safety Code, or into a raw water supply immediately upstream of a water treatment plant. Direct potable reuse is a practice which is not currently occurring in California.

Indirect potable reuse occurs when tertiary or advanced treated wastewater augments drinking water resources. The two types of indirect potable reuse are as follows:

Indirect potable reuse for groundwater recharge, where recycled water recharges a groundwater basin and groundwater is later extracted from the basin.

Surface water augmentation, where recycled water is added into a surface water reservoir used as a source of domestic drinking water supply.

Potable use does not actually occur until the water is subsequently pumped from the ground or withdrawn from the reservoir, treated, and added to the drinking water distribution system.

Because seawater intrusion barriers typically result in groundwater recharge, they may be considered a form of indirect potable reuse.

Indirect potable reuse through groundwater recharge has occurred in California since 1962. Title 22, Division 4, Chapter 3, Article 5.1 (CCR Section 60320 et seq.) describes the permitting and monitoring process required to obtain a RWQCB permit for groundwater recharge.

Water Code Section 13558 requires SWRCB to adopt regulations for onsite treatment and reuse of non-potable water in multifamily residential, commercial, and mixed-use buildings on or before December 1, 2022.

### **M.10 Supplemental Water**

Supplemental water is water added to a recycled water system to meet peak demands when the supply of recycled water cannot meet demands. Supplemental water may also be added to recycled water systems during interruptions in the recycled water supply or to a groundwater recharge project as a required blend with tertiary-treated water.

Supplemental water can be potable or non-potable. If a supplier adds supplemental water to its recycled water system, the volume of supplemental water is not to be included in the volumes of recycled water provided by UWMP preparers in Tables 6-4 and 6-5 but is to be included as a separate line in Table 6-4.

### **M. 11 Quantifying Recycled Water Production and Use within the Area Considered by the UWMP**

The focus of the discussion of recycled water in an UWMP is to be the volume of wastewater generated and treated and the amount of recycled water beneficially reused within the service area. This can be a straightforward assessment when there is one utility that provides both water and wastewater services within a service area. It can get very complicated in larger urban areas where cities are adjacent to each other and independent water suppliers (suppliers) provide regional services. For example, wastewater generated within a service area is not always treated within the service area or recycled water used in a service area may have been generated in another service area.

Guidance on collection and treatment scenarios and how an UWMP preparer should approach completing Tables 6-2 and 6-3 is provided at the end of this section.

### **M.12 Estimating vs Metering**

Table 6-2 summarizes wastewater volumes collected within the service area. Because wastewater volumes frequently are not metered, it may be necessary to estimate values. For this table, indicate in the appropriate column whether the values provided are from estimated or metered data. It is assumed that the volumes in the remaining tables summarizing wastewater and recycling will be metered data with the exception of Table 6-6 (methods to increase recycled water use).

### **M.13 Involved Suppliers**

The guidebook requests a summary list of suppliers or organizations involved in the collection, treatment, or discharge of wastewater. This list should also include recycled water agencies and may consider organizations involved but not directly participating in the treatment process, such as groups operating a wetland or participants in memoranda of understanding. It could also include contracted operations as well as joint-venture participants. It is likely that many of these organizations would be part of the overall UWMP outreach effort.

### **M.14 Wholesaler vs Retailer**

A recycled water wholesaler is an organization that distributes recycled water to another organization that is not an end user. A wholesaler obtains the recycled water fully treated from another agency, may provide additional treatment to partially treated wastewater, or may provide all treatment of wastewater. A recycled water retailer distributes recycled water to end users. An agency may also be both a wholesaler and a retailer if it has direct customers that use recycled water and it provides recycled water to another organization that distributes it to end users in that service area.

### **M.15 Internal Reuse**

Wastewater facilities frequently internally reuse partially or fully treated, non-potable water within their facilities for equipment cleaning or minor landscaping. This is a similar practice to industrial internal reuse. Although

this internal reuse is a beneficial use, internal industrial or wastewater treatment reuse should not be included with other recycled uses in Tables 6-3, 6-4, or 6-5.

