



CENTRAL COAST REGIONAL WATER QUALITY CONTROL BOARD

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[Central Coast Regional Water Quality Control Board Website](http://www.waterboards.ca.gov/centralcoast)
(<http://www.waterboards.ca.gov/centralcoast>)

**ORDER R3-2023-0033
WASTE DISCHARGE AND WATER RECLAMATION REQUIREMENTS**

**PURE WATER SOQUEL
GROUNDWATER REPLENISHMENT REUSE PROJECT
SOQUEL CREEK WATER DISTRICT**

December 15, 2023



Soquel Creek Water District is subject to waste discharge requirements (WDRs) and water reclamation requirements (WRRs) set forth in this Permit:

Table 1. Discharger/Facility Information

Discharger	Soquel Creek Water District
Name of Facility	Pure Water Soquel
Facility Address	2505 Chanticleer Ave., Santa Cruz, CA 95062

Table 2. Discharge Locations Regulated by this Permit

Injection Well	Effluent Description	Injection Well Latitude	Injection Well Longitude	Receiving Groundwater Basin^{1,2}
Twin Lakes Church	Advanced treated recycled water	36.98450	-121.92755	Santa Cruz Mid-County (3-001)
Willowbrook	Advanced treated recycled water	36.98822	-121.93278	Santa Cruz Mid-County (3-001)
Monterey	Advanced treated recycled water	36.98252	-121.94410	Santa Cruz Mid-County (3-001)

¹ Groundwater basin naming and numbering convention from the Department of Water Resources' Bulletin 118, the State of California's official publication on the occurrence and nature of groundwater in California. Bulletin 118 can be accessed via the Internet at the following link: <https://water.ca.gov/programs/groundwater-management/bulletin-118>

² The Central Coast Water Board's *Water Quality Control Plan for the Central Coastal Basin* (Basin Plan) refers to the Santa Cruz Mid-County basin as Soquel Valley 3-1 (Basin Plan Table 2-4).

Effective Date

Order R3-2023-0033, Waste Discharge and Water Reclamation Requirements, Pure Water Soquel Groundwater Replenishment Reuse Project, Soquel Creek Water District (Permit) was adopted by the California Regional Water Quality Control Board, Central Coastal Region (Central Coast Water Board) on December 15, 2023, and is effective immediately.

I, Ryan E. Lodge, Executive Officer, do hereby certify that this Permit with all attachments is a full, true, and correct copy of an order adopted by the Central Coast Water Board, on the date indicated above.

Ryan E. Lodge
Executive Officer

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1. FACILITY INFORMATION

- 1.1. Soquel Creek Water District owns and operates the Pure Water Soquel Advanced Water Purification Facility and associated injection wells, monitoring wells, and conveyance pipelines, collectively referred to as the Pure Water Soquel project (Project). The Advanced Water Purification Facility (AWPF) is located at 2505 Chanticleer Ave., Santa Cruz, Santa Cruz County.
- 1.2. Soquel Creek Water District is responsible for providing potable water treatment and delivery services to its customers. Soquel Creek Water District constructed the AWPF, injection wells, monitoring wells, and conveyance pipelines to produce and discharge advanced treated recycled water into the Santa Cruz Mid-County groundwater basin. This water supplements natural recharge to the groundwater basin, helps mitigate the impacts of seawater intrusion, provides water supply resiliency and reliability, and a portion of the injected water is extracted by Soquel Creek Water District's production wells for potable use. In the future, Soquel Creek Water District may also use the advanced treated recycled water for non-potable uses. Non-potable uses of recycled water will require a title 22 engineering report amendment that describes the uses, a conditional approval of the amendment by DDW, and additional regulatory coverage by the Central Coast Water Board.
- 1.3. The source water to the AWPF is secondary effluent from the City of Santa Cruz's Wastewater Treatment Facility.
- 1.4. General information about the Project is summarized in Table 1 and Table 2. The Fact Sheet (ATTACHMENT F – FACT SHEET) attached to this Permit provides a detailed description of the Project. The Fact Sheet also includes information regarding the permit application for the Project.

2. FINDINGS

- 2.1. **Legal Authorities.** Order R3-2023-0033, Waste Discharge and Water Reclamation Requirements, Pure Water Soquel Groundwater Replenishment Reuse Project, Soquel Creek Water District (Permit) is issued pursuant to sections 13263 and 13523 of the California Water Code (Water Code). This Permit serves as WDRs for the discharge of waste pursuant to division 7, chapter 4, article 4 of the Water Code (commencing with section 13260) and WRRs for the production and discharge of recycled water pursuant to section 13523 of the Water Code.
- 2.2. **Background and Rationale for Requirements.** The Central Coast Water Board developed the requirements in this Permit based on information submitted in the *Pure Water Soquel Engineering Report*¹ (Engineering Report) and *Errata Sheet for the Pure Water Soquel Engineering Report*, the Pure Water Soquel Report of Waste Discharge,² recommendations for the water reclamation requirements in the State Water Board Division of Drinking Water's (DDW) letter titled *Conditional Acceptance of the Title 22 Engineering Report for Pure Water Soquel Groundwater*

¹ Submitted pursuant to title 22 section 60323

² Submitted pursuant to Water Code section 13260

Recharge and Replenishment Project, (4490006-701), and water quality control plans, policies, and other available information. The Fact Sheet, which contains background information and rationale for the requirements in this Permit, is hereby incorporated into and constitutes findings for this Permit. Attachments A through E are also incorporated into this Permit.

- 2.3. Indirect Potable Reuse Requirements.** This Permit incorporates applicable portions of State Water Resources Control Board (State Water Board) *Water Quality Control Policy for Recycled Water* (Recycled Water Policy)³ and California Code of Regulations (CCR) title 22, division 4 (title 22), Chapter 3, article 5.2 - *Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application*.
- 2.4. California Environmental Quality Act.** Soquel Creek Water District, serving as lead agency, prepared an environmental impact report (EIR) for the Project. Soquel Creek Water District adopted the final EIR, titled *CEQA for the Pure Water Soquel Project*, on December 18, 2018. The final EIR concluded that all environmental impacts considered as part of the EIR and associated with the Project will be less than significant with mitigation. Two subsequent addendums were adopted by Soquel Creek Water District on November 17, 2020, and October 5, 2021.

The Central Coast Water Board is a responsible agency pursuant to CEQA (CEQA Guidelines Section 15096). The Central Coast Water Board has considered the EIR and associated documents and finds that all environmental effects have been identified for project activities that it is required to approve and that the Project will not have significant adverse impacts on the environment. The Central Coast Water Board has considered the EIR and subsequent addenda and makes its own conclusions in this Permit on whether and how to approve the waste discharge requirements for the Project.

There was one potentially significant environmental impact within the Central Coast Water Board's jurisdiction identified by the EIR, which was the potential for water quality impacts associated with horizontal directional drilling under watercourses during the installation of project pipelines. However, during construction of the pipelines, project engineers decided to cross the watercourses by connecting the pipelines to existing bridges, and no horizontal directional drilling occurred. There were no significant water quality impacts associated with the pipeline watercourse crossings.

Since neither the EIR nor subsequent addenda has identified any potentially significant environmental effects within the Central Coast Water Board's jurisdiction, the Central Coast Water Board is not required to make any specific finding pursuant to CEQA Guidelines 15096. In adopting this Permit, the Central Coast Water Board has eliminated or substantially lessened the less-than-significant effects on water

³ The Recycled Water Policy can be found at the following webpage:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf

quality, and therefore approves the project. Additional information regarding CEQA compliance is set forth in section 3.2 of the Fact Sheet.

- 2.5. Antidegradation Policy.** The State Water Board established California's Antidegradation Policy in Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Antidegradation Policy).⁴ The Antidegradation Policy requires existing quality of waters be maintained unless degradation is justified by specific findings. The Central Coast Water Board's *Water Quality Control Plan for the Central Coastal Basin* (Basin Plan)⁵ implements and incorporates by reference the State's Antidegradation Policy. As discussed in section 3.5 of the Fact Sheet, the discharge regulated by this Permit is consistent with the Basin Plan and Resolution 68-16.
- 2.6. Recycled Water Policy.** The State Water Board's *Water Quality Control Policy for Recycled Water* (Recycled Water Policy) provides requirements for the regional water quality control boards (Regional Water Boards), proponents of recycled water projects, and the public regarding the methodology and appropriate criteria for the State Water Board and the Regional Water Boards to use when issuing permits for recycled water projects. The State Water Board first adopted the Recycled Water Policy on February 3, 2009, and amended the policy on January 22, 2013, and December 11, 2018. The 2018 amendment, effective April 8, 2019, included permitting guidance for groundwater recharge projects and updated monitoring requirements for contaminants of emerging concern (CECs). As part of the Report of Waste Discharge, Soquel Creek Water District submitted an antidegradation analysis to demonstrate compliance with the Recycled Water and Antidegradation Policies. The Permit includes monitoring and reporting requirements for CECs and volumetric data that are consistent with the Recycled Water Policy.
- 2.7. Executive Officer Delegation of Authority.** The Central Coast Water Board, by prior resolution, has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to Water Code section 13223. Therefore, the Executive Officer is authorized to act on the Central Coast Water Board's behalf on any matter within this Permit unless such delegation is unlawful under Water Code section 13223 or as otherwise explicitly stated in this Permit. The Central Coast Water Board's delegated authorities to the Executive Officer include approving modifications to the WRRs in Attachment D of this Permit, as appropriate, after consulting with and receiving the recommendations from DDW and modifications to the monitoring and reporting program in Attachment E.
- 2.8. Notification of Interested Parties.** The Central Coast Water Board has notified Soquel Creek Water District and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. The Central Coast Water

⁴ The Antidegradation Policy can be found at the following webpage:

https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf

⁵ The Basin Plan can be found at the following webpage:

https://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan/docs/2019_basin_plan_r3_complete_webaccess.pdf

Board also provided an opportunity for Soquel Creek Water District and interested agencies and persons to submit oral comments and recommendations at a public hearing. Notification details are provided in the Fact Sheet.

2.9. Consideration of Public Comment. The Central Coast Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the public hearing are provided in the Fact Sheet.

2.10. Response to Climate Change. The Central Coast faces the threat and the effects of climate change for the foreseeable and distant future. To proactively prepare and respond, the Central Coast Water Board has launched the Central Coast Water Board's Climate Action Initiative, which identifies how the Central Coast Water Board's work relates to climate change and prioritizes actions that improve water supply resiliency through water conservation and wastewater reuse and recycling; mitigate for and adapt to sea level rise and increased flooding; improve energy efficiency; and reduce greenhouse gas production. The Climate Action Initiative is consistent with the Governor's Executive Order B-30-15 and the State Water Board's Climate Change Resolution 2017-0012.

Aligning with Resolution 2017-0012, this Permit authorizes the production of recycled water for the purpose of indirect potable reuse to help offset demand on natural groundwater supplies, mitigate seawater intrusion, and support local water supply resiliency.

2.11. Human Right to Water. Water Code section 106.3 established the policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes. On January 26, 2017, the Central Coast Water Board adopted Environmental Justice and the Human Right to Water Resolution R3-2017-0004, which adopts the human right to water as a core value and affirms the realization of the human right to water and protecting human health as the Central Coast Water Board's top priorities. Consistent with the Water Code and Resolution R3-2017-0004, this Permit promotes actions that advance the human right to water and discourages actions that delay or impede opportunities for communities to secure safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

The Permit is consistent with Resolution R3-2017-0004 by authorizing the production of recycled water for the purpose of indirect potable reuse to help improve water quality, water supply reliability, and water supply resiliency. The Permit ensures that best practicable treatment or control of the discharge is implemented to protect groundwater that serves as a source of drinking water. The Central Coast Water Board has determined that regulation of this Project, in compliance with the Permit, will not pose a significant threat to water quality.

2.12. Environmental Justice. Environmental justice principles call for the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income in the development, adoption, implementation, and enforcement of all

environmental laws, regulations, and policies that affect every community's natural resources and the places people live, work, play, and learn. The Central Coast Water Board implements regulatory activities and water quality projects in a manner that ensures the fair treatment of all people, including Underrepresented Communities. Underrepresented Communities include but are not limited to Disadvantaged Communities (DACs), Severely Disadvantaged Communities (SDACs), Economically Distressed Areas (EDAs), Tribes, Environmentally Disadvantaged Communities (EnvDACs), and members of Fringe Communities.⁶ Furthermore, the Central Coast Water Board is committed to providing all stakeholders the opportunity to participate in the public process and provide meaningful input to decisions that affect their communities.

In support of environmental justice, staff has evaluated the disadvantaged community status for Soquel Creek Water District and in areas overlying the injected water. There are two census block groups within Soquel Creek Water District's water service area that are considered DACs based on median household incomes. One of the DACs is located on the western edge of Soquel Creek Water District's service area boundary and has a population of 881. The second DAC is located between Highway 1 and the coast and has a population of 536.

Outside of Soquel Creek Water District's service area boundary but within the area of impact for the Project there are additional DACs and SDACs. Within the Santa Cruz Mid-County basin, there is one SDAC with a population of 1,490 and two DACs with populations of 1,266 and 1,248, respectively. In addition, the neighboring Santa Cruz City municipal utilities' service area includes multiple additional such communities, including an additional 10 SDAC (populations 366, 433, 611, 664, 986, 1170, 1436, 2090, 2262, and 5202 total) and an additional three DAC (populations 1416, 1531, and 1588). The implementation of the Project would reduce groundwater stress and increase water supply reliability for all these communities.

⁶ Disadvantaged Community: a community with an annual median household income that is less than 80% of the statewide annual median household income (Public Resources Code section 80002(e)); Severely Disadvantaged Community: a community with a median household income of less than 60% of the statewide average. (Public Resources Code section 80002(n)); Economically Distressed Area: a municipality with a population of 20,000 persons or less, a rural county, or a reasonably isolated and divisible segment of a larger municipality where the segment of the population is 20,000 persons or less with an annual median household income that is less than 85% of the statewide median household income and with one or more of the following conditions as determined by the department: (1) financial hardship, (2) unemployment rate at least 2% higher than the statewide average, or (3) low population density. (Water Code section 79702(k)); Tribes: federally recognized Indian Tribes and California State Indian Tribes listed on the Native American Heritage Commission's California Tribal Consultation List; EnvDACs: CalEPA designates the top 25 percent scoring census tracts as DACs. Census tracts that score the highest five percent of pollution burden scores but do not have an overall CalEnviroScreen score because of unreliable socioeconomic or health data are also designated as DACs (refer to the CalEnviroScreen 3.0 Mapping Tool or Results Excel Sheet); Fringe Community: communities that do not meet the established DAC, SDAC, and EDA definitions but can show that they score in the top 25 percent of either the Pollution Burden or Population Characteristics score using the CalEnviroScreen 3.0.

Without the Pure Water Soquel project, Soquel Creek Water District would be required to implement significant water use restrictions to limit extraction to no more than 2,300 AFY. As part of a study to evaluate the economic impacts of the Project, titled *Estimating Benefits of the Pure Water Soquel Project* (Hadad and Pratt, 2018), the authors calculated and analyzed the revenue change that would be necessary to reduce water use to 2,300 AFY, the maximum groundwater available if the Project is not implemented. As described in the study, Soquel Creek Water District would have to set water prices such that total consumption is equal to the available supply. As documented in the study, to generate enough curtailment to comply with 2,300 AFY, Soquel Creek Water District would need to raise prices to nearly \$12,000 per AF until the Basin was no longer in a state of overdraft. These rates would most impact in DAC and SDAC, potentially driving them out of the community. Pure Water Soquel would help with water affordability and avoid a disproportionate impact to DAC and SDAC.

The economic analysis also found that without the Project, 2,122 housing units would not be constructed, exacerbating a perennial problem of high housing costs and a lack of affordable housing. The economic analysis estimates that 2,122 housing units would not be constructed through 2035 due to a pending moratorium on new water connections should the Project not be built and additional water not secured. Blocking construction of new housing is a contentious social issue in the region.

Soquel Creek Water District's economic study also estimated that \$47 million commercial loss would occur each year through 2044. The lost jobs would likely be from the service industry that would be significantly impacted by the severe water restrictions and loss of tourism. Again, the economically disadvantaged communities would be impacted by the loss of jobs if the Project is not implemented.

The Order supports environmental justice by authorizing the production and discharge of advanced treated recycled water that will help ensure an affordable water supply for Soquel Creek Water District's customers and those outside Soquel Creek Water District's service area, including members of DAC and SDAC, who may be disproportionately affected by increasing potable water costs that would occur without the Project.

THEREFORE, IT IS HEREBY ORDERED, that Order. R3-2023-0033, with its monitoring and reporting program, is effective as of the date of this order, and, to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations and guidelines adopted thereunder and CCR title 22, division 4, chapter 3, Soquel Creek Water District must comply with the requirements in this Permit. Soquel Creek Water District is hereby authorized to discharge advanced treated

recycled water subject to WDRs and WRRs in this Permit at the discharge locations described in Table 2 within the Santa Cruz Mid-County groundwater basin.

3. DISCHARGE PROHIBITIONS

- 3.1. Recycled water must not be used for direct human consumption or for the processing of food or drink intended for human consumption.
- 3.2. Discharges of waste to land or waters of the state that have not been specifically described in this Permit, and for which valid WDRs are not in force, are prohibited.
- 3.3. Discharges of treated or untreated solid or liquid waste to waters of the United States are prohibited unless authorized by a National Pollutant Discharge Elimination System (NPDES) permit issued by the Central Coast Water Board.⁷
- 3.4. Discharges of treated or untreated solid or liquid waste directly or indirectly to any waters of the state (e.g., ephemeral streams and vernal pools) are prohibited unless authorized by WDRs.
- 3.5. Discharges of reverse osmosis (RO) concentrate or diluted concentrate to land or waters of the state are prohibited unless Soquel Creek Water District submits a report of waste discharge and receives WDRs for the discharge.
- 3.6. Treatment, storage, or disposal of waste in a manner that creates pollution, contamination, or nuisance, as defined by Water Code section 13050, is prohibited.
- 3.7. Bypass, discharge, or delivery to the use area of water that has not received full advanced treatment in accordance with CCR title 22, article 5.2 and as detailed in the Engineering Report and operation and optimization plan, is prohibited.

4. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

- 4.1. The flow rate from the AWPf must not exceed a daily maximum of 1.67 million gallons per day (MGD), calculated as a monthly mean. The monthly mean is the sum of the flows that occurred for each day of the month, divided by the number of days in the month.
- 4.2. The concurrent discharge rate for all three injection wells shown in Table 2 must not exceed 1,162 gallons per minute (GPM), based on the mean monthly flow. The mean monthly flow is the sum of the flows that occurred for each day of the month, divided by the number of days in the month.
- 4.3. The total combined injection volume at all three injection wells shown in Table 2 must not exceed 1,500 acre-feet per year (AFY). Year is the calendar year from January 1 through December 31.
- 4.4. Soquel Creek Water District must maintain compliance with the limitations for secondary effluent supplied to the AWPf (i.e., AWPf influent) from the City of Santa Cruz's Wastewater Treatment Facility (WWTF) in Table 3 with compliance measured at Monitoring Location M-001 (M-001) described in Table E-1 of the

⁷ The discharge of 0.7 MGD of reverse osmosis concentrate and membrane filter wastewater produced at the AWPf will occur at the existing ocean outfall owned and operated by the City of Santa Cruz. This discharge is authorized by the City of Santa Cruz's NPDES permit for discharge to the Pacific Ocean.

monitoring and reporting program in Attachment E. Monitoring locations are also shown in Figure B-1 of Attachment B.

Table 3. City of Santa Cruz WWTF Effluent/ AWPf Influent Limitations at M-001

Parameter	Units	Monthly Average ¹	Weekly Average ²	Maximum Daily
Total Organic Carbon (TOC)	Milligrams per liter (mg/L)	20	23	-
Turbidity	Nephelometric turbidity units (NTU)			225
Total Suspended Solids (TSS)	mg/L	30	45	-

¹ The monthly average effluent limitation applies to the arithmetic mean of the results of all samples collected during each calendar month.

² The weekly average effluent limitation applies to the arithmetic mean of the results of all samples collected during each calendar week, beginning on Sunday and ending on Saturday.

4.5. Soquel Creek Water District must maintain compliance with the effluent limitations in Table 4 through Table 9 of this Permit, with compliance measured at effluent monitoring location M-002 as described in Table E-1 of the monitoring and reporting program.

Table 4. Effluent Limitations at M-002

Parameter	Units	Average Annual ¹	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Aluminum ²	mg/L	0.2	-	-	-
Boron ^{2,3}	mg/L	0.75	5	-	-
Chloride ^{2,3}	mg/L	106	500	-	-
Color Units ²	Apparent Color Unit (ACU)	15	-	-	-
Copper ^{3,4}	mg/L	0.2	0.5	-	-

Parameter	Units	Average Annual ¹	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Fluoride ^{3,4}	mg/L	1	2	-	-
Iron ²	mg/L	0.3	-	-	-
Lead ⁴	mg/L	0.015	-	-	-
Manganese ²	mg/L	0.05	0.15	-	-
Methylene Blue Activated Substances (MBAS) ²	mg/L	-	0.5	-	-
Methyl-tert-butyl ether (MTBE) ²	mg/L	0.005	-	-	-
Nitrate (as nitrogen) ⁴	mg/L	10	-	-	10
Nitrate + Nitrite (as nitrogen) ⁴	mg/L	10	-	-	10
Nitrite (as nitrogen) ⁴	mg/L	1	-	-	1
Total Nitrogen ⁶	mg/L		10	-	-

Parameter	Units	Average Annual ¹	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Odor ²	Threshold Odor Number (TON)	3	-	-	-
Sodium ³	mg/L	69	-	-	-
pH ^{3,7,8}	pH Units	-	-	6.5	8.5
Silver ²	mg/L	0.1	-	-	-
Sulfate ²	mg/L	250	500	-	-
Thiobencarb ²	mg/L	0.001	-	-	-
Total Dissolved Solids (TDS) ²	mg/L	500	1000	-	-
Total Organic Carbon (TOC) ^{5,9}	mg/L	0.5	-	-	-
Total Coliform ³	Most Probable Number (MPN) per 100 milliliters	-	-	-	2.2
Zinc ³	mg/L	2	25	-	-

¹ The average annual effluent limitation applies to the arithmetic mean of the results of all samples collected during each calendar year.

² Parameters with secondary maximum contaminant levels (MCLs) established in CCR title 22, section 64449, Tables 64449-A and 64449-B.

³ Parameters with water quality objectives established in the Basin Plan.

- ⁴ Parameters with primary MCLs established in CCR title 22, section 64431, Table 64431-A.
- ⁵ Parameters with effluent limitations recommended by DDW's *Conditional Acceptance of the Title 22 Engineering Report for Pure Water Soquel Groundwater Recharge and Replenishment Project, (4490006-701)*, dated April 26, 2023.
- ⁶ Parameters with limits established in CCR title 22, section 60320.210.
- ⁷ Parameters with limits established in 40 Code of Federal Regulations, section 143.3.
- ⁸ pH maximum based on the recommendations in the Engineering Report for the control of problematic geochemical interactions.
- ⁹ TOC must not exceed 0.5 mg/L based on a 20-week running average of all TOC results and the average of the last four monitoring results for TOC.

Table 5. Effluent Limitations at M-002: Inorganic Chemicals with Primary MCLs

Parameter ¹	Units	Running 4-Week Average ²
Aluminum	mg/L	1
Antimony	mg/L	0.006
Arsenic	mg/L	0.010
Asbestos (for fibers exceeding 10 micrometers [μm] in length)	mg/L	7
Barium	mg/L	1
Beryllium	mg/L	0.004
Cadmium	mg/L	0.005
Chromium	mg/L	0.05
Cyanide	mg/L	0.15
Mercury	mg/L	0.002
Nickel	mg/L	0.1
Perchlorate	mg/L	0.006
Selenium	mg/L	0.05
Thallium	mg/L	0.002

¹ Parameters with primary MCLs established in CCR title 22, section 64431, Table 64431-A.

² Compliance with the running four-week average will be determined based on the arithmetic mean of all samples collected during the four-week period. The first week of sample is the mean of the initial and confirmation sample.

Table 6. Effluent Limitations at M-002: Volatile Organic Chemicals (VOCs) with Primary MCLs

Parameter¹	Units	Running 4-Week Average²
Benzene	mg/L	0.001
Carbon Tetrachloride	mg/L	0.0005
1,2-Dichlorobenzene	mg/L	0.6
1,4-Dichlorobenzene	mg/L	0.005
1,1-Dichloroethane	mg/L	0.005
1,2-Dichloroethane	mg/L	0.0005
1,1-Dichloroethylene	mg/L	0.006
cis-1,2-Dichloroethylene	mg/L	0.006
trans-1,2-Dichloroethylene	mg/L	0.01
Dichloromethane	mg/L	0.005
1,2-Dichloropropane	mg/L	0.005
1,3-Dichloropropene	mg/L	0.0005
Ethylbenzene	mg/L	0.3
MTBE	mg/L	0.013
Chlorobenzene	mg/L	0.07
Styrene	mg/L	0.1
1,1,2,2-Tetrachloroethane	mg/L	0.001
Tetrachloroethylene	mg/L	0.005
Toluene	mg/L	0.15
1,2,4-Trichlorobenzene	mg/L	0.005
1,1,1-Trichloroethane	mg/L	0.200
1,1,2-Trichloroethane	mg/L	0.005
Trichloroethylene	mg/L	0.005
Trichlorofluoromethane	mg/L	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/L	1.2
Vinyl Chloride	mg/L	0.0005

Parameter ¹	Units	Running 4-Week Average ²
Xylenes	mg/L	1.750 ³

¹ Parameters with primary MCLs established in CCR title 22, section 64444, Table 64444-A

² Compliance with the running four-week average will be determined based on the arithmetic mean of all samples collected during the four-week period. For the first week, compliance is based on the mean of the initial and confirmation sample.

³ The MCL is for either a single isomer or the sum of the isomers.

Table 7. Effluent Limitations at M-002: Synthetic Organic Chemicals (SOCs) with Primary MCLs

Parameter ¹	Units	Running 4-Week Average ²
Alachlor	mg/L	0.002
Atrazine	mg/L	0.001
Bentazon	mg/L	0.018
Benzo(a)pyrene	mg/L	0.0002
Carbofuran	mg/L	0.018
Chlordane	mg/L	0.0001
2,4-Dichlorophenoxyacetic acid	mg/L	0.07
Dalapon	mg/L	0.2
1,2-Dibromo-3-chloropropane	mg/L	0.0002
Di(2-ethylhexyl)adipate	mg/L	0.4
Di(2-ethylhexyl)phthalate	mg/L	0.004
Dinoseb	mg/L	0.007
Diquat	mg/L	0.02
Endothall	mg/L	0.1
Endrin	mg/L	0.002
Ethylene Dibromide	mg/L	0.0005
Glyphosate	mg/L	0.7
Heptachlor	mg/L	0.00001
Heptachlor epoxide	mg/L	0.00001
Hexachlorobenzene	mg/L	0.001

Parameter ¹	Units	Running 4-Week Average ²
Hexachlorocyclopentadiene	mg/L	0.05
Gamma BHC (Lindane)	mg/L	0.0002
Methoxychlor	mg/L	0.03
Molinate	mg/L	0.02
Oxamyl	mg/L	0.05
Pentachlorophenol	mg/L	0.001
Picloram	mg/L	0.5
Polychlorinated Biphenyls (PCBs)	mg/L	0.0005
Simazine	mg/L	0.004
Thiobencarb	mg/L	0.07
Toxaphene	mg/L	0.003
1,2,3-Trichloropropane	mg/L	0.000005
2,3,7,8-Tetrachlorodibenzodioxin (Dioxin)	mg/L	3 x 10 ⁻⁸
2-(2, 4, 5-Trichlorophenoxy) propionic acid (Silvex)	mg/L	0.05

¹ Parameters with primary MCLs established in CCR title 22, section 64444, Table 64444-A

² Compliance with the running four-week average will be determined based on the arithmetic mean of all samples collected during the four-week period. The first week of sample is the mean of the initial and confirmation sample.

Table 8. Effluent Limitations at M-002: Disinfection Byproducts with Primary MCLs

Parameter ¹	Units	Running 4-Week Average ²
Total Trihalomethanes (TTHMs) ³ <ul style="list-style-type: none"> • Bromodichloromethane • Bromoform • Chloroform • Dibromochloromethane 	mg/L	0.080

Haloacetic acid (HAA5) ³ <ul style="list-style-type: none"> • Monochloroacetic acid • Dichloroacetic acid • Trichloroacetic acid • Monobromoacetic acid • Dibromoacetic acid 	mg/L	0.060
Bromate	mg/L	0.010
Chlorite	mg/L	1.0

¹ Parameters with primary MCLS established in CCR title 22, section 64533, Table 64533-A

² Compliance with the running four-week average will be determined based on the arithmetic mean of all samples collected during the four-week period. The first week of sample is the mean of the initial and confirmation sample.

³ Limit is based on the sum of the species (i.e., total trihalomethanes or total haloacetic acids)

Table 9. Effluent Limitations at M-002: Radionuclides with Primary MCLs

Parameter ¹	Units	Running 4-Week Average ²
Combined Radium-226 and Radium-228	Picocuries per Liter (pCi/L)	5
Gross Alpha particle activity (excluding radon and uranium)	pCi/L	15
Uranium	pCi/L	20
Beta/photon emitters	millirem/year	4
Strontium-90	pCi/L	8
Tritium	pCi/L	20,000

¹ Parameters with primary MCLs established in CCR title 22, section 64442 and 64443, Table 64442 and 64443.

² Compliance with the running four-week average will be determined based on the arithmetic mean of all samples collected during the four-week period. The first week of sample is the mean of the initial and confirmation sample.

5. GROUNDWATER LIMITS

5.1. Soquel Creek Water District must manage the discharge so that it does not pollute groundwater, adversely affect beneficial uses of groundwater, or cause an exceedance of Basin Plan water quality objectives. Specifically, Soquel Creek Water District must manage the discharge to comply with water quality objectives

for groundwater found in Section 3.3.4 of the Basin Plan. The Basin Plan objectives are included herein as enforceable limits. These Basin Plan objectives include:

5.1.1. General objectives for taste and odors and radioactivity for all groundwaters;

5.1.2. Objectives for bacteria and organic chemicals, inorganic chemicals, disinfection byproducts, and radionuclides established as drinking water maximum contaminant levels as defined in CCR title 22, division 4, chapter 15, and included in this Permit in Table 4 through Table 9;⁸ and

5.1.3. Objectives for irrigation and livestock watering found in Tables 3-1 and 3-2 of the Basin Plan.⁹

5.2. Compliance with these groundwater limits is based on the running annual arithmetic mean concentration, except for total coliform, nitrate, and nitrite. The limit for total coliform is based on the 7-day median. The limit for nitrate and nitrite is based on the instantaneous maximum.

6. NOTIFICATION AND RESPONSE LEVELS

6.1. Notification Levels are health-based advisory levels established by DDW for constituents in drinking water without MCLs. Soquel Creek Water District must monitor the following constituents with notification levels at Monitoring Location M-002 as described in Table E-1 of the monitoring and reporting program. The Central Coast Water Board does not use notification levels for compliance determination. If DDW elevates a notification level to an MCL through a formal regulatory process, the Central Coast Water Board will use that MCL for compliance determination. Any exceedance of notification levels must be reported to DDW within 72 hours.

6.2. Table 10 lists the pollutants with notification levels and their corresponding response levels at the time of adoption of this Permit. Soquel Creek Water District must maintain an updated list of pollutants with notification levels and monitor these pollutants as DDW issues notification levels and response levels for additional pollutants pursuant to California Health and Safety Code section 116455.

Table 10. Notification Levels (NL) and Response Levels (RL) at M-002

Parameter	Units	NL	RL
Boron	mg/L	1	10
n-Butylbenzene	mg/L	0.26	2.6
sec-Butylbenzene	mg/L	0.26	2.6

⁸ These limits apply because the receiving groundwater has a designated use of municipal and domestic supply.

⁹ These limits apply because the receiving groundwater has a designated use of agricultural supply.

Parameter	Units	NL	RL
tert-Butylbenzene	mg/L	0.26	2.6
Carbon Disulfide	mg/L	0.16	1.6
Chlorate	mg/L	0.8	8
2-Chlorotoluene	mg/L	0.14	1.4
4-Chlorotoluene	mg/L	0.14	1.4
Diazinon	mg/L	0.0012	0.012
Dichlorodifluoromethane (Freon 12)	mg/L	1	10
1,4-Dioxane	mg/L	0.001	0.035
Ethylene Glycol	mg/L	14	140
Formaldehyde	mg/L	0.1	1
HMX (Octogen)	mg/L	0.35	3.5
Isopropylbenzene	mg/L	0.77	7.7
Manganese	mg/L	0.5	5
Methyl Isobutyl ketone	mg/L	0.12	1.2
Naphthalene	mg/L	0.017	0.17
N-Nitrosodiethylamine (NDEA)	mg/L	0.00001	0.0001
N-Nitrosodimethylamine (NDMA)	mg/L	0.00001	0.0003
N-Nitrosodipropylamine (NDPA)	mg/L	0.00001	0.0005
Perfluorobutanesulfonic acid (PFBS)	Nanograms per liter (ng/L)	500	5000
Perfluorohexanesulfonic acid (PFHxS)	ng/L	3	20
Perfluorooctanesulfonic acid (PFOS)	ng/L	6.5	40
Perfluorooctanoic acid (PFOA)	ng/L	5.1	10
Propachlor	mg/L	0.09	0.9

Parameter	Units	NL	RL
n-Propylbenzene	mg/L	0.26	2.6
1,3,5-Trinitroperhydro-1,3,5-triazine (RDX)	mg/L	0.0003	0.03
Tertiary Butyl Alcohol (TBA)	mg/L	0.012	1.2
1,2,4-Trimethylbenzene	mg/L	0.33	3.3
1,3,5-Trimethylbenzene	mg/L	0.33	3.3
2,4,6-Trinitrotoluene (TNT)	mg/L	0.001	1
Vanadium	mg/L	0.05	0.5

7. GENERAL REQUIREMENTS

- 7.1. The Project infrastructure must be adequately protected from inundation and damage by storm flows.
- 7.2. Recycled water use or disposal must not result in earth movement in geologically unstable areas.
- 7.3. Soquel Creek Water District must at all times properly operate and maintain all treatment facilities and control systems (and related appurtenances) that are installed or used by Soquel Creek Water District to achieve compliance with the conditions of this Permit. Proper operation and maintenance include effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and process controls (including appropriate quality assurance procedures).
- 7.4. For any material change or proposed change in character, location, or volume of recycled water or its uses, Soquel Creek Water District must submit at least 120 days prior to the proposed change an engineering report or addendum to the existing engineering report to the Central Coast Water Board and DDW (pursuant to Water Code Division 7, Chapter 7, Article 4, section 13522.5 and CCR title 22, Division 4, Chapter 3, Article 7, section 60323) for approval. The engineering report must be prepared by a qualified engineer registered in California.

8. WATER RECLAMATION REQUIREMENTS

- 8.1. Soquel Creek Water District must comply with the site-specific water recycling requirements (WRRs) contained in Attachment D, which are based on information from Soquel Creek Water District's Engineering Report and recommendations in DDW's *Conditional Acceptance Letter for the Title 22 Engineering Report for Pure Water Soquel Groundwater Recharge and Replenishment Project (4490006-701)*, dated April 26, 2023.

