

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LOS ANGELES REGION**

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**ORDER NO. R4-2023-0366
(FILE NO. 20-090)
WASTE DISCHARGE REQUIREMENTS
AND
WATER RECLAMATION REQUIREMENTS
CITY OF SANTA MONICA
SUSTAINABLE WATER INFRASTRUCTURE PROJECT (SWIP)**

The following Permittee is subject to Waste Discharge Requirements (WDRs) and Water Reclamation Requirements (WRRs) set forth in this Order:

TABLE 1. PERMITTEE INFORMATION

Permittee	City of Santa Monica (City or Permittee)
Name of Facility	SWIP Advanced Water Treatment Facility (AWTF or Facility)
Facility Address	1771 Main Street Santa Monica, CA 90401

TABLE 2. ADMINISTRATIVE INFORMATION

This Order was adopted and shall become effective on:	December 21, 2023
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I, Susana Arredondo, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board), on the date indicated above.

for Susana Arredondo, Executive Officer

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The California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) finds the following:

1. BACKGROUND INFORMATION

1.1. Permittee

The City of Santa Monica (City or Permittee) is a beachside city of 8.3 square miles on the west side of Los Angeles County and borders the Santa Monica Bay. The City has a population of approximately 93,000 and produces municipal and commercial wastewater that is mostly conveyed to the Hyperion Water Reclamation Plant, owned and operated by the City of Los Angeles, Bureau of Sanitation. The City is the primary producer and purveyor of recycled water within the city and currently distributes recycled water for irrigation, street cleaning and toilet flushing. These nonpotable uses of recycled water are regulated under Order No. R4-2021-0044, adopted by the Los Angeles Water Board on February 14, 2021. The City intends to also use the recycled water for indirect potable reuse (Groundwater Replenishment Reuse Project or GRRP via subsurface application).

1.2. Sustainable Water Infrastructure Project (SWIP)

Overview

The City has developed a recycled water program to achieve long-term water self-sufficiency, create a local drought-resilient source of high-quality water, and improve water quality in the Santa Monica Bay. The Sustainable Water Infrastructure Project (SWIP) allows the City to reuse up to 1.5 million gallons per day (mgd) of stormwater, brackish groundwater, dry-weather runoff, and treated wastewater within the city. The City has been implementing the SWIP in three phases. The first and second phases of the SWIP are complete. This Order incorporates Phase 3 of the SWIP involving nonpotable reuses regulated under Order No. R4-2021-0044 and updates the existing Order to include waste discharge requirements for additional nonpotable reuses and indirect potable reuses and operation of the GRRP.

A flow diagram of the SWIP is included in Attachment B. The project consists of the following:

1.2.1. Advanced Water Treatment Facility (AWTF)

Construction and operation of an AWTF that will collect on average 1.38 mgd raw wastewater, dry-weather runoff, and stormwater from the city and produce on average 1 mgd of advanced treated recycled water for nonpotable and indirect potable reuse. The AWTF advanced treated recycled water will be mixed with treated water from the Santa Monica Urban Runoff Recycling Facility (SMURRF) before being used for nonpotable and indirect potable reuse. The construction of the AWTF was completed in September 2022, and commissioning and alarm testing occurred in April 2023.

1.2.2. Civic Center Stormwater Harvesting Tank

Construction and operation of a 1.5 million gallon below-grade stormwater harvesting tank under the City's Civic Center parking lot to convey stormwater and dry-weather runoff from the City's Municipal Separate Storm Sewer System and Civic Center parking lot to the AWTF. Construction of the Civic Center Stormwater Harvesting Tank was completed in October 2022.