If a wastewater plant uses treated effluent for on-site landscape irrigation at a treatment plant where public access is not restricted, that volume should be entered in Table 6-4 as landscape irrigation. The table should also include treated wastewater used offsite for sewer system maintenance, such as sewer line flushing (included in the "Other" category).

### **M.16 Beneficial Uses**

The term "beneficial uses" applies to almost every aspect of water use in California. Water Code section 13050(f) specifies: "Beneficial uses" of the waters of the state that may be protected against quality degradation include, but are not limited to, domestic, municipal, agricultural and industrial supply; power generation; recreation; aesthetic enjoyment; navigation; and preservation and enhancement of fish, wildlife, and other aquatic resources or preserves.

For the purposes of recycled water, Water Code 10633(d) specifies that a UWMP must contain a description and quantification of the potential uses of recycled water, including, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses. UWMP preparers are requested to review the descriptions, provided below, of the recycled water beneficial uses to be quantified and apply them to completing the tables summarizing recycled water use for their service area. Recycled water does not have to offset potable demand to be considered beneficially reused.

The quantified data provided for the beneficial uses by the recycled water provider must be for uses authorized by a permit issued by a RWQCB or SWRCB for waste discharge or water recycling. Volumes indicated in Tables 6-4 and 6-5 should be consistent with that permit.

An "Other" category is included in Tables 6-4 and 6-5. But, it is intended that the category be used only if there is no other appropriate category. A category of water use, institutional water use, is used in water use

accounting but is not used in recycled water use accounting. An institutional water user is a water user dedicated to public service, such as higher education institutions, schools, courts, churches, prisons, hospitals, government facilities, and non-profit institutions. Recycled water used by institutional water users is to be included with the type of use and will generally be landscape irrigation, golf course irrigation, agricultural irrigation, or "Other" categories.

The following provides specific definitions of each beneficial use classification.

### **Agricultural Irrigation**

Irrigation of food, fiber, and fodder crops, and pastureland. This also includes Christmas tree production, pasture for farm animals, and wholesale plant nurseries.

### **Landscape Irrigation (excluding Golf Courses)**

Irrigation of parks, schools, cemeteries, churches, residential, streetscapes, slope protection, or public facilities. Golf course irrigation is not included. Water to maintain aesthetic impoundments within landscaped areas is included with landscape irrigation. Fill stations primarily used for public use should be classified as landscape irrigation.

### **Golf Course Irrigation**

Irrigation of golf courses, whether publicly or privately held. Water used to maintain aesthetic impoundments within golf courses is also included with golf course irrigation.

### **Commercial Use**

Uses by commercial water users, except landscape irrigation. A commercial water user is a water user that provides or distributes a product or service. Examples of commercial water use are: commercial building use (toilets, HVAC, etc.), car washes, laundries, and retail nurseries.

Landscape irrigation of commercial building areas is to be classified as landscape irrigation if it is separately metered or if landscape is the dominant use of mixed uses served by a single meter. Fill stations, if they

are primarily used for commercial use, should be classified as commercial use. Landscape irrigation on golf courses should be reported as golf course irrigation. Fill stations primarily used for public use should be classified as landscape irrigation.

### **Industrial Use**

Uses by industrial water users, except landscape irrigation and geothermal energy production. An industrial user is a water user that is primarily a manufacturer or processor of materials.

Examples of industrial water uses are cooling towers, oil refining, process water, and mining. Landscape irrigation of industrial building areas is to be classified as landscape irrigation if it is separately metered or if landscape is the dominant use of mixed uses served by a single meter.

### **Geothermal and Other Energy Production**

Water used to augment geothermal zones or used in the energy industry, excluding refineries. Refinery use is classified as industrial.

### **Seawater Intrusion Barrier**

Injected water in coastline setting designed to reduce seawater intrusion into a coastal aquifer with a seawater interface.

### **Recreational Impoundment**

Addition of water to maintain water levels in a lake for recreation or other non-potable uses. Lakes for wildlife habitat are included in the natural systems/restoration category. Small impoundments that are features in parks or golf courses are included as part of landscape irrigation or golf course irrigation.