8.2. Attachment D is incorporated by reference into this Permit. Any violation of a term in this Permit that is identical to a condition included in the water reclamation requirements in Attachment D will constitute a single violation.

9. MONITORING AND REPORTING PROGRAM REQUIREMENTS

- 9.1. Pursuant to Water Code section 13267, Soquel Creek Water District must comply with the monitoring and reporting program, and future revisions thereto, and all notification and general reporting requirements throughout this Permit. Where notification or general reporting requirements conflict with those stated in the monitoring and reporting program (e.g., annual report due date), Soquel Creek Water District must comply with the monitoring and reporting program requirements.
- 9.2. Soquel Creek Water District is required to provide technical or monitoring reports because it is the owner and operator responsible for the waste discharge and compliance with this Permit. The Central Coast Water Board needs this information to determine Soquel Creek Water District's compliance with this Permit, assess the need for further investigation or enforcement action, and to protect public health and safety and the environment.
- 9.3. This Permit includes the monitoring and reporting program in Attachment E. If there is any conflict between provisions stated in the monitoring and reporting program and the Central Coast Water Board's *Standard Provisions and Reporting Requirements for Waste Discharge Requirements*¹⁰ (Standard Provisions), those provisions stated in the monitoring and reporting program prevail. The monitoring and reporting program may be modified by the Central Coast Water Board's Executive Officer; however, any such modified requirements must still achieve the monitoring and reporting program's primary purpose, which is to detect violations, confirm effective treatment, and to ensure that neither excessive degradation in the aquifer nor adverse impacts to beneficial uses occurs.
- 9.4. Soquel Creek Water District must comply with the monitoring and reporting program and any future revisions specified by the Central Coast Water Board. Soquel Creek Water District must submit to the Central Coast Water Board, under penalty of perjury and signed by designated responsible party, self-monitoring reports according to the specifications contained in the monitoring and reporting program, as directed by the Executive Officer.
- 9.5. Soquel Creek Water District must submit reports required under this Permit to the Central Coast Water Board via the GeoTracker database at <https://geotracker.waterboards.ca.gov/>. The Central Coast Water Board may also request hard copies and/or electronic copies on a compact disc (CD) or universal serial bus (USB) drive or other appropriate media, including electronic mail (email). Report submittals must include a signed cover/transmittal letter that includes the Central Coast Water Board's self-monitoring report cover sheet, unless directed

¹⁰ The Central Coast Water Board's Standard Provisions and Reporting Requirements for Waste Discharge Requirements can be accessed via the Internet at the following link: https://www.waterboards.ca.gov/centralcoast/board_decisions/docs/wdr_standard_provisions_2013.pdf

otherwise by the Executive Officer. Sections 6-8 of the monitoring and reporting program contain additional information regarding report submittal requirements.

10. PROVISIONS

This section includes both Standard Provisions and Special Provisions.

- 10.1. Soquel Creek Water District must comply with all conditions of this Permit. Failure to comply with provisions or requirements of this Permit or violation of other applicable laws or regulations governing discharges from this facility may subject Soquel Creek Water District to (a) administrative or civil liability, criminal penalties, and/or other enforcement remedies to ensure compliance; (b) termination and/or modification of this Permit; or (c) denial of an application for new or revised WDRs. Additionally, certain violations may subject Soquel Creek Water District to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- 10.2. Soquel Creek Water District must comply with the Central Coast Water Board's Standard Provisions and any updates to the Standard Provisions adopted by the Central Coast Water Board, unless exempted in writing by the Central Coast Water Board Executive Officer.
- 10.3. In the event that there is any conflict, duplication, or overlap between provisions specified by this Permit and Standard Provisions, the provisions stated in this Permit shall prevail.
- 10.4. Injection of the advanced treated recycled water must not contribute to exceedance of water quality objectives in the Santa Cruz Mid-County groundwater basin.
- 10.5. Soquel Creek Water District must notify the Central Coast Water Board, DDW, and all water purveyors extracting potable water from within Soquel Creek Water District's water service area by telephone or electronic means as soon as Soquel Creek Water District becomes aware, but no later than 24 hours after, of any violations of this order or any adverse conditions as a result of the use of recycled water from this facility; written confirmation must follow to the Central Coast Water Board and DDW within five working days from date of notification. The report must include, but not be limited to, the following information as appropriate:
 - 10.5.1. The nature and extent of the violation;
 - 10.5.2. The date and time when the violation started, when compliance is achieved, and when injection was suspended and restored, as applicable;
 - 10.5.3. The duration of the violation;
 - 10.5.4. The cause(s) of the violation;
 - 10.5.5. Any corrective and/or remedial actions have been taken and/or will be taken with a time schedule for implementation to prevent future violations; and,
 - 10.5.6. Any impact of the violation.

- 10.6. If Soquel Creek Water District, without regard to intent or negligence, causes or permits an unauthorized discharge of 50,000 gallons or more of advanced treated recycled water, or 1,000 gallons or more of recycled water that is treated at a level less than advanced treated recycled water, Soquel Creek Water District must immediately notify the Central Coast Water Board. Soquel Creek Water District must notify the Central Coast Water Board as soon as (1) Soquel Creek Water District has knowledge of the discharge, (2) notification is possible, and (3) notification can be provided without substantially impeding cleanup or other emergency measures.
- 10.7. Upon loss, failure, or reduction of treatment capacity or quality of the AWWP, Soquel Creek Water District must, to the extent necessary to maintain compliance with this Permit, control production and/or control all discharges until the AWWP is restored or until an alternative method of treatment is provided. This provision applies, for example, when the primary source of power to the AWWP has failed or is reduced and backup power sources are insufficient.
- 10.8. Any person who, without regard to intent or negligence, causes or permits any hazardous substance to be discharged in or on any waters of the state, must immediately notify Santa Cruz County Environmental Health Services (EHS) and California Office of Emergency Services (OES) of the discharge. Soquel Creek Water District must notify EHS and OES as soon as (a) Soquel Creek Water District has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, in accordance with Health and Safety Code section 5411.5 and the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to CCR title 2, Government Code, division 1, chapter 7, article 3.7 (commencing with section 8574.17). This provision does not require reporting of any discharge that is less than a reportable quantity as provided for under Water Code section 13271, subdivisions (f) and (g), (see CCR, title 23 sections 2250-2251), unless Soquel Creek Water District is in violation of a prohibition in the Basin Plan.
- 10.9. Except for a discharge that is in compliance with this Permit, any person who, without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the state, or discharged or deposited where the oil or petroleum product is or probably will be discharged in or on any waters of the state must immediately notify OES of the discharge. Soquel Creek Water District must notify OES as soon as (a) Soquel Creek Water District has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, in accordance with the spill reporting provision of the state oil spill contingency plan adopted pursuant to Government Code title 2, division 1, chapter 7, article 3.7 (commencing with section 8574.1). This requirement does not require reporting of any discharge that is less than 42 gallons unless the discharge is also required to be reported pursuant to Clean Water Act section 311 or the discharge is in violation of a Basin Plan prohibition.

- 10.10. Soquel Creek Water District must ensure that all site operating personnel are familiar with the contents of the Permit, the monitoring and reporting program, the water reclamation requirements, the OOP, and the conditionally accepted Engineering Report. Soquel Creek Water District must at a minimum document training provided to all new site operating personnel and refresher training annually to ensure it meets this requirement. A copy of this Permit and technical reports required by the monitoring and reporting program must be kept at the AWWPF for reference by operating personnel.
- 10.11. The filing of a request by Soquel Creek Water District for the modification, termination, or rescission of this Permit or notification by Soquel Creek Water District of planned changes or anticipated noncompliance do not stay any condition of this Permit.
- 10.12. At least 120 days prior to any proposed changes to the Project, Soquel Creek Water District must submit a report of waste discharge and engineering report or addendum to the existing report of waste discharge and engineering report to the Central Coast Water Board and DDW (pursuant to Water Code Division 7, Chapter 7, Article 4, section 13522.5 and CCR title 22, Division 4, Chapter 3, Article 7, section 60323) for review, response, and approval. The report of waste discharge and engineering report must be prepared, stamped, and signed by a qualified engineer licensed in California. The following are examples of changes that require submittal of a new or amended report of waste discharge and engineering report:
- 10.12.1. Addition of a major industrial waste discharge to a discharge of domestic sewage or addition of a new process or product by an industrial facility resulting in a change in the character of the wastes.
 - 10.12.2. Significant change in the treatment or discharge method (e.g., change in the method of treatment that would significantly alter the nature of the waste).
 - 10.12.3. Change in the discharge area from that described in the findings of this Permit.
 - 10.12.4. Increase in discharge flow rate beyond that specified in this Permit.
 - 10.12.5. Addition of monitoring, injection, and/or production wells not described in this Permit.¹¹
 - 10.12.6. Other circumstances that result in a material change in character, amount, or location of the waste discharge.
 - 10.12.7. Any planned change in the AWWPF or other activity that may result in noncompliance with this Permit.

¹¹ Soquel Creek Water District is required to submit an updated hydrogeological model and the boundary representing a zone of controlled drinking water well construction with the new or amended report of waste discharge.

10.12.8. Any material change or proposed change in character, location, or volume of recycled water or its uses.

10.13. Soquel Creek Water District must sign and certify all applications, reports, or information submitted to the Central Coast Water Board as follows:

10.13.1. A report of waste discharge must be signed as follows:

10.13.1.1. For a municipality, state, federal or other public agency, by either a public executive officer or ranking elected official, or

10.13.1.2. By a licensed professional performing engineering or geological judgments. The lead professional must sign and affix their license stamp to the report, plan, or document by direction of the person designated in paragraph 10.13.1.1. of this provision, only if:

10.13.1.1.1. The authorization is made in writing by a person described in paragraph 10.13.1.1. of this provision.

10.13.1.1.2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

10.13.1.1.3. The written authorization is submitted to the Central Coast Water Board using the Central Coast Water Board's Designation of Duly Authorized Representative form.¹²

10.13.2. All other reports required by this Permit and other information required by the Central Coast Water Board must be signed by a person designated in 10.13.1. of this Permit or a duly authorized representative of that person. An individual is a duly authorized representative only if all the following are true:

10.13.2.1. The authorization is made writing by a person described in section 10.13.1.1. of this Permit.

10.13.2.2. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity.

10.13.2.3. The written authorization is submitted to the Central Coast Water Board using the Central Coast Water Board's Designation of Duly Authorized Representative form.

10.13.3. Any person signing a document under this section must make the following certification:

¹² The Designation of Duly Authorized Representative form can be accessed on the internet at the following link:

https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_permittng/docs/authorized-representative-form.pdf

"I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment."

- 10.14. This Permit does not exempt Soquel Creek Water District from compliance with any other laws, regulations, or ordinances that may be applicable, it does not legalize the recycling and use facilities, and it leaves unaffected any further constraint on the use of recycled water at certain sites that may be contained in other statutes or required by other agencies.
- 10.15. This Permit does not alleviate the responsibility of Soquel Creek Water District to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Permit, nor does this Permit prevent imposition of additional standards, requirements, or conditions by any other regulatory agency.
- 10.16. This Permit may be modified, revoked and reissued, or terminated for cause, including but not limited to, failure to comply with any condition in this Permit; endangerment of human health or environment resulting from the permitted activities in this Permit; obtaining this Permit by misrepresentation or failure to disclose all relevant facts; or acquisition of new information that could have justified the application of different conditions if known at the time of Permit adoption. The filing of a request by Soquel Creek Water District for modification, revocation and reissuance, or termination of the Permit or a notification of planned changes or anticipated noncompliance does not stay any condition of this Permit.
- 10.17. Soquel Creek Water District must furnish, within a reasonable time, any information the Central Coast Water Board or DDW may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Permit. Soquel Creek Water District must also furnish the Central Coast Water Board, upon request, with copies of records required to be kept under this Permit for at least three years.
- 10.18. In an enforcement action, it cannot be a defense for Soquel Creek Water District that it would have been necessary to halt or to reduce the permitted activity to maintain compliance with this Permit.
- 10.19. If the Central Coast Water Board or DDW direct Soquel Creek Water District to suspend surface and/or subsurface discharge of advanced treated recycled water due to noncompliance with this Permit, surface and/or subsurface discharge must not resume until Soquel Creek Water District has obtained approval from the Central Coast Water Board and DDW.

- 10.20. Soquel Creek Water District must maintain in good working order, and operate as efficiently as possible, any treatment system, control system, or monitoring device installed to achieve compliance with this Permit.

11. NOTICES

- 11.1. If any person uses, transports, or stores recycled water in a manner that creates or threatens to create conditions of pollution, contamination, or nuisance, as defined in California Water Code section 13050, the Central Coast Water Board may initiate enforcement action against Soquel Creek Water District, which may result in the termination of the recycled water discharge.
- 11.2. This Permit does not convey property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect Soquel Creek Water District from liability under federal, state or local laws, nor create a vested right for Soquel Creek Water District to continue the waste discharge.
- 11.3. These requirements have not been reviewed by the United States Environmental Protection Agency (USEPA) and are not issued pursuant to Clean Water Act section 402.
- 11.4. Any person aggrieved by this action of the Central Coast Water Board may petition the State Water Board to review the action in accordance with California Water Code section 13320 and CCR title 23, section 2050. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Permit, except if this date falls on a Saturday, Sunday, or State holiday, then the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request. The provisions of this Permit are severable, and if any provision of this Permit, or the application of any provision of this Permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Permit must not be affected.

12. REOPENER

- 12.1. The Central Coast Water Board may reopen this Permit to include the most scientifically relevant and appropriate limitations for this discharge, including a revised Basin Plan limit based on monitoring results, anti-degradation studies, or other Central Coast Water Board or State Water Board policy.
- 12.2. This Permit may be reopened to modify limitations for pollutants to protect beneficial uses, based on new information not available at the time this Permit was adopted, including additional monitoring, reporting and trend analysis documenting aquifer conditions.
- 12.3. After additional monitoring, reporting, and trend analysis documenting aquifer conditions, this Permit may be reopened to ensure the groundwater is protected in

a manner consistent with state and federal water quality laws, policies, and regulations.

12.4. This Permit may be reopened to incorporate any new regulatory requirements for sources of drinking water or injection of recycled water for groundwater recharge to aquifers that are used as a source of drinking water, that are adopted after the effective date of this Permit.

12.5. This Permit may be reopened upon a determination by DDW that treatment and disinfection of Soquel Creek Water District's advanced treated recycled water is not sufficient to protect human health.

13. ENFORCEMENT

The requirements of this Permit are subject to enforcement under California Water Code sections 13261, 13265, 13268, and 13350 and enforcement provisions in California Water Code Division 7, Chapter 7 (Water Reclamation).

ATTACHMENT A – DEFINITIONS

Table A-1. Abbreviations.

Abbreviation	Definition
µg/L	Micrograms per liter
µm	Microns or micrometers
40 CFR	Title 40, Code of Federal Regulations
ACU	Apparent color units
AFY	Acre-feet per year
AGR	Agricultural Supply beneficial use
Antidegradation Policy	The State Water Board established California's Antidegradation Policy in Resolution No. 68-16, <i>Statement of Policy with Respect to Maintaining High Quality of Waters in California</i>
AOP	Advanced oxidation process
AWPF	Advanced Water Purification Facility
AWT	Advanced water treatment
AWT3	Advanced water treatment grade 3 operator certification
AWT5	Advanced water treatment grade 5 operator certification
AWTO	Advanced Water Treatment Operator
AWWA	American Water Works Association
Basin Plan	Water Quality Control Plan for the Central Coastal Basin
BC	BC aquifer unit of the Purisima formation
BOD ₅	Biochemical oxygen demand (5-Day @ 20°C)
BPTC	Best practicable treatment and control
CCR	California Code of Regulations
CD	compact disc
CEC	Constituents of emerging concern
Central Coast Water Board	Central Coast Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CWA	Clean Water Act
DDT	Dichlorodiphenyltrichloroethane
DDW	State Water Board, Division of Drinking Water
Dioxin	2,3,7,8-tetrachlorodibenzodioxin
DIT	direct integrity test
EC	Electrical conductivity
EHS	Santa Cruz County Environmental Health Services

Abbreviation	Definition
EIR	Environmental Impact Report
ELAP	Environmental Laboratory Accreditation Program
Engineering Report	CCR Title 22 Engineering Report
EPA	United States Environmental Protection Agency
Final EIR	Final Environmental Impact Report for the Pure Water Soquel Project
Freon 12	Dichlorodifluoromethane
GPM	Gallons per minute
GRRP	Groundwater Replenishment Reuse Project
Health and Safety Code	California Health and Safety Code
HAA5	The group of five haloacetic acids: dibromoacetic acid, dichloroacetic acid, monobromoacetic acid, monochloroacetic acid, and trichloroacetic acid.
HFPO-DA	Hexafluoropropylene Oxide Dimer Acid; "GenX chemicals"
HMX	Octogen
Lindane	Gamma BHC
Log	Logarithm to the base 10
LRV	Log reduction value
M-001	Monitoring location 001. Secondary effluent monitoring location. Sample collected prior to the ozone injection at the AWPF.
M-002	Monitoring location 002. Final full advanced-treated water produced by the AWPF for injection. Sampled prior to injection.
MBAS	Methylene blue-activated substances
MCL	Maximum contaminant level
MFF	Microfiltration treatment unit feed water
MFP	Microfiltration treatment unit product water
mg/L	Milligrams per liter
MGD	Million gallons per day
MIT	Membrane integrity testing
mJ/cm ²	Millijoules per centimeter squared
MM-1	Monterey monitoring well, located approximately 160 ft northeast of the Monterey Seawater Intrusion Prevention (SWIP) well within the Purisima A unit.
MM-2	Monterey monitoring well, located approximately 460 ft northeast of the Monterey SWIP well within the Purisima A unit.
MPN	Most probable number
MRP	Monitoring and reporting program
MTBE	Methyl-tert-butyl ether

Abbreviation	Definition
MUN	Municipal and Domestic Supply beneficial use
NDEA	N-Nitrosodiethylamine
NDMA	N-Nitrosodimethylamine
NDPA	N-nitrosodi-n-propylamine
NL	Notification level
NMOR	N-Nitrosomorpholine
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
OES	California Office of Environmental Services
OOP	Operation Optimization Plan
PCBs	Polychlorinated biphenyls
pCi/L	Picocuries per liter
PDR	Pressure decay rate
PDT	Pressure decay test
Permit	Order No. R3-2023-0033 Waste Discharge and Water Reclamation Requirements Pure Water Soquel Groundwater Replenishment Reuse Project, Soquel Creek Water District
PFAS	Per- and polyfluoroalkyl substances
PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFNA	Perfluorononanoic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
Project	Pure Water Soquel - includes all aspects of the project owned and operated by Soquel Creek Water District including the AWPf, conveyance pipelines, and injection and monitoring wells.
PS Codes	Primary station codes
Pure Water Soquel Project	Includes all aspects of the project owned and operated by Soquel Creek Water District including the AWPf, conveyance pipelines, and injection and monitoring wells.
QA	Quality assurance
QAPP	Quality Assurance Project Plan
QC	Quality control
RDX	1,3,5-Trinitroperhydro-1,3,5-triazine
Recycled Water Policy	State Water Resources Control Board Water Quality Control Policy for Recycled Water
Regional Water Boards	Regional Water Quality Control Boards

Abbreviation	Definition
RL	Reporting Limits
ROWD	Report of waste discharge
RO	Reverse osmosis
ROC	Reverse osmosis concentrate
ROF	Reverse osmosis treatment unit feed water
ROP	Reverse osmosis treatment unit product water
SCADA	Supervisory control and data acquisition
SIC	Standard Industrial Classification
Silvex	2-(2,4,5-trichlorophenoxy)propionic acid
SMR	Self-monitoring report
SOC	Synthetic organic chemicals
SOP	Standard operating procedure
SPP	Spill prevention plan
Standard Provisions	Standard Provisions and Reporting Requirements for Waste Discharge Requirements
State Water Board	State Water Resources Control Board
SWIP	Seawater intrusion prevention wells
TBA	Tertiary Butyl Alcohol
TDS	Total dissolved solids
Title 22	California Code of Regulations Title 22
Title 23	California Code of Regulations Title 23
TLC	Twin Lakes Church
TLM-1A	TLC monitoring well, located approximately 200 ft east-southeast of the TLC SWIP well within the Purisima A unit
TLM-2A	TLC monitoring well, located approximately 950 ft southeast of the TLC SWIP well within the Purisima A unit
TLM-3BC	TLC monitoring well, located approximately 160 ft south of the TLC SWIP well within the Purisima BC unit
TLM-4BC	TLC monitoring well located approximately 580 ft south-southeast from the TLC SWIP well within the Purisima BC unit
TNT	2,4,6-Trinitrotoluene
TOC	Total organic carbon
TON	Threshold odor number
TSS	Total suspended solids
TTF	Tertiary Treatment Facility
TTHMS	Total trihalomethanes
USEPA	United States Environmental Protection Agency

Abbreviation	Definition
UV	Ultraviolet
UVAOP	Ultraviolet advanced oxidation process
UVF	Ultraviolet treatment unit feed water
UVI	Ultraviolet intensity
UVP	Ultraviolet treatment unit product water
UVT	Ultraviolet transmittance
VOC	Volatile organic compounds
Water Code	California Water Code
WDRs	Waste discharge requirements
WM-1	Willowbrook monitoring well, located approximately 230 ft southwest of the Willowbrook SWIP well within the Purisima A unit.
WM-2	Willowbrook monitoring well, located approximately 1,040 ft west-southwest of the Willowbrook SWIP well within the Purisima A unit
WQOs	Water quality objectives
WRRs	Water recycling requirements

Glossary of Common Terms

Advanced Treated Recycled Water

Advanced treated recycled water is the final effluent produced from the AWPf that is discharged to groundwater in the Santa Cruz Mid-County groundwater basin.

Advanced Water Purification Facility (AWPF)

The AWPf is Soquel Creek Water District's Pure Water Soquel Advanced Water Purification Facility located at 2505 Chanticleer Ave., Santa Cruz, CA 95062.

Agricultural Supply

Agricultural Supply is the beneficial use of water resources as defined by the Basin Plan that includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.

Average

An average is the sum of measured values divided by the number of measured values, also commonly referred to as the mean.

Average Annual Effluent Limitation

The average annual effluent limitation is the highest allowable average of daily discharges over a calendar year (January-December), calculated as the sum of all daily discharges measured during a calendar year divided by the number of daily discharges during that year.

Biochemical Oxygen Demand

BOD is a measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified period (usually 5 days, i.e. BOD₅) in a wastewater

sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

California Code of Regulations

The CCR is the official compilation and publication of the regulations adopted, amended, or repealed by state agencies pursuant to the Administrative Procedure Act. Properly adopted regulations that have been filed with the Secretary of State have the force of law.

Chlordane

Chlordane is the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

Clean Water Act

The CWA is legislation passed by the U.S. Congress to control water pollution, formerly referred to as the Federal Water Pollution Control Act of 1972 or Federal Water Pollution Control Act Amendments of 1972 (Public Law 92-500), 33 U.S.C. 1251 et. seq., as amended by: Public Law 96-483; Public Law 97-117; Public Laws 95-217, 97-117, 97-440, and 100-04.

Code of Federal Regulations

CFR is the codification (arrangement of) the general and permanent rules published in the Federal Register by the executive departments and agencies of the federal government. The CFR is divided into 50 titles that represent broad areas subject to federal regulations. CFR, title 40: Protection of Environment is the section of the CFR (40 CFR) that deals with USEPA's mission of protecting human health and the environment.

Composite Sample

A composite sample is a sample composed of two or more discrete samples of at least 100 milliliters collected at periodic intervals during the operating hours of a facility over a 24-hour period. The aggregate sample will reflect the average water quality covering the compositing or sample period. For volatile pollutants, aliquots must be combined in the laboratory immediately before analysis. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

Daily Maximum Effluent Limitation

The daily maximum effluent limitation is the highest allowable daily discharge of a pollutant.

Dichlorodiphenyltrichloroethane

DDT is the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

Grab Sample

A grab sample is an individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes. The sample is taken from a waste stream on a one-time basis without consideration of the flowrate of the waste stream and without consideration of time of day.

Injection Well

An injection well is a subsurface device that discharges advanced treated recycled water into the groundwater within the Santa Cruz Mid-County groundwater basin.

Instantaneous Maximum Effluent Limitation

Instantaneous maximum effluent limitation is the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

Instantaneous Minimum Effluent Limitation

Instantaneous minimum effluent limitation is the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

Maximum Contaminant Level

MCLs are standards set by the United States Environmental Protection Agency for drinking water quality. An MCL is the legal threshold limit on the amount of a substance that is allowed in public water systems under the Safe Drinking Water Act. MCL is for either a single isomer or the sum of the isomers.

Million Gallons Per Day

MGD is a unit of flow commonly used for wastewater discharges. One MGD is equivalent to 1.547 cubic feet per second.

Municipal and Domestic Supply

Municipal and Domestic Supply is the beneficial use of water resources as defined by the Basin Plan that includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.

Polychlorinated biphenyls

PCBs are the sum of polychlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254, and Aroclor-1260.

Percent Reduction

Percent reduction is a percentage expression of the removal efficiency across a treatment plant for a given pollutant parameter, as determined from the average values of the raw wastewater influent pollutant concentrations to the AWPf and the average values of the effluent pollutant concentrations for a given time period.

Pure Water Soquel

Pure Water Soquel is the AWPf and all associated conveyance infrastructure and injection and monitoring wells.

Recycled Municipal Wastewater

Recycled municipal wastewater is defined in title 22 section 60301.690 as recycled water that is the effluent from the treatment of wastewater of municipal origin.

Source of Drinking Water

Source of drinking water is any water, surface or groundwater, designated as municipal and domestic supply (MUN) in the Basin Plan.

Total Chlorine Residual

The total amount of chlorine present in a sample. This is the sum of the free chlorine residual and the residual consisting of chlorine that is combined with ammonia, nitrogen, or nitrogenous compounds (chloramines).

Total Nitrogen

Total Nitrogen is the sum of concentrations of ammonia, nitrite, nitrate, and organic nitrogen containing compounds expressed as nitrogen.

Total Trihalomethanes

Total trihalomethanes is the sum of bromoform, chloroform, bromodichloromethane, and dibromochloromethane.

Waste

Waste includes sewage and any and all other waste substances, liquid, solid, gaseous, or radioactive, associated with human habitation, or of human or animal origin, or from any producing, manufacturing, or processing operation, including waste placed within containers of whatever nature prior to, and for purposes of, disposal.

Water Quality Objectives

Water quality objectives are the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area.

Water Recycling

Water recycling is the treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

ATTACHMENT B – PROCESS FLOW DIAGRAM

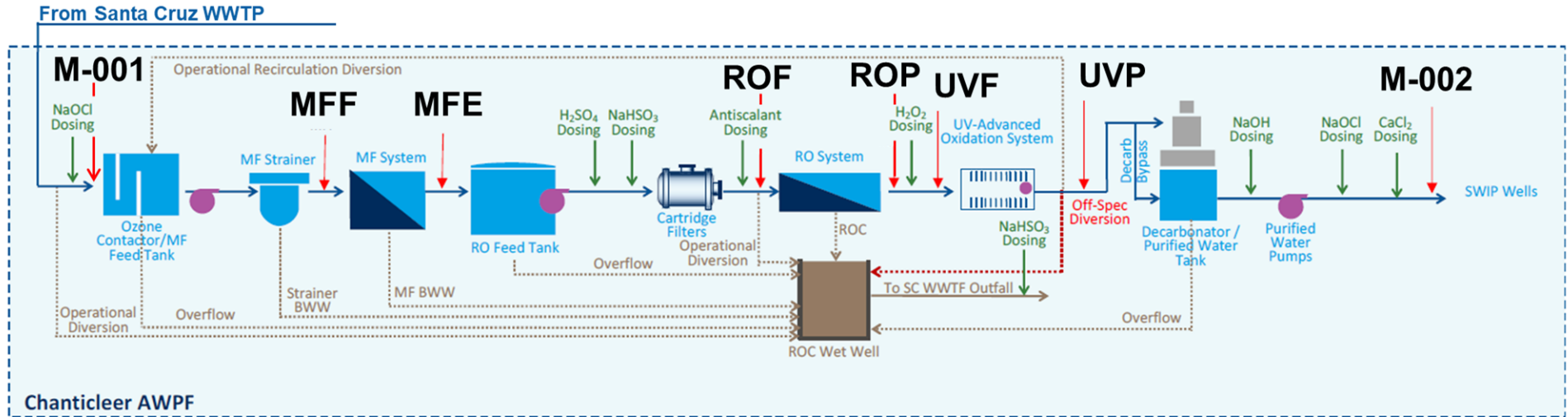


Figure B-1. Process flow diagrams for the Pure Water Soquel Advanced Water Purification Facility (AWPF) located at Chanticleer Avenue. Monitoring locations M-001, MFF, MFE, ROF, ROP, UVF, UVP, and M-002 are described in the monitoring and reporting program. Figure adapted from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

ATTACHMENT C – MAPS AND CROSS SECTIONS

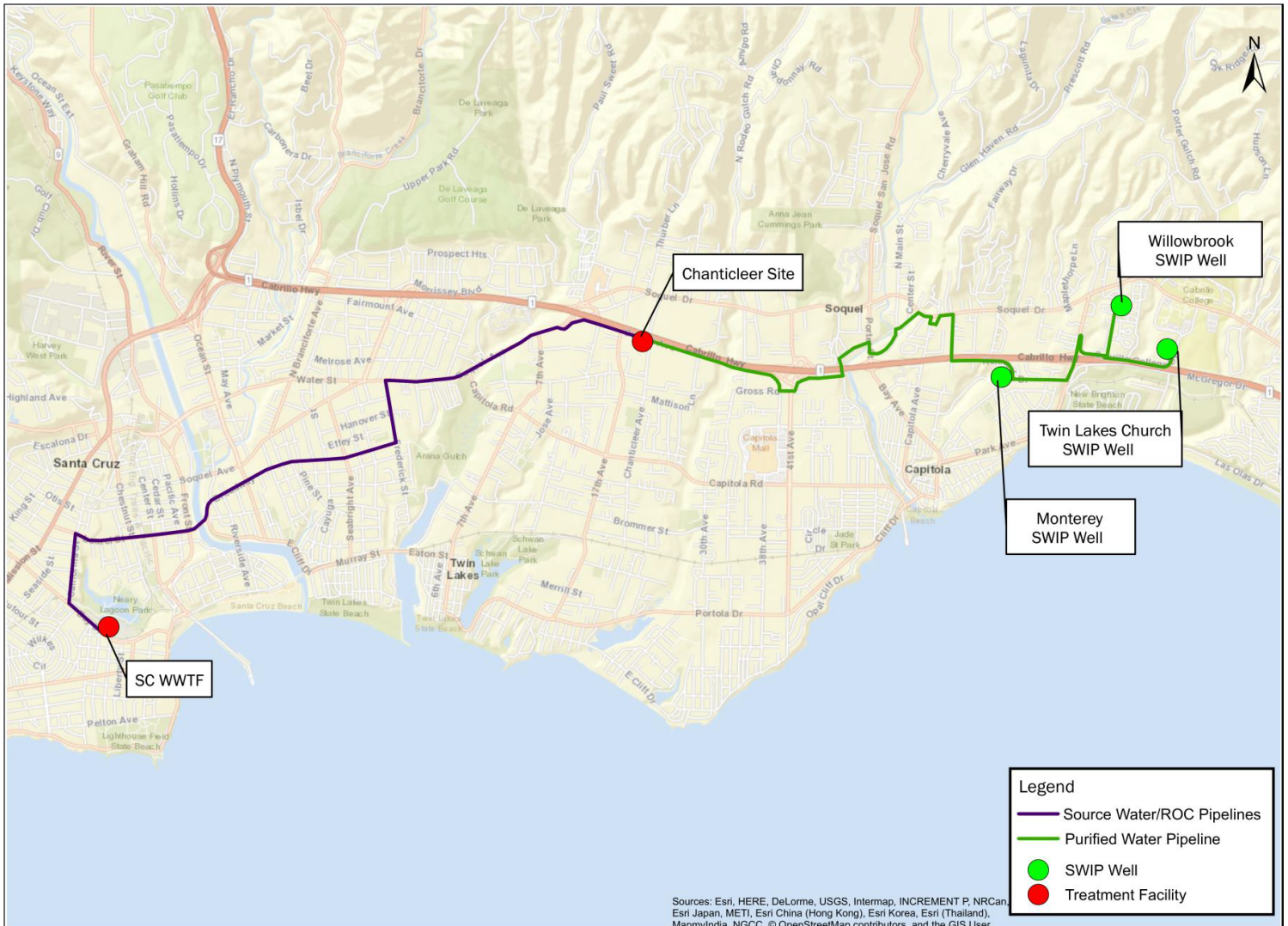


Figure C-1. Map of the facilities involved with the Pure Water Soquel Project. Raw wastewater is treated to secondary effluent standards at the City of Santa Cruz’s wastewater treatment facility (SC WWTF) then conveyed to the Advanced Water Purification Facility (AWPF) located on Chanticleer Avenue (*Chanticleer Site*) via the source water/reverse osmosis concentrate (ROC) pipelines. After further treatment at the AWPf, advanced treated recycled water is conveyed to one of the three sea water intrusion prevention (SWIP) injection wells for injection into the Santa Cruz Mid-County groundwater basin. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