1.2.3. SMURRF Upgrades

Installation of a reverse osmosis unit at the SMURRF and enclosing the ultraviolet (UV) disinfection system and final effluent basin. The SMURRF currently acts as a Best Management Practice (BMP) for stormwater management and treats both stormwater and dry weather runoff for nonpotable reuse. Since there is often insufficient stormwater and dry-weather runoff to run the SMURRF, the SMURRF influent is supplemented with potable water in order to meet the minimum flow requirements to run the system. To reduce the need for potable water, the City also plans to convey brackish water from the City's Clean Beaches Initiative (CBI) tank to the SMURRF. Section 4 includes additional information on the SMURRF processes. Upgrades to SMURRF were completed in July 2022.

1.2.4. Monitoring and Injection Wells

Installation of a groundwater injection and monitoring well network to operate the SWIP as a GRRP. Advanced treated recycled water from the AWTF and advanced treated effluent from the upgraded SMURRF will be conveyed to the injection wells through an extension of the existing recycled water pipeline. A groundwater monitoring plan will also be developed to monitor the impacts the injected water has on the groundwater basin before the GRRP begins operation. Section 1.4 includes additional information on the injection and monitoring well network. The injection well construction is anticipated to be completed in February 2024.

1.3. Facility and Project Description

The AWTF produces on average 1.0 mgd advanced treated recycled water from a mixture of raw wastewater from the City's sanitary sewer, stormwater, and dry-weather runoff, when available. The influent to the AWTF is 100% raw wastewater when no other sources are available. When stormwater or dry-weather runoff is available, the typical influent will be up to 70% raw wastewater and 30% stormwater or dry-weather runoff. If the AWTF is shut down or if the water does not meet Title 22 specifications, the wastewater will be directed to the sanitary sewer for treatment at the City of Los Angeles' Hyperion Water Reclamation Plant. If a failure occurs in the Finished Water Pump Station, flow is stored in the Effluent Equalization Tank until it is full. Once the tank is full, excess flow is diverted to the sanitary sewer. Treatment at the Santa Monica AWTF consist of headworks fine screening, Membrane Bioreactor (MBR), cartridge filtration, Reverse Osmosis (RO), Ultraviolet-Advanced Oxidation Process (UV/AOP), chlorine disinfection, and post treatment stabilization as presented below and in Attachment C1.

1.3.1. Headworks Fine Screen

To minimize the presence of inert solids such as grit, hair, and fibrous materials entering the MBR, a headworks system will screen the raw influent wastewater, stormwater and dry-weather runoff. A single 2 mm perforated drum screen with a hydraulic capacity of 1.5 mgd will provide the required screening with no possibility of unscreened bypass to downstream processes.

1.3.2. Membrane Bioreactor

After the headworks, screened influent will flow by gravity, mix with Return Activated Sludge (RAS), and enter the MBR. The MBR consists of two biological trains and two membrane trains. Each biological train will be divided into two compartments, one anoxic zone and one aerobic zone, to provide nitrification-denitrification of the wastewater along with oxidizing the wastewater. One MBR feed pump per biological train will pump the water from the aeration tank to a common MBR feed tank that allows flow into either membrane tank. RAS will flow by gravity over an overflow weir into a common RAS channel, where it will mix with screened influent and be discharged to either biological train. This mixture of RAS with influent maintains a sufficient concentration of mixed liquor suspended solids (MLSS) in the MBR. Each train is sized to provide half the capacity of the AWTF while meeting the appropriate pathogen reduction credits. Waste Activated Sludge (WAS) will be discharged to the Sump Pump Station to maintain a desired MLSS concentration within the MBR. The Sump Pump Station will ultimately discharge WAS to the downstream sanitary sewer. An automatic Clean-in-Place (CIP) system will be installed for the membranes that consists of dosing acid and/or sodium hypochlorite into the membrane tanks to remove accumulated organic matter or crystalized salts. The membranes used for the MBR system are ultrafiltration, hollow fiber membranes that have a nominal pore size of 0.04 micrometer (μm).