### **Natural Systems/Restoration**

Any water provided to a designated wildlife area, whether included as part of a wastewater facilities treatment process or an independent area. The area must be designated as a wetland or wildlife area and so does NOT include water that a wastewater facility must discharge to maintain habitat in the

creek to which it is discharging. This category also includes recycled water used at wetlands, wildlife habitats and refuges, and duck clubs.

### **Groundwater Recharge (IPR)**

Addition of water to augment groundwater aquifers for future use. Only groundwater recharge projects that are permitted by the state or regional water boards for the purpose of groundwater recharge is accounted for in this category. A water agency cannot claim as planned groundwater recharge treated wastewater incidentally recharging groundwater as a result of leakage from evaporation/percolation ponds.

When recycled water is blended with other water sources within the recharge system, only the amount of recycled water is to be reported in Tables 6-4 and 6-5.

### **Surface Water Augmentation (IPR)**

Surface water augmentation is defined in the Water Code as “the planned placement of recycled water into a surface water reservoir used as a source of domestic drinking water supply” (Water Code Section 13561). Surface water augmentation is not allowed in California at this time; so, 2015 recycled water use cannot be classified as surface water augmentation. But, regulations for its implementation are being prepared by the SWRCB’s DDW, so projects may be permitted and implemented by 2020. In Table 6-4, surface water augmentation may be considered a future beneficial use in 2020 and thereafter.

### **Direct Potable Reuse**

Direct potable reuse is defined in the CWC as “the planned introduction of recycled water either directly into a public water system or into a raw water supply immediately upstream of a water treatment plant” (Water Code Section 13561). This use is currently not permitted in the State of California, but its feasibility is being assessed by an expert panel supported by the SWRCB’s DDW. A time frame for permitting and implementing direct potable reuse projects is uncertain at this time, but a supplier may be considering and planning for its enactment. In Table 6-4, direct potable reuse may be considered a future beneficial use in 2020 or thereafter, but it is not certain that regulations allowing implementation will be in place.

## Other

If a recycled water use cannot be classified into one of the categories identified above, a supplier may use this category. Sewer system flushing and firefighting are two possible uses that could be classified as “Other.” Fill stations should not be classified as “Other.” If the fill station was primarily used by commercial users for dust control or other purposes, fill station use should be classified as “Commercial use.” If the majority was used by landscapers or residential customers, then the use should be classified as “Landscape irrigation.”

## M.17 Recycled Water Use and Urban Per Capita Water Use Targets

Urban water suppliers may exclude recycled water use for the purpose of setting and meeting per capita water use targets. The amounts of recycled water excluded must be calculated in accordance with the methodologies in Chapter 5, and these amounts may not coincide with the amounts of recycled water reported in Tables 6-4 and 6-5.

## M.18 Fit for Purpose

A concept that organizations may find useful for increasing recycled water use within the UWMP area is a concept referred to as “fit for purpose” (U.S. Environmental Protection Agency 2012).

The basis of this concept is that the level of wastewater treatment should be commensurate with the uses of recycled water to ensure adequate treatment to meet the needs of users or protect public health while avoiding excessive treatment and associated costs. More rigorous treatment (and more energy-intensive processes) is reserved for uses with higher human or food production contact to minimize pathogen or harmful chemical contact. Conversely, less-treated wastewater has been safely used for decades in many agricultural reuse applications, which is the largest category of recycled water use in California. Greater reuse of secondary-treated wastewater in agriculture and environmental settings, where additional “natural treatment” through exposure to sunlight and soil contact can augment wastewater plant treatment, may provide additional opportunities for expanding recycled water use. Finally, suppliers may determine that having available multiple levels of treated wastewater may support increased integration of recycled water use into their water supply portfolio. For

example, West Basin Municipal Water District is successfully providing multiple water quality levels of recycled water to its customers to meet specific needs of its diverse customer base.

### M.19 Tables

Each UWMP will have three to five tables addressing wastewater and recycled: Tables 6-2, 6-3, and 6-6. Tables 6-4 and 6-5 are included in the UWMP if recycled water is being used in an UWMP area or is planned to be during the planning horizon of the UWMP (required to be 20 years, but may be 25 years at the discretion of the supplier). suppliers complete Table 6-6 to show actions they have considered to begin or increase use of recycled water. Additional guidance for completing each table is included below.

#### Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020

Submittal Table 6-2 Retail: Wastewater Collected Within Service Area in 2020						
<input type="checkbox"/> There is no wastewater collection system. The supplier will not complete the table below.						
Percentage of 2020 service area covered by wastewater collection system <i>(optional)</i>						
Percentage of 2020 service area population covered by wastewater collection system <i>(optional)</i>						
Wastewater Collection			Recipient of Collected Wastewater			
Name of Wastewater Collection Agency	Wastewater Volume Metered or Estimated? <i>Drop Down List</i>	Volume of Wastewater Collected from UWMP Service Area 2020	Name of Wastewater Treatment Agency Receiving Collected Wastewater	Treatment Plant Name	Is WWTP Located Within UWMP Area? <i>Drop Down List</i>	Is WWTP Operation Contracted to a Third Party? <i>(optional) Drop Down List</i>
<i>Add additional rows as needed</i>						
<b>Total Wastewater Collected from Service Area in 2020:</b>		0				
NOTES:						

Each retail supplier completes this table for all wastewater **collected** within the UWMP service area. Instructions for completing the table are as follows:

If there is not a centralized wastewater collection system (the UWMP area is 100 percent septic), then check this box and do not complete the remainder of the table. Continue completing the table if there is a wastewater collection system.

Percentage of 2020 service area covered by wastewater collection system *(optional)*: Using the 2020 size of the UWMP area, identify what

percentage (to the nearest whole number) of the service area is covered by sewer service.

Percentage of 2020 service area covered by wastewater collection system (optional): Using the 2020 population determined for the gallons per capita per day calculations (Section 5), identify what percentage (to the nearest whole number) of the population is covered by sewer service.

Enter wastewater collection agency information and the wastewater treatment plants within the service area. Enter the requested information for each column.

Starting in Row 8, enter the name of the wastewater collection agency. In the next column of the same row, enter the volume of wastewater **collected** within the UWMP area and treated at the wastewater facility identified in the row. In the next column, enter the names (one per row) of each agency receiving collected wastewater and then treating it. In the next column, enter the names of the wastewater facility (one per row) treating the wastewater produced within the UWMP area. In the next column, select whether or not the wastewater treatment plant (WWTP) is located within the service area of the UWMP (or service areas of the suppliers covered under the UWMP). And then in the final column, enter the names of the wastewater facility (one per row) treating the wastewater produced within the UWMP area.

**Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020**

Submittal Table 6-3 Retail: Wastewater Treatment and Discharge Within Service Area in 2020											
<input type="checkbox"/> No wastewater is treated or disposed of within the UWMP service area. The Supplier will not complete the table below.											
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2020 volumes				
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area	Instream Flow Permit Requirement
<i>Add additional rows as needed</i>											
<b>Total</b>							0	0	0	0	0
NOTES:											

This table is to be completed for all wastewater TREATED OR DISPOSED

within the UWMP area. If neither occur, the table does not have to be completed. Instructions for completing the table are as follows:

If wastewater is neither treated nor disposed, then check the box and do not complete the rest of the table. If wastewater is treated or disposed within the service area, including use of recycled water, then the supplier continues to fill out the table.

Enter the WWTP name, as indicated. Use as many rows as needed. Multiple rows can be used for one treatment plant, if different quality waters are produced, or if there are multiple discharge locations or wastewater discharge IDs. For each WWTP and non-recycled wastewater discharged within the UWMP service area, provide the requested information.

For the columns marked "2020 volumes," enter the total amount of wastewater generated in 2020 within the UWMP service area. The value in the outlined cells are what should be reported in Tables 6-4 and 6-5.

In the columns to the right of the WWTP Name, enter the following information (listed by column):

Discharge Location Name or Identifier

Discharge Location Description

Wastewater Discharge ID Number (optional)

Method of Disposal

Does This Plant Treat Wastewater Generated Outside the Service Area?

Treatment Level

Then enter volumes from 2020 for each of the following:

- Wastewater Treated: Enter the total volume of water treated at the wastewater facility associated with the discharge location. If more than one row is used to fully account for different levels of wastewater treatment and/or discharge.