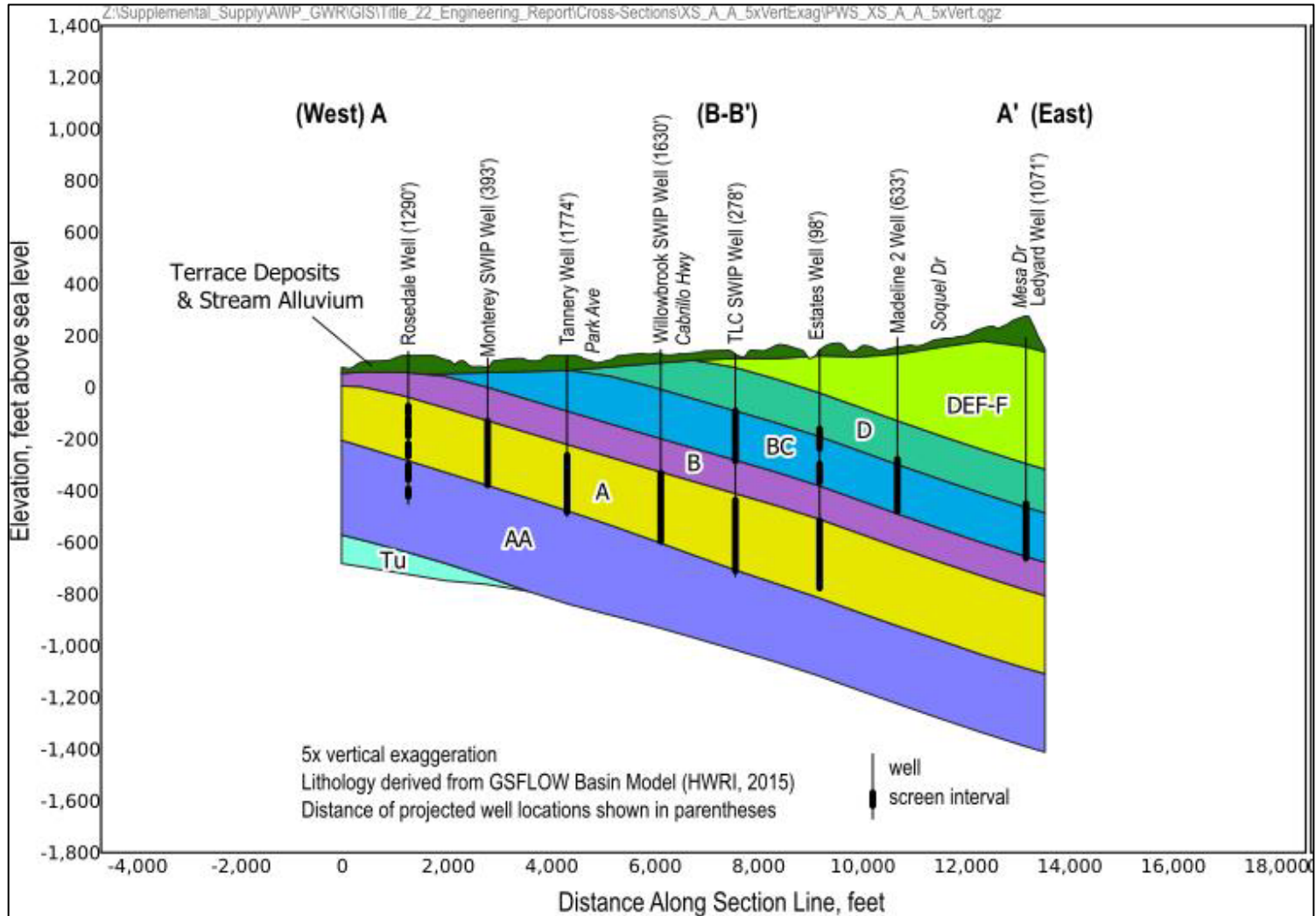


Figure C-2. Conceptual cross-section showing the aquifer units of the Purisima formation where injection occurs (as shown by the SWIP wells) and where municipal production occurs (as shown by non-SWIP wells). TLC denotes Twin Lakes Church. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

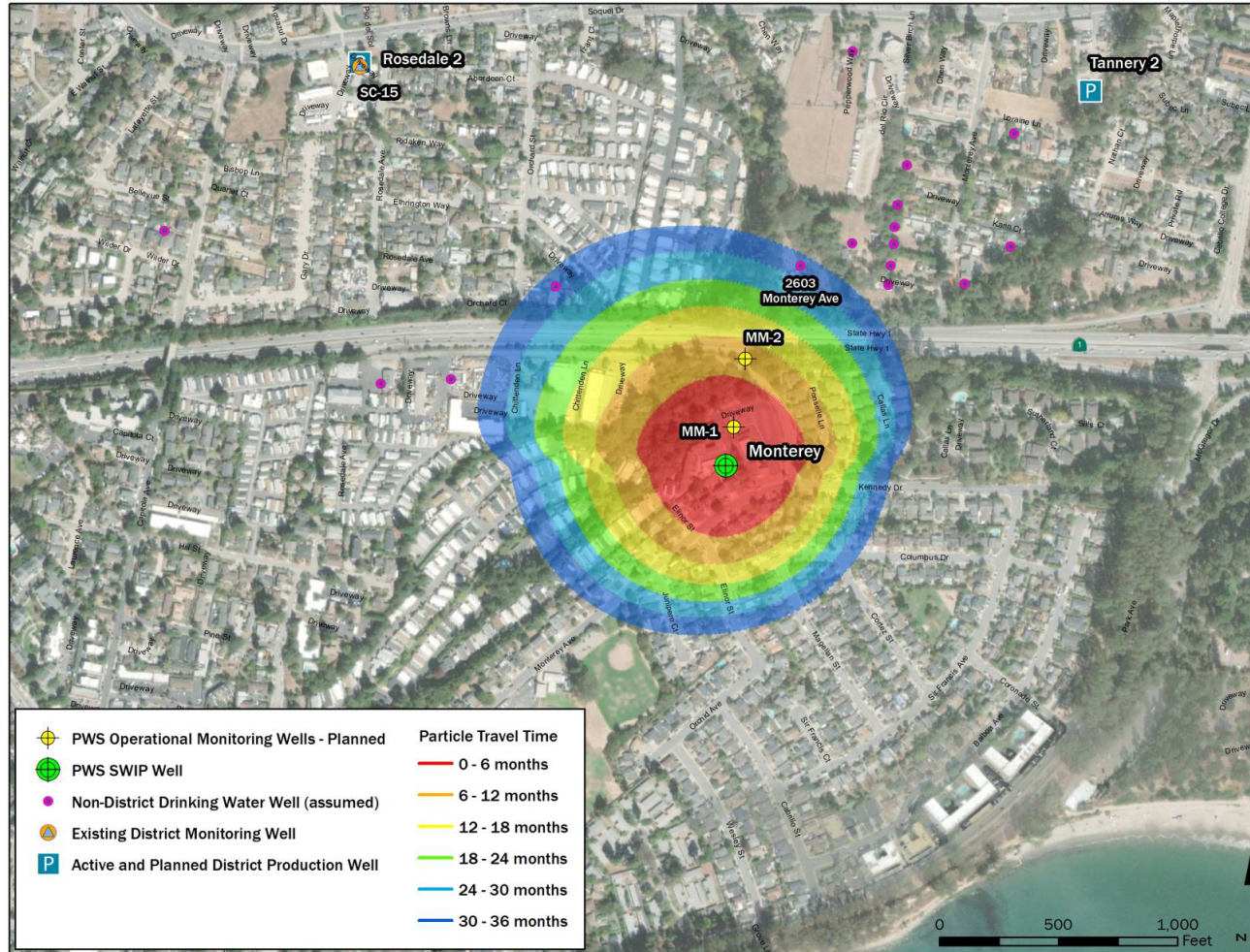


Figure C-3. Map of Monterey SWIP well, two monitoring wells (MM-1 and MM-2), and modeled subsurface travel times in Purisima A Unit from the SWIP well. PWS denotes Pure Water Soquel. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

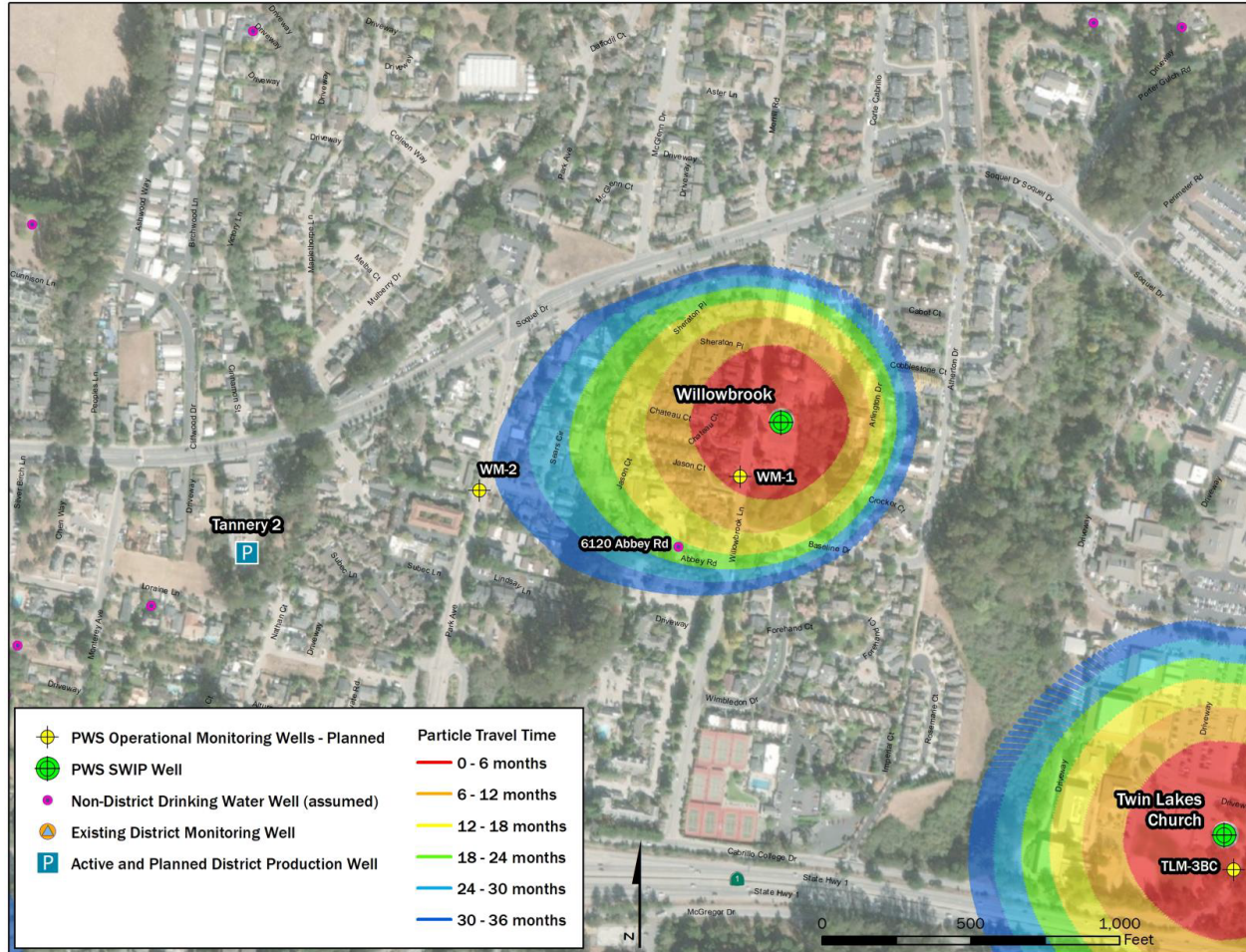


Figure C-4 Map of Willowbrook SWIP well, two monitoring wells (WM-1 and WM-2), and modeled subsurface travel times in the Purisima A Unit from the SWIP well. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

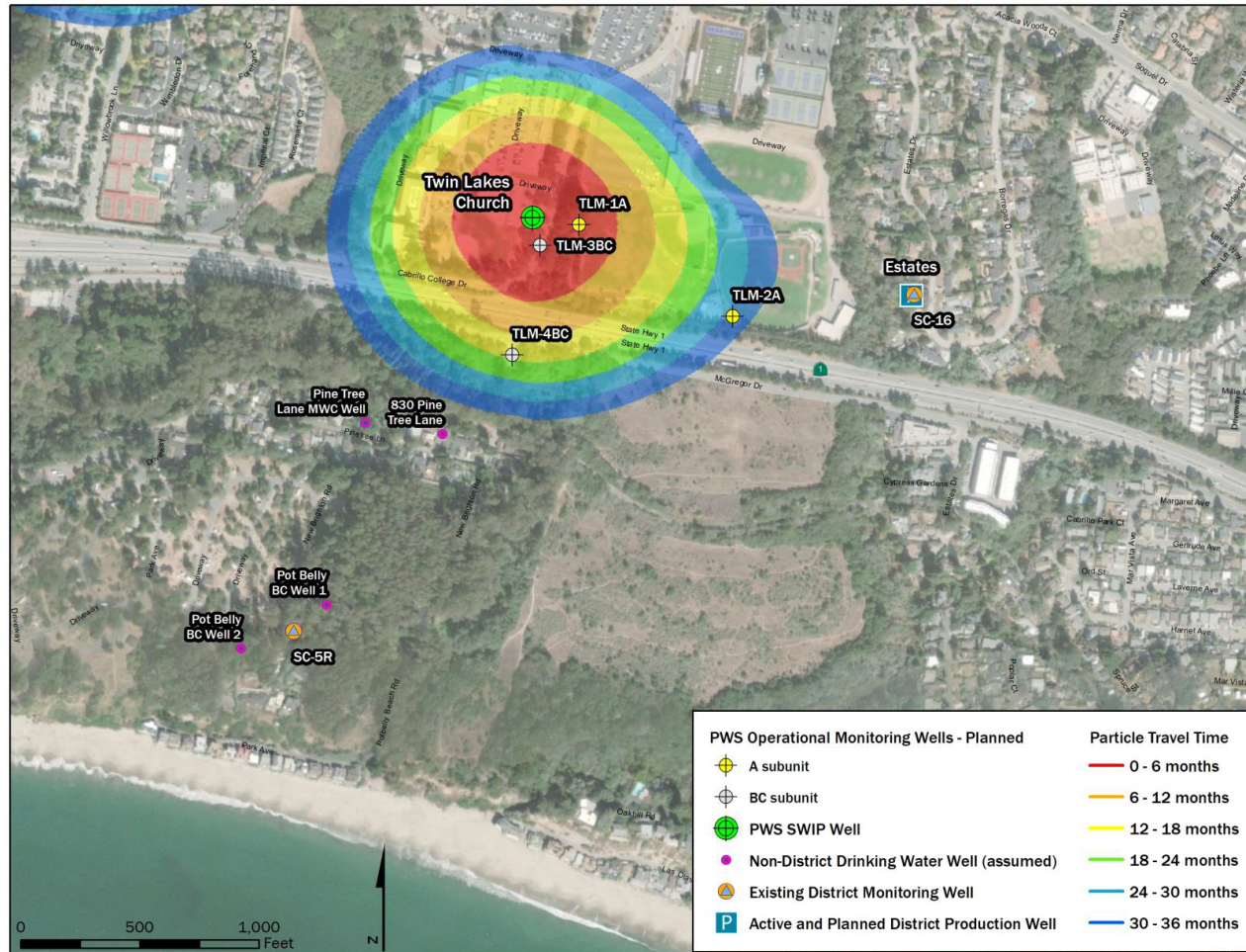


Figure C-5. Map of Twin Lakes Church (TLC) SWIP well, monitoring wells for the Purisima Unit A (TLM-1A and TLM-2A) and Purisima Unit BC (TLM-3BC and TLM-4BC), and modeled subsurface travel times in the Purisima A Unit from the SWIP well. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

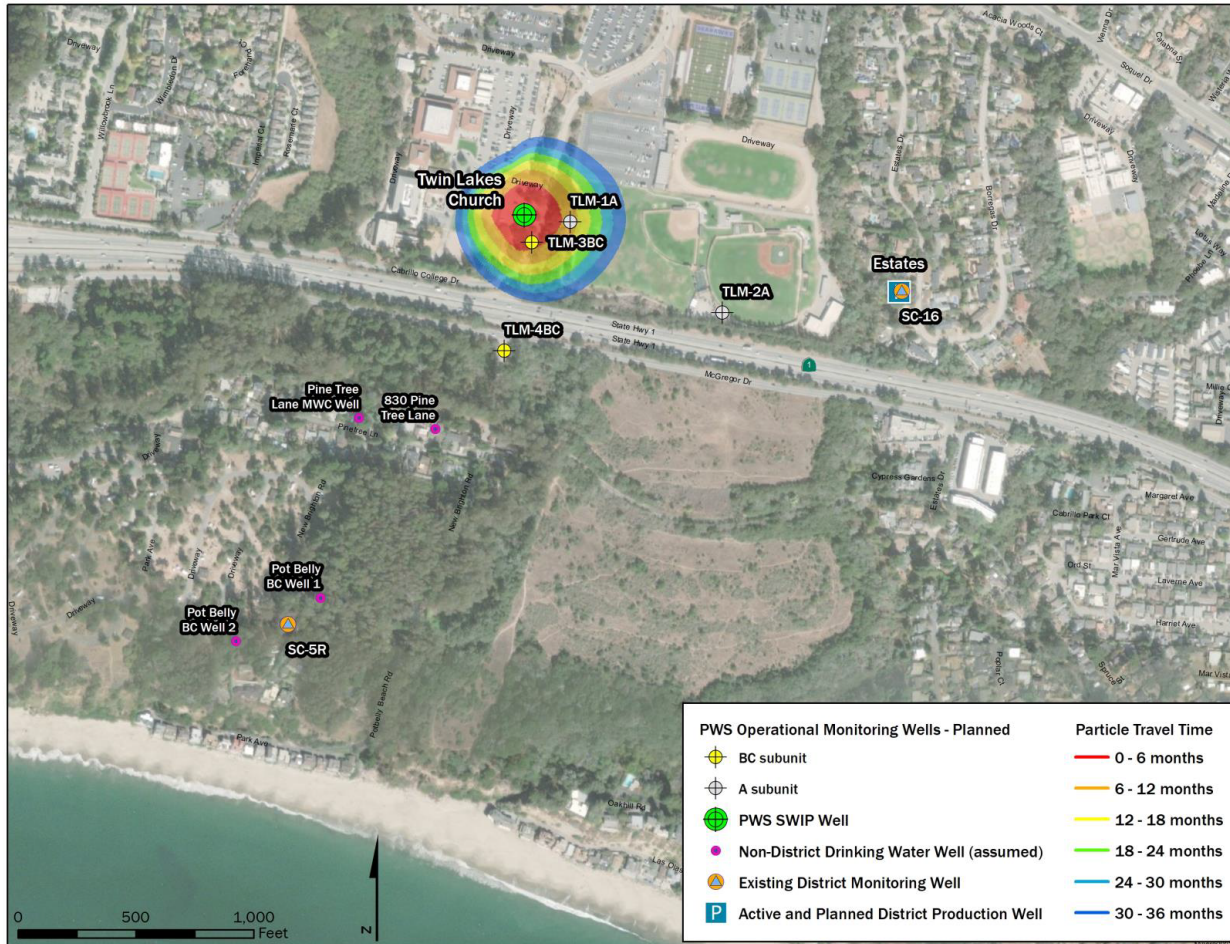


Figure C-6. Map of Twin Lakes Church (TLC) SWIP well, monitoring wells for the Purisima Unit A (TLM-1A and TLM-2A) and Purisima Unit BC (TLM-3BC and TLM-4BC), and modeled subsurface travel times in the Purisima BC Unit from the SWIP well. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

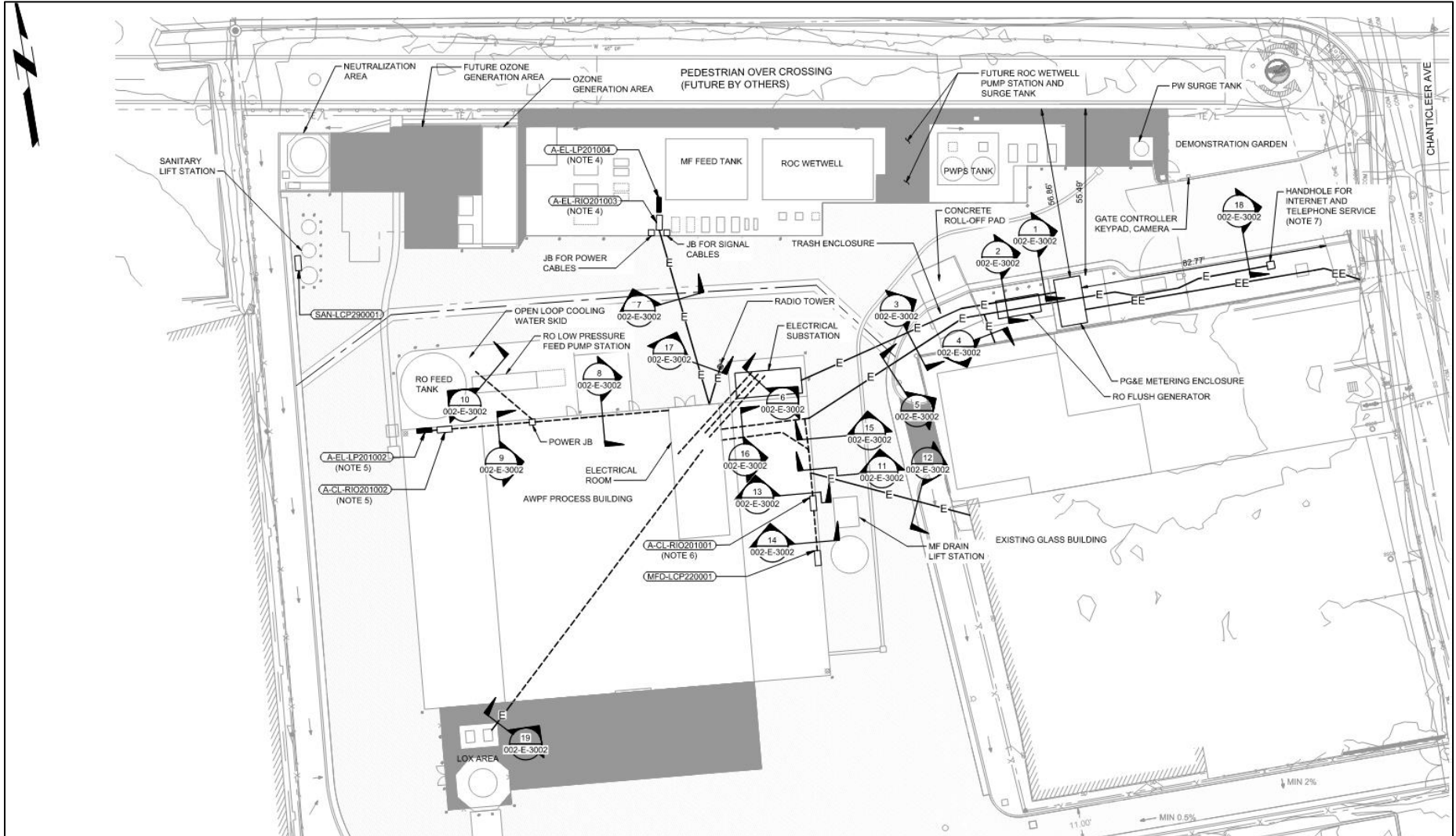


Figure C-7. AWPf facility site layout. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

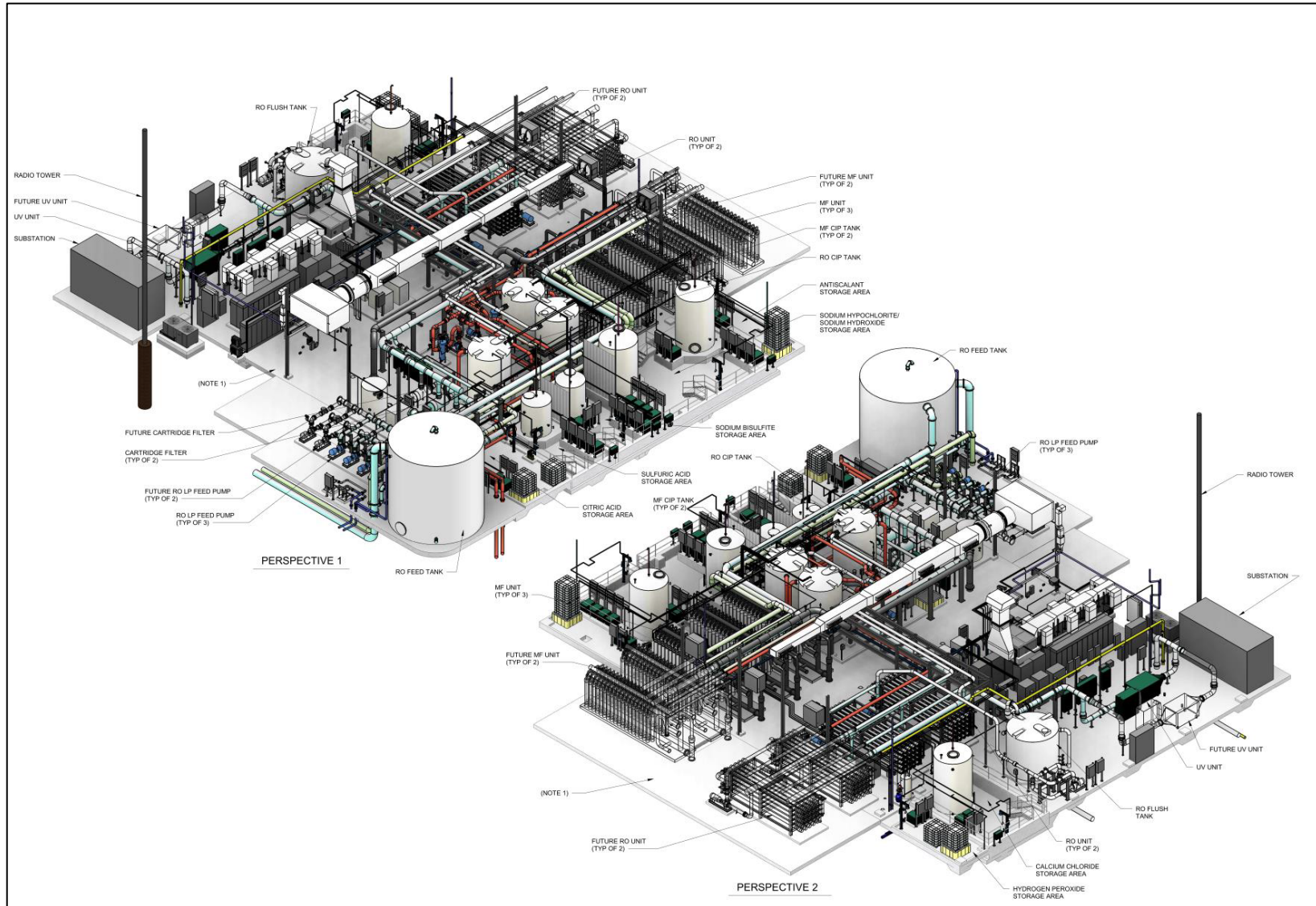


Figure C-8. AWPf main process layout. Figure is from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

ATTACHMENT D – WATER RECLAMATION REQUIREMENTS

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In accordance with section 8 of Order R3-2023-0033, Waste Discharge and Water Reclamation Requirements, Pure Water Soquel Groundwater Replenishment Reuse Project, Soquel Creek Water District (Permit), Soquel Creek Water District must comply with the following site-specific water reclamation requirements (WRRs). The WRRs are based on information from the *Pure Water Soquel Engineering Report* (Engineering Report) and recommendations in State Water Resources Control Board (State Water Board) Division of Drinking Water (DDW) *Division of Drinking Water's Conditional Acceptance of the Title 22 Engineering Report for Pure Water Soquel Groundwater Recharge and Replenishment Project, (4490006-701)*, issued April 26, 2023.

1. GENERAL REQUIREMENTS

- 1.1. Soquel Creek Water District must comply with all components of California Code of Regulations (CCR) title 22, Article 5.2, Indirect Potable Reuse: Groundwater Replenishment using Subsurface Application and CCR title 22 Article 10, Reliability Requirements for Full Treatment.
- 1.2. Per CCR title 22, section 60320.200(g), prior to replenishing the groundwater basin, Soquel Creek Water District must demonstrate that all treatment processes are installed and can be operated as designed to achieve their intended functions described in the Engineering Report. Prior to replenishing the groundwater basin with advanced treated wastewater, Soquel Creek Water District must demonstrate to DDW that the alarms and associated responses, including automatic diversion, retreatment, and shutdown, are functional and in conformance with the Operation Optimization Plan (OOP) during an on-site inspection. Soquel Creek Water District must repeat this testing on a regular basis as specified in OOP.
- 1.3. Soquel Creek Water District must ensure that the entire flow of AWPFF effluent water used for recharge is continuously treated with full advanced treatment in accordance with CCR title 22, Article 5.2 and as detailed in the Engineering Report and OOP. Per CCR title 22 section 60320.222(b), Soquel Creek Water District must ensure that all Project treatment processes are operated in a manner providing optimal reduction of all chemicals and contaminants.
- 1.4. Per CCR title 22, section 60320.200(c), prior to operations, Soquel Creek Water District must submit results of the background aquifer sampling to DDW. The samples must be representative of groundwater in each aquifer, taking into consideration seasonal variations, and be analyzed for the chemicals, contaminants, and characteristics pursuant to CCR title 22 section 60320.210, section 60320.212, section 60320.218, and section 60320.220.
- 1.5. Per CCR title 22 section 60320.200, 60320.200(e)(2) and 60320.200(e)(3), Soquel Creek Water District must implement the following regarding zones of controlled drinking water well construction:
 - 1.5.1. Prior to operation of the Project and/or another timeline approved by DDW, Soquel Creek Water District must establish a primary zone of potentially controlled drinking water well construction ("primary boundary"), including Soquel Creek Water District wells and private and state small water system

- wells (non-Soquel Creek Water District wells). The construction or existence of irrigation wells with respect to the primary control zone must be included.
- 1.5.2. Prior to operation of the Project and/or another timeline approved by DDW, Soquel Creek Water District must establish a secondary zone of potential controlled drinking water well construction (“secondary boundary”), including Soquel Creek Water District wells and non-Soquel Creek Water District wells. The construction or existence of irrigation wells with respect to secondary control zone must be included.
 - 1.5.3. Prior to operation of the Project and/or another timeline approved by DDW, Soquel Creek Water District must coordinate with the County of Santa Cruz to administer the primary and secondary boundaries.
 - 1.5.4. Prior to operation of the Project and/or another time approved by DDW, Soquel Creek Water District must provide the primary and secondary boundary maps, locations of the Project monitoring wells, and locations of drinking water wells within a two-year travel time of the Project based on groundwater flow directions and velocities expected under the Project’s anticipated recharge flows to DDW, the Central Coast Regional Water Quality Control Board (Central Coast water Board), and County of Santa Cruz.
 - 1.5.5. Based on the results of the tracer study that must be initiated prior to the 3rd-month of operation, Soquel Creek Water District must confirm the Project’s impact on non-Soquel Creek Water District wells and irrigation wells with respect to primary and secondary control zones. Non-Soquel Creek Water District wells and irrigation wells confirmed to be impacted by the Project must be mitigated for use or subject to further study.
- 1.6. The advanced water purification facility (AWPF) production capacity is 1.67 million gallons per day (MGD). Soquel Creek Water District must notify DDW and the Central Coast Water Board and submit the necessary documents if the AWPF design flowrate is to be increased or any additional monitoring wells or any injection wells are to be added and/or removed and injection/recharge rates are to be changed. Required documents may include, but not be limited to, an updated engineering report and updated OOP. Soquel Creek Water District must receive approval from the Central Coast Water Board, with concurrence from the DDW, before commencing with any of the proposed changes. In addition, Soquel Creek Water District may be required to demonstrate compliance using an on-site study related to any section in CCR title 22, Article 5.2 as required by DDW, including underground retention time tracer study and ultra-violet advanced oxidation process (UVAOP) commissioning challenge test. For replacement injection wells, Soquel Creek Water District must notify DDW and discuss any impacts to existing Project hydrogeological model, well control zone boundaries, retention, and response times. If directed by DDW, Soquel Creek Water District must update the hydrogeological model, well control zone boundaries, retention, and response times in accordance with CCR title 22 section 60320.208, section 60320.224, and section 60320.222.

- 1.7. Soquel Creek Water District must optimize AWWP's effluent water stabilization treatment to maintain effective geochemical mobilization control in groundwater impacted by the Project. The process optimization for stabilization treatment must be specified in the OOP and include monitoring of parameters that can potentially cause and/or indicate aggravations for geochemical releases. Furthermore, if directed by DDW or the Central Coast Water Board, Soquel Creek Water District must conduct additional geochemical analysis for the purpose of controlling metal mobilization to groundwater.
- 1.8. Soquel Creek Water District must have and utilize alarms for the AWWP as described in the Engineering Report, OOP, and the DDW conditional acceptance letter. Commissioning must validate and confirm the operation setpoints for the reverse osmosis (RO) and UVAOP processes per CCR title 22 section 60320.201. A full description of the alarms must be included in the OOP, in accordance with CCR title 22 section 60320.222.
- 1.9. Soquel Creek Water District must adequately staff the AWWP with operators and describe the staffing hours, shifts and certificates in the OOP. The AWWP must be supervised and operated by staff possessing certificates of appropriate grade as required by the Central Coast Water Board. Soquel Creek Water District must track the expiration dates for all certified operators to ensure valid certifications are maintained. In addition, Soquel Creek Water District must staff the AWWP with operators that possess valid California-Nevada Section of the American Water Works Association/California Water Environment Association, Advanced Water Treatment Operator (AWTO™) certifications as follows:
 - 1.9.1. Upon start-up of the Project, Soquel Creek Water District must staff the AWWP with at least one AWT3™ certified chief plant operator and with at least one AWT3™ or higher certified operator, available always for on-call support for each operating shift.
 - 1.9.2. Within 36 months of permit adoption, Soquel Creek Water District must staff the AWWP with at least one AWT5™ certified chief plant operator and with at least one AWT3™ or higher certified operator, available always for on-call support for each operating shift.
- 1.10. Per CCR title 22 section 60320.200(k), if Soquel Creek Water District is directed by DDW or the Central Coast Water Board to suspend subsurface application of advanced treated wastewater, the subsurface application of advanced treated wastewater must not resume until Soquel Creek Water District has obtained approval from DDW and the Central Coast Water Board.
- 1.11. The maximum recycled municipal wastewater contribution for this Project is 1.0, in accordance with CCR title 22 section 60320.216.
- 1.12. If proposing an alternative to any of the requirements in CCR title 22, Article 5.2, Soquel Creek Water District must follow the process described in CCR title 22 section 60320.230. If directed by DDW to demonstrate public health equivalency, Soquel Creek Water District must administer an independent advisory panel in consultation with DDW.

2. WASTEWATER SOURCE CONTROL

- 2.1. Soquel Creek Water District must ensure the recycled municipal wastewater used for the Project meets the wastewater source control requirements per CCR title 22 section 60320.206.
- 2.2. Soquel Creek Water District's contractual agreement with the City of Santa Cruz has the city serve as the control authority for implementing and enforcing the United States Environmental Protection Agency (EPA) approved pretreatment program. Soquel Creek Water District through this agreement with the city must ensure the pretreatment program and the enhanced source control program is inclusive of the following:
 - 2.2.1. Monitoring of additional contaminants pertaining to the Project described in the Engineering Report, enhanced source control program, and directed by DDW and Central Coast Water Board. The contaminants include acetone, formaldehyde, and boron.
 - 2.2.2. Per CCR title 22 section 60320.206 (b), source control program implementation and monitoring must include an assessment and fate of DDW-specified chemicals or maximum contaminant levels (MCLs) in consultation with DDW. The assessment shall include the presence of per- and polyfluoroalkyl substances (PFAS) with proposed MCLs and proposed health indices (as DDW-specified chemicals) in the wastewater and advanced treated wastewater. The enhanced source control program must describe the assessment and estimate removal in the wastewater prior to advanced treatment.
- 2.3. Soquel Creek Water District, through its agreement with the city as the control authority to implement and enforce its EPA-approved pretreatment program, must ensure the local limits and water quality monitoring maintained are representative of new sources or changes to existing sources including new chemicals or contaminants discharged to the sewer collection system.