1.3.3. Cartridge Filtration

Cartridge filtration is typically provided upstream of RO units to protect the membranes. The cartridge filters are made of pleated microfiber media that is NSF-61 certified for removal of cyst-sized particles. Monitoring of the cartridge filters will be performed to ensure they remain within the prescribed limits for flow rate, pressure differential, and discharge turbidity. The filter vessels will have a 1-duty plus 1-standby arrangement per train so that even flow splitting is not required to maintain pathogen reduction credits. The State Water Resources Control Board Division of Drinking Water (DDW) provided a conditional acceptance letter on December 1, 2022, describing, in part, the use of Harmsco HC/170-LT2 cartridge filters to obtain pathogen reduction credit for *Giardia* and *Cryptosporidium*. The Harmsco filters were previously approved by DDW as an Alternative Filtration Technology per a conditional acceptance letter dated June 17, 2015. In April 2023, the City performed a cartridge filter challenge test and completed the *Cartridge Filter Challenge Test Report* (Cartridge Filter Test Report) in June 2023. On September 26, 2023, DDW conditionally approved the Cartridge Filter Test Report.

1.3.4. Reverse Osmosis

Following cartridge filtration, flow will pass through the RO system, which removes dissolved inorganic and organic components in the MBR filtrate. To control scaling and to protect the RO membranes, pretreatment consisting of chemical dosing with a threshold inhibitor and sulfuric acid for pH control will be provided. A CIP system and a flushing water system for the RO membranes are essential to maintain the RO performance. RO concentrate is discharged to the Sump Pump Station for disposal to the Hyperion Water Reclamation Plant via the downstream sanitary sewer.

1.3.5. Ultraviolet Light and Advanced Oxidation Process

The UV/AOP at the AWTF will consist of UV irradiation with chlorine added as an oxidant upstream of the UV trains for advanced oxidation. UV/AOP is used to disinfect RO permeate and destroy constituents of emerging concern (CECs) that pass through the RO membranes due to their low molecular weight and low ionic charge, notably N-Nitrosodimethylamine (NDMA) and 1,4-dioxane. UV/AOP effectively reduces and inactivates pathogenic microorganisms and achieves the maximum disinfection credits allowed for target microorganisms. The chlorine used for oxidation also provides the disinfectant residuals needed for further virus reduction in the downstream chlorine contact tank. The inactivation of microorganisms and reduction of micropollutants vary with the UV dose, which is a product of the UV light intensity and the exposure time, and the chlorine dose. In November 2022, the City completed the UV/AOP performance testing and completed the *Performance Test Report* (Performance Test Report). On January 11, 2023, DDW approved the Performance Test Report, including the use of "Threshold Mode" wherein both UV trains are allowed to operate with a minimum setpoint UV dose of 2,618 millijoules per centimeter squared (mJ/cm^2) and free chlorine dose of 1.1 milligrams per liter (mg/L) as Cl_2 (with a maximum allowable free chlorine dose of 3.0 mg/L as Cl_2).

1.3.6. Chlorine Disinfection

Discharge from the UV/AOP will flow to a chlorine contact tank for further virus reduction. Residual free chlorine concentration from the UV/AOP will serve as the base for chlorine concentration, with an injection point upstream of the chlorine contact tank to add additional free chlorine if higher chlorine contact time (CT) values are needed. The chlorine contact tank provides 13.2 minutes of hydraulic retention time at peak flow. In April 2023, the City completed the *Fluoride Tracer Study Report* (Tracer Study) which determined the t_{10} value and baffling factor. The Tracer Study concluded that the chlorine contact basin was able to provide the minimum required CT of 9 milligram minutes per liter ($\text{mg}\cdot\text{min}/\text{L}$) for 5.0-log reduction credits for virus and for flow rates between 0.6 and 1.2 mgd . The Tracer Study was approved by DDW on June 5, 2023.

1.3.7. Post-Treatment Stabilization

To stabilize the product water and protect the distribution system against corrosion, calcium chloride is added to the flow to adjust calcium hardness, and

sodium carbonate is added to the flow to adjust the pH before it enters the distribution system and the pipelines to the injection wells.