- Discharged treated wastewater in 2020: Enter the volume to treated wastewater that was not recycled and was discharged to the environment at the discharge location.
- Recycled within Service Area: Enter the volume of recycled water used within the service area. If more than one treatment level of recycled water is used, use more than one row. If recycled water is provided outside the service area directly to customers that are not included in another UWMP, this recycled water is to be included in this column. In the notes (Row 4), indicate the amount of recycled water directly supplied outside the service area. This directly supplied recycled water is to be included in subsequent tables with the outlined cell (Tables 6-4, 6-5, and 6-6).
- Recycled Outside of Service Area: Enter the volume of recycled water produced within the service area but transported for use to another area that is included in the UWMP of a different supplier.
- Instream Flow Permit Requirement: Enter the volume of instream flow required by permit.

**Submittal Table 6-3 Wholesale: Wastewater Treatment and Discharge within Service Area in 2020**

Submittal Table 6-3 Wholesale: Wastewater Treatment and Discharge Within Service Area in 2020										
<input type="checkbox"/> Wholesale Supplier neither distributes nor provides supplemental treatment to recycled water. The Supplier will not complete the table below.										
Wastewater Treatment Plant Name	Discharge Location Name or Identifier	Discharge Location Description	Wastewater Discharge ID Number (optional)	Method of Disposal <i>Drop down list</i>	Does This Plant Treat Wastewater Generated Outside the Service Area?	Treatment Level <i>Drop down list</i>	2020 volumes			
							Wastewater Treated	Discharged Treated Wastewater	Recycled Within Service Area	Recycled Outside of Service Area
<i>Add additional rows as needed</i>										
<b>Total</b>							0	0	0	0
NOTES:										

This table is to be completed by a wholesale supplier it provides supplemental treatment to recycled water it distributes. Instructions for completing the table are as follows:

If the wholesale supplier does not distribute nor provide supplemental treatment to recycled water, please select the checkbox and go on to the next applicable table of the UWMP. If the supplier provides supplemental treatment to recycled water it distributes, the following further describes the information to enter for each column for each WWTP and non-recycled wastewater discharged within the UWMP service area (list each WWTP separately as its own row):

Discharge Location Name or Identifier

Discharge Location Description

Wastewater Discharge ID Number (optional)

Method of Disposal

Does This Plant Treat Wastewater Generated Outside the Service Area?

Treatment Level

Then enter volumes from 2020 for each of the following:

- Wastewater Treated: Enter the total volume of water treated at the wastewater facility associated with the discharge location. If more than one row is used to fully account for different levels of wastewater treatment and/or discharge.
- Discharged treated wastewater in 2020: Enter the volume to treated wastewater that was not recycled and was discharged to the environment at the discharge location.
- Recycled within Service Area: Enter the volume of recycled water used within the service area. If more than one treatment level of recycled water is used, use more than one row. If recycled water is provided outside the service area directly to customers that are not included in another UWMP, this recycled water is to be included in this column. In the notes (Row 4) indicate the amount of recycled water directly supplied outside the service area. This directly supplied recycled water is to be included in subsequent tables with the outlined cell (Tables 6-4, 6-5, and 6-6).

- Recycled Outside of Service Area: Enter the volume of recycled water produced within the service area but transported for use to another area that is included in the UWMP of a different supplier.

### Submittal Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses within Service Area

Submittal Table 6-4 Retail: Current and Projected Recycled Water Direct Beneficial Uses Within Service Area										
<input type="checkbox"/> Recycled water is not used and is not planned for use within the service area of the supplier. The supplier will not complete the table below.										
Name of Supplier Producing (Treating) the Recycled Water:										
Name of Supplier Operating the Recycled Water Distribution System:										
Supplemental Water Added in 2020 (volume) <i>Include units</i>										
Source of 2020 Supplemental Water										
Beneficial Use Type	<i>Projected: Potential Beneficial Uses of Recycled Water (Describe)</i>	<i>Projected: Amount of Potential Uses of Recycled Water (Quantity) Include volume units</i>	General Description of 2020 Uses	Level of Treatment <i>Drop down list</i>	2020	2025	2030	2035	2040	2045 (opt)
Agricultural irrigation										
Landscape irrigation (excludes golf courses)										
Golf course irrigation										
Commercial use										
Industrial use										
Geothermal and other energy production										
Seawater intrusion barrier										
Recreational impoundment										
Wetlands or wildlife habitat										
Groundwater recharge (IPR)*										
Surface water augmentation (IPR)*										
Direct potable reuse										
Other <i>(Provide General Description)</i>										
<b>Total:</b>					0	0	0	0	0	0
Internal Reuse <i>(not counted towards Statewide Recycled Water volume).</i>										
<i>*IPR - Indirect Potable Reuse</i>										
NOTES:										