3. ADVANCED TREATMENT REQUIREMENTS

- 3.1. Per CCR title 22 section 60320.201(a)(2), during the first 20 weeks of operation, the RO permeate must be monitored at least weekly for total organic carbon (TOC). TOC concentrations must be no greater than 0.25 milligrams per liter (mg/L) in at least 95% of the samples.
- 3.2. The advanced oxidation process (AOP; hydrogen peroxide and ultraviolet (UV) light) must be operated as designed and described in the Engineering Report to meet CCR title 22 requirements, achieving a minimum 0.5 log reduction of 1,4-dioxane and meeting notification levels of all chemicals with a notification level under the normal full-scale operating conditions.
- 3.3. Per CCR title 22 section 60320.201(d), Soquel Creek Water District must conduct testing and provide subsequent results demonstrating that the oxidation treatment process will provide no less than 0.5-log (69-percent) reduction of 1,4-dioxane. Soquel Creek Water District must submit a testing protocol for DDW review and

written approval prior to conducting the test at least 90 days prior to commissioning. The testing must include challenge or spiking tests, using 1,4-dioxane and N-nitrosodimethylamine (NDMA), to demonstrate the proposed process will achieve the minimum reduction under normal full-scale operating conditions.

- 3.4. Within 60 days of completing the first 12-months full-scale operation and operational monitoring of the advanced treatment process, Soquel Creek Water District must submit a report to DDW and the Central Coast Water Board pursuant to CCR title 22 section 60320.201(f) and (g).
- 3.5. Per title 22 CCR section 60320.201(h), Soquel Creek Water District must perform calculations to document proper on-going performance of the reverse osmosis and advanced oxidation processes and document this in quarterly reports. Quarterly reports must state the percentage of results of the quarter's monitoring, conducted pursuant to CCR title 22 section 60320.201(b) al(e), that did not meet the surrogate or operational parameter limits. Quarterly reports must state whether the limits were exceeded by greater than 10% in each quarter.

4. PATHOGENIC MICROORGANISM CONTROL

- 4.1. Soquel Creek Water District must design and operate the Project such that the advanced treated municipal wastewater used for groundwater recharge and replenishment achieves at least 12-log enteric virus reduction, 10-log *Giardia* cyst reduction, and 10-log *Cryptosporidium* oocyst reduction pursuant to CCR title 22 section 60320.208.
- 4.2. Per CCR title 22 section 60320.208(c), Soquel Creek Water District must validate each of the treatment processes used to meet the required *Cryptosporidium* oocyst, *Giardia* cyst and enteric virus reductions. Soquel Creek Water District must include in its approved OOP the necessary monitoring and calculations that validate the performance of each treatment process's ability to achieve its pathogen log reduction value (LRV) as proposed in the Engineering Report and OOP.
- 4.3. Per CCR title 22 section 60320.208(h), if the required *Cryptosporidium* oocyst, *Giardia* cyst and virus reductions are not met based on the required on-going monitoring detailed in the approved OOP, within 24 hours of being aware, Soquel Creek Water District must investigate the cause and initiate corrective actions. If there is a failure to meet the pathogen reduction criteria longer than 4 consecutive hours or more than a total of 8 hours in any 7-day period, Soquel Creek Water District must within 24 hours of its knowledge of such a failure notify DDW and the Central Coast Water Board. Failures of shorter duration must be reported to the Central Coast Water Board and DDW no later than 10 days after the month in which the failure occurred.
- 4.4. Per CCR title 22 section 60320.208(d), Soquel Creek Water District must initiate a tracer study to validate the underground retention time prior to the end of the third month of Project's operation. Soquel Creek Water District must submit a groundwater tracer test protocol to DDW for review at least 60 days prior to commencement of the testing for subsurface application of the advanced treated wastewater. Soquel Creek Water District must submit a completed tracer study

report to DDW and Central Coast Water Board. The tracer test protocol must include monitoring of non-Soquel Creek Water District well(s) present within the estimated primary and secondary control zones and/or representative well(s) (non-Soquel Creek Water District or Soquel Creek Water District well(s)) that are located in the same vicinity and receive the same groundwater flow as the non-Soquel Creek Water District well that is being represented. Non-Soquel Creek Water District wells and/or representative well(s) (non-Soquel Creek Water District or Soquel Creek Water District wells) that are located just outside and in proximity to the estimated secondary control zone boundary must be included in the tracer test monitoring. The use of representative wells is subject to demonstrating that the subject wells provide adequate representation, an explanation as to why non-Soquel Creek Water District well(s) are not used in tracer test monitoring, and DDW's acceptance of the representative well. If an added tracer test is to be performed, the chemical to be used must be approved by the Central Coast Water Board prior to performing the tracer test.

- 4.5. Soquel Creek Water District must update the Engineering Report and OOP using the results of the tracer study. Until the validated underground retention time is determined and subsequently approved by DDW, Soquel Creek Water District must use a minimum underground retention time of 7.5 to 9.2 months corresponding to the recharge rates as described in the Engineering Report. Using the results of the tracer study, and if necessary, Soquel Creek Water District must revise the boundary representing primary zone of controlled drinking water well construction and secondary boundary in accordance with CCR title 22 section 60320.200(e) and in coordination with the County of Santa Cruz as described in these water reclamation requirements. In addition, Soquel Creek Water District must update the hydrogeological model based on the results of the tracer study and include any domestic drinking water wells (Soquel Creek Water District and non-Soquel Creek Water District wells) and irrigation wells present in the updated boundaries of the primary and secondary control zones. If needed and in consultation with DDW, Soquel Creek Water District must perform studies for any additional wells located within the updated boundaries of the control zones, confirming the Project impact, and ensuring mitigation measures are implemented for the impacted wells prior to use.

5. COMPLIANCE MONITORING AND REPORTING

- 5.1. Per CCR title 22 section 60320.228, Soquel Creek Water District must submit the annual report to DDW and Central Coast Water Board no later than six months after the end of each calendar year. Soquel Creek Water District must update the Engineering Report to address any changes and submit it to the DDW and Central Coast Water Board at least every five years.
- 5.2. Soquel Creek Water District must complete compliance monitoring as required by DDW and the Central Coast Water Board. If there are duplications, Soquel Creek Water District must comply with the frequency and limits of whichever requirement is more stringent.

5.3. Soquel Creek Water District operates a multi-barrier treatment facility to comply with the requirements of CCR title 22, Article 5.2. Monitoring for the purpose of chemical and pathogen log reduction calculation and demonstration must be reported electronically to DDW and Central Coast Water Board monthly. Monthly reports are due by the 10th day of the following month. The monitoring and reporting requirements of the water reclamation requirements must be incorporated into the OOP.

5.3.1. For each specific treatment process unit performing within the defined critical limits, the calculated minimum LRV is the LRV attributed to each treatment process for each pathogen unless stated otherwise in the water reclamation requirements. The AWPf's UVAOP treatment system will receive a daily LRV credit of 6 logs for virus, *Giardia* cysts, and *Cryptosporidium* oocysts if the UV reduction equivalent dose (RED) is always greater than 300 millijoules per square centimeter (mJ/cm²).

5.3.2. Soquel Creek Water District must report "Yes" or "No" for each day as to whether the total required pathogenic microorganism log reductions (12 logs virus, 10 logs *Giardia* cyst, and 10 logs *Cryptosporidium* oocyst) have been achieved based on the overall treatment train LRV. The overall treatment train LRV for *Cryptosporidium* oocyst, *Giardia* cyst and virus is the sum of LRV for each treatment process for each pathogen. An overall treatment train LRV must be provided daily unless the AWPf is offline for a 24-hour period.

5.3.3. Per CCR title 22 section 60320.208(i), if the effectiveness of a treatment train's ability to reduce enteric virus is less than 10 logs, or *Giardia* cyst or *Cryptosporidium* oocyst reduction is less than 8 logs, Soquel Creek Water District must immediately notify DDW and Central Coast Water Board and discontinue application of advanced treated wastewater, unless directed otherwise by DDW or Central Coast Water Board.

5.3.4. The membrane filtration (MF) combined filter effluent turbidity must not exceed the following requirements (5.3.4.1-5.3.4.2) pursuant to CCR title 22 section 60301.320. Individual filter effluent may be monitored in lieu of combined filter effluent for the following requirements (5.3.4.1-5.3.4.2). Exceedance of turbidity limits (5.3.4.1-5.3.4.2) must initiate automatic reliability feature in accordance with CCR title 22 section 60341. MF train units must be subject to membrane integrity testing (MIT) anytime they exceed the turbidity limits (5.3.4.1-5.3.4.2).

5.3.4.1. 0.2 nephelometric turbidity units (NTU) more than 5% of the time within a 24-hour period; and

5.3.4.2. 0.5 NTU at any time.

5.3.5. Membrane integrity testing using a pressure decay test (PDT) must be performed on each of the MF membrane trains on a minimum frequency of once every 24 hours of operation and when turbidity exceeds limits stated in 5.3.4.1-5.3.4.2. The MF train unit must be equipped with apparatus to perform daily direct integrity test (DIT). The PDT rate must not exceed the

MF manufacturer specified decay rate approved by DDW's conditional acceptance and must be reflected in the OOP and supervisory control and data acquisition (SCADA) setpoints.

- 5.3.6. A membrane comprehensive integrity verification program must be included in the OOP for review and approval. The following apply to the MIT:
 - 5.3.6.1. The pathogen log reduction values (LRV) for *Giardia* cysts and *Cryptosporidium* oocysts must be calculated and the values recorded after the completion of each MIT. The *Giardia* cysts and *Cryptosporidium* oocysts LRV is 4 and virus LRV is zero as described in the Engineering Report. The maximum LRV credit given for *Giardia* cysts and *Cryptosporidium* oocysts is subject to DDW's conditional acceptance for the specific membrane used and must be described in the OOP.
 - 5.3.6.2. The MIT must have a resolution that is responsive to an integrity breach on the order of 3 microns (μm) or less.
 - 5.3.6.3. Daily calculations of the LRV must be based on a pressure decay rate (PDR) value with an ending pressure that provides a resolution of 3 μm or less.
 - 5.3.6.4. The MIT must have a sensitivity to verify an LRV equal to or greater than 4.0.
 - 5.3.6.5. If a membrane unit fails MIT, the membrane unit must be removed from service, repaired, and have acceptable MIT results prior to being placed back into service.
- 5.3.7. The MF LRV credit is the minimum calculated LRV of any online individual MF train for a 24-hour period.
- 5.3.8. The RO treatment system will be credited pathogen LRVs by demonstrating on an on-going basis the removal of surrogates as described herein (or as otherwise approved by DDW). Initially, approved surrogates will include electrical conductivity (EC) and total organic carbon (TOC).
- 5.3.9. Soquel Creek Water District's approach for RO monitoring as described in the Engineering Report may be used for demonstrating RO LRV credit (tiered monitoring approach) for pathogen reduction. For the initially approved surrogates, EC and TOC, Soquel Creek Water District must report the calculated TOC and EC reduction values from all tiers and indicate which tier is used for reporting the RO LRV credit for a given day in the monthly report. In addition, Soquel Creek Water District must include in the monthly report the daily average and maximum RO influent and RO effluent TOC and EC measurements. Soquel Creek Water District must apply the logarithmic function as the last step in the calculation for the LRV. The greater of the LRV calculated from TOC and EC will be used as RO LRV credit based on the following tier approach described below:

- 5.3.9.1. Tier 1: Continuous TOC monitoring (at least once every 15 minutes) of the RO treatment trains must be conducted at: (1) the combined RO feed stream and (2) combined RO permeate stream and results of which must be used to calculate a daily average TOC reduction by the RO. Daily Tier 1 pathogen LRV credit must be calculated as the daily average TOC log₁₀ reduction achieved by the RO treatment. If TOC analyzer fails or is unavailable, the RO LRV credit must be determined by Tier 2.
- 5.3.9.2. Tier 2: Continuous EC monitoring (at least once every 15 minutes) of the RO treatment must be conducted at: (1) the combined RO feed stream and (2) individual RO train permeate stream, results of which must be used to calculate a minimum daily EC reduction for each RO train. The RO LRV credit must be calculated based on the minimum daily EC log₁₀ reduction achieved of any online train.
- 5.3.9.3. RO LRV of <1.0 is “off spec” for AWPf and must initiate automatic activation of reliability features in accordance with CCR title 22 section 60341.
- 5.3.10. To meet the requirement of CCR title 22 section 60320.201(b), Soquel Creek Water District must conduct weekly grab sampling, routine RO pressure vessel conductivity profiling, and continuous monitoring of EC on the influent and permeate of each RO train and as described in the OOP. In the OOP, Soquel Creek Water District must describe the overall RO monitoring program including at least the following elements:
 - 5.3.10.1. Description of how on-going performance monitoring will be conducted to indicate when the integrity of the RO process has been compromised.
 - 5.3.10.2. The minimum and average EC removal achieved by each RO train must be calculated and recorded continuously, based on readings taken at least every 15 minutes.
 - 5.3.10.3. Description of the RO pressure vessel conductivity profiling, including a full standard operating procedure (SOP) used by AWPf staff.
 - 5.3.10.4. Description of how baseline integrity test values will be determined for surrogates (e.g., EC) and on-going performance monitoring metrics (e.g., results from pressure vessel conductivity profiling) during the first 12 months of operations of the AWPf and updated as needed.
 - 5.3.10.5. Description of how lower and upper control limits will be established for surrogates (e.g., EC) and on-going performance monitoring metrics (e.g., results from pressure vessel conductivity profiling) to be used for integrity testing using a statistical methodology.

- 5.3.10.6. Description of responses for exceedances of established lower and upper control limits for the surrogates (e.g., EC) and on-going performance monitoring metrics (e.g., results from pressure vessel conductivity profiling).
- 5.3.11. The UVAOP must be operated with online monitoring and built-in automatic reliability features that must trigger automatic corrective actions of the effluent, if the following critical alarm setpoints are reached (5.3.11.1-5.3.11.5) for any train.
 - 5.3.11.1. For UVAOP train, complete UV reactor failure, including but not limited to train power or train communication loss.
 - 5.3.11.2. For UVAOP train, instantaneous flow rate exceeds design flow rate of 1.67 MGD (1162 GPM) per train for more than 15 minutes (or another setpoint approved by DDW).
 - 5.3.11.3. For UVAOP train, UV transmission (UVT) less than 95% entering the UV system for more than 15 minutes (or another setpoint approved by DDW).
 - 5.3.11.4. For UVAOP train, UV dose delivered less than 2702 mJ/cm² and UV peroxide dose product of 12,429 mJ/cm² for more than 15 minutes (or another setpoint approved by DDW).
 - 5.3.11.5. For UVAOP train, hydrogen peroxide oxidant dose of less than 4.6 mg/L enters the UV system for more than 15 minutes (or another setpoint approved by DDW).
- 5.3.12. At the respective UV system critical control points, Soquel Creek Water District must provide continuous monitoring of calculated UV dose, UV intensity, flowrate, and UV transmittance always as surrogate and/or operational parameters to indicate whether the minimum chemical reduction criterion is being met. All instrumentation used to measure these parameters must be calibrated per the manufacturers' recommendations. The hydrogen peroxide dose applied must be monitored and verified by: (1) routine flowmeter reading checks with pump drawdown tests, (2) periodically verification of peroxide residual at the inlet to the UV reactor and/or as needed using a reliable test method or test kit, (3) routine chemical dosing metering pump measurement and flow meter measurement recordings, and (4) routine specific gravity measurement of hydrogen peroxide bulk solution for reliable calculated peroxide dosing and SCADA entry. The hydrogen peroxide dose verification procedure must be described in OOP.
- 5.3.13. At least weekly, the UVT meter must be inspected and checked against a reference benchtop or field unit of equal or greater accuracy to the installed UVT meter to document accuracy (i.e., instrumentation verification). Tolerance and response actions (e.g., calibration if tolerance is greater than 2%) must be included in the OOP.

- 5.3.14. The duty UV intensity (UVI) sensors must be checked against calibrated UVI sensors monthly and if readings vary by more than 20%, they must be replaced and calibrated.
 - 5.3.15. Soquel Creek Water District may use the UVAOP model predicted 1,4-dioxane and NDMA log reduction as a substitute for setpoint (5.3.11.4) or setpoint (5.3.11.5), provided the UVAOP model is validated during the startup and commissioning and receives approval from the DDW. Soquel Creek Water District must submit to DDW the calculated or model predicted 1,4-dioxane and NDMA log reduction for each day along with any parameters used to calculate the value in the monthly reports, specified in the OOP.
 - 5.3.16. If directed by DDW, Soquel Creek Water District must monitor and/or calculate the radical scavenging demand specified in the OOP and monitoring results to be included in the quarterly reports. If directed by DDW, Soquel Creek Water District must update the UVAOP system to incorporate radical scavenging demand to adjust operations, specified in the OOP.
- 5.4. In addition to the requirements of the Recycled Water Policy, Soquel Creek Water District must monitor the DDW-specified performance indicator constituents for RO and UVAOP. This monitoring is intended for the optimization of advanced treatment processes and to ensure DDW's goal of protection of public health. DDW specifies sucralose as a performance indicator for RO and NDMA as performance indicator for UVAOP, respectively. These constituents must be monitored monthly both prior and after the corresponding treatment processes. Soquel Creek Water District may reduce monitoring to quarterly for these constituents in the selected locations following DDW approval based on 12 months of water quality data. Data must be included in quarterly and annual reports including percentage reduction for each performance indicator. In the OOP, Soquel Creek Water District must use sampling data to develop a baseline value, along with lower and upper control limits using a statistical methodology to monitor performance of respective process.
 - 5.5. Per 22 CCR section 60320.201(i), each month, Soquel Creek Water District must collect samples representative of the effluent of the advanced treatment process under normal operating conditions and have the samples analyzed for contaminants having MCLs and notification levels. After 12 consecutive months of operations with no results exceeding an MCL or notification level, Soquel Creek Water District may apply to the DDW and Central Coast Water Board for a reduced monitoring frequency. The reduced monitoring frequency must be no less than quarterly. If an MCL or notification level is exceeded, Soquel Creek Water District must take the follow-up actions for MCL and notification level exceedances required pursuant to CCR title 22 section 60320.212 and CCR title 22 section 60320.220.
 - 5.6. In accordance with CCR title 22 section 60320.210 and CCR title 22 section 60320.212, the AWP effluent must be sampled quarterly for primary drinking water MCLs (Chapter 15 of CCR title 22, Tables 66431-A, 64442, 64443, 64444-A, and 64533-A), total nitrogen, lead, and copper. Monitoring for contaminants with

secondary MCLs (Chapter 15 of CCR title 22, Tables 64449-A and B) must be conducted annually. Soquel Creek Water District must, in accordance with CCR title 22 section 60320.226 and as specified in the OOP, collect the required samples from the monitoring wells. The results must be reported to DDW and the Central Coast Water Board. Soquel Creek Water District may reduce monitoring frequency, including reducing monitoring to single aquifer (i.e., deep or shallow), following DDW and Central Coast Water Board approval based on review of water quality data in accordance with CCR title 22 section 60320.210(b), and CCR title 22 section 60320.226(e). Soquel Creek Water District must update the OOP to incorporate any future revisions to MCLs.

- 5.7. In accordance with CCR title 22 section 60320.220, Soquel Creek Water District must collect quarterly samples and analyze the AWPf effluent for priority pollutants (chemicals listed in 40 CFR section 131.38, "Establishment of numeric criteria for priority toxic pollutants for the State of California," as may be amended), chemicals having notification levels, and any additional chemicals specified by DDW and the Central Coast Water Board. For priority pollutants chemicals that are also regulated chemicals under CCR title 22 section 60320.212. Soquel Creek Water District must follow CCR title 22 section 60320.212 requirements. Soquel Creek Water District may reduce monitoring for the chemicals required by CCR title 22 section 60320.220 to annual monitoring following DDW approval based on review of the most recent two years of water quality data. Soquel Creek Water District must update the OOP to incorporate any future revisions to the DDW's notification level list.
- 5.8. In accordance with CCR title 22 section 60320.218, AWPf effluent must be sampled prior to injection for TOC at least weekly. Soquel Creek Water District may use an online analyzer to satisfy TOC monitoring requirements of CCR title 22 section 60320.218. Soquel Creek Water District must report the weekly TOC results, the 20-week running average of all TOC results, and the average of the last four results in quarterly reports. The analytical results of the TOC monitoring performed pursuant to CCR title 22 section 60320.218 must not exceed 0.5 mg/L.
- 5.9. Soquel Creek Water District must implement the following approach in the event of a water quality exceedance as measured at the AWPf effluent in accordance with CCR title 22 section 60320.210, CCR title 22 section 60320.212, and CCR title 22 section 60320.220.
 - 5.9.1. Collect confirmation sample within 72 hours of notification.
 - 5.9.2. If the average of the initial and confirmation sample exceeds the contaminant's MCL or action level, or the confirmation sample is not collected and analyzed, Soquel Creek Water District must notify DDW and the Central Coast Water Board of the exceedance and initiate weekly sampling. Samples are to be used in compliance determination even if recycled water was not diverted from indirect potable reuse application. Running four-week average is the arithmetic mean, calculated weekly, of the monitoring results from the previous four weekly samples. The first weekly sample is the average of the initial and confirmation sample.

- 5.9.3. For exceedance of a contaminant whose compliance with its MCL or action level is not based on running annual average based on drinking water regulations (i.e., nitrate, nitrite, nitrate plus nitrite, perchlorate, chlorite, asbestos, lead, and copper), Soquel Creek Water District must notify DDW and Central Coast Water Board within 24 hours of determination of the exceedance and conduct corrective actions in accordance with CCR title 22 section 60320.212(d)(1).
- 5.9.4. For remaining MCLs exceedances, Soquel Creek Water District must notify DDW and Central Coast Water Board of the exceedance and conduct corrective actions in accordance with CCR title 22 section 60320.212(d)(2).
- 5.9.5. For notification levels exceedances, Soquel Creek Water District must notify DDW and Central Coast Water Board of the exceedance and conduct corrective actions in accordance with CCR title 22 section 60320.220(b).
- 5.9.6. For total nitrogen exceedances, Soquel Creek Water District must follow requirements of CCR title 22 section 60320.210(a).
- 5.9.7. For SMCLs exceedances, Soquel Creek Water District must follow requirements of CCR title 22 section 60320.220(b).
- 5.10. Soquel Creek Water District must implement the following approach in the event of a single sample result exceeding 80% of a nitrate, nitrite, or nitrate plus nitrite MCL as measured in the Project's monitoring wells in accordance with CCR title 22 section 60320.226(c).
 - 5.10.1. Collect confirmation sample within 48 hours of notification.
 - 5.10.1.1. If the average of the initial and confirmation sample exceeds the nitrate, nitrite, or nitrate plus nitrite MCL, Soquel Creek Water District must notify DDW and Central Coast Water Board within 24 hours of being notified by the laboratory of the confirmation sample result; and,
 - 5.10.1.2. Discontinue subsurface application of advanced treated wastewater until corrective actions have been taken or evidence is provided to DDW and Central Coast Water Board that the contamination was not a result of the Project.
- 5.11. Pursuant to the proposed per- and polyfluoroalkyl substances (PFAS) National Primary Drinking Water Regulation and when adopted by California Safe Drinking Water Act Regulations, Soquel Creek Water District must sample the advanced treated wastewater (AWPF effluent) for PFAS contaminants. Monitoring of perfluorooctanoic acid (PFOA), perfluorooctanesulfonic acid (PFOS), perfluorohexanesulfonic acid (PFHxS), perfluorononanoic acid (PFNA), perfluorobutanesulfonic acid (PFBS) and hexafluoropropylene oxide dimer acid ("GenX chemicals" [HFPO-DA]) will be required for demonstrating compliance with the proposed regulation and MCLs. When PFAS regulations become effective, Soquel Creek Water District must ensure the OOP is updated to reflect

the PFAS monitoring and State Water Board Environmental Laboratory Accreditation Program (ELAP)-approved drinking water analytical methods for review and acceptance by DDW.

6. OPERATIONS OPTIMIZATION PLAN

- 6.1. Soquel Creek Water District must operate the Project in accordance with the OOP, reviewed and accepted by DDW prior to start of operations, pursuant to CCR title 22 section 60320.222. Soquel Creek Water District must submit a draft OOP to DDW and Central Coast Water Board prior to operations for DDW review and acceptance. The draft OOP may be amended and finalized after the completion of full-scale startup and commissioning testing. The final OOP must be submitted to DDW no later than 90 days after the completion of startup and commission testing and incorporate any changes as directed by DDW. The OOP must always be representative of the current operations, maintenance, staffing, analytical methods, monitoring, and reporting of the Project in accordance with CCR title 22 section 60320.222.
- 6.2. Within six months of optimizing treatment processes in accordance with CCR title 22 section 60320.222(b), and anytime thereafter operations are optimized that results in a change in operation, Soquel Creek Water District must update the OOP to include such changes in operational procedures and submit the OOP for review and acceptance by DDW.
- 6.3. At a minimum, the OOP must identify and describe the operations, maintenance, analytical methods, monitoring necessary for the Project to meet the requirements of CCR title 22 Article 5.2, and the reporting of monitoring results to DDW and Central Coast Water Board. This must include the following elements:
 - 6.3.1. Operations plan (including any calculations needed for the validation of unit process's pathogen log reduction credits per CCR title 22 section 60320.208(c), chemical dosage calculations, injection well back-flushing, start-up, and shutdown procedures).
 - 6.3.2. Preventative maintenance program (including prevention of cross connections, prevention of bypass treatment, equipment repair and replacement, UV lamp fouling, replacement program for membranes, instrumentation maintenance, and calibration).
 - 6.3.3. Water quality monitoring program (including analytical methods, associated instrumentation, and Primary Station Codes [PS-codes] for monitoring locations).
 - 6.3.4. Contingency plans (including responses to process upsets, power interruptions, off- spec water, water quality exceedances, and contact information for key personnel and agencies), and emergency response plan.
 - 6.3.5. Records (including records related to preventative maintenance program, and contingency plan, sample templates for maintenance logs and monthly report, lessons learned to optimize treatment) and reporting (including

procedures for reporting monitoring results, reports, process upsets, power interruptions, off-spec water, and water quality exceedances).

6.3.6. Process controls quick reference guide for operators in (1) the main treatment control center and (2) in the OOP that include, at a minimum, the following elements of reliability features:

6.3.6.1. The alarm setpoints that trigger responses other than automatic diversion, retreatment, or shutdown (non-critical; critical control limits as defined during normal operations).

6.3.6.2. The alarm setpoints that trigger automatic reliability features: diversion, retreatment, or shutdown (critical alarms).

6.3.6.3. For each alarm, include the associated response and the associated instrumentation and include the following: instrument tag, description, type (i.e., low, low-low, etc.), setpoint/trigger value, effect, time delay, and if the setpoint/trigger value is hardcoded.

6.3.6.4. The required frequency of calibration for any critical instrumentation, along with instrumentation tag and description, that is has a setpoint measurement associated with a critical alarm.

6.3.6.5. The alarm setpoints, specifically for critical alarms the security access for changing the critical alarm set points. A standard operating procedure must be referred to for the critical alarm set points maintenance and changes when required. This may include requirement of a programmer and/or SCADA software integrator to make the critical alarm set point change, higher level management staff (e.g., operations manager, etc.) with elevated SCADA login access or privileges to make critical alarm set point change, etc.

6.4. The OOP must include a staffing plan for manned and unmanned operations that includes information on operator staffing hours, shifts, responsibilities, and certification classes. Soquel Creek Water District must staff the AWPf with operators that have obtained or are working to obtain an AWTO certification. Soquel Creek Water District must provide for on-going training program to ensure that each operator has been trained in the following during manned and unmanned shifts:

6.4.1. The proper operation of all treatment processes utilized to achieve pathogen and chemical reduction.

6.4.2. Maintenance, calibration, and verification of instrumentation and analyzers.

6.4.3. Control systems, data trending, and the control strategy of plant systems.

6.4.4. Incident response and investigation.

6.4.5. Hazard Analysis Critical Control Point systems approach.

6.4.6. The California Safe Drinking Water Act, its implementing regulations, and all other relevant regulations.

6.4.7. The potential adverse health effects associated with the consumption of drinking water that does not meet California drinking water standards.

6.5. Soquel Creek Water District must update the OOP to incorporate any future revisions to chemical monitoring lists (e.g., MCLs, notification levels).

7. LABORATORY ANALYSES

7.1. In accordance with CCR title 22 section 60320.204, all laboratory analyses for contaminants having a primary or secondary MCL must be conducted using a drinking water method approved by DDW for the contaminant and by an ELAP certified laboratory for the analytical method used. Analyses for chemicals other than those having primary or secondary MCLs must be described in the OOP.

7.2. Analytical results of all sample analyses completed in a calendar month must be submitted electronically to DDW's database no later than the 10th day of the following month.

7.2.1. Soquel Creek Water District must use DDW provided PS-codes to electronically submit the water quality monitoring results for the Project.

7.2.2. Laboratory results required by DDW that cannot be transmitted electronically via PS- codes to California Laboratory Intake Portal (CLIP), such as bacteriological data, must be submitted to DDW in appropriate reports (e.g., quarterly reports). For any required data including from non-CLIP methods that cannot be transmitted electronically, Soquel Creek Water District must contact DDW with a justification and method of data submission acceptable to DDW.

7.3.3. Data produced and reports submitted for analysis required by Article 5.2 must be generated by a laboratory accredited by ELAP. The laboratory must hold a valid certificate of accreditation for the analytical test methods validated for intended use and approved by DDW.

7.4. Soquel Creek Water District must use the analytical methods and sample at locations and frequencies as described in the OOP. Any changes to sampling locations, frequencies, and analytical methods must be approved by DDW. Soquel Creek Water District must not reduce the monitoring frequency for the chemicals having notification levels, including all chemicals that overlap with constituents of emerging concern in the Recycled Water Policy, without the approval of DDW.

8. CROSS-CONNECTION CONTROL PROGRAM

8.1. Soquel Creek Water District must have no undesired or unintended reversal of flow of water or other liquids, gases, or other substances into the AWPf's product water lines. Any such undesired or unintended reversal of flow must be reported to the Central Coast Water Board and DDW within 24 hours of Soquel Creek Water District's knowledge of the incident.

8.2. The AWPf must be designed to prevent any inadvertent or improper cross-connections between the potable water, industrial water, wastewater, recycled water, chemical, or other waste or non-potable systems. Potential points of

vulnerability between the potable water, industrial water, wastewater, recycled water, chemical, and other on-site waste, or non-potable piping systems must be identified in the OOP. The OOP must include procedures for routine inspection of these potential points of vulnerability, as well as reporting procedures if inadvertent or improperly designed cross-connections are discovered.

8.3. Soquel Creek Water District must submit a comprehensive cross-connection control program report for the AWPf to DDW and the Central Coast Water Board. The cross-connection control program report must be submitted as a standalone document, separate from the OOP.

8.3.1. The AWPf must implement its cross-connection control program and update the cross-connection control program report to ensure that the program is always representative of the current cross-connection control practices at the AWPf. At a minimum, the cross-connection control program report must be updated yearly with the results of the annual cross-connection site inspections and all applicable corrective actions, and subsequently submitted to DDW, Central Coast Water Board, and County of Santa Cruz.

8.3.2. Revisions to the cross-connection control program for any reason, including changes resulting from inspections, must be done in consultation with an individual with a valid and current Cross-Connection Control program Specialist certification issued by the California-Nevada section of the American Water Works Association (AWWA) or equivalent American National Standards Institute (ANSI)-accredited program.

8.4. The AWPf must be inspected for possible cross-connections of potable water, wastewater, recycled water, chemicals, and other waste or non-potable piping systems prior to operation of the AWPf and once every year thereafter. Piping systems must be inspected for possible cross-connections after making any modification to the AWPf plumbing system. The AWPf must have internal protection from cross-connections.

8.4.1. The cross-connection inspections must be performed by an individual with a valid and current Cross-Connection Program Specialist certification issued by the California-Nevada section of the AWWA or equivalent ANSI-accredited program.

8.4.2. Soquel Creek Water District must submit a written report documenting the result of the initial inspection with the program submitted to DDW. Subsequent inspection results must be included in the annual reports.

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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1. FINDINGS

- 1.1. This monitoring and reporting program is issued to Soquel Creek Water District, which operates the Pure Water Soquel project (Project), pursuant to California Water Code (CWC) section 13267, which authorizes the Central Coast Water Board to require technical and monitoring reports. California Code of Regulations (CCR) title 22, division 4 (title 22) also requires monitoring and reporting to confirm compliance with title 22 regulations.
- 1.2. The data required by this monitoring and reporting program provide information to determine compliance with Order R3-2023-0033, Waste Discharge and Water Reclamation Requirements, Pure Water Soquel Groundwater Replenishment Reuse Project, Soquel Creek Water District (Permit). The monitoring and reporting program requirements also provide information to the Central Coast Regional Water Quality Control Board (Central Coast Water Board) to assess the quality of groundwater and to protect beneficial uses. The Central Coast Water Board Executive Officer can modify this monitoring and reporting program as appropriate.
- 1.3. This monitoring and reporting program establishes conditions for Soquel Creek Water District to conduct routine or episodic self-monitoring of the discharges regulated under this Permit at specified influent, internal operations, effluent, and receiving water monitoring locations. This monitoring and reporting program requires Soquel Creek Water District to report the results to the Central Coast Water Board with information necessary to evaluate discharge characteristics and compliance status.

2. GENERAL MONITORING PROVISIONS

- 2.1. Soquel Creek Water District must ensure samples and measurements collected as required by the Permit and this monitoring and reporting program are representative of the volume and nature of the monitored discharge. All samples must be collected at the monitoring points specified in this monitoring and reporting program. The Soquel Creek Water District must not change monitoring locations prior to notifying and receiving approval from the Central Coast Water Board for the proposed change.
- 2.2. The Soquel Creek Water District must select and use appropriate flowrate measurement devices and methods, consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The Soquel Creek Water District must install, calibrate, and maintain the devices according to manufacturer recommendations to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices must be capable of measuring flowrates with a maximum deviation of 5 percent from true discharge rates throughout the range of expected discharge volumes.
- 2.3. In accordance with title 22 section 60320.204, Soquel Creek Water District must ensure that all laboratories conduct analyses for contaminants having a primary or secondary maximum contaminant level (MCL) using a drinking water method for the contaminant approved by State Water Resources Control Board's (State Water

Board's) Division of Drinking Water (DDW). The Soquel Creek Water District must ensure that the laboratory is accredited by the State Water Board's Environmental Laboratory Accreditation Program (ELAP) for the analytical method used or as authorized by DDW in case there are no approved drinking water methods available for a contaminant and the method must be described in Soquel Creek Water District's operation and optimization plan (OOP).

- 2.4. The Soquel Creek Water District must ensure that monitoring for all constituents that do not have a primary or secondary MCL be conducted according to United States Environmental Protection Agency (USEPA) test procedures approved by ELAP for the analytical method used or according to methods approved in 40 Code of Federal Regulations (CFR) part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants, as amended, unless other test procedures have been specified in Soquel Creek Water District's OOP. Analyses for constituents must be described in Soquel Creek Water District's OOP.
- 2.5. If Soquel Creek Water District monitors any pollutants more frequently than required by this monitoring and reporting program, using approved test procedures, or as specified in this monitoring and reporting program, the results of this monitoring must be included in the calculation and reporting of the data submitted in Soquel Creek Water District's monitoring report. The Soquel Creek Water District must also report the increased frequency of monitoring.
- 2.6. Where multiple USEPA-approved methods are available, drinking water (500 series) or wastewater (600 series) may be used as appropriate.
- 2.7. The Soquel Creek Water District must retain records of all monitoring information, including all calibration and maintenance records including all original strip chart and/or electronic recordings for continuous monitoring instrumentation and copies of all reports required by this monitoring and reporting program, and records of all data used to complete the implementation for this monitoring and reporting program. The Soquel Creek Water District must maintain records for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during any unresolved litigation regarding this discharge or as required by the Central Coast Water Board. Records of monitoring information must include the following:
 - 2.7.1. The date, exact place, and time of sampling or measurements,
 - 2.7.2. The individual(s) who performed the sampling or measurements,
 - 2.7.3. The date(s) analyses were performed,
 - 2.7.4. The individual(s) who performed the sampling, analyses, and/or other measurements,
 - 2.7.5. The analytical techniques or methods used, and
 - 2.7.6. The results of such analyses.