The purpose of Table 6-4 is to record the current and projected recycled water for current and projected beneficial uses. A supplier completes Table 6-4 Retail if there is any recycled water used or projected in its service area. If recycled water is not currently nor planned to be used, the table does not have to be completed (check the box at the top and do not complete the table).

For those completing this table, please note that if recycled water within the supplier’s service area is supplied by more than one entity operating separate systems, the supplier creates multiple versions of this table so that each system is reported in its own table. If recycled water is obtained from multiple suppliers but operated within a single system, please provide the total amount of recycled water obtained in 2020 from each provider in Row 1, but report the use numbers in a single table.

The top portion of the table includes space for the supplier to enter the name of the supplier treating the recycled water, and the name of the organization that operates the recycled water distribution system. If more than one entity supplies recycled water into a single distribution system,

indicate each supplier's 2020 total. For example, Supplier A (250 AF) and Supplier B (125 AF). If any supplemental water was added in 2020, list the addition volume, and the name or description of the source of the supplemental water. Record the volume of water added to the recycled water system in 2020 that was **not** municipal recycled water.

The remainder of the table is structured for the supplier to enter information about potential or actual beneficial uses of recycled water and to document the volumes used in 2020 and projected into 20–25 years by five-year increments.

The supplier will enter either a potential beneficial use **or** an existing beneficial use from 2020 in each row. List as many as are relevant, one per row. List all the potential uses under the appropriate header, followed by its expected volume (with units). List all existing beneficial uses from 2020 in new rows under the appropriate header, followed by its actual volume use in 2020 and then projected for every five years up to 2040 or 2045.

Each row should have either a projected use listed or a 2020 use (recorded in different columns), but not both. Suppliers can add as many extra rows as are needed. For each use recorded, provide the actual and projected uses for the identified uses of recycled water. For "surface water augmentation" and "direct potable reuse," entry of 2020 use is not allowed because these uses are currently not permitted.

The "other" category is to be used for uses not classified by any of the provided use types. "Other" use types may include firefighting, fill stations, and dust control. If a supplier has multiple "other" uses, additional lines can be inserted.

### Submittal Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area

Submittal Table 6-4 Wholesale: Current and Projected Retailers Provided Recycled Water Within Service Area							
<input type="checkbox"/>	Recycled water is not directly treated or distributed by the Supplier. The Supplier will not complete the table below.						
Name of Receiving Supplier or Direct Use by Wholesaler	Level of Treatment <i>Drop down list</i>	2020	2025	2030	2035	2040	2045 <i>(opt)</i>
<i>Add additional rows as needed</i>							
<b>Total</b>		0	0	0	0	0	0
NOTES:							

Submittal Table 6-4 Wholesale is to be completed by a wholesale supplier for any recycled water it directly treats or distributes to retail suppliers. Enter the name of each supplier to which recycled water was provided and used in the service area.

For each supplier entered, the supplier enters the total amount of recycled water used or planned for use for each of the corresponding years within the service area. The total for the Year 2020 should equal the value of the sum of the corresponding totals in Tables 6-3 and 6-5.

### Submittal Table 6-5 Retail: 2015 UWMP Use Projection Compared to 2020 Actual

Submittal Table 6-5 Retail: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
<input type="checkbox"/>	Recycled water was not used in 2015 nor projected for use in 2020. The Supplier will not complete the table below.	
Use Type	2015 Projection for 2020	2020 Actual Use
Agricultural irrigation		
Landscape irrigation (excludes golf courses)		
Golf course irrigation		
Commercial use		
Industrial use		
Geothermal and other energy production		
Seawater intrusion barrier		
Recreational impoundment		
Wetlands or wildlife habitat		
Groundwater recharge (IPR)		
Surface water augmentation (IPR)		
Direct potable reuse		
Other	<i>Type of Use</i>	
<b>Total</b>	<b>0</b>	<b>0</b>
NOTES:		

If recycled water was not used in 2015 or 2020 (and the supplier did not project for recycled water to be used in 2020), the table does not have to be completed. A supplier completes Submittal Table 6-5 Retail if recycled water was used in 2015 or 2020, or if it was projected to be used for 2020.

For each use type listed, enter the 2015 UWMP's projected 2020 volume of recycled water used. In the next column, enter the volume of recycled water actually used in 2020.

**Submittal Table 6-5 Wholesale: 2015 UWMP Use Projection Compared to 2020 Actual**

Submittal Table 6-5 Wholesale: 2015 UWMP Recycled Water Use Projection Compared to 2020 Actual		
<input type="checkbox"/>	Recycled water was not used or distributed by the supplier in 2015, nor projected for use or distribution in 2020. The wholesale supplier will not complete the table below.	
Name of Receiving Supplier or Direct Use by Wholesaler	2015 Projection for 2020	2020 Actual Use
<i>Add additional rows as needed</i>		
<b>Total</b>	0	0
NOTES:		

If recycled water was not used in 2015 or 2020, the table does not have to be completed. Wholesale suppliers complete this table if they distributed recycled water in 2015 or 2020.

For those suppliers that complete the table, enter the actual and projected volumes of recycled water provided to retail or wholesale customers in 2020. The sum of the 2020 Actual Use should equal the sum of the corresponding cells in Table 6-3 and 6-4. If they are not equal, please explain in the UWMP text and the Notes section at the bottom of this table.

### Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use

Submittal Table 6-6 Retail: Methods to Expand Future Recycled Water Use			
<input type="checkbox"/>	Supplier does not plan to expand recycled water use in the future. Supplier will not complete the table below but will provide narrative explanation.		
	Provide page location of narrative in UWMP		
Name of Action	Description	Planned Implementation Year	Expected Increase in Recycled Water Use
<i>Add additional rows as needed</i>			
<b>Total</b>			0
NOTES:			

If the supplier does not plan to expand recycled water use in the future, the supplier selects the relevant box, describe the limitations for implementing or expanding recycled water use in the narrative of its UWMP with page number and not complete the rest of the table.

For those suppliers with plans to expand recycled water use in the future, enter the name of the action, meaning specific actions planned to be taken to increase the use of recycled water within the UWMP area. These may include specific programs such as onsite retrofit support, price reduction per unit volume of recycled water, increased discussion with potential users of recycled water, changes in the permitting to expand user or use area, or development of joint projects with regional partners.

Following listing the approximate year for the listed action (Planned Implementation Year), suppliers enter the volume of expected increase in recycled water use for that action.

### Summary of Most Recycled Water Uses Approved Under Title 22

Uses for recycled water are becoming increasingly common among urban water suppliers in California. The more advanced the treatment typically requires more energy demand and increased capital, operational and maintenance costs. The following tables offer examples of beneficial uses by water use type for five levels of water treatment.

### Undisinfected Secondary Treatment Beneficial Use Examples

<b>Water Use Type</b>	<b>Beneficial Uses</b>
Agricultural Irrigation	Fodder and fiber crops.
Agricultural Irrigation	Seed crops not eaten by humans.
Agricultural Irrigation	Non-food-bearing trees.
Agricultural Irrigation	Nurseries and sod farms, with limitations.
Agricultural Irrigation	Food crops processed before human consumption.
Agricultural Irrigation	Orchards or vineyards with no contact between edible portion and recycled water.
Other Urban Uses	Sanitary sewer flushing.