- 2.8. Laboratory Certification. Laboratories analyzing monitoring samples must be certified by ELAP, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.
- 2.9. Any report submitted by Soquel Creek Water District presenting new analytical data is required to include the complete laboratory analytical report(s). The laboratory director must sign the laboratory analytical report and contain the following components:
 - 2.9.1. A complete sample analytical report.
 - 2.9.2. A complete laboratory Quality Assurance/Quality Control (QA/QC) report.
 - 2.9.3. A discussion of the QA/QC data.
- 2.10. The Soquel Creek Water District, per manufacturer guidelines, must properly and routinely maintain and calibrate all monitoring instruments and devices used to comply with this monitoring and reporting program.
- 2.11. The Soquel Creek Water District must sign and certify all applications, reports, or information submitted to the Central Coast Water Board as detailed in section 10.12 and 10.13 of the Permit.
- 2.12. The Soquel Creek Water District must identify all missing or non-valid monitoring or sampling results in submitted monitoring reports. All instances of missing or non-valid results must include an explanation of their root cause and the steps Soquel Creek Water District has or will take to prevent future instances. Missing or non-valid results may be considered violations of the monitoring and reporting program that could result in enforcement action depending on the frequency of such instances and efforts by Soquel Creek Water District to prevent such failures.
- 2.13. Except as otherwise specified in this monitoring and reporting program, Soquel Creek Water District may reduce sampling and reporting frequency for parameters in accordance with title 22 and the Water Reclamation Requirements (WRRs), in Attachment D of the Order, after receiving written approval from the Central Coast Water Board for the reduction. The Central Coast Water Board will consult with DDW on all title 22 related monitoring requirement changes.

3. MONITORING LOCATIONS

The Soquel Creek Water District must establish the monitoring locations described in Table E-1 and shown in Figure E-1 to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Permit. Should the need for a change in sampling station(s) arise in the future, Soquel Creek Water District shall seek approval of the proposed station by the Central Coast Water Board Executive Officer prior to use.

Table E-1. Summary of Monitoring Locations

Monitoring Location Name (Sample ID)	Database for Reporting	GeoTracker Field Point Class	Latitude/ Longitude ¹	Primary Station Code	Monitoring Location Description
M-001	GeoTracker	IS-1	36.98507/ -121.97984	--	Secondary effluent pumped to Advanced Water Purification Facility (AWPF) (i.e., Ozone System Influent). Sample collected prior to the ozone injection at the AWPF.
M-002	GeoTracker/ CLIP ²	ES-1	36.98489/ -121.97922	CA4490006_ 109_109	Purified and stabilized water prior to injection (Final full advanced-treated water produced by the AWPF for injection).
MFF	N/A	N/A	36.98478/ -121.97997	N/A	Membrane Filtration (MF) Feed for MF process performance.
MFE	N/A	N/A	36.98468/ -121.98006	N/A	MF Effluent for MF process performance.
ROF	N/A	N/A	36.98477/ -121.97996	N/A	Reverse Osmosis (RO) Feed for RO process performance.
ROP	N/A	N/A	36.98470/ -121.97977	N/A	RO Effluent for RO process performance.
UVF	N/A	N/A	36.98471/ -121.97974	N/A	Influent for ultraviolet advanced oxidation process (UVAOP) performance.
UVP	N/A	N/A	36.98475/ 121.97973	N/A	Effluent for UVAOP process performance.

Monitoring Location Name (Sample ID)	Database for Reporting	GeoTracker Field Point Class	Latitude/ Longitude ¹	Primary Station Code	Monitoring Location Description
MM-1	GeoTracker/ CLIP	MW-1	36.98299/ -121.94391	CA4490006_ 101_101	Monterey monitoring well, located approximately 160 ft northeast of the Monterey Seawater Intrusion Prevention (SWIP) well within the Purisima A unit.
MM-2	GeoTracker/ CLIP	MW-2	36.98368/ -121.94383	CA4490006_ 102_102	Monterey monitoring well, located approximately 460 ft northeast of the Monterey SWIP well within the Purisima A unit.
WM-1	GeoTracker/ CLIP	MW-3	36.98780/ -121.93319	CA4490006_ 103_103	Willowbrook monitoring well, located approximately 230 ft southwest of the Willowbrook SWIP well within the Purisima A unit.
WM-2	GeoTracker/ CLIP	MW-4	36.98751/ -121.93620	CA4490006_ 104_104	Willowbrook monitoring well, located approximately 1,040 ft west-southwest of the Willowbrook SWIP well within the Purisima A unit
LM-1A	GeoTracker/ CLIP	MW-5	36.98418/ -121.92698	CA4490006_ 105_105	Twin Lakes Church monitoring well, located approximately 200 ft east-southeast of the Twin Lakes Church SWIP well within the Purisima A unit

Monitoring Location Name (Sample ID)	Database for Reporting	GeoTracker Field Point Class	Latitude/ Longitude ¹	Primary Station Code	Monitoring Location Description
LM-2A	GeoTracker/ CLIP	MW-6	36.98326/ -121.92474	CA4490006_ 106_106	Twin Lakes Church monitoring well, located approximately 950 ft southeast of the Twin Lakes Church SWIP well within the Purisima A unit
M-3BC	GeoTracker/ CLIP	MW-7	36.98413/ -121.92750	CA4490006_ 107_107	Twin Lakes Church monitoring well, located approximately 160 ft south of the Twin Lakes Church SWIP well within the Purisima BC unit
M-4BC	GeoTracker/ CLIP	MW-8	36.98281/ -121.92795	CA4490006_ 108_108	Twin Lakes Church monitoring well located approximately 580 ft south-southeast from the Twin Lakes Church SWIP well within the Purisima BC unit

¹ Horizontal datum for monitoring well locations is North American Datum of 1983 (NAD83) (2011), California State Lane Zone III

² CLIP denotes California Laboratory Intake Portal, refer to Permit Attachment D for additional information

N/A denotes not applicable

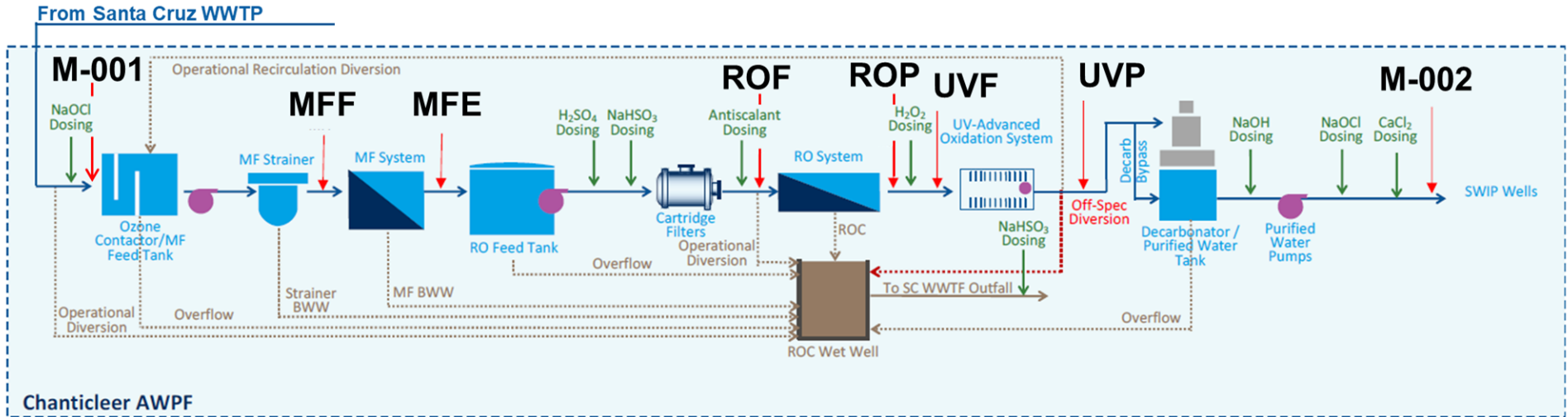


Figure E-1. Sample Locations for the Pure Water Soquel Advanced Water Purification Facility (AWPF) located at Chanticleer Avenue. Figure adapted from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023. Note M-001 = IS-1 influent sample and M-002 is ES-1 effluent in GeoTracker reporting.

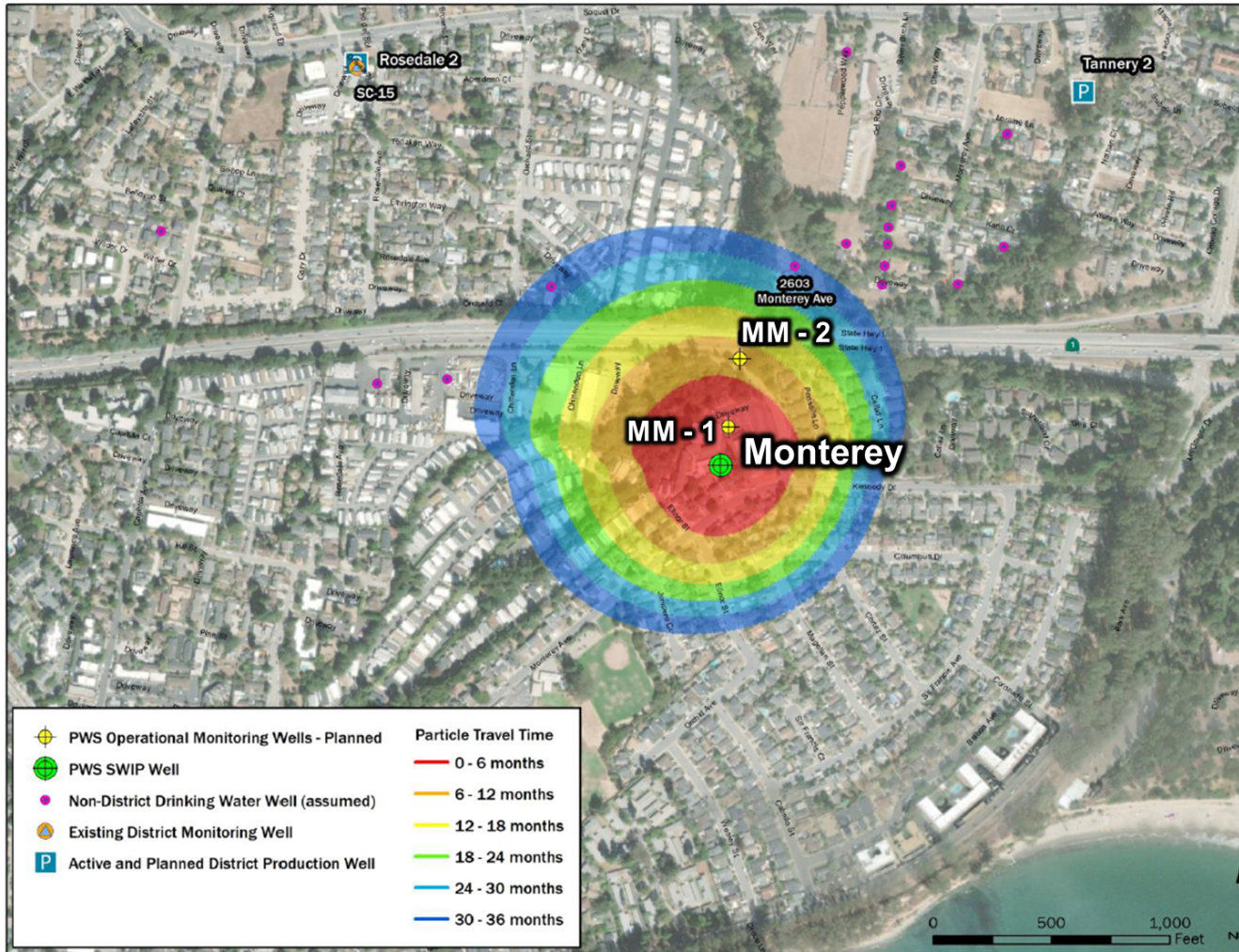


Figure E-2: Sample locations for the Monterey monitoring wells. Figure adapted from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023.

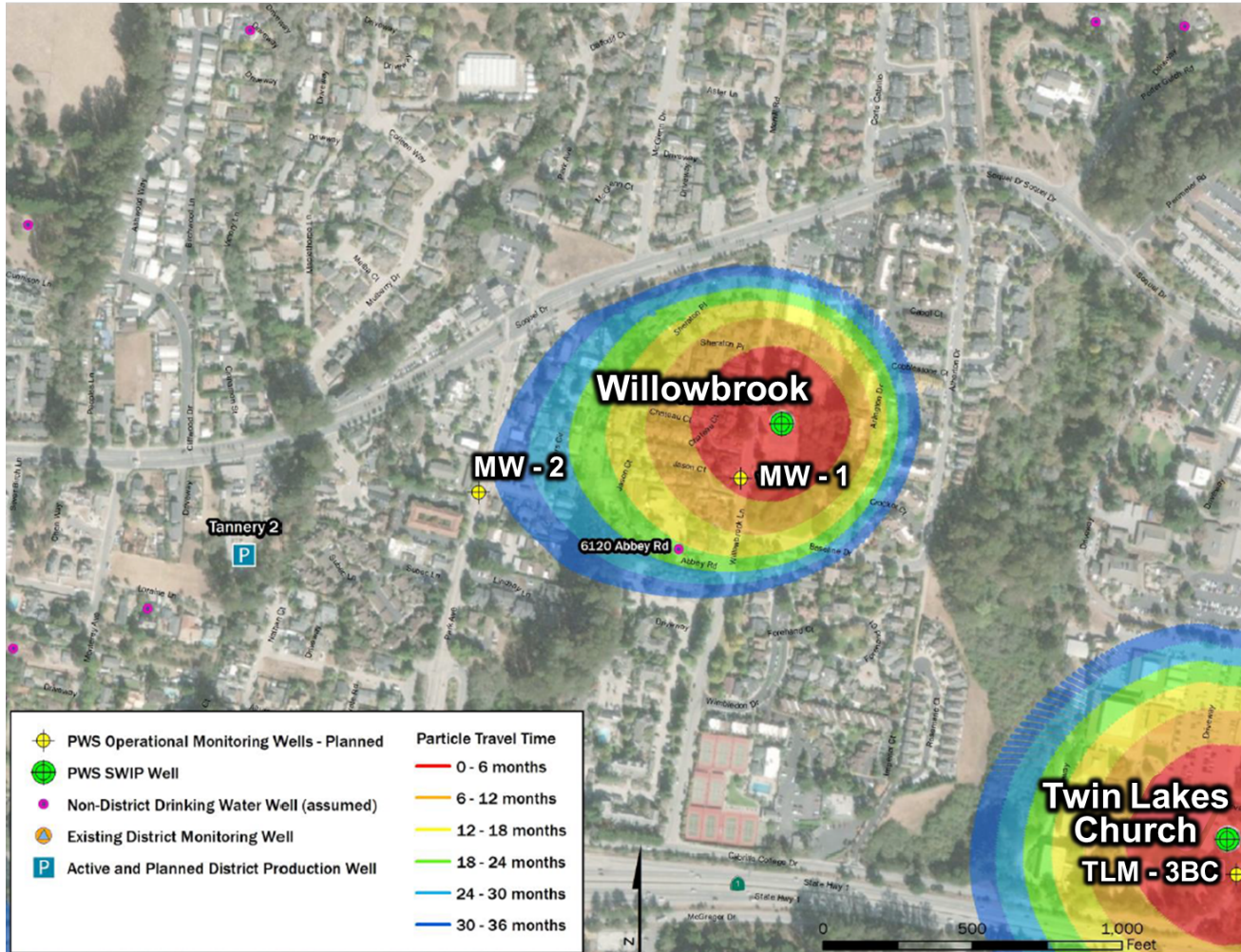


Figure E-3. Sample locations for the Willowbrook monitoring wells. Figure adapted from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023

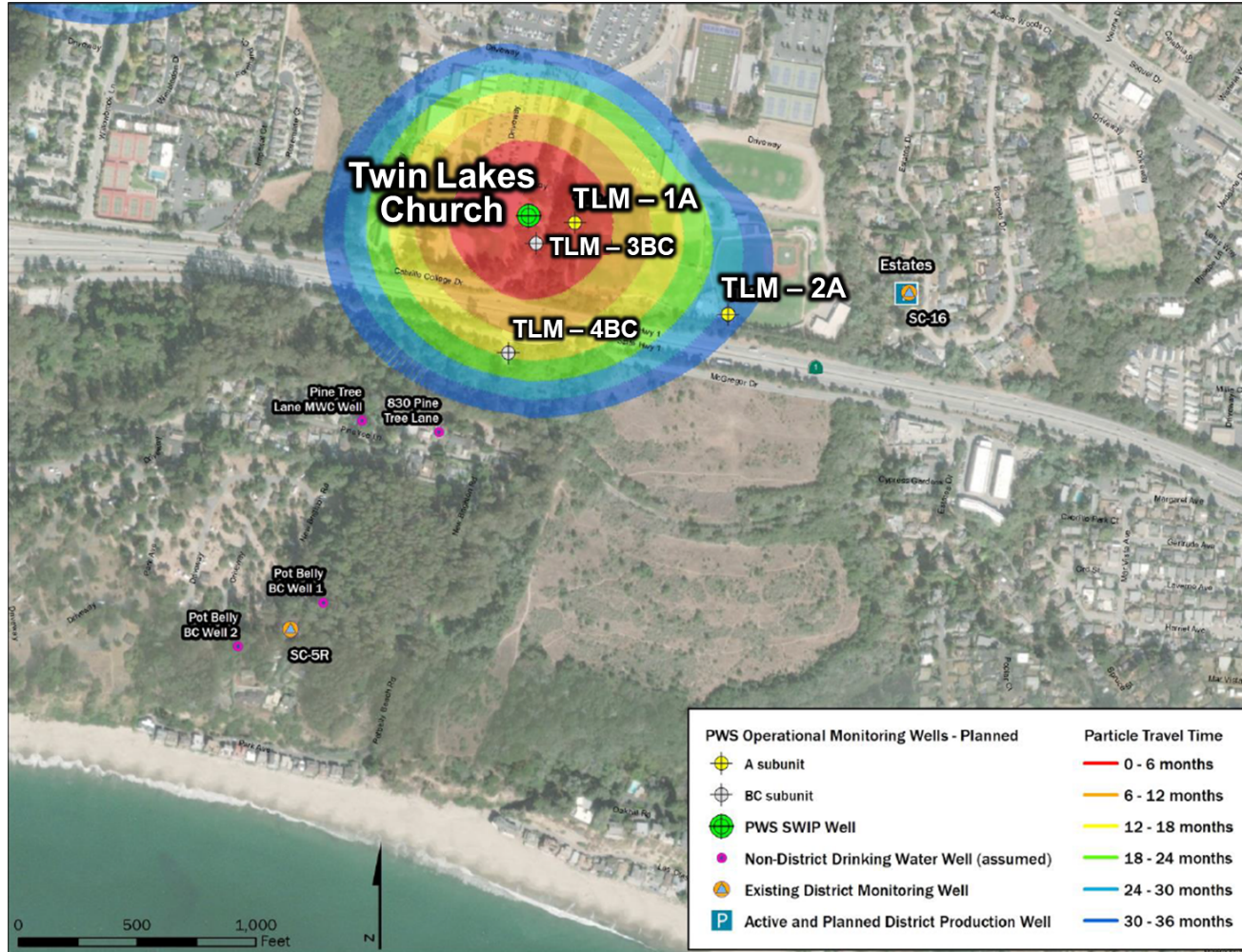


Figure E-4: Sample locations for the Twin Lakes Church monitoring wells. Figure adapted from the Final Pure Water Soquel Engineering Report prepared for Soquel Creek Water District, March 2023

4. MONITORING REQUIREMENTS

4.1. Influent Monitoring

The Soquel Creek Water District must monitor influent to the AWPf in accordance with Table E-2 below. The date and time of sampling (as appropriate) must be reported with the analytical values determined.

Table E-2. Influent and Process Monitoring

Parameter	Sample Location	Units	Sample Type	Minimum Sampling Frequency
Flowrate	M-001	Millions of gallons per day (MGD)	Flow meter / totalizer	Continuous
pH	M-001	pH units	Recorder	Continuous
Turbidity	M-001	Nephelometric turbidity units (NTU)	Recorder	Continuous
5-Day Biochemical Oxygen Demand (BOD ₅)	M-001	Milligrams per liter (mg/L)	Composite	Quarterly
Total Suspended Solids (TSS)	M-001	mg/L	Composite	Weekly
Total Dissolved Solids (TDS)	M-001	mg/L	Composite	Quarterly
Total Organic Carbon (TOC)	M-001	mg/L	Composite	Weekly

4.2 Log Reduction Value and Process Control Monitoring

4.2.1. The Soquel Creek Water District must monitor the MF, RO, and UVAOP treatment components for chemical and pathogen log reduction and for demonstrating that each of the barriers in the treatment train is operating correctly. Monitoring for log reduction values and process controls must be in accordance with Table E-3. These requirements are further described in the Water Reclamation Requirements, Attachment D, section 5, *Compliance Monitoring and Reporting*. Representative monitoring must be conducted for the following parameters at frequencies specified herein.

4.2.2. The Soquel Creek Water District must report on the performance of MF, RO, and UVAOP in the quarterly reports, as described in Attachment D, section 3.5.

Table E-3. Log Reduction Value and Process Control Monitoring

Parameter	Value	Relevance	Sample Type	Frequency	Monitoring Location(s)
Total log reduction values (LRV) ¹	Sum of the log ₁₀ reduction achieved from the credited treatment barriers (MF, RO, UVAOP, and underground retention time)	Performance/ Health	Calculated	Daily	MFE, ROP, UVP
Total LRV ¹	Achieved LRV targets – yes/no	Performance/ Health	Calculated	Daily	MFE, ROP, UVP
MFE LRV ²	Log ₁₀ reduction	Performance/ Health	Calculated	Daily	MFE
MFE Turbidity ³	Nephelometric turbidity units (NTU)	Performance/ Health	Continuous	Daily	MFE
RO LRV ⁴	Log ₁₀ reduction	Performance/ Health	Calculated	Daily	ROP
RO LRV Tier ⁵	Tier used for LRV (e.g., Tier 1 or 2)	Performance/ Health	Recorded	Daily	ROP
RO Total Organic Carbon (TOC)	Daily average and daily maximum in mg/L	Performance/ Health	Continuous	Daily	ROF, ROP
RO TOC LRV ⁶	Log ₁₀ reduction calculated using TOC	Performance/ Health	Calculated	Daily	ROF, ROP
RO Electrical Conductivity (EC)	Daily average and daily maximum in micromhos per centimeter (µmhos/cm)	Performance/ Health	Continuous	Daily	ROF, ROP

Parameter	Value	Relevance	Sample Type	Frequency	Monitoring Location(s)
RO EC LRV ⁷	Log ₁₀ reduction calculated using EC	Performance/ Health	Calculated	Daily	ROF, ROP
Sucralose ⁸	Micrograms per liter (µg/L) and percentage reduction	RO Performance	Grab	Monthly	ROF, ROP
NDMA ⁸	µg/L and percentage reduction	Performance	Grab	Monthly	UVF, UVP
UVAOP RED ⁹	mJ/cm ²	Performance/ Health	Calculated	Daily	UVP
UVAOP LRV ⁹	RED greater than 300 mJ/cm ² achieves LRV credit of 6/6/6	Performance	Recorded	Daily	UVP
UVAOP UV Dose ¹⁰	mJ/cm ²	Performance/ Health	Calculated	Continuous	UVP
UVAOP Hydrogen Peroxide Dose ¹¹	mg/L	Performance/ Health	Calculated	Continuous	UVF
UV AOP Influent UVT ¹²	%	Performance/ Health	Calculated	Continuous	UVF

¹ Refer to Attachment D, section 5.3 for monitoring and reporting details.

² Refer to Attachment D, section 5.3.5, 5.3.6, 5.3.7 for monitoring and reporting details.

³ Refer to Attachment D, 5.3.8 for monitoring and reporting details.

⁴ Refer to Attachment D, 5.3.4 for monitoring and reporting details.

⁵ Refer to Attachment D, section 5.3.9 for monitoring and reporting details.

⁶ Refer to Attachment D, section 5.3.9.1 for monitoring and reporting details.

⁷ Refer to Attachment D, section 5.3.9.2 for monitoring and reporting details.

⁸ Refer to Attachment D, section 5.4 for monitoring and reporting details.

⁹ Refer to Attachment D, section 5.3.1 for monitoring and reporting details.

¹⁰ Refer to Attachment D, section 5.3.11.4 for monitoring and reporting details.

¹¹ Refer to Attachment D, section 5.3.11.5 for monitoring and reporting details.

¹² Refer to Attachment D, section 5.3.11.3 for monitoring and reporting details.

4.3. Advanced Treated Recycled Water (Effluent) Monitoring

4.3.1. Advanced treated recycled water monitoring is required to:

4.3.1.1. Determine compliance with Permit conditions;

4.3.1.2. Identify operational problems and aid in improving facility performance; and,

4.3.1.3. Provide information on recycled water characteristics and flows for use in interpreting water quality and biological data.

The Soquel Creek Water District must monitor the effluent leaving the AWPF for the parameters listed in Table E-4 below. Representative samples must be collected and analyzed for the following parameters at frequencies specified herein.

Table E-4. Effluent Monitoring at M-002

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flowrate	MGD	Flow Meter / Totalizer	Continuous
Total chlorine residual	mg/L	Recorder	Continuous
EC	µmhos/cm	Recorder	Continuous or daily
Ammonia	mg/L	Grab	Quarterly

4.3.2. Soquel Creek Water District must monitor the effluent leaving the AWPF for the parameters listed in Table E-5 below to demonstrate compliance with the discharge limits in Table 4 of the Permit.

Table E-5. Discharge Limits Monitoring at M-002

Parameter	Units	Sample Type	Minimum Sampling Frequency
Aluminum ¹	mg/L	Grab	Monthly
Boron ²	mg/L	Grab	Monthly

Parameter	Units	Sample Type	Minimum Sampling Frequency
Chloride ^{3,2}	mg/L	24-hr composite	Monthly
Color Units ³	Apparent Color Unit (ACU)	Grab	Annual
Copper ³	mg/L	Grab	Monthly
EC	µmhos/cm	Grab	Monthly
Fluoride ¹	mg/L	Grab	Monthly
Iron ³	mg/L	Grab	Annual
Lead	mg/L	Grab	Monthly
Manganese ³	mg/L	Grab	Annual
Methylene Blue Activated Substances (MBAS) ³	mg/L	Grab	Annual
Methyl-tert-butyl ether (MTBE)	mg/L	Grab	Monthly
Nitrate (as nitrogen) ^{1,2}	mg/L	Grab	Monthly
Nitrate + Nitrite (as nitrogen) ¹	mg/L	Calculate	Monthly
Nitrite (as nitrogen) ^{1,4}	mg/L	Grab	Monthly
Total Nitrogen ⁴	mg/L	24-hr composite	2 per week
Odor ³	Threshold Odor Number (TON)	Grab	Annual
Sodium ²	mg/L	Grab	Monthly
pH ²	pH units	Recorder	Continuous

Parameter	Units	Sample Type	Minimum Sampling Frequency
Silver ³	mg/L	Grab	Annual
Sulfate ^{2,3}	mg/L	24-hr composite	Monthly
Thiobencarb ³	mg/L	Grab	Annual
Total Dissolved Solids (TDS) ^{3,2}	mg/L	Grab	Monthly
Total Organic Carbon (TOC) ⁴	mg/L	Recorder or 24-hr composite	Weekly
Total Coliform ²	Most Probable Number (MPN)/ 100 mL	Grab	Daily ⁵
Turbidity ^{3,6,7}	NTU	Recorder	Continuous
Zinc ³	mg/L	Grab	Annual

¹ Parameters with primary MCLs established in title 22, section 64431 Table 64431 or with Notification Levels.

² Parameters with water quality objectives established in the *Water Quality Control Plan for the Central Coastal Basin* (Basin Plan).

³ Parameters with secondary MCLs established in title 22, section 64449, Table 6 4449-A.

⁴ Reporting requirements are described in Attachment D, section 5.8.

⁵ The minimum sampling frequency must be five days per week.

⁶ Parameters with effluent limitations recommended by DDW's Conditional Acceptance of the Title 22 Engineering Report for Pure Water Soquel Groundwater Recharge and Replenishment Project, (4490006-701), dated April 26, 2023.

⁷ Parameters with limits established in title 22, section 60301.320(b)

4.3.3 The Soquel Creek Water District must perform additional monitoring, as described below, for parameters with secondary MCLs in Table E-6 in the event of an exceedance of a corresponding effluent limitation listed in the Permit (title 22, section 60320.212(e)).

4.3.3.1 If the annual average of the results of the monitoring performed exceeds a parameter's secondary MCL in title 22 Table 6 4449-A or upper limit in title 22 Table 6 4449-B, Soquel Creek Water District must initiate quarterly monitoring for the parameter and if the running

annual average of quarterly-averaged results exceeds a parameter's secondary MCL or upper limit, describe the reason(s) for the exceedance and any corrective action taken the quarterly report for the quarter in which the exceedance occurred. The annual monitoring frequency may resume if the running annual average of quarterly results does not exceed a parameter's secondary MCL or upper limit.

- 4.3.4. The Soquel Creek Water District must demonstrate control of nitrogen compounds¹³. The Soquel Creek Water District must in each calendar week, at least three days apart as specified in the AWWPF's OOP, collect at least two effluent water quality sample at Monitoring Location M-002 and have the sample analyzed for total nitrogen. The Soquel Creek Water District must ensure that, if a result of any single sample exceeds 10 mg/L, the laboratory or person conducting the analysis provide the results to the Soquel Creek Water District within 72 hours. If the average of the results of two consecutive samples exceeds 10 mg/L total nitrogen, Soquel Creek Water District must also take the following measures:
 - 4.3.4.1. The Soquel Creek Water District must take a confirmation sample and notify the Central Coast Water Board and DDW within 48 hours of the laboratory notifying Soquel Creek Water District of the results.
 - 4.3.4.2. The Soquel Creek Water District must investigate the cause for the exceedances and take actions to reduce the total nitrogen concentrations to ensure continued or future exceedances do not occur.
 - 4.3.4.3. The Soquel Creek Water District must initiate additional monitoring for nitrogen compounds as described in the AWWPF's OOP, including locations in the groundwater basin, to identify elevated concentrations and determine whether such elevated concentrations exceed or may lead to an exceedance of a nitrogen based MCL.
- 4.3.5. If the average of the results of four consecutive samples exceeds a concentration of 10 mg/L of total nitrogen, suspend the subsurface discharge of advanced treated recycled water. The Soquel Creek Water District must not resume subsurface discharge until Soquel Creek Water District takes corrective actions and at least two consecutive sampling results, collected at least 24 hours apart, have a concentration of total nitrogen less than 10 mg/L.
- 4.3.6. In the event of an exceedance of a corresponding effluent limitation listed in the Permit, Soquel Creek Water District must perform additional monitoring, as described below, for parameters with MCLs in Table E-5 and all parameters in Table E-6 through Table E-10 (title 22, section 60320.212(d)).

¹³ Total nitrogen; nitrate expressed as nitrogen; nitrate plus nitrite expressed as nitrogen; and nitrite expressed as nitrogen

- 4.3.6.1. For a parameter whose compliance with its MCL or Action Level (for lead and copper) that is not based on a running annual average (i.e., currently these are nitrate, nitrite, nitrate plus nitrite, perchlorate, chlorite, asbestos, lead, and copper):
 - 4.3.6.1.1. Within 72 hours of being notified of a result exceeding an MCL or Action Level (AL) Soquel Creek Water District must collect another sample, and have it analyzed for the parameter as confirmation.
 - 4.3.6.1.2. If the average of the initial and confirmation sample exceeds the parameter's MCL or AL, or a confirmation sample is not collected and analyzed, Soquel Creek Water District must initiate weekly monitoring for the parameter until four consecutive weekly results are below the parameter's MCL or AL. The Soquel Creek Water District must notify the Central Coast Water Board and DDW within 24 hours if the average of the initial and confirmation samples exceeds an MCL or AL, or if a confirmation sample is not collected.
 - 4.3.6.1.3. If the running four-week average exceeds the parameter's MCL or AL, Soquel Creek Water District must notify the Central Coast Water Board and DDW within 24 hours of knowledge of the exceedance and, if directed by the Central Coast Water Board or DDW, conduct corrective actions up to and potentially including suspending the discharge of the recycled municipal wastewater.
- 4.3.6.2. For a parameter whose compliance with its MCL is based on a running annual average (title 22, section 60320.212(d)):
 - 4.3.6.2.1. Within 72 hours of being notified of a result exceeding an MCL, Soquel Creek Water District must collect another sample, and have it analyzed for the parameter as confirmation.
 - 4.3.6.2.2. If the average of the initial and confirmation sample exceeds the parameter's MCL, or a confirmation sample is not collected and analyzed, Soquel Creek Water District must initiate weekly monitoring for the parameter until the running four-week average no longer exceeds the MCL.
 - 4.3.6.2.3. If the running four-week average exceeds the parameter's MCL, Soquel Creek Water District must describe the reason(s) for the exceedance and provide a workplan with a schedule for completion of corrective actions in the quarterly report for the quarter in which the exceedance occurred.

4.3.6.2.4. If the running four-week average exceeds the parameter's MCL for sixteen (16) consecutive weeks, Soquel Creek Water District must notify the Central Coast Water Board and DDW within 48 hours of knowledge of the exceedance and, if directed by the Central Coast Water Board or DDW, conduct corrective actions up to and potentially including suspending the discharge of the recycled municipal wastewater.

4.3.7. The Soquel Creek Water District must monitor the effluent at M-002, as described in Table E-1, for the parameters listed in Table E-6 through Table E-12:

Table E-6. Effluent Limitation Monitoring for Recycled Water (Title 22) at M-002: Inorganics

Parameter ^{1,2}	Units	Sample Type	Minimum Sampling Frequency
Aluminum	mg/L	Grab	Monthly
Antimony	mg/L	Grab	Monthly
Arsenic	mg/L	Grab	Monthly
Asbestos (for fibers exceeding 10 µm in length)	Million fibers per liter (MFL)	Grab	Monthly ³
Barium	mg/L	Grab	Monthly
Beryllium	mg/L	Grab	Monthly
Cadmium	mg/L	Grab	Monthly
Total Chromium	mg/L	Grab	Monthly
Cyanide	mg/L	Grab	Monthly
Fluoride	mg/L	Grab	Monthly
Mercury	mg/L	Grab	Monthly
Nickel	mg/L	Grab	Monthly
Perchlorate	mg/L	Grab	Monthly

Parameter ^{1,2}	Units	Sample Type	Minimum Sampling Frequency
Selenium	mg/L	Grab	Monthly
Thallium	mg/L	Grab	Monthly

¹ Parameters with primary MCLs established in title 22, section 64431, Table 6 4431.