### Disinfected Tertiary Treatment Beneficial Use Examples

<b>Water Use Type</b>	<b>Beneficial Uses</b>
Urban Irrigation	Residential landscaping.
Urban Irrigation	Golf courses.
Urban Irrigation	Parks and playgrounds.
Urban Irrigation	School yards.
Urban Irrigation	Any other irrigation not specific in Title 22 and not prohibited by other California laws and regulations.
Other Urban Uses	Decorative fountains.
Other Urban Uses	Toilet/Urinal flushing.
Other Urban Uses	Structural firefighting.
Commercial and Industrial	Laundries.
Commercial and Industrial	Cooling or air conditioning.
Commercial and Industrial	Artificial snowmaking.
Commercial and Industrial	Process water that may contact workers.
Commercial and Industrial	Car washes.
Impoundments	Recreational impoundments.
Indirect Potable Reuse	Groundwater recharge or salinity barrier injection allowed with permits by RWQCBs.

### Disinfected Secondary 23 Treatment Beneficial Use Examples

Water Use Type	Beneficial Uses
Agricultural Irrigation	Pastures for dairy animals with human consumption.
Agricultural Irrigation	Non-edible vegetation with access control.
Agricultural Irrigation	Nurseries and sod farms with unrestricted access.
Urban Irrigation	Cemeteries.
Urban Irrigation	Freeway landscaping.
Urban Irrigation	Golf courses with restricted access.
Other Urban Uses	Dust control.
Other Urban Uses	Road cleaning.
Other Urban Uses	Non-structural firefighting.
Commercial and Industrial	Boiler feedwater.
Commercial and Industrial	Mixing concrete.
Commercial and Industrial	Some types of cooling or air conditioning.
Commercial and Industrial	Soil compaction.
Commercial and Industrial	Process water not in contact with workers.
Impoundments	Landscape impoundments.

### Disinfected Secondary 2.2 Treatment Beneficial Use Examples

Water Use Type	Beneficial Uses
Agricultural Irrigation	Food crops with surface irrigation with food portion above-ground and not in contact with recycled water.
Impoundments	Restricted recreational impoundment.
Impoundments	Publicly accessible fish hatcheries.

## Advanced Treatment Beneficial Use Examples

Water Use Type	Beneficial Uses
Indirect Potable Reuse	Advanced treated recycled water is now defined in the June 18, 2014, revision of Title 22 and is used for groundwater recharge, including groundwater injection for salinity barriers. Advanced treatment also will be considered as part of the surface reservoir augmentation and direct potable reuse efforts to be completed as part of Senate Bill 918 and Senate Bill 322.

### M.21 Collection and Treatment Scenarios for Completing Table 6-2

The following offers six plausible scenarios of wastewater treatment responsibility in the service area of the UWMP's supplier. Each scenario offers steps to follow for how to complete Submittal Table 6-2.

**Scenario 1:** The supplier is responsible for collecting, treating, and disposing of the wastewater generated within its service area.

Steps to follow:

Complete Tables 6-3.

**Scenario 2:** The supplier does not treat or dispose of the wastewater generated within its service area. Wastewater is treated and disposed by an organization that does not prepare an UWMP.

Steps to follow:

Provide narrative description on wastewater disposal (treatment level and location).

**Scenario 3:** The supplier does not treat or dispose of the wastewater generated within its service area. Wastewater is conveyed for treatment to another entity that also prepares an UWMP.

Steps to follow:

Provide narrative description on wastewater disposal and the name of the UWMP that applies to the plant receiving the effluent.

**Scenario 4:** A portion of the wastewater collected in supplier's area is conveyed for treatment to another entity which also prepares an UWMP.

Steps to follow:

Complete Table 6-3 for the wastewater treated within the service area.

Provide narrative description on wastewater disposal and the name of the UWMP that applies to the plant receiving the effluent.

**Scenario 5:** Multiple wastewater facilities may occur within the supplier's area. Untreated wastewater may be received from another agency.

Steps to follow:

Complete Table 6-3 for the wastewater treated within the service area.

Summarize volumes reported in Table 6-3 by each separate facility.

## M.22 References

DWR and SWRCB. 2015 Municipal Wastewater Recycling Survey 2015.

Available online at:

[https://www.waterboards.ca.gov/water\\_issues/programs/grants\\_loans/water\\_recycling/munirec.shtml](https://www.waterboards.ca.gov/water_issues/programs/grants_loans/water_recycling/munirec.shtml) (Accessed August 25, 2020).