² Nitrogen compounds (nitrate, nitrate+nitrite, and nitrite) are not included in Table E-6 because they are included in Table E-5.

³ If four consecutive quarterly results for asbestos are below the detection limit in title 22, section 64432, Table 64432-A for asbestos, Soquel Creek Water District may reduce monitoring for asbestos to one sample every three years. If the results from the reduced monitoring frequency detects asbestos, quarterly monitoring must resume. This reduction does not require approval from the Central Coast Water Board or DDW.

Table E-7. Effluent Limitation Monitoring for Recycled Water (Title 22) at M-002: Volatile Organic Chemicals (VOCs)

Parameter ¹	Units	Sample Type	Minimum Sampling Frequency
Benzene	mg/L	Grab	Monthly
Carbon Tetrachloride	mg/L	Grab	Monthly
1,2-Dichlorobenzene	mg/L	Grab	Monthly
1,4-Dichlorobenzene	mg/L	Grab	Monthly
1,1-Dichloroethane	mg/L	Grab	Monthly
1,2-Dichloroethane	mg/L	Grab	Monthly
1,1-Dichloroethylene	mg/L	Grab	Monthly
cis-1,2-Dichloroethylene	mg/L	Grab	Monthly
trans-1,2-Dichloroethylene	mg/L	Grab	Monthly
Dichloromethane	mg/L	Grab	Monthly
1,2-Dichloropropane	mg/L	Grab	Monthly
1,3-Dichloropropene	mg/L	Grab	Monthly

Parameter ¹	Units	Sample Type	Minimum Sampling Frequency
Ethylbenzene	mg/L	Grab	Monthly
Methyl-tert-butyl-ether (MTBE)	mg/L	Grab	Monthly
Chlorobenzene	mg/L	Grab	Monthly
Styrene	mg/L	Grab	Monthly
1,1,2,2-Tetrachloroethane	mg/L	Grab	Monthly
Tetrachloroethylene	mg/L	Grab	Monthly
Toluene	mg/L	Grab	Monthly
1,2,4-Trichlorobenzene	mg/L	Grab	Monthly
1,1,1-Trichloroethane	mg/L	Grab	Monthly
1,1,2-Trichloroethane	mg/L	Grab	Monthly
Trichloroethylene	mg/L	Grab	Monthly
Trichlorofluoromethane	mg/L	Grab	Monthly
1,1,2-Trichloro-1,2,2- Trifluoroethane	mg/L	Grab	Monthly
Vinyl Chloride	mg/L	Grab	Monthly
Xylenes	mg/L	Grab	Monthly

¹ Parameters with primary MCLs established in title 22, section 64444, Table 6 4444-A.

Table E-8. Effluent Limitation Monitoring for Recycled Water (Title 22) at M-002: Synthetic Organic Chemicals (SOCs)

Parameter ¹	Units	Sample Type	Minimum Sample Frequency
Alachlor	mg/L	Grab	Monthly
Atrazine	mg/L	Grab	Monthly

Parameter¹	Units	Sample Type	Minimum Sample Frequency
Bentazon	mg/L	Grab	Monthly
Benzo(a)pyrene	mg/L	Grab	Monthly
Carbofuran	mg/L	Grab	Monthly
Chlordane	mg/L	Grab	Monthly
2,4-Dichlorophenoxyacetic acid	mg/L	Grab	Monthly
Dalapon	mg/L	Grab	Monthly
1,2-Dibromo-3-chloropropane	mg/L	Grab	Monthly
Di(2-ethylhexyl) adipate	mg/L	Grab	Monthly
Di(2-ethylhexyl) phthalate	mg/L	Grab	Monthly
Dinoseb	mg/L	Grab	Monthly
Diquat	mg/L	Grab	Monthly
Endothall	mg/L	Grab	Monthly
Endrin	mg/L	Grab	Monthly
Ethylene Dibromide	mg/L	Grab	Monthly
Glyphosate	mg/L	Grab	Monthly
Heptachlor	mg/L	Grab	Monthly
Heptachlor epoxide	mg/L	Grab	Monthly
Hexachlorobenzene	mg/L	Grab	Monthly
Hexachlorocyclopentadiene	mg/L	Grab	Monthly
Gamma BHC (Lindane)	mg/L	Grab	Monthly
Methoxychlor	mg/L	Grab	Monthly
Molinate	mg/L	Grab	Monthly

Parameter ¹	Units	Sample Type	Minimum Sample Frequency
Oxamyl	mg/L	Grab	Monthly
Pentachlorophenol	mg/L	Grab	Monthly
Picloram	mg/L	Grab	Monthly
Polychlorinated Biphenyls (PCBs)	mg/L	Grab	Monthly
Simazine	mg/L	Grab	Monthly
Thiobencarb	mg/L	Grab	Monthly
Toxaphene	mg/L	Grab	Monthly
1,2,3-Trichloropropane	mg/L	Grab	Monthly
2,3,7,8-tetrachlorodibenzodioxin (Dioxin)	mg/L	Grab	Monthly
2-(2,4,5-trichlorophenoxy) propionic acid (Silvex)	mg/L	Grab	Monthly

¹ Parameters with primary MCLs established in title 22, section 64444, Table 6 4444-A.

Table E-9. Effluent Limitation Monitoring for Recycled Water (Title 22) at M-002: Disinfection Byproducts

Parameter ¹	Units	Sample Type	Minimum sample Frequency
Bromodichloromethane	mg/L	Grab	Monthly
Bromoform	mg/L	Grab	Monthly
Chloroform	mg/L	Grab	Monthly
Dibromochloromethane	mg/L	Grab	Monthly
Monochloroacetic acid	mg/L	Grab	Monthly
Dichloroacetic acid	mg/L	Grab	Monthly

Parameter ¹	Units	Sample Type	Minimum sample Frequency
Trichloroacetic acid	mg/L	Grab	Monthly
Monobromoacetic acid	mg/L	Grab	Monthly
Dibromoacetic acid	mg/L	Grab	Monthly
Bromate	mg/L	Grab	Monthly
Chlorite	mg/L	Grab	Monthly

¹ Parameters with primary MCLs established in title 22, section 64533, Table 6 4533-A.

Table E-10. Effluent Limitation Monitoring for Recycled Water (Title 22) at M-002: Radionuclides

Parameter ¹	Units	Sample Type	Minimum Sample Frequency
Combined Radium-226 and Radium-228	Picocuries per liter (pCi/L)	Grab	Monthly
Gross Alpha particle activity (excluding radon and uranium)	pCi/L	Grab	Monthly
Uranium	pCi/L	Grab	Monthly
Beta/Photon emitters	Millirem per year	Grab	Monthly
Strontium-90	pCi/L	Grab	Monthly
Tritium	pCi/L	Grab	Monthly

¹ Parameters with primary MCLs established in title 22, sections 64442 and 64443, Tables 64442 and 64443.

Table E-11. Effluent Monitoring for Recycled Water (Title 22) at M-002: Notification and Response Levels

Parameter	Units	Sample Type	Minimum Sample Frequency
Boron	mg/L	Grab	Monthly
n-Butylbenzene	mg/L	Grab	Monthly
sec-Butylbenzene	mg/L	Grab	Monthly
tert-Butylbenzene	mg/L	Grab	Monthly
Carbon disulfide	mg/L	Grab	Monthly
Chlorate	mg/L	Grab	Monthly
2-Chlorotoluene	mg/L	Grab	Monthly
4-Chlorotoluene	mg/L	Grab	Monthly
Diazinon	mg/L	Grab	Monthly
Dichlorodifluoromethane	mg/L	Grab	Monthly
1,4-Dioxane	mg/L	Grab	Monthly
Ethylene Glycol	mg/L	Grab	Monthly
Formaldehyde	mg/L	Grab	Monthly
HMX (Octogen)	mg/L	Grab	Monthly
Isopropylbenzene	mg/L	Grab	Monthly
Manganese	mg/L	Grab	Monthly
Methyl isobutyl ketone	mg/L	Grab	Monthly
Naphthalene	mg/L	Grab	Monthly
N-Nitrosodiethylamine (NDEA)	mg/L	Grab	Monthly
N-Nitrosodimethylamine (NDMA)	mg/L	Grab	Monthly
N-Nitrosodi-n-propylamine (NDPA)	mg/L	Grab	Monthly

Parameter	Units	Sample Type	Minimum Sample Frequency
Perfluorobutanesulfonic acid (PFBS)	Nanograms per liter (ng/L)	Grab	Monthly
Perfluorooctanesulfonic acid (PFOS)	ng/L	Grab	Monthly
Perfluorohexanesulfonic acid (PFHxS)	ng/L	Grab	Monthly
Perfluorooctanoic acid (PFOA)	ng/L	Grab	Monthly
Propachlor	mg/L	Grab	Monthly
n-Propylbenzene	mg/L	Grab	Monthly
1,3,5-Trinitroperhydro-1,3,5-triazine	mg/L	Grab	Monthly
Tertiary butyl alcohol	mg/L	Grab	Monthly
1,2,4-Trimethylbenzene	mg/L	Grab	Monthly
1,3,5-Trimethylbenzene	mg/L	Grab	Monthly
2,4,6-Trinitrotoluene	mg/L	Grab	Monthly
Vanadium	mg/L	Grab	Monthly

Table E-12. Monitoring for Recycled Water (Title 22) at M-002: Remaining Priority Pollutants

Parameter ¹	Units	Sample Type	Minimum Sample Frequency
Aldrin	µg/L	Grab	Quarterly
Dieldrin	µg/L	Grab	Quarterly
4,4'-DDT	µg/L	Grab	Quarterly
4,4'-DDE	µg/L	Grab	Quarterly
4,4'-DDD	µg/L	Grab	Quarterly
Alpha-endosulfan	µg/L	Grab	Quarterly
Beta-endosulfan	µg/L	Grab	Quarterly

Parameter ¹	Units	Sample Type	Minimum Sample Frequency
Endosulfan sulfate	µg/L	Grab	Quarterly
Endrin aldehyde	µg/L	Grab	Quarterly
Alpha-BHC	µg/L	Grab	Quarterly
Beta-BHC	µg/L	Grab	Quarterly
Delta-BHC	µg/L	Grab	Quarterly
Acrolein	µg/L	Grab	Quarterly
Acrylonitrile	µg/L	Grab	Quarterly
Chlorobenzene	µg/L	Grab	Quarterly
Chloroethane	µg/L	Grab	Quarterly
1,1-dichloroethylene	µg/L	Grab	Quarterly
Methyl chloride	µg/L	Grab	Quarterly
Methyl bromide	µg/L	Grab	Quarterly
2-chloroethyl vinyl ether	µg/L	Grab	Quarterly
2,4,6-trichlorophenol	µg/L	Grab	Quarterly
3-methyl-4-chlorophenol (P-chloro-m-cresol)	µg/L	Grab	Quarterly
2-chlorophenol	µg/L	Grab	Quarterly
2,4-dichlorophenol	µg/L	Grab	Quarterly
2,4-dimethylphenol	µg/L	Grab	Quarterly
2-nitrophenol	µg/L	Grab	Quarterly
4-nitrophenol	µg/L	Grab	Quarterly
2,4-dinitrophenol	µg/L	Grab	Quarterly
2-methyl-4,6-dinitrophenol	µg/L	Grab	Quarterly

Parameter ¹	Units	Sample Type	Minimum Sample Frequency
Phenol	µg/L	Grab	Quarterly
Chromium (III) trivalent	µg/L	Grab	Quarterly
Acenaphthene	µg/L	Grab	Quarterly
Benzidine	µg/L	Grab	Quarterly
Hexachloroethane	µg/L	Grab	Quarterly
Bis (2-chloroethyl) ether	µg/L	Grab	Quarterly
2-chloronaphthalene	µg/L	Grab	Quarterly
1,3-dichlorobenzene	µg/L	Grab	Quarterly
3,3'-dichlorobenzidine	µg/L	Grab	Quarterly
2,4-dinitrotoluene	µg/L	Grab	Quarterly
2,6-dinitrotoluene	µg/L	Grab	Quarterly
1,2-diphenylhydrazine	µg/L	Grab	Quarterly
Fluoranthene	µg/L	Grab	Quarterly
4-chlorophenyl phenyl ether	µg/L	Grab	Quarterly
4-bromophenyl phenyl ether	µg/L	Grab	Quarterly
Bis(2-chloroisopropyl) ether	µg/L	Grab	Quarterly
Bis(2-chloroethoxyl) methane	µg/L	Grab	Quarterly
Hexachlorobutadiene	µg/L	Grab	Quarterly
Isophorone	µg/L	Grab	Quarterly
Nitrobenzene	µg/L	Grab	Quarterly
N-nitrosodiphenylamine	µg/L	Grab	Quarterly
Bis(2-ethylhexyl) phthalate	µg/L	Grab	Quarterly
Butyl benzyl phthalate	µg/L	Grab	Quarterly

Parameter ¹	Units	Sample Type	Minimum Sample Frequency
Di-n-butyl phthalate	µg/L	Grab	Quarterly
Di-n-octyl phthalate	µg/L	Grab	Quarterly
Diethyl phthalate	µg/L	Grab	Quarterly
Dimethyl phthalate	µg/L	Grab	Quarterly
Benzo(a)anthracene	µg/L	Grab	Quarterly
Benzo(b)fluoranthene	µg/L	Grab	Quarterly
Benzo(k)fluoranthene	µg/L	Grab	Quarterly
Chrysene	µg/L	Grab	Quarterly
Acenaphthylene	µg/L	Grab	Quarterly
Anthracene	µg/L	Grab	Quarterly
1,12-benzoperylene	µg/L	Grab	Quarterly
Fluorene	µg/L	Grab	Quarterly
Phenanthrene	µg/L	Grab	Quarterly
1,2,5,6-dibenzanthracene	µg/L	Grab	Quarterly
Indeno(1,2,3-cd) pyrene	µg/L	Grab	Quarterly
Pyrene	µg/L	Grab	Quarterly

¹ Remaining priority toxic pollutants that do not have a primary or secondary MCLs or NLs.

4.3.8. The Soquel Creek Water District must perform additional monitoring, as described below, for all parameters listed in Table E-11 in the event of an exceedance.

4.3.8.1. If a monitoring result exceeds a Notification Level (NL), within 72 hours of notification of the result, Soquel Creek Water District must collect another sample, and have it analyzed for the parameter as confirmation. If the average of the initial and confirmation sample exceeds the parameter's NL, or a confirmation sample is not collected and analyzed pursuant to this section, Soquel Creek Water District must initiate weekly monitoring for the parameter until the running four-week average no longer exceeds the NL. The Soquel

Creek Water District must notify the Central Coast Water Board and DDW within 24 hours if any sample exceeds a NL.

- 4.3.8.2. If the running four-week average of monitoring results exceeds the parameter's NL, Soquel Creek Water District must describe the reason(s) for the exceedance and provide a workplan and schedule for completion of corrective actions in the quarterly report for the quarter in which the exceedance occurred.
 - 4.3.8.3. If the running four-week average of monitoring results exceeds the parameter's NL for sixteen consecutive weeks, Soquel Creek Water District must notify the Central Coast Water Board and DDW within 48 hours of knowledge of the exceedance.
 - 4.3.8.4. The Soquel Creek Water District must not reduce the monitoring frequency for the parameters having NLS, including any parameters that overlap with constituents of emerging concern in the Recycled Water Policy, without the approval of the Central Coast Water Board and DDW. The Soquel Creek Water District must use the analytical methods described in the approved OOP, and any changes must be approved by the Central Coast Water Board and DDW.
- 4.3.9 **PFAS Monitoring.** Pursuant to the proposed PFAS National Primary Drinking Water Regulation and when adopted by the California Safe Drinking Water Act Regulations, Soquel Creek Water District must sample the advanced treated wastewater (AWPF effluent) for PFAS contaminants¹⁴. The monitoring of PFOA, PFOS, PFHxS, PFNA, PFBS and HFPO-DA (GenX Chemicals) will be required for demonstrating compliance with the proposed regulation and MCLs. When PFAS regulation becomes effective, Soquel Creek Water District must ensure the OOP is updated to reflect the PFAS contaminant(s) monitoring and ELAP-approved drinking water analytical methods for review and acceptance by DDW.

4.4. Groundwater Monitoring

- 4.4.1. The Soquel Creek Water District must monitor the groundwater monitoring wells at monitoring locations MM-1, MM-2, WM-1, WM-2, TLM-1A, TLM-2A, TLM-3BC, TLM-4BC, as described in Table E-1 for the parameters listed in Table E-13, Table E-14, Table E-15 and Table E-16. Monthly sampling for constituents in Table E-14 is required for monitoring wells MM-1, WM-1, TLM-1A, TLM-3BC. Quarterly sampling is required for constituents in Table E-14 for monitoring wells MM-2, WM-2, TLM-2A, and TLM-4BC.
- 4.4.2. Prior to sampling, depth to groundwater must be measured and groundwater elevations¹⁵ must be calculated. The monitoring wells must be purged of at

¹⁴ The PFAS monitoring described in this section will be required once the California Safe Drinking Water Act Regulations are adopted. Note that Table E-11 contains some PFAS monitoring that is required starting January 1, 2024.

¹⁵ The locations and top-of-casing elevations for the existing groundwater monitoring wells must be surveyed by a licensed land surveyor if not already completed at the time of installation.

least three well volumes and until measurements of the following parameters have stabilized (i.e., are reproducible within 10 percent): pH, temperature, dissolved oxygen, electrical conductivity, and turbidity. No-purge, low-flow, or other sampling techniques are acceptable only if they are approved in advance by the Central Coast Water Board and described in an approved sampling and analysis plan. Once the groundwater level in each of the wells has recovered sufficiently to ensure the collection of representative groundwater samples, a qualified individual (e.g., consultant, technician) trained in using proper sampling methods must recover samples using approved USEPA methods. Laboratories analyzing groundwater samples must be accredited by the State Water Board Environmental Laboratory Accreditation Program, in accordance with California Water Code section 13176, and must include quality assurance/quality control data with their reports.

4.4.3. The Soquel Creek Water District must provide monitoring well field sheets and report monitoring data with each monitoring report.

Table E-13. Groundwater Monitoring: Field Parameters

Parameter	Units	Sample Type	Minimum Sample Frequency ¹
Depth to Groundwater	0.01 ft	Measurement	Every sampling event
Groundwater Elevation ²	0.01 ft	Calculated	Every sampling event
Gradient ³	ft/ft	Calculated	Quarterly
Gradient Direction ³	Degrees	Calculated	Quarterly
Electrical Conductivity ⁴	µmhos/cm	Field Water Quality Meter	Every sampling event
Dissolved oxygen ⁴	Percent saturation, mg/L	Field Water Quality Meter	Every sampling event
pH ⁴	pH Units	Field Water Quality Meter	Every sampling event
Oxidation reduction potential (ORP) ⁴	Millivolts (mV)	Field Water Quality Meter	Every sampling event
Turbidity ⁴	NTU	Field Water Quality Meter	Every sampling event

Parameter	Units	Sample Type	Minimum Sample Frequency ¹
Temperature ⁴	Degrees Fahrenheit	Field Water Quality Meter	Every sampling event

¹ The Soquel Creek Water District may reduce the monitoring frequency in accordance with provision 2.13 of this monitoring and reporting program.

² Groundwater elevation must be based on depth to water using a surveyed measuring point elevation on the well and a surveyed reference elevation.

³ Calculations must be prepared by, or under the responsible charge of, a professional with appropriate licensing in the State of California.

⁴ Field parameters must be measured in the field using a water quality meter equipped with a flow-through cell.

Table E-14. Groundwater Monitoring: Geochemically-Reactive Contaminants

Parameter ¹	Units	Sample Type	Minimum sample Frequency
Arsenic	mg/L	Grab	Monthly/Quarterly
Antimony	mg/L	Grab	Monthly/Quarterly
Boron	mg/L	Grab	Monthly/Quarterly
Barium	mg/L	Grab	Monthly/Quarterly
Calcium	mg/L	Grab	Monthly/Quarterly
Cadmium	mg/L	Grab	Monthly/Quarterly
Fluoride	mg/L	Grab	Monthly/Quarterly
Iron	mg/L	Grab	Monthly/Quarterly
Manganese	mg/L	Grab	Monthly/Quarterly
Magnesium	mg/L	Grab	Monthly/Quarterly
Nitrate (as nitrogen)	mg/L	Grab	Monthly/Quarterly
Sulfate	mg/L	Grab	Monthly/Quarterly
Uranium	mg/L	Grab	Monthly/Quarterly
Vanadium	mg/L	Grab	Monthly/Quarterly

¹ After 12 months of monitoring, Soquel Creek Water District may request to reduce the monitoring frequency to quarterly in accordance with provision 2.13 of this monitoring and reporting program.

² Monthly sampling for is required for monitoring wells MM-1, WM-1, TLM-1A, TLM-3BC. Quarterly sampling is required for monitoring wells MM-2, WM-2, TLM-2A, and TLM-4BC.

Table E-15. Groundwater Monitoring: General Minerals and Inorganic Chemicals

Parameter ¹	Units	Sample Type	Minimum sample Frequency
Aluminum	mg/L	Grab	Quarterly
Ammonia	mg/L	Grab	Quarterly

Parameter ¹	Units	Sample Type	Minimum sample Frequency
Asbestos (for fibers exceeding 10 micrometers [µm] in length)	Million fibers per liter (MFL)	Grab	Quarterly
Beryllium	mg/L	Grab	Quarterly
Bicarbonate	mg/L	Grab	Quarterly
Chloride	mg/L	Grab	Quarterly
Chromium (III)	mg/L	Grab	Quarterly
Chromium (VI)	mg/L	Grab	Quarterly
Color	Apparent Color Unit (ACU)	Grab	Annually
Copper	µg/L	Grab	Quarterly
Corrosivity	Units	Grab	Quarterly
Lead	mg/L	Grab	Quarterly
Methylene Blue Activated Substances (MBAS) ³	mg/L	Grab	Annual
Mercury	mg/L	Grab	Quarterly
MTBE	mg/L	Grab	Quarterly
Nickel	mg/L	Grab	Quarterly
Nitrite (as nitrogen)	mg/L	Grab	Quarterly
Odor	Threshold Odor Number (TON)	Grab	Annually
Perchlorate	mg/L	Grab	Quarterly
Potassium	mg/L	Grab	Quarterly
Selenium	mg/L	Grab	Quarterly
Silver	mg/L	Grab	Quarterly
Sodium	mg/L	Grab	Quarterly
Thallium	mg/L	Grab	Quarterly
Thiobencarb	mg/L	Grab	Annually
Total coliform	MPN/100 mL	Grab	Quarterly
TDS	mg/L	Grab	Quarterly
Total Hardness (as CaCO ₃)	mg/L	Grab	Quarterly
Total Nitrogen	mg/L	Grab	Quarterly
Zinc	mg/L	Grab	Quarterly

¹ The Soquel Creek Water District may reduce the monitoring frequency in accordance with provision 2.13 of this monitoring and reporting program.

Table E-16. Groundwater Monitoring: Disinfection Byproducts

Parameter ¹	Units	Sample Type	Minimum sample Frequency
Bromide	mg/L	Grab	Quarterly
Bromate	mg/L	Grab	Quarterly

Parameter ¹	Units	Sample Type	Minimum sample Frequency
Bromodichloromethane	mg/L	Grab	Quarterly
Bromoform	mg/L	Grab	Quarterly
Chlorite	mg/L	Grab	Quarterly
Chloroform	mg/L	Grab	Quarterly
Dibromoacetic acid	mg/L	Grab	Quarterly
Dibromochloromethane	mg/L	Grab	Quarterly
Dichloroacetic acid	mg/L	Grab	Quarterly
Haloacetic acid (five) (HAA5)	mg/L	Calculate	Quarterly
Iodide	mg/L	Grab	Quarterly
Monobromoacetic acid	mg/L	Grab	Quarterly
Monochloroacetic acid	mg/L	Grab	Quarterly
N-Nitrosodimethylamine (NDMA)	mg/L	Grab	Quarterly
Total chlorine residual	mg/L	Grab	Quarterly
Total Trihalomethanes	mg/L	Calculate	Quarterly
Trichloroacetic acid	mg/L	Grab	Quarterly

¹ The Soquel Creek Water District may reduce the monitoring frequency in accordance with provision 2.13 of this monitoring and reporting program.

4.4.4 If a groundwater monitoring result exceeds 80 percent of an MCL for nitrate, nitrite, or nitrate plus nitrite, within 48 hours of notification of the result Soquel Creek Water District must collect another groundwater sample, and have the sample analyzed for the parameter as confirmation. If the average of the initial sample and the confirmation sample exceeds the parameter's MCL, Soquel Creek Water District must notify the Central Coast Water Board and DDW within 24 hours of being notified by the laboratory of the confirmation sample result and discontinue subsurface discharge of advanced treated recycled water. The Soquel Creek Water District must take steps to address the exceedance and must not restart subsurface discharge until authorized by the Central Coast Water Board and DDW.

4.5. Contingent Groundwater Monitoring

4.5.1. If an effluent limit or notification level identified in Permit section 4 (*Effluent Limits and Discharge Specifications*), is exceeded in effluent as measured at monitoring location M-002, Soquel Creek Water District must monitor groundwater in all monitoring wells (MM-1, MM-2, WM-1, WM-2, TLM-1A, TLM-2A, TLM-3BC, and TLM-4BC) for the constituent(s) that exceeded the relevant standard (e.g., limit or notification level).

4.5.2. The monitoring described in 4.5.1. must occur on a monthly basis for monitoring wells MM-1, WM-1, TLM-1A, and TLM-3BC and quarterly basis for monitoring wells MM-2, WM-2, TLM-2A, and TLM-4BC, beginning as soon as the exceedance in effluent is identified.

- 4.5.3. Soquel Creek Water District must continue monitoring groundwater on a monthly basis (for the duration prescribed in 4.5.4) in accordance with 4.5.1 even after demonstrating control over constituent that exceeded effluent limit(s) or notification level(s) defined in Permit section 4, to assess any potential impacts to receiving waters from the discharge.
- 4.5.4. After an exceedance described in 4.5.1., Soquel Creek Water District must monitor groundwater for period of time that is at least two months longer than the underground retention time (using modeled time until the tracer-demonstrated time is available) identified for each monitoring well. After this period of time has elapsed for a given well, Soquel Creek Water District may discontinue the groundwater monitoring described in 4.5.1, if no exceedances are observed in the well. If an exceedance is observed in the well, Soquel Creek Water District must receive approval in writing from the Central Coast Water Board Executive Officer to discontinue groundwater monitoring described in 4.5.1.
- 4.5.5. This contingent monitoring does not apply to constituents in Table E-13; Table E-13 constituents must monitored under all conditions.
- 4.5.6. Contingent groundwater monitoring must be consistent with the requirements described in section 4.4.2. Contingent groundwater monitoring must include the field parameters in Table E-13.
- 4.5.7. Contingent groundwater monitoring results must be included in quarterly and annual monitoring reports and reported to GeoTracker, in accordance with monitoring and reporting program section 6.

5. CONSTITUENTS OF EMERGING CONCERN MONITORING REQUIREMENTS

- 5.1. The Soquel Creek Water District must develop and must maintain a Quality Assurance Project Plan (QAPP) for monitoring constituents of emerging concern (CEC) to ensure the AWPf's monitoring data are of known, consistent, and documented quality and that the monitoring is consistent with the State Water Board's Water Quality Control Policy for Recycled Water (Recycled Water Policy). The Soquel Creek Water District must develop the QAPP using the Guidance for Quality Assurance Project Plans, EPA QA/G-5 (EPA/240/R-2/009, 2002 or EPA updated guidance). The Soquel Creek Water District must submit the QAPP to the Central Coast Water Board and State Water Board. The Central Coast Water Board (in consultation with the State Water Board) must review and approve the QAPP prior to beginning any sampling and analysis. The QAPP must be updated and resubmitted to the Central Coast Water Board and State Water Board for approval when significant changes are made that would affect the overall data quality and use (e.g., using a new analytical chemistry laboratory) or at least annually if any changes are made. Details on QAPP requirements are in Attachment A of the Recycled Water Policy.
- 5.2. The Soquel Creek Water District must monitor for health-based and performance CECs as well as Bioanalytical Screening tools, as described below.

- 5.2.1. **Health-based and performance CECs:** The Soquel Creek Water District must conduct monitoring for health-based and performance CECs and surrogates for CECs in accordance with Table E-17 at the frequencies described in 5.2.3.1. through 5.2.3.3.
- 5.2.2. If a health-based CEC also has a notification level or maximum contaminant level pursuant to title 22, sections 60320.212, 60320.220, and 60320.201, the more frequent monitoring requirements must govern the sampling, regardless of the phase.
- 5.2.3. Health-based and performance CECs must be monitored using the following three phase approach:
 - 5.2.3.1. **Phase 1:** The Soquel Creek Water District must conduct an initial assessment monitoring phase for one year with quarterly sampling;
 - 5.2.3.2. **Phase 2:** After the initial assessment period, Soquel Creek Water District must conduct a baseline monitoring phase for three years, with semi-annual sampling, except where more frequent monitoring is necessary to respond to a concern as stated in Attachment A section 4.2 of the Recycled Water Policy; and
 - 5.2.3.3. **Phase 3:** After the baseline assessment period, Soquel Creek Water District must conduct a standard operation monitoring phase while the Project is operating, with semi-annual or annual sampling, except where more frequent monitoring is necessary to respond to a concern as stated in Attachment A section 4.3 of the Recycled Water Policy.
- 5.2.4. **Bioanalytical Screening Tools:** The Soquel Creek Water District must conduct monitoring for Bioanalytical Screening Tools in accordance with Table E-18 at the frequencies and durations described in 5.2.4.1. through 5.2.4.3. Bioanalytical screening tools must be monitored using the following three phase approach:
 - 5.2.4.1. **Phase 1:** The Soquel Creek Water District must conduct an initial assessment phase for three years with quarterly sampling and determine the range of responses for the bioassays;
 - 5.2.4.2. **Phase 2:** After the initial assessment phase, Soquel Creek Water District must conduct a baseline monitoring phase for one year and sample quarterly; and
 - 5.2.4.3. **Phase 3:** After the baseline monitoring phase, Soquel Creek Water District must conduct a standard operation monitoring phase, with semi-annual or annual sampling, except where more frequent monitoring is necessary to respond to a concern as stated in Attachment A section 4.3 of the Recycled Water Policy.

Table E-17. CEC Monitoring: Health, Performance, and Surrogates

Parameter	Units	Relevance	Sample Type	Reporting Limit ¹	Monitoring Locations(s)
1,4-Dioxane	µg/L	Health	Grab	0.1	M-002
NDMA ²	µg/L	Health/ Performance	Grab	0.002	ROF, M-002
N-Nitrosomorpholine (NMOR)	µg/L	Health	Grab	0.002	M-002
PFOS	µg/L	Health	Grab	0.0065	M-002
PFOA	µg/L	Health	Grab	0.007	M-002
Sucralose ²	µg/L	Performance	Grab	0.1	ROF, M-002
Sulfamethoxazole	µg/L	Performance	Grab	0.01	ROF and M-002
Electrical Conductivity	µS/cm	Surrogate	Grab or Recorder	-	ROF and ROP

¹ The Central Coast Water Board may approve, after consultation with the State Water Resources Control Board, higher reporting limits if it determines these reporting limits cannot be practicably met in recycled water sample matrices using existing methods, as long as the ratio between the reporting limit and the monitoring trigger limit is no less than 2.0 micrograms per liter (µg/L) (see Tables 1 and 7 of Attachment A of the Recycled Water Policy).

² These constituents are included in Section 4.2 of the monitoring and reporting program and are included here to demonstrate compliance with CEC reporting in the Recycled Water Policy.

Table E-18. CEC Monitoring: Bioanalytical Screening Tools

End Point Activity	Units	Example Relevant CECs	Sample Type	Reporting Limit	Monitoring Location
Estrogen receptor- α (ER- α)	ng/L	Estradiol, Bisphenol A, Nonylphenol	Grab	0.5	M-002
Aryl hydrocarbon receptor (AhR)	ng/L	Dioxin-like chemicals, polycyclic aromatic hydrocarbons, pesticides	Grab	0.5	M-002

5.3. The Soquel Creek Water District must use the monitoring results for CECs, surrogates, and bioanalytical screenings to evaluate the overall operational performance of the treatment process and the effectiveness of the treatment process in removing CECs. Monitoring reports submitted to the Central Coast Water Board must include an evaluation of monitoring results.

5.3.1. To determine the appropriate response actions for health-based CEC monitoring results, Soquel Creek Water District must compare measured environmental concentrations (MECs) to their respective monitoring trigger levels (MTLs) listed in Table E-19 to determine MEC/MTL ratios. The Soquel Creek Water District must compare the calculated MEC/MTL ratios to the thresholds specified in

Table E-20 and implement the response actions corresponding to the threshold.

Table E-19. Monitoring Trigger Levels: Health, Performance, and Surrogates

Parameter	Relevance	Monitoring Trigger Level ($\mu\text{g/L}$)
1-4, Dioxane	Health	1
NDMA	Health/Performance	0.010
NMOR	Health	0.012
PFOS	Health	0.013
PFOA	Health	0.014
Sucralose	Performance	N/A
Sulfamethoxazole	Performance	N/A
Electrical Conductivity	Surrogate	N/A

Table E-20. MEC/MTL Thresholds and Response Actions

MEC/MTL Threshold	Response Action
If greater than 75 percent of the MEC/MTL ratio results for a CEC are less than or equal to 0.1 during the baseline monitoring phase and/or subsequent monitoring	After completion of the baseline monitoring phase, consider requesting removal of the CEC from the monitoring program.
If MEC/MTL ratio is greater than 0.1 and less than or equal to 1	Continue to monitor.
If MEC/MTL ratio is greater than 1 and less than or equal to 10	Check the data for accuracy. Continue to monitor.
If MEC/MTL ratio is greater than 10 and less than or equal to 100	Check the data for accuracy, resample within 72 hours of notification of the result and analyze to confirm CEC result. Continue to monitor.
If MEC/MTL ratio is greater than 100	<p>Check the data for accuracy, resample within 72 hours of notification of the result and analyze to confirm CEC result.</p> <p>Continue to monitor. Contact the Central Coast Water Board and the State Water Board¹⁶ to discuss additional actions. (Additional actions may include, but are not limited to, additional monitoring, toxicological studies, engineering removal studies, modification of facility operation, implementation of a source identification program, and monitoring at additional locations.)</p>

5.4. The Soquel Creek Water District must evaluate the bioanalytical assay monitoring results during the baseline monitoring phase and standard operation monitoring phase and determine the appropriate response actions.

5.4.1. To determine the appropriate response actions for bioanalytical screening, Soquel Creek Water District must compare Bioanalytical Equivalent Concentrations (BEQs) to their respective MTLs listed in Table E-21 to determine BEQ/MTL ratios. The Soquel Creek Water District must compare

¹⁶ See section 10, Notifications for contact information.

the calculated BEQ/MTL ratios to the thresholds presented in Table E-22 and implement the response actions corresponding to the threshold.

Table E-21. Required Equivalency Agonists and Monitoring Trigger Levels for Bioanalytical Screening Tools

Parameter	Equivalency Agonist	Monitoring Trigger Level (ng/L)
ER- α	17-beta-estradiol	3.5
AhR	2,3,7,8-tetrachlorodibenzo- p-dioxin (TCDD)	0.5

Table E-22. BEQ/MTL Thresholds and Response Actions for Bioanalytical Screening

BEQ/MTL Threshold	Response Action
If BEQ/MTL ratio is consistently less than or equal to 0.15 for ER- α or 1.0 for AhR	After completion of the baseline monitoring phase, consider decreasing monitoring frequency or requesting removal of the endpoint from the monitoring program.
If BEQ/MTL ratio is greater than 0.15 and less than or equal to 10 for ER- α or greater than 1.0 and less than or equal to 10 for AhR	Continue to monitor.
If BEQ/MTL ratio is greater than 10 and less than or equal to 1000	Check the data for accuracy, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor. Contact the Central Coast Water Board and State Water Board ¹⁷ to discuss additional actions, which may include, but are not limited to, targeted analytical chemistry monitoring, increased frequency of bioassay monitoring, and implementation of a source identification program.

¹⁷ See section 10, Notifications for contact information.

BEQ/MTL Threshold	Response Action
If BEQ/MTL ratio is greater than 1000	<p>Check the data for accuracy, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor.</p> <p>Contact the Central Coast Water Board and the State Water Board to discuss additional actions, which may include, but are not limited to, targeted and/or nontargeted analytical chemistry monitoring, increased frequency of bioassay monitoring, toxicological studies, engineering removal studies, modification of facility operation, implementation of a source identification program, and monitoring at additional locations.</p>

5.5. The Soquel Creek Water District must evaluate the effectiveness of the treatment process to remove CECs by determining the removal percentages for performance indicator CECs and surrogates. The removal percentage is the difference in the concentration of a compound in recycled water prior to and after RO and advanced oxidation process (AOP), divided by the concentration prior to the treatment process and multiplied by 100. The Soquel Creek Water District must report the removal percentages with the CEC monitoring results.

$$\text{Removal Percentage} = ([X_{in} - X_{out}] / X_{in}) (100)$$

X_{in} - Concentration in recycled water prior to the treatment process

X_{out} - Concentration in recycled water after the treatment process

5.6. During the initial assessment, Soquel Creek Water District must monitor performance of the treatment process to determine removal percentages for performance indicator CECs and surrogates. The Soquel Creek Water District must confirm removal percentages during the baseline monitoring phase. The established removal percentages for the Project must be used to evaluate treatment effectiveness and operational performance.

5.7. The list of parameters and monitoring frequencies may be adjusted by the Central Coast Water Board Executive Officer, if Soquel Creek Water District makes a request and the Executive Officer determines that the modification is adequately supported by monitoring data submitted.

6. RECURRING REPORTING REQUIREMENTS

6.1. General Reporting Requirements

6.1.1. The Soquel Creek Water District must submit self-monitoring reports (SMR) on or prior to the SMR due dates as summarized in Table E-23 and Table E-

24 to the Central Coast Water Board and DDW. The Soquel Creek Water District must notify and report to Central Coast Water Board noncompliance of limits related to flow rate, bypass or overflow, the conditionally accepted title 22 Engineering Report requirements, injection of off-specification recycled water, and wastewater containment failure.

- 6.1.2. If requested by the Central Coast Water Board, Soquel Creek Water District must also provide a hard copy of oversized drawings or maps.
- 6.1.3. The Soquel Creek Water District must summarize all reported data in a tabular format. The reports must present data to clearly illustrate whether the AWPF is operating in compliance with discharge specifications and effluent limitations.
- 6.1.4. The Soquel Creek Water District must attach a cover letter to the SMR. The information contained in the cover letter must clearly identify violations of the Permit; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions.
- 6.1.5. For identified violations, the letter must include a description of the requirement in the Permit that was violated and a description of the violation.
- 6.1.6. All monitoring reports must be provided electronically in a searchable PDF format, with the Central Coast Water Board’s current transmittal sheet found at the link below as the cover page. The transmittal sheet must be signed.
https://www.waterboards.ca.gov/centralcoast/water_issues/programs/wastewater_p/permitting/docs/transmittal_sheet.pdf
- 6.1.7. The Soquel Creek Water District must submit Laboratory Analytical Data for all samples in Electronic Deliverable Format (EDF).
- 6.1.8. The Soquel Creek Water District must report the latitude and longitude of all sampling locations for which data are reported.

Table E-23. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period ¹	SMR Due Date
Quarterly	Q1: January Q2: April Q3: July Q4: October	Q1 SMR: June 15 Q2 SMR: October 15 Q3 SMR: December 15 Q4 SMR: March 15 (following year)
Semiannually/Once per 6 months	April October	Q2 SMR: August 15 Q4 SMR: February 15 (following year)
Annually	December	Q4 SMR: June 30 (following year)

Sampling Frequency	Monitoring Period ¹	SMR Due Date
Continuous	Continuous	Submit with Quarterly SMR
Daily	Midnight - 11:59 p.m. or any 24-hour period that reasonably represents a calendar day for the purpose of sampling	Submit with Quarterly SMR
Weekly	Sunday through Saturday	Submit with Quarterly SMR
Monthly	First day of calendar month - last day of calendar month	Submit with Monthly SMR ² Submit with Quarterly SMR ² .

¹ Monitoring begins January 1, 2024.

² Monthly monitoring for log reduction value credits required by Attachment D, section 5.3 and monitoring and reporting program section 4.2 must be reported in Monthly SMR reports as described in Table E-24. All other monthly monitoring must be reported with Quarterly SMR reports.

Table E-24. Reoccurring Technical Report Submittal Due Dates

Report	Report Due Date	Report Sent to
Monthly SMR reports	10th day of following month (e.g., February 10 for the January report)	CLIP and Geotracker
Quarterly SMR reports	Q1 SMR: May 15 Q2 SMR: August 15 Q3 SMR: November 15 Q4 SMR: February 15 (following year)	CLIP and Geotracker
Annual Summary Report	June 30th	CLIP and Geotracker
Five-Year Engineering Report	April 26, 2028, April 26, 2032 and every 5 years thereafter	CLIP and Geotracker
Volumetric Annual ¹	April 30th	GeoTracker

¹Volumetric Annual Reports are sent to the State Water Board via GeoTracker

6.2. Monthly Reports:

6.2.1. The Soquel Creek Water District must upload to GeoTracker monthly SMRs as required by the WRRs (Attachment D) and this monitoring and reporting program.

6.3. Quarterly Reports:

6.3.1. The Soquel Creek Water District must upload quarterly SMRs to GeoTracker. These reports shall include, at a minimum, the following information:

- 6.3.1.1. The volume of 1) AWPf influent, 2) effluent injected into each injection well, and 3) MF waste and RO concentrate sent to the ocean outfall.
- 6.3.1.2. The date and time of sampling and analysis.
- 6.3.1.3. All analytical results of samples collected during the monitoring period, including results of any constituents monitored more frequently than required by this monitoring and reporting program.
- 6.3.1.4. Discussion of compliance, noncompliance, or violations of requirements. Specifically, include the documentation described in section 3.5 of Attachment D.
- 6.3.1.5. A comparison of monitoring data to the discharge specifications and applicable effluent limitations.
- 6.3.1.6. Copies of laboratory analytical report(s) and chain of custody form(s).
- 6.3.1.7. Monitoring results associated with the evaluation of pathogenic microorganism removal as described in the Permit.
- 6.3.1.8. Copies of groundwater monitoring well field sheets with purge methods and data.

6.4. Annual Summary Reports

6.4.1. The Soquel Creek Water District must upload to GeoTracker an Annual Summary Report. This Annual Summary Report shall contain a discussion of the previous calendar year's analytical results, as well as graphical and tabular summaries of the monitoring analytical data. The Annual Summary Report must include, at a minimum, the following information:

- 6.4.1.1. Tabular and graphical summaries of the monitoring data obtained during the previous calendar year;
- 6.4.1.2. A summary of compliance status with all monitoring requirements during the previous calendar year;
- 6.4.1.3. For any non-compliance during the previous calendar year, a description of the date, duration, and nature of the violation; a summary of any corrective actions and/or suspensions of subsurface application of recycled water resulting from a violation; and if

- uncorrected, a schedule for and summary of all pending and completed remedial actions.
- 6.4.1.4. Any detections of monitored chemicals or contaminants, and any observed trends in the monitoring wells;
 - 6.4.1.5. Information pertaining to the vertical and horizontal migration of the recharge water plume;
 - 6.4.1.6. An updated hydrogeologic conceptual site model with the groundwater monitoring reporting requirements based on new information generated from groundwater elevation and water quality data.
 - 6.4.1.7. Title 22 drinking water quality data for the nearest drinking water supply well or, if drinking water supply well is unable to be sampled, the nearest monitoring well to the drinking water well;
 - 6.4.1.8. A description of any changes in the operation of any unit processes or facilities;
 - 6.4.1.9. The estimated quantity and quality of the recycled water to be utilized for the next calendar year;
 - 6.4.1.10. A list of any analytical methods or quality assurance/quality control procedures that deviated from the approach described in the OOP or QAPP and an explanation for the deviation. The report must identify the laboratories used by Soquel Creek Water District to monitor compliance with this Permit, their status of certification, and provide a summary of proficiency tests.
 - 6.4.1.11. A list of current operating personnel, their responsibilities, and their corresponding grade of certification. Include a copy of the current Office of Operator Certification Wastewater Treatment Plant Classification Form and the current Office of Operator Certification Chief Plant Operator Acknowledgement Form. If a contract operator is used, a copy of the contract operator certificate from the Office of Operator Certification.
 - 6.4.1.12. The Annual Summary Report shall be prepared by a properly qualified engineer registered and licensed in California and experienced in the field of wastewater or water treatment.
 - 6.4.1.13. A summary of monitoring reports, reporting and trend analysis, to describe the changes in water quality and contrast them to background measurements for all constituents exceeding MCLs or where concentration trends increase after the addition of recycled water. Specifically describe studies or investigations made to identify the source, fate and transport path of constituents which exceed the MCL at the monitoring wells.
 - 6.4.1.14. Updated cross connection control report.

6.4.2. Public water systems and owners of small water systems and other active production wells having downgradient sources potentially affected by the Project or within 10 years groundwater travel time from the Project shall be notified by direct mail and/or electronic mail of the availability of the annual report.

6.5. Five-Year Engineering Report

6.5.1. The Soquel Creek Water District must update the title 22 Engineering Report and submit the updated report to the State Water Board’s GeoTracker databases and to DDW, five years from the date of the DDW’s acceptance of the most recent engineering report, and every five years thereafter for DDW’s acceptance.

6.6. GeoTracker Reporting

6.6.1. The Soquel Creek Water District must submit the results of all monitoring required by this monitoring and reporting program (all reports/documents and laboratory analytical data) to the Central Coast Water Board via the State Water Board’s GeoTracker system at:

<http://geotracker.waterboards.ca.gov/>

6.6.2. Submittals must be consistent with applicable Electronic Submittal of Information (ESI) requirements at:

<https://geotracker.waterboards.ca.gov/esi/login>

6.6.3. Data must be submitted under the project-specific global identification number for the Project: **WDR100055307**

6.6.4. For general questions, please contact the GeoTracker Help Desk at: Geotracker@waterboards.ca.gov.

6.6.5. Table E-25 summarizes the GeoTracker electronic reporting requirements.

Table E-25. GeoTracker Electronic Submittal Information (ESI) Data Requirements

Electronic Submittal	Description of Action	Action	Frequency
Reports and Documents	Complete copy of all documents including monitoring reports (in searchable PDF format) and any other documents related to the Wastewater System.	Upload directly to GeoTracker all monitoring reports (in searchable PDF format) and any other associated documents.	On or before the due dates required by this General Permit and for other documents when required by the Central Coast Water Board.

Electronic Submittal	Description of Action	Action	Frequency
Laboratory Data	All analytical data (including geochemical data) in electronic deliverable format (EDF). This includes all water quality samples from the laboratory, field monitoring not required.	Upload, or direct your State Certified Laboratory staff to upload, all laboratory data directly to GeoTracker.	On or before the due date of the required monitoring report
Depth to Groundwater	Monitoring wells must have the depth-to-water information reported. Report data only for wells defined as permanent sampling points.	Upload depth-to-water information to the GeoTracker GEO_WELL file.	On or before the due date of the required monitoring report
Boring Logs and Well Screen Intervals	Boring logs must be prepared by a registered professional and submitted in PDF format separately (not only as attachments to reports)	Upload boring logs (in searchable PDF format) to GeoTracker whenever a new boring is drilled.	Every time a new boring is drilled.
Location data (Geo XY)	Name, classify, and identify the location (latitude and longitude) of all sampling points (excluding supply wells). Monitoring wells must be surveyed, influent and effluent sample locations must be identified on the GeoTracker mapping tool under “non-surveyed data.”	Upload the location data (surveyed and non-surveyed) to the GeoTracker Geo_XY file.	These data points are required prior to laboratory data uploads. Must be added every time a permanent monitoring point is established.
Elevation Data (Geo Z)	Mark the elevation at the top of groundwater well casings for all permanent groundwater wells. These points are required prior to depth-to-water data uploads.	Upload the survey data to the GeoTracker GEO_Z File.	One-time, for all groundwater monitoring wells.
Geo Map	Site layout, map of facilities, wastewater treatment system, and disposal area(s).	Upload the Site layout PDF to the GeoTracker site plan file.	One time, or when the facility is modified.

6.7. Cross-Connection Control Reporting

- 6.7.1. As described in section 8 of Attachment D, The Soquel Creek Water District must submit a comprehensive cross-connection control program report for the AWPf to the DDW and the Central Coast Water Board. The cross-connection control program report must be submitted as a standalone document, separate from the OOP. Section 8, Attachment D, includes requirements and details for this reporting.
- 6.7.2. The first cross connection control report is due 60 days before production of advanced treated recycled water. The cross-connection control report must be updated yearly and submitted to the DDW and Central Coast Water Board by **June 30** each year.

6.8. Volumetric Reporting Requirements

- 6.8.1. The Soquel Creek Water District must submit an annual volumetric report to the State Water Board by April 30 of each year. The Soquel Creek Water District must submit this annual volumetric report containing monthly data in electronic format via GeoTracker. The Soquel Creek Water District must report in accordance with each of the items in section 3 of the Recycled Water Policy as described below:
 - 6.8.1.1. Influent. Monthly total volume of wastewater collected and treated by the AWPf.
 - 6.8.1.2. Production. Monthly volume of wastewater treated, specifying level of treatment.
 - 6.8.1.3. Discharge. Monthly volume of treated wastewater discharged to ocean waters and specifying level of treatment.
 - 6.8.1.4. Reuse. Monthly volume of recycled water distributed.
 - 6.8.1.5. Reuse Categories. Annual volume of treated wastewater distributed for beneficial use in compliance with title 22 in each of the reuse categories listed below:
 - 6.8.1.5.1. Agricultural irrigation: pasture or crop irrigation.
 - 6.8.1.5.2. Landscape irrigation: irrigation of parks, greenbelts, and playgrounds; school yards; athletic fields; cemeteries; residential landscaping, common areas; commercial landscaping; industrial landscaping; and freeway, highway, and street landscaping.
 - 6.8.1.5.3. Golf course irrigation: irrigation of golf courses, including water used to maintain aesthetic impoundments within golf courses.
 - 6.8.1.5.4. Commercial application: commercial facilities, business use (such as laundries and office buildings), car washes, retail

nurseries, and appurtenant landscaping that is not separately metered.

6.8.1.5.5. Industrial application: manufacturing facilities, cooling towers, process water, and appurtenant landscaping that is not separately metered.

6.8.1.5.6. Other non-potable uses: including but not limited to dust control, flushing sewers, fire protection, fill stations, snow making, and recreational impoundments.

6.8.1.5.7. Groundwater recharge: the planned use of recycled water for replenishment of a groundwater basin or an aquifer that has been designated as a source of drinking water supply for a public water system. This includes surface or subsurface applications, except use of recycled water for seawater intrusion barrier.

7. ONE TIME REPORTING DUE DATES

This section, and Table E-26 below, summarizes all one time reports due to the Central Coast Water Board and DDW after adoption of the Permit and accompanying attachments.

Table E-26. One Time Reporting Schedule

Report Type	Reference Section	Reviewing/ Approving Agency	Report Due Date
Noncompliance Report	Permit section 9.9	Central Coast Water Board	5 days after noncompliance
Report of Waste Discharge	Permit section 9.12	Central Coast Water Board	120 days prior to proposed major change
Transfer of Ownership	Permit section 9.22	Central Coast Water Board	120 days prior to proposed change
Background aquifer sampling results	Attachment D section 1.4	DDW	Prior to commencing discharge
AOP testing protocols	Attachment D section 3.3	DDW	90 days prior to commissioning

Report Type	Reference Section	Reviewing/ Approving Agency	Report Due Date
RO and AOP Optimization	Attachment D section 3.4	DDW	Within 60 days of completing the first 12- months full-scale operation and operational monitoring of the advanced treatment process (can be submitted as a part of required Annual Report)
Operation Optimization Plan (OOP)	Attachment D section 6	DDW	Within six months of optimizing treatment processes and anytime thereafter operations are optimized that result in a change in operation
Cross Connection Control Program Report	Attachment D Section 8.3	DDW	60 days before production of advanced treated recycled water

8. MONITORING PARAMETER & FREQUENCY REDUCTIONS

- 8.1. The list of parameters and monitoring frequencies may be adjusted by the Executive Officer, after consultation with DDW, if Soquel Creek Water District makes a request and the Executive Officer determines that the modification is adequately supported by statistical trends of monitoring data submitted.
- 8.2. In accordance with title 22 section 60320.201(i), after 12 consecutive months with no results exceed an NL or MCL, Soquel Creek Water District may apply for a reduced monitoring frequency of recycled water. The reduced monitoring frequency shall be no less than quarterly.
- 8.3. In accordance with section 60320.212(f), if four consecutive quarterly results for asbestos are below the detection limits, monitoring in recycled water may be reduced to one sample every three years.
- 8.4. In accordance with title 22 section 60320.220 (c), sampling frequency for Priority Pollutants, NLs, and DDW-specified chemicals can be reduced to annually in recycled water and/or groundwater within 1-year travel time of the AWPF after DDW and the Central Coast Water Board has reviewed the most recent two years of results.

8.5. In accordance with title 22 section 60320.226(e), groundwater monitoring frequency for select constituents can be “discontinued” following DDW and Central Coast Water Board approval after review of the most recent 2 years of monitoring results.

9. NOTIFICATIONS

9.1. Soquel Creek Water District must submit any Central Coast Water Board notifications described in this monitoring and reporting program by email to: RB3-WDR@Waterboards.ca.gov.

9.2. Soquel Creek Water District must submit any State Water Board or DDW notifications as described in this monitoring and reporting program by email to: ddw-fo-monterey@waterboards.ca.gov and dwrecycledwater@waterboards.ca.gov.

9.3. Soquel Creek Water District must submit all analytical data to Geotracker.

ATTACHMENT F – FACT SHEET

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This Fact Sheet includes background information, legal requirements, and technical rationale and serves as the basis for the requirements of Order R3-2023-0033, Waste Discharge and Water Reclamation Requirements, Pure Water Soquel Groundwater Replenishment Reuse Project, Soquel Creek Water District (Permit), the directives in the monitoring and reporting program in Attachment E of the Permit, and the water reclamation requirements (WRRs) in Attachment D of the Permit. This Fact Sheet is incorporated into and constitutes findings for the Permit, monitoring and reporting program, and WRRs.

1. PERMIT INFORMATION

Soquel Creek Water District owns and operates the Pure Water Soquel Advanced Water Purification Facility (AWPF) and associated injection wells, monitoring wells, and conveyance pipelines, collectively referred to as the Pure Water Soquel project (Project). Table F-1 summarizes administrative information related to Pure Water Soquel.

Table F-1. Facility Information

WDID	3 440826973
Discharger/Legally Responsible Party	Soquel Creek Water District
Name of Facility	Pure Water Soquel
Facility Address	2505 Chanticleer Ave
Facility Address	Santa Cruz, CA 95062
Facility Address	Santa Cruz County
Facility Latitude and Longitude	36.984894; -121.979224
Facility Contact, Title and Phone	Ron Duncan, General Manager, 831-475-8501 extension 144
Authorized Person to Sign and Submit Reports	Ron Duncan, General Manager, 831-475-8501 extension 144
Mailing Address	5180 Soquel Drive, Soquel, CA 95703
Billing Address	Same
Type of Facility	Advanced treated recycled water facility
Threat to Water Quality	3
Complexity	A

Pretreatment Program	N
Recycling Requirements	Producer and User
Facility Permitted Flow	1.67 million gallons per day (MGD)
Facility Design Flow	1.67 MGD
Baseline Flow	1.67 MGD
Groundwater Basin	Santa Cruz Mid-County (3-001)
Receiving Water	Groundwater
For Internal Use Only	For Internal Use Only
Fee Code	58
Primary Place Type	Recycled Water Use Area
Facility Type	Municipal/Domestic
Facility Waste Type	Recycled/reclaimed water
Regulatory measure Type	Individual- WDR
Reclamation	Producer/user

- 1.1. Soquel Creek Water District is the owner and operator of the Project, a groundwater reuse and replenishment project that produces advanced treated recycled water and injects it into the Santa Cruz Mid-County groundwater basin, 3-001.¹ For the purposes of this Permit, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to Soquel Creek Water District herein.
- 1.2. Attachment B includes a process flow diagram of the relevant features associated with the Project, and Attachment C includes maps of the area, treatment facility, and injection and monitoring wells and a hydrogeologic cross-section.
- 1.3. Soquel Creek Water District submitted a report of waste discharge pursuant to California Water Code (Water Code) section 13260. Soquel Creek Water District

¹ The Santa Cruz Mid-County groundwater basin naming and numbering convention comes from the California Department of Water Resources, as described in Bulletin 118, the State's official publication on the nature and occurrence of groundwater. More information on the Santa Cruz Mid-County groundwater basin can be found at the following link: https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Groundwater-Management/Bulletin-118/Files/2016-Basin-Boundary-Descriptions/3_001_SantaCruzMidCounty.pdf

also submitted *Pure Water Soquel Engineering Report* (Engineering Report) to demonstrate compliance with California Code of Regulations (CCR) title 22, division 4, chapter 3, article 5.2 Indirect Potable Reuse: *Groundwater Replenishment Subsurface Applications*. Soquel Creek Water District submitted both the report of waste discharge and Engineering Report in March 2023.

2. FACILITY DESCRIPTION

Soquel Creek Water District constructed the Project to recharge the Santa Cruz Mid-County groundwater basin (Basin) using advanced treated recycled water. The primary goal of the Project is to mitigate seawater intrusion in support of achieving the sustainable management criteria outlined in the Santa Cruz Mid-County Groundwater Sustainability Plan.² The Project injects advanced treated recycled water primarily into the Purisima A aquifer, with a small portion going into the Purisima BC aquifer. This helps to mitigate seawater intrusion in the target injection aquifers but also in Purisima F and Tu aquifers, where no injection occurs, because Soquel Creek Water District is able to increase municipal pumping in the target injection aquifers and reduce pumping in aquifers not receiving recycled water. The Project more broadly improves water supply reliability and resiliency for the Basin.

Production wells owned by Soquel Creek Water District and located downgradient from Project injection wells extract a mixture of advanced treated recycled water and native groundwater for potable use. Groundwater modeling has estimated that Soquel Creek Water District's wells will extract 37% of the injected water over a 25-year timeframe. The remainder of the injected water helps to mitigate seawater intrusion. The source water to the AWPf is secondary treated wastewater from the City of Santa Cruz's Wastewater Treatment Facility (WWTF). Soquel Creek Water District currently provides potable water treatment and delivery services to Soquel Creek Water District customers.

In the future, advanced treated recycled water may be used for irrigating playing fields near the Twin Lakes Church or irrigation of landscaping at the AWPf. Irrigation of landscaping at the AWPf where public access is restricted using recycled water is allowed by title 22, section 60303. Non-potable uses of advanced treated recycled water outside of the AWPf or in areas of the AWPf where public access is not restricted is not covered by this Permit or by the approved title 22 engineering report for the Project and will require an addendum to the existing engineering report or new engineering report and separate regulatory coverage.

2.1. Recycled Water Production

2.1.1. City of Santa Cruz WWTF

The City of Santa Cruz has owned and operated the WWTF since 1928 and upgraded the WWTF to a secondary treatment facility with disinfection in the 1990s. The WWTF is designed to provide secondary treatment for an

² The Santa Cruz Mid-County Groundwater Sustainability Plan can be accessed online at the Groundwater Sustainability Agency website at the following link:
<https://www.midcountygndwater.org/sustainability-plan>

average dry weather flow of 17 MGD and wet weather flow of 81 MGD. Current dry weather flows average 8.48 MGD. Wastewater is treated using screens, aerated grit removal, primary sedimentation, biological trickling filters, solids contact stabilization, secondary clarification, and disinfection with UV light.

The city currently produces recycled water for in-plant purposes and plans to recycle an additional portion of effluent through tertiary treatment, producing non-potable recycled water for non-agricultural irrigation and a truck-filling station for dust suppression. The production of non-potable recycled water will be covered by the 2023 NPDES permit renewal (Order. R3-2023-0001, NPDES No. CA0048194) for the WWTF. The city's distribution and use of non-potable recycled water will be covered by Order WQ 2016-0068-DWQ, *Water Reclamation Requirements for Recycled Water Use*. Neither the production or use of non-potable recycled water at the city wastewater facility is regulated by this Permit.

Any wastewater not recycled for non-potable or indirect potable uses is discharged via ocean outfall. Under current practices, treated wastewater is discharged to the Pacific Ocean approximately one mile from the shoreline in the Monterey Bay National Marine Sanctuary, pursuant to Order R3-2017-0030, National Pollutant Discharge Elimination System (NPDES) No. CA0048194, *Waste Discharge Requirements for the City of Santa Cruz Wastewater Treatment Facility Discharge to the Pacific Ocean*.

2.1.2. Wastewater Source Control

In developing the Project, a comprehensive wastewater source control program was required to be developed pursuant to section 60320.206 of the title 22 regulations for groundwater reuse and replenishment projects. The City of Santa Cruz and Soquel Creek Water District have a memorandum of agreement that supports an enhanced source control program. The city already administers an industrial pretreatment program for the WWTF in conformance with the USEPA pretreatment regulations and also has a sewer system ordinance that sets forth rules and regulations for the discharge of wastewater to the public sewer system and WWTF. The source control program required for groundwater reuse and replenishment projects added to the existing source control efforts in the following ways:

- An assessment of the fate of DDW- and Central Coast Water Board-specified contaminants through the wastewater and recycled water treatment systems;
- Contaminant source investigations and monitoring that focus on DDW- and Central Coast Water Board-specified contaminants;
- An outreach program to industrial, commercial, and residential communities with the aim of managing and minimizing discharges of contaminants at the source; and

- An up-to-date inventory of contaminants that may be discharged into the wastewater collection system in the project area.

Details of the source control program are described in the Engineering Report and in Attachment D of the Permit.

2.1.3. Advanced Water Purification Facility

Soquel Creek Water District has constructed the AWPf to further treat secondary effluent for indirect potable reuse. The AWPf consists of ozone pretreatment, membrane filtration (MF), reverse osmosis (RO), ultraviolet advanced oxidation process (UVAOP), and post-treatment stabilization. Title 22 requires that project proponents demonstrate that the treatment process can achieve at least a 12-log virus reduction and 10-log *Giardia* cysts and *Cryptosporidium* oocysts reductions. In accordance with CCR title 22, different treatment processes have maximum log reduction values (LRV) that they can be credited with. Pathogen log reduction credits are proposed for the MF, RO, and UVAOP components of the AWPf. Up to six LRV credits for viruses are proposed for subsurface retention time in the aquifer, based on modeling conducted to date and to be confirmed upon completion of the added and intrinsic tracer studies. The AWPf receives up to 2.37 million gallons per day (MGD) of secondary effluent from the WWTF (Attachment B, Figure B-1 and Attachment C, Figure C-1) and will produce 1.67 MGD of advanced treated recycled water at the AWPf.

The first process in the treatment train is ozone pretreatment, which is used to oxidize large organic molecules present in secondary treated wastewater from the WWTF. Oxidizing these large molecules reduces their size and reduces the amount of fouling during MF. Without this ozone pretreatment, the MF would need to be backflushed more frequently and would have lower filtration rates.

The next component of the treatment train is the MF system, which serves as the first of three credited treatment process barriers at the AWPf for removal of pathogens. The MF is designed to achieve a minimum LRV credit of 4.0 for both *Giardia* cysts and *Cryptosporidium* oocysts. In addition to reduction in pathogens, the MF serves as pretreatment for the RO system by reducing the concentration of particulate matter that would otherwise foul the RO membranes.

After the MF system, effluent is further treated by the RO system. The RO system serves as the second of three credited treatment process barriers at the AWPf for the removal of pathogens. The RO system is anticipated to be credited with a 1.0 to 1.5 LRV for viruses, *Giardia* cysts and *Cryptosporidium* oocysts, though the actual LRV credited will be determined during start up testing. In addition to the reduction in pathogens, the RO system is used to remove dissolved constituents including salt, organic carbon, and trace

organic compounds such as contaminants of emerging concern (CECs). The 0.4-0.7 MGD of MF waste and RO concentrate (i.e., the waste product) is discharged to the city's ocean outfall pursuant to an NPDES permit.

The final treatment step is UVAOP, where permeate from the RO system is dosed with hydrogen peroxide, and the resulting oxidant is photolyzed by high doses of ultraviolet light. The UVAOP process is the third of three credited treatment barriers at the AWPf for the control of pathogens. UVAOP is designed to achieve a 6.0 LRV credit each for viruses, *Giardia* cysts, and *Cryptosporidium* oocysts. In addition, the UVAOP system is designed to achieve a target removal of 2.0 LRV for n-nitroso-dimethylamine (NDMA) and 0.5 LRV for 1,4-dioxane. NDMA and 1,4-dioxane log reduction is required to demonstrate treatment performance, for protection of human health, and as a surrogate for the removal of other trace organic compounds.

After UVAOP, effluent is stabilized to meet product water quality goals, decrease corrosivity in the conveyance pipeline, and minimize the potential for problematic geochemical reactions in the aquifer. Post-treatment stabilization consists of a decarbonator to remove carbon dioxide then the addition of calcium chloride and sodium hydroxide to increase calcium hardness, alkalinity, and pH. Additionally, sodium hypochlorite is added to the purified water to provide residual disinfection in the purified water pipeline by the formation of chloramines.

2.1.4. Conveyance Piping to Injection Wells

Stabilized product water is pumped from the purified water pump station to Project injection wells via the purified water pipeline (Attachment B, Figure B-1). The pipeline is 14 inches in diameter and has a total length of approximately 20,000 feet. The purified water pump station is equipped with a purified water tank for flow equalization of AWPf product water.

2.2. Discharge Locations

2.2.1. Groundwater Injection Wells

Soquel Creek Water District utilizes three injection wells to inject the advanced treated recycled water into the Basin (Attachment C, Figure C-1 through Figure C-6). In addition to regulating the production of advanced treated recycled water, the Permit regulates the discharge of advanced treated recycled water, through the injection wells, to the groundwater basin. Soquel Creek Water District's injection volume goal is 1,500 acre-feet per year (AFY).

Each of the three wells is constructed using 16-inch diameter stainless steel casing, 16-inch diameter stainless steel wire-wrapped screen, and glass bead filter media. The Twin Lakes Church (TLC) injection well is screened to recharge both the Purisima A and Purisima BC units and has a maximum injection capacity of 900 gallons per minute (GPM). The Willowbrook and

Monterey wells are screened to recharge the Purisima A unit and have maximum injection capacities of 720 and 400 GPM, respectively.

Table F-2. Injection Well Discharge Locations

Injection Well	Injection Well Latitude (North-South)	Injection Well Longitude (East-West)	Aquifer Units	Screened Interval (ft bgs ¹)
Twin Lakes Church	36.98450	-121.92755	Purisima BC, Purisima A	220-415, 566-840
Willowbrook	36.98822	-121.93278	Purisima A	463-763
Monterey	36.98252	-121.94410	Purisima A	252-472

¹ft bgs denotes feet below ground surface.

2.2.2. City of Santa Cruz’s Wastewater Treatment Facility Ocean Outfall

The AWPf discharges approximately 0.7 MGD of MF wastewater and RO concentrate to the Pacific Ocean via the City of Santa Cruz’s WWTF ocean outfall pursuant to an NPDES permit.

2.2.3. Monitoring Wells

Soquel Creek Water District monitors groundwater quality downgradient from the Project injection wells using two monitoring wells for each injection well and each target injection aquifer, as specified by CCR title 22 section 60320.226. The TLC injection well has four monitoring wells, two screened in the Purisima A Unit and two in the Purisima BC Unit. A fifth monitoring well (TLM-2BC) was installed by Soquel Creek Water District to monitor the Purisima BC unit downgradient from the TLC well but is not required to meet CCR title 22 requirements and will not be used to demonstrate compliance with this Permit. The Monterey and Willowbrook injection wells each have two monitoring wells, both of which are screened in the Purisima A Unit. Each of the monitoring wells includes at least 60 feet of screened interval located in an area of high transmissivity within the aquifer. Monitoring well locations and construction information are shown in Table F-3.

Table F-3. Monitoring Well Locations and Screened Intervals

Monitoring Well Name	Injection Well Monitored	Purisima Unit Monitored	Latitude	Longitude	Screened Intervals (ft bgs)
TLM-1A	TLC	A	36.98418	-121.92698	675-735
TLM-2A	TLC	A	36.98326	-121.92474	745-825

Monitoring Well Name	Injection Well Monitored	Purisima Unit Monitored	Latitude	Longitude	Screened Intervals (ft bgs)
TLM-2BC ¹	TLC	BC	36.98326	-121.92477	270-350
TLM-3BC	TLC	BC	36.98413	-121.92750	200-280
TLM-4BC	TLC	BC	36.98281	-121.92795	210-290
MM-1	Monterey	A	36.98299	-121.94391	330-410
MM-2	Monterey	A	36.98368	-121.94383	320-400
WM-1	Willowbrook	A	36.98780	-121.93319	560-640
WM-2	Willowbrook	A	36.98751	-121.93620	490-570

¹ Monitoring well TLM-2BC monitors the BC unit but will not be used to demonstrate compliance with this Permit or CCR title 22 regulations.

2.2.4. Production Wells

Soquel Creek Water District conducted groundwater modeling during the development of the Project to estimate the total amount of injected advanced treated recycled water that would be extracted by municipal and domestic water supply wells in the Basin. Modeling estimates that after a 25-year simulation, 37% of all the injected water was captured at these wells.

Soquel Creek Water District extracts injected water primarily through the Tannery II, Estates, and Rosedale, municipal supply wells, all of which are owned by Soquel Creek Water District. Soquel Creek Water District also plans to construct an additional extraction well, which will be called Cunnison Lane, approximately 1-3 years after the Project begins operation. The closest municipal supply well to an injection well is the Estates well, which is located 1,630 feet away from the TLC injection well. Municipal production wells are described in Table F-4.

There are 15 private domestic supply wells located near the Monterey well that capture injected water, based on groundwater modeling simulations. These 15 wells are estimated to capture less than 0.3% of the total volume of water injected during the 25-year simulation. The closest private domestic supply well is located approximately 1000 feet from the Monterey injection well and is estimated to be 30-39 months of travel time from the injection well. The private irrigation well located at Abbey Road near the Willowbrook injection well (Figure C-4, Attachment C) does not extract recycled water injected at the Willowbrook well because the irrigation well is screened in a

different aquifer unit from the Willowbrook injection well and pumping tests confirmed that the irrigation well is not hydraulically connected to the zone that Willowbrook will inject into.

The Permit does not regulate the extraction or discharge of groundwater produced from municipal or private production wells. However, as described, only minimal effects, if any, on these wells are expected.

Table F-4. Municipal Production Well Locations

Production Well Name	Latitude	Longitude	Closest Injection Well	Distance to Closest Injection Well
Tannery II	36.98690	-121.93889	Willowbrook	1,770
Estates	36.98360	-121.92213	TLC	1,630
Rosedale	36.98710	-121.94940	Monterey	2,270
Cunnison Lane ¹	36.99000	-121.94243	Monterey	2,463

¹ Not yet constructed – estimated to be completed approximately 1-3 years after the Project begins operation.

2.3. Underground Retention Time

2.3.1. CCR title 22 regulations for groundwater reuse and replenishment projects require that the project proponents demonstrate the minimum amount of time that injected water is underground prior to being extracted at a well. The underground retention time is used for identifying the location of monitoring wells consistent with CCR title 22 section 60320.226, calculating virus LRV credits consistent with section 60320.208, demonstrating compliance with the response retention requirements in section 60320.224, and creating zones of primary and secondary drinking water control consistent with section 60320.200.

Before any injection of advanced treated recycled water may occur, underground retention times are estimated using models. These modeled estimates are used for project planning, demonstrating regulatory feasibility with respect to complying with underground retention time requirements, and locating and constructing monitoring wells. These modeled estimates are required to later be validated via injection tracer studies that commence within three months of project startup.

2.3.2. Response Retention Time

CCR title 22 section 60320.208 requires project proponents to estimate the response retention time (RRT), which is the amount of time required to identify and respond to a treatment failure that results in the discharge of off-specification advanced treated recycled water to the aquifer. In summary, the RRT is the time necessary to:

- Identify and confirm the water quality problem exists;
- Assess the results and make decisions for appropriate responses to protect public health with DDW and Central Coast Water Board input; and
- Procure a safe alternative drinking water supply solutions by utilizing other Soquel Creek Water District wells or activating regional interties or potential wellhead treatment.

Soquel Creek Water District has calculated that the RRT needed to perform the three steps outline above is 7.5 months, as described in detail in the Engineering Report. Underground retention times must be longer than the RRT so that project proponents have time to respond to a treatment failure before the off-specification water reaches the nearest downgradient well.

2.3.3. Modeled Underground Retention Times

The shortest underground retention time (travel time) to a well estimated using modeling was 33 months for a private domestic well located near the Monterey injection well. CCR title 22 regulations require that the modeled travel times be credited with a fraction of the estimate, based on the modeling methodology used. After applying the 0.25 fractional credit allowed for analytical model estimates, the credited underground retention time is 8.25 months. This complies with the minimum allowable RRT of two months, is greater than the estimated RRT of 7.5 months, and provides a planned virus LRV credit of six months. Within three months of commencing injection of advanced treated recycled water, Soquel Creek Water District will initiate a tracer study to confirm the underground retention time. The Soquel Creek Water District has proposed to conduct both intrinsic and added tracer studies, though the specific details of the study design still need to be approved by the DDW and Central Coast Water Board.

2.3.4. Zones of Primary and Secondary Drinking Water Control

Title 22 requires Soquel Creek Water District to create a primary zone of drinking water control, in which no wells are allowed to be constructed, and a secondary zone of drinking water control, in which additional hydrogeologic studies must be conducted prior to the construction of a well. Drinking water control zones are initially established based on modeled estimates of subsurface retention time and are later updated based on the results of tracer studies. Soquel Creek Water District is required to update the existing hydrogeological model using results of the tracer studies. The primary and secondary control zones for the Project are provided in the Engineering

Report. Until tracer studies are conducted to confirm subsurface retention times and control zones, the maximum spatial extent of the interim control zones shown in the Engineering Report will be enforced.

No drinking water wells are presently located within the interim primary control zones for the aquifer units recharged by the Project injection wells. Two private domestic wells are located within the secondary control zone for the aquifer units recharged by the Monterey injection well. Because these domestic wells have low extraction rates in comparison to the injection wells, the domestic wells have negligible effects on the hydraulic gradient and subsurface travel times.

2.3.5. Enforcement of Primary and Secondary Control Zones

The County of Santa Cruz has an existing ordinance that prohibits new drinking water well construction on parcels within 200 feet of a Soquel Creek Water District water distribution main. This effectively prohibits new well construction within most of the interim primary and secondary control zones. The County is planning to update its well ordinance to encompass the entirety of primary and secondary control zones once the permanent control zones are established using the results of tracer studies. Until the County's well ordinance is updated, the County sends all well applications for wells within the control zones to Soquel Creek Water District for review and comment. Soquel Creek Water District objects to any new wells within the interim control zones until after the control zones are updated based on the tracer study.

3. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Permit are based on the requirements and authorities described in this section.

3.1. Legal Authorities.

The Permit is issued pursuant to California Water Code sections 13263, 13267, and 13523.1. The Permit serves as waste discharge requirements (WDR) and water reclamation requirements (WRRs) issued pursuant to Water Code article 4, chapter 4, division 7.

3.2. California Environmental Quality Act (CEQA).

An environmental impact report (EIR) was prepared for the Pure Water Soquel: Groundwater Replenishment and Seawater Intrusion Prevention Project with Soquel Creek Water District serving as the lead agency (State Clearinghouse # 2016112045), pursuant to the California Environmental Quality Act (CEQA) (Cal. Pub. Res. Code Section 15367). As the lead agency, Soquel Creek Water District certified a final EIR on December 18, 2018, for the construction and operation of the Project. A notice of determination (NOD) was filed with the State Clearinghouse and Santa Cruz County Clerk's office on December 19, 2018.

Soquel Creek Water District prepared an addendum for the 2018 EIR. This addendum describes the inclusion of adjacent property next to the AWPf site and

several refinements to the water treatment processes and facility layouts and evaluates environmental effects associated with those changes. A NOD was filed with the State Clearinghouse and with the Santa Cruz County Clerk's office for this addendum on January 23, 2019, and the 2020 EIR addendum was adopted by Soquel Creek Water District on November 17, 2020.

Soquel Creek Water District prepared a second addendum for the 2018 EIR. This addendum describes additional treatment design changes made since the certification of the EIR and the adoption of the 2020 addendum and evaluates environmental effects associated with those changes. A NOD was filed with the State Clearinghouse and Santa Cruz County Clerk's office on November 18, 2020, and the 2021 EIR Addendum was adopted by Soquel Creek Water District on October 7, 2021.

The final EIR identified the potential for a significant environmental impact to environmental resources within the jurisdiction of the Central Coast Water Board. The potential impact identified in the EIR was from horizontal directional drilling (HDD) to install project pipeline segments beneath watercourses. However, this activity was anticipated to have less than significant impacts with mitigation. During construction of project pipelines, project engineers decided that pipelines would be connected to the underside of watercourse bridges and no HDD was conducted. No water quality impacts were identified during the pipeline watercourse crossings. This activity is not subject to the requirements of this Permit.

Except for the potential impacts previously described related to HDD, neither the final EIR nor the subsequent addenda identified any other potentially significant environmental effects with respect to the adoption of these waste discharge requirements and within the jurisdiction of the Central Coast Water Board. Specifically, no impacts were identified with respect to groundwater or surface water (EIR Table 1-1, Section 4.10 and 4.11) in either the EIR or subsequent addenda.

The Central Coast Water Board is a responsible agency pursuant to CEQA (CEQA Guidelines Section 15096). The Central Coast Water Board has considered the EIR and associated documents and finds that all environmental effects have been identified for project activities that it is required to approve and that the Project will not have significant adverse impacts on the environment. The Central Coast Water Board has considered the EIR and subsequent addenda and makes its own conclusions in this Permit on whether and how to approve waste discharge requirements for the project. The Coast Water Board finds that neither the EIR nor subsequent addenda has identified any potentially significant environmental effects within the Water Board's jurisdiction. The waste discharge requirements will result in improved water quality since groundwater recharge using advanced treated recycled water will stop further groundwater contamination by seawater intrusion. In addition, the project will provide drought resiliency and water supply reliability. In adopting this Permit, the Central Coast Water Board has eliminated or substantially

lessened the less-than-significant effects on water quality, and therefore approves the project.

3.3. Water Quality Control Plan.

- 3.3.1. The Central Coast Water Board adopted its *Water Quality Control Plan for the Central Coastal Basin* (hereinafter Basin Plan) on June 14, 2019. The Basin Plan designates beneficial uses for surface water and groundwater; establishes narrative and numeric water quality objectives that must be attained or maintained to protect the designated beneficial uses and conform with the state’s anti-degradation policy; and includes implementation programs and policies to achieve those objectives for all waters in the region. In addition, the Basin Plan incorporates applicable State Water Board and Central Coast Water Board plans and policies and other pertinent water quality policies and regulations.
- 3.3.2. The Basin Plan incorporates the CCR title 22 primary maximum contaminant levels (MCLs) by reference. This incorporation is prospective and includes future changes to the incorporated provisions as the changes take effect. The Basin Plan states that groundwater designated for use as domestic or municipal supply must not contain concentrations of chemical constituents and radionuclides in excess of MCLs. The Basin Plan also specifies concentrations that cause nuisance or adversely affect beneficial uses.
- 3.3.3. For the Santa Cruz Mid-County Basin,³ the Basin Plan includes general narrative groundwater objectives for taste and odor and radioactivity and numeric objectives for:
- 3.3.3.1. Bacteria – the median concentration of coliform organisms (i.e., total coliform) over any seven-day period must be less than a most probable number (MPN) of 2.2 per 100 milliliters (mL) [2.2 MPN/100 mL]; and
- 3.3.3.2. Chemical constituents – groundwater must not contain chemical concentrations in excess of primary and secondary MCLs, as shown in Table F-5.

Table F-5. Basin Plan Water Quality Objectives for Select Constituents

Constituent	Water Quality Objective	Units	Source of Water Quality Objective
Aluminum	1000	µg/L	CA Primary MCL
Arsenic	10	µg/L	CA Primary MCL

³ The Santa Cruz Mid-County Basin is the naming convention used by the Department of Water Resources (DWR) and is described in DWR’s Bulletin 118. The Basin Plan refers to the Santa Cruz Mid County Basin as Soquel Valley 3-1 (Table 2-4).

Constituent	Water Quality Objective	Units	Source of Water Quality Objective
Barium	1,000	µg/L	CA Primary MCL
Boron	750	µg/L	Basin Plan
Cadmium	10	µg/L	Basin Plan
Chloride	250	mg/L	CA Secondary MCL
Total Chromium	50	µg/L	CA Primary MCL
Iron	300	µg/L	CA Secondary MCL
Lead	0.2	µg/L	CA Public Health Goal
Manganese	50	µg/L	CA Secondary MCL
Nitrate – N	10	mg/L	CA Primary MCL
pH	6.5-8.4	pH Units	Basin Plan
Sodium	69	mg/L	Basin Plan
Sulfate	250	mg/L	CA Secondary MCL
TDS	500	mg/L	CA Secondary MCL
Zinc	2.0	mg/L	Basin Plan

3.3.4. The Basin Plan contains the following specific water quality objectives for groundwater:

3.3.4.1. Municipal And Domestic Supply (MUN):

3.3.4.1.1. Bacteria – The median concentration of total coliform organisms over any 7-day period must be less than 2.2 MPN/100 mL.

3.3.4.1.2. Organic Chemicals – Groundwaters must not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in CCR title 22, Chapter 15, Article 5.5, Section 64444.5 Table 5 and listed in Basin Plan Table 3-1.

3.3.4.1.3. Chemical Constituents – Groundwaters must not contain concentrations of chemical constituents in excess of the limits specified in CCR title 22, Chapter 15, Article 4, Section 64435, Tables 2 and 3.

3.3.4.1.4. Radioactivity – Groundwaters must not contain concentrations of radionuclides in excess of the limits specified in CCR title 22, Chapter 15, Article 5, Section 64443, Table 4.

3.3.4.2. Agricultural Supply (AGR)

3.3.4.2.1. Groundwaters must not contain concentrations of chemical constituents in amounts that adversely affect such beneficial use. Interpretation of adverse effects must be as derived from the University of California Agricultural Extension Service guidelines provided in Basin Plan Table 3-1.

3.3.4.2.2. In addition, water used for irrigation and livestock watering must not exceed concentrations for those chemicals listed in Basin Plan Table 3-2. No controllable water quality factor must degrade the quality of any groundwater resource or adversely affect long-term soil productivity. The salinity control aspects of groundwater management will account for effects from all sources.

3.3.5. The requirements in this Permit implement the Basin Plan by prescribing requirements for the production, reuse, and disposal of recycled water that ensure that the discharge will not adversely impact water quality, beneficial uses, human health, or the environment.

3.4. Recycled Water Policy.

The purpose of the State Water Board's *Water Quality Control Policy for Recycled Water (Recycled Water Policy)*⁴ is to facilitate increases in the production and use of recycled water from wastewater sources in a manner that implements state and federal water quality laws and protects public health and the environment. The Recycled Water Policy provides requirements for the regional water quality control boards (Regional Water Boards), proponents of recycled water projects, and the public regarding the methodology and appropriate criteria for the State Water Board and the Regional Water Boards to use when issuing permits for recycled water projects. The State Water Board first adopted the Recycled Water Policy on February 3, 2009, and amended the policy on January 22, 2013, and December 11, 2018. The 2018 amendment, effective April 8, 2019, included permitting guidance for groundwater recharge projects and updated monitoring requirements for contaminants of emerging concern (CECs). The Permit includes monitoring and reporting requirements for CECs and volumetric data that are consistent with the Recycled Water Policy.

3.5. Antidegradation Policy.

On October 28, 1968, the State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, *Statement of Policy*

⁴ The Recycled Water Policy can be found on the following webpage:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/2018/121118_7_final_amendment_oal.pdf

*with Respect to Maintaining High Quality of Waters in California.*⁵ Resolution 68-16 (Antidegradation Policy) establishes a two-step process to demonstrate compliance with the policy. The first step requires demonstrating that that any change in water quality (1) will be consistent with maximum benefit the people of the state, (2) will not unreasonably affect present and anticipated beneficial use of such water, and (3) will not result in water quality less than that prescribed in state policies (e.g., water quality objectives in the Basin Plan). The second step is to prescribe waste discharge requirements that require best practicable treatment and control of the discharge to ensure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the state will be maintained. The Central Coast Water Board's Basin Plan implements, and incorporates by reference, the Antidegradation Policy.

The Recycled Water Policy requires that proponents of groundwater recharge projects utilizing recycled water submit antidegradation analyses to the appropriate Regional Water Board to demonstrate compliance with the Antidegradation Policy. For projects located within a basin without a salt and nutrient management plan accepted by a Regional Water Board, or any applicable water quality control plan based on an accepted salt and nutrient management plan, the Recycled Water Policy, in Sections 8.2.4.2 and 8.2.5, says that a detailed antidegradation analysis is required. Because there is no salt and nutrient management plan in the Santa Cruz Mid-County basin, Soquel Creek Water District was required to submit the detailed antidegradation analysis described in this Fact Sheet. This analysis requires the project proponent to demonstrate that the project will utilize less than 10% of the basin's available assimilative capacity for salts and nutrients.

Soquel Creek Water District completed a detailed antidegradation analysis to evaluate consistency with the Antidegradation Policy and the Recycled Water Policy. In conducting the antidegradation analysis, Soquel Creek Water District first compiled water quality data from wells located in the project area and screened in the target injection aquifers. This compilation included both recent water quality data and historical water quality data from as far back as 1968. Soquel Creek Water District then compared the background groundwater quality data to anticipated advanced treated recycled water quality to evaluate if the project would negatively impact water quality. Results of this comparison showed that the concentrations in recycled water will be lower than ambient groundwater concentrations for all constituents except for nitrate. With the exception of nitrate, the analysis showed that the Project will result in an overall improvement in water quality in the project area and neither water quality objectives nor beneficial uses will be impacted.

For nitrate, the project is expected to marginally degrade water quality because

⁵ The Antidegradation Policy can be found at the following webpage:
https://www.waterboards.ca.gov/board_decisions/adopted_orders/resolutions/1968/rs68_016.pdf

concentration of nitrate in recycled water is anticipated to be 1.67 mg/L as N compared to the current ambient concentration of 0.06 mg/L as N. However, the water quality objective for the drinking water beneficial uses for nitrate is 10 mg/L, and, therefore, the project is not anticipated to unreasonably affect beneficial uses or result in water quality that is inconsistent with water quality objectives.

The assimilative capacity evaluation focused on total dissolved solids (TDS), chloride, and nitrate, consistent with the direction from the Recycled Water Policy, which requires the evaluation in the context of a salt and nutrient management plan. To evaluate the amount of assimilative capacity consumed, Soquel Creek Water District first calculated the amount of assimilative capacity available. This was done by comparing background water quality to water quality objectives, after scaling these water quality values by the volume of water in each of the aquifer units. This analysis indicated that there was assimilative capacity available for all three constituents.

The amount of assimilative capacity consumed was evaluated by comparing the anticipated product water quality from the AWPf to the background groundwater concentrations previously calculated. Because the TDS and chloride concentration in the product water are anticipated to have lower concentrations relative to background groundwater, these constituents improved groundwater quality and increased assimilative capacity. The results for nitrate indicate that the project would consume 0.27% of assimilative capacity, based on a comparison of background groundwater quality to injectate water quality and after scaling by the volume of injectate relative to the volume of water in each of the aquifer units. This analysis confirms that less than 10% of the basin's assimilative capacity will be utilized by this project and that beneficial uses will be protected.

Soquel Creek Water District also evaluated the potential that the injection of advanced treated recycled water may cause problematic geochemical interactions in the aquifer that could degrade water quality. Three geochemical evaluations were conducted, including mineralogical assessments, laboratory experiments, and computer simulations. These geochemical evaluations primarily focused on the potential for the mobilization of metals such as arsenic, manganese, and iron. Results of the geochemical evaluations indicate that, although the Project may result in the mobilization of some metals, the increases in concentrations relative to ambient conditions is expected to be short-lived and/or small in magnitude. None of the metals included in the evaluation exceeded relevant water quality standards. The geochemical evaluation concluded that, with appropriate product water stabilization, the Project is unlikely to cause geochemical interactions that will result in water quality less than that established in relevant state policies or unreasonably affect beneficial uses.

Pursuant to second provision of the Antidegradation Policy, the Permit serves as WDRs that require the best practicable treatment or control (BPTC) of the discharge that is necessary to ensure that: (1) a condition of pollution or nuisance

will not occur and (2) the highest water quality consistent with the maximum benefit to the people the state will be maintained. The Permit requires BPTC in the form of advanced treatment that uses multiple treatment components to convert secondary-treated wastewater effluent into high quality recycled water. In the case of nitrate, the concentration is anticipated to be reduced from 9.3 mg/L in secondary influent to 1.67 mg/L in the product water. This BPTC implements the requirements of the Uniform Statewide Recycling Criteria (CCR title 22, Division 4, Ch. 3) and the Basin Plan.

Considering the foregoing, the Central Coast Water Board finds that this Permit is consistent with Antidegradation Policy and with the Recycled Water Policy. Groundwater recharge with recycled water for later extraction and use in accordance with the Recycled Water Policy and the state and federal water quality laws is to the benefit of the people of the State of California.

Compliance with this Permit will protect present and anticipated beneficial uses of groundwater, ensure attainment of water quality prescribed in applicable policies, and avoid any conditions of pollution or nuisance. Although this Permit may allow some degradation of water quality, the Permit does not authorize the Project to cause exceedances of water quality goals or objectives for the basin.

3.6. Water Reclamation Statute.

The California Legislature declared in Water Code section 13511 that a substantial portion of the future water requirements of the state may be economically met by the beneficial use of recycled water. The Legislature also expressed in Water Code section 13512 the state's intent to undertake all possible steps to encourage development of water recycling facilities so that recycled water may be made available to help meet the growing water requirements of the state. The adoption of the Permit is consistent with the legislature's declaration because it facilitates the use of recycled water to supplement potable water supplies.

3.7. Indirect Potable Reuse Regulations: Groundwater Replenishment – Subsurface Application.

CCR title 22, Chapter 3 establishes specific requirements for indirect potable reuse groundwater recharge projects. The Permit incorporates discharge specifications, effluent limitations, and monitoring and reporting requirements from CCR title 22 sections 60320.200 through 60320.230.

3.8. Sources of Drinking Water Policy.

The Sources of Drinking Water Policy (Resolution 88-63) provides that all waters of the state, with certain exceptions, are to be protected as existing or potential sources of municipal and domestic supply. Exceptions include waters with existing high dissolved solids (i.e., greater than 3,000 mg/L) low sustainable yield (less than 200 gallons per day for a single well), waters with contamination that cannot be treated for domestic use using best management practices or best economically achievable treatment practices, waters within particular municipal, industrial, and

agricultural wastewater conveyance and holding facilities, and regulated geothermal groundwaters. This Permit protects existing or potential sources of drinking water and is therefore consistent with Resolution No. 88-63.

3.9. California Water Code

3.9.1. Pursuant to Water Code section 106.3, it is the policy of the State of California that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes.

3.9.2. Pursuant to Water Code section 13263(g), discharges of waste into waters of the state are privileges, not rights. Nothing this order creates a vested right to continue the discharge. Water Code section 13263 authorizes the Central Coast Water Board to issue waste discharge requirements that implement any relevant water quality control plan.

3.9.3. Section 13267(b) of the Water Code states, in part:

In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region shall furnish under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports and shall identify the evidence that supports requiring that person to provide the reports.

3.9.4. Section 13267(d) of the Water Code states, in part:

[A] regional board may require any person, including a person subject to waste discharge requirements under section 13263, who is discharging, or who proposes to discharge, wastes or fluid into an injection well, to furnish the state board or regional board with a complete report on the condition and operation of the facility or injection well, or any other information that may be reasonably required to determine whether the injection well could affect the quality of the waters of the state.

3.9.5. This order includes limits on quantities and concentrations of chemical, physical, biological, and other pollutants in the advanced treated recycled water that is injected into groundwater.

3.9.6. This order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, section 2050 to 2097) or the federal

Endangered Species Act (16 U.S.C.A. section 1531 to 1544). This Permit requires compliance with requirements to protect the beneficial uses of waters of the state. Soquel Creek Water District is responsible for meeting all applicable requirements of the endangered species acts.

3.9.7. Water Code section 13241 requires that the Central Coast Water Board establish water quality objectives for the protection of beneficial uses. This Order contains restrictions on individual pollutants for the protection of beneficial uses. The effluent limitations for constituents with primary or secondary MCLs are based on achievable limits for advanced treated recycled water as demonstrated by similar facilities throughout the Central Coast region and state. The effluent limitations in this Permit have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to state law. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. The requirements of the Permit take into consideration past, present, and probable future beneficial uses of the receiving waters, protection of human health, the environmental characteristics, including water quality, of the Santa Cruz Mid-County basin, coordinated control of all factors that affect water quality in the area, and the need to develop and use recycled water. The production and discharge of advanced treated recycled water will help Soquel Creek Water District mitigate seawater intrusion and provide water supply resiliency and reliability.

4. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

This Permit establishes requirements based on the Basin Plan, Recycled Water Policy, the Water Code, and CCR title 22 for the indirect potable reuse of advanced treated recycled water discharged to groundwater from the Project.

4.1. Discharge Prohibitions

This Permit establishes discharge prohibitions for the Project as listed in Section 3 of this Permit. The discharge prohibitions are based on the Basin Plan and State Water Resources Control Board's plans and policies. These prohibitions are consistent with the requirements set for other discharges regulated by waste discharge requirements adopted by the Central Coast Water Board.

4.1.1. Discharge Prohibition 3.1. Title 22, Division 4, Chapter 3 *Water Recycling Criteria* does not identify direct consumption as an allowable use of recycled water. Therefore, direct consumption of recycled water is prohibited.

4.1.2. Discharge Prohibition 3.2. The Basin Plan prohibits the discharge of waste to land or groundwater that has not been specifically described in this Permit or in the report of waste discharge, and for which valid WDRs are not in

force. This prohibition ensures no discharges to land or groundwater occur without appropriate WDRs.

- 4.1.3. Discharge Prohibition 3.3.** The Basin Plan prohibits discharges of treated or untreated solid or liquid waste to waters of the United States unless authorized by an NPDES permit. This prohibition ensures that no discharges to waters of the United States occur without an appropriate NPDES permit and WDRs.
- 4.1.4. Discharge Prohibition 3.4.** The Basin Plan prohibits discharges of treated or untreated solid or liquid waste to waters of the state directly or indirectly. This prohibition ensures that no discharges to waters of the state occur without WDRs.
- 4.1.5. Discharge Prohibition 3.5.** This prohibition is necessary to ensure the RO concentrate is not disposed to land and does not adversely affect water quality. The Project's RO concentrate is discharged to the City of Santa Cruz's ocean outfall pursuant to Order R3-2023-0001.
- 4.1.6. Discharge Prohibition 3.6.** The Basin Plan prohibits the treatment, storage, or disposal of waste in a manner that creates pollution, contamination, or nuisance. This prohibition ensures that the operation of the Project does not cause pollution, contamination, or nuisance, as defined by Water Code section 13050.
- 4.1.7. Discharge Prohibition 3.7.** CCR title 22, article 5.2 prohibits the use of inadequately treated recycled water for groundwater recharge.

4.2. Effluent Limitations and Discharge Specifications

This Permit establishes effluent limitations and discharge prohibitions for the Project as listed in Section 4 of this Permit. The discharge specifications and effluent limitations are derived from the water quality objectives from the Basin Plan listed in Table F-5. Constituents with both water quality objectives and maximum contaminant levels (MCLs) have effluent limitations set at the lower concentrations of the two objectives.

- 4.2.1. Discharge Volume Limitations.** The subsurface retention time of advanced treated recycled water is directly affected by the volume and rate of recycled water injection. Management of subsurface retention times described in the Engineering Report and later verified through tracer studies is critical for compliance with requirements related to LRV credits, RRT, and minimum subsurface retention times. Additionally, subsurface retention times inform the placement of monitoring and injection wells and the formation of zones of controlled drinking water well construction.

Because both injection volume and injection rate substantially affect subsurface retention times, limits on discharge rates and discharge volumes are necessary to ensure compliance with sections 60320.200, 60320.208, 60320.224, and 60320.226 of title 22.

4.2.2. Secondary Effluent Limitations. Title 22 section 60320.201 requires that the secondary effluent supplied to the AWPf must be oxidized wastewater, as defined in title 22 section 60301.650. The secondary effluent limitations in Section 4 of the Permit ensure proper oxidation and stabilization of secondary effluent prior to advanced treatment at the AWPf.

4.2.3. Primary and Secondary Maximum Contaminant Levels Limitation. Title 22 section 60320.201 requires Soquel Creek Water District to not exceed the concentration of any MCLs in effluent, and CCR title 22 section 60320.212 requires Soquel Creek Water District to notify the Central Coast Water Board and DDW if the MCLs are exceeded. Table 4 through Table 9 of this Permit lists the effluent limitations for the constituents with primary MCLs. For constituents with both a secondary MCL and water quality objectives established in the Basin Plan, the effluent limitation was set at the more protective of the two values. The MCLs and corresponding limits for:

- 4.2.3.1. Inorganic parameters are established in title 22, section 64431, table 64431-A.
- 4.2.3.2. Volatile organic compounds parameters are established in title 22, section 64444, Table 64444-A.
- 4.2.3.3. Synthetic organic compound parameters are established in title 22 section 64444, Table 64444-A.
- 4.2.3.4. Disinfection byproducts parameters are established in title 22 section 64533, Table 64533-A.
- 4.2.3.5. Radionuclides are established in title 22 section 64442 and 64443, Table 64442 and 64443.
- 4.2.3.6. Constituents with secondary MCLs are established in title 22 section 64449, Tables 64449-K and 64449-B.

4.3. Notification Levels, Section 5.

This Permit requires monitoring for constituents with notification levels as listed in Section 6 of this Permit. Title 22 section 60320.201 requires Soquel Creek Water District to monitor for all constituents with notification levels. The notification levels and response levels are listed in Table 10 of this Permit.

4.4. Water Reclamation Requirements, Section 7.

This Permit requires compliance with the Water Reclamation Requirements for the Project as listed in Section 8 of this Permit. Water Code section 13520 requires DDW to make recommendations to the Central Coast Water Board based on the Engineering Report for the Project. The Central Coast Water Board has reviewed the recommendations made in the letter titled *Division of Drinking Water's Conditional Acceptance of the Title 22 Engineering Report for Pure Water Soquel Groundwater Recharge and Replenishment Project, (4490006-701)*, issued April 26, 2023, and has incorporated the recommendations as requirements in Attachment D of the Permit.

5. RATIONALE FOR PROVISIONS

5.1. Standard Provisions

The standard provisions contain requirements that allow the Central Coast Water Board to enforce this Permit. Provisions include need for inspection, spill and emergency reporting, records maintenance, and reporting of changes. Standard provisions apply to all WDRs and are consistent with Central Coast Water Board findings.

5.2. Notices

Notices are included in this Permit to inform Soquel Creek Water District of administrative issues regarding this Permit.

5.3. Reopener Provisions

As effluent and groundwater is further characterized as a result of monitoring, and if need for additional effluent limitations becomes apparent after additional effluent and groundwater characterization, the Central Coast Water Board may reopen the Permit to incorporate such limitations.

6. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

- 6.1. The purpose of the monitoring and reporting program is to determine and ensure compliance with discharge specifications, effluent limitations, and other requirements established in this Permit. The monitoring and reporting program also helps the Central Coast Water Board and Soquel Creek Water District to assess treatment efficiency, characterize effluents, ensure water quality objectives and beneficial uses of the groundwater basins are protected, and minimize the effects of the discharge on the receiving water quality. The monitoring and reporting program also specifies requirements concerning the proper use, maintenance, methods, and the monitoring type intervals and frequency necessary to provide data that are representative of the activities and discharges regulated under this Permit.
- 6.2. The need for the technical and monitoring reports required by this order, including the monitoring and reporting program, is based on the Report of Waste Discharge, DDW's recommended conditions, the EIR, the Engineering Report, and other information in the Central Coast Water Board's files for the Project. Specifically, the technical and monitoring reports are necessary to ensure compliance with these waste discharge requirements and water recycling requirements.
- 6.3. The monitoring and reporting program is issued pursuant to Water Code section 13267, which authorizes the Central Coast Water Board to require dischargers to submit technical and monitoring reports. The Central Coast Water Board estimates the cost associated with the implementation of the monitoring and reporting requirements of the Permit range from \$250,000 to \$400,000. The Central Coast Water Board and DDW need the technical and monitoring reports submitted by Soquel Creek Water District to determine compliance with the Permit and to protect water quality and beneficial uses. The Central Coast Water Board has assessed this monitoring and reporting program to reduce and eliminate unnecessary or

overlapping monitoring and reporting requirements where appropriate. Based on the nature and possible consequences of the discharge, the burden of providing the required reports, including the costs, bears a reasonable relationship for the need for the reports and the benefits to be obtained from the reports, which include the protection of the beneficial uses of the water, and human health, and to further water supply. Monitoring frequencies, and associated costs, can be reduced after set periods of time if treatment criteria are achieved, as described in the monitoring and reporting program.

- 6.4. Title 22 requires monitoring and reporting for groundwater replenishment projects through subsurface discharge, including for indirect potable reuse through groundwater recharge. Title 22, division 4, chapter 3 establishes specific requirements for indirect potable reuse groundwater replenishment – subsurface discharge projects. The monitoring and reporting program and WRRs incorporate the monitoring and reporting requirements from title 22 sections 60320.200 through 60320.230.
- 6.5. In furtherance of the goals of supporting water supply diversity and sustainability and to encourage the increased use of recycled water in California, the Recycled Water Policy requires monitoring and reporting of volumetric data and CECs, as detailed in the monitoring and reporting program. The State Water Board uses the volumetric data to track and report the percentage of wastewater recycled throughout the State of California. The CEC monitoring tracks the Project's ability to remove CECs and requires Soquel Creek Water District to conduct additional sampling and commence response actions as needed.

7. PUBLIC PARTICIPATION

7.1. Title 22 Hearing.

Soquel Creek Water District held a public hearing regarding the Project on December 1, 2022, which satisfied the requirements of title 22 section 60320.202. A summary of the public noticing for the hearing, the hearing attendees, comments received, and responses are included in the final title 22 Engineering Report to DDW. The public hearing was held online via Zoom webinar with 13 members of the public attending. The public provided comments during the online public hearing and provided written comments via email or mail to Soquel Creek Water District.

7.2. Notification of Interested Parties

Consistent with Water Code section 13167.5, the Central Coast Water Board has notified Soquel Creek Water District and interested agencies and persons of its intent to adopt this Permit and made this Permit available on its website. Furthermore, the Central Coast Water Board has provided the public with an opportunity to submit written comments and recommendations. Notification was provided through the Central Coast Water Board website and board meeting agenda publication.

The public had access to the agenda and any changes in dates and locations through the Central Coast Water Board's website at:

<http://www.waterboards.ca.gov/centralcoast/>

7.3. Written Comments

Interested persons were notified and provided 30 days to submit written comments concerning tentative WDRs.

7.4. Public Hearing

The Central Coast Water Board held a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **Friday, December 15, 2023**
Time: **9:00 a.m.**
Location: **Central Coast Water Board
895 Aerovista Place, Suite 101
San Luis Obispo, CA 93402**

Interested persons were invited to attend. At the public hearing, the Central Coast Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested in writing.

7.5. Reconsideration of Waste Discharge Requirements

Any person aggrieved by this action of the Central Coast Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Permit at the following address, except that if the thirtieth day following the date of this Permit falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

State Water Resources Control Board
Office of Chief Counsel
P.O. Box 100, 1001 I Street
Sacramento, CA 95812-0100
Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see the [Water Quality Petitions Website](#):

(https://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml)

7.6. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received are on file and digital copies may be requested by email at RB3-WDR@Waterboards.ca.gov

7.7. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs should contact the Central Coast Water Board Waste Discharge Requirements Program by phone at (805) 549-3891 or by email at RB3-WDR@Waterboards.ca.gov, reference this facility, and provide a name, address, and phone number.

7.8. Additional Information

Requests for additional information or questions regarding this order should be directed to Central Coast Water Board Waste Discharge Requirements Program by phone at (805) 549-3891 or by email at RB3-WDR@Waterboards.ca.gov.