1.4. GRRP Injection and Monitoring Wells

The City intends to operate a GRRP via subsurface application as part Phase 3 of the SWIP. The GRRP consists of using an injection well to discharge advanced-treated recycled water from the AWTF and SMURRF effluent into the Silverado (D-Zone) and Sunnyside Aquifers of the Santa Monica Groundwater Subbasin. A map depicting the GRRP injection well SM-10i and the two groundwater monitoring wells Santa Monica Basin-1 (SMB-1) and MWi-1 is provided in Attachment C5.

1.4.1. Injection Well SM-10i and Appurtenances

Injection well SM-10i is located approximately 190 feet southwest of the intersection of Olympic Boulevard and 26th Street in the City, within the City's Olympic Well Field (Attachment C5). SM-10i was completed to a total depth of 570 feet below ground surface (ft bgs) and was perforated and screened in two intervals: 230 and 340 ft bgs (upper interval) and 505 and 550 ft bgs (lower interval). The upper interval is perforated for injection in the D-Zone and Sunnyside Aquifers, both of which are members of the San Pedro Formation. The lower interval is screened in the Pico Formation for potential future water extraction purposes. A packer assembly is installed in between the upper interval and the lower interval to isolate injection into the D-Zone and Sunnyside Aquifers. The target operational injection rate is 200 gallons per minute (gpm), equivalent to approximately 0.3 mgd. SM-10i is equipped with a variable speed submersible pump, a control system consisting of a programmable logic controller (PLC) with a human machine interface (HMI), connected to the City's central Supervisory Control and Data Acquisition (SCADA) system for remote monitoring and control, and a variable frequency drive (VFD) starter panel located at the well.

Periodic backwash operations will occur in the well for the purpose of maintenance and cleaning to remove any accumulated material within the well. During backwash, the well pump will reverse the direction of the flow in the injection well and will discharge the well fluids directly to the storm drain. The discharge of backwash fluids into the storm drain system is covered under the *Statewide NPDES Permit for Drinking Water System Discharges to Waters of the United States* (Order 2014-0194-DWQ, NPDES No. CAG140001; WDID 4DW0463). Backwash operations can either be operator initiated or initiated automatically by timer once every 30 days for approximately 15 minutes. The proposed wellhead surface piping configuration for the recharge well consists of a buried pipe connected to the main conveyance header. The above-ground pipeline will include a control valve, magnetic flow meter, check valves, butterfly valve, sodium hypochlorite chemical storage and injection system, and static mixer.

1.4.2. Transmission of Recycled Water

Product water from the AWTF and SMURRF are mixed within the City's recycled water distribution system at Ocean Avenue and Moomat Ahiko Way. The blended water will then be distributed to both the GRRP injection well SM-10i and nonpotable reuse customers.

1.4.3. Groundwater Monitoring Wells

The GRRP contains two groundwater monitoring wells: MWi-1 and SMB-1. Well MWi-1 is located at the Olympic Boulevard median, approximately 100 feet west of 26th Street. MWi-1 is situated hydraulically downgradient from injection well SM-10i and hydraulically upgradient to the nearest municipal supply well, Santa Monica No. 8 (SM-8). MWi-1 is screened in two distinct intervals: the upper interval is screened between 241 and 250 ft bgs in the D-Zone Aquifer and the lower interval is screened between 311 and 331 feet bgs in the Sunnyside Aquifer. The modeled travel time between injection well SM-10i and MWi-1 is approximately one to two months in the D-Zone and two to four weeks in the Sunnyside Aquifer. In addition to MWi-1, well SMB-1 will also be used to monitor the GRRP performance. SMB-1 was constructed by the United States Geological Survey (USGS) and is screened in between 240 and 260 ft bgs in the D-Zone Aquifer and 350 and 370 ft bgs in the Sunnyside Aquifer. The modeled travel time between SMB-1 and SM-8 is approximately one year for the D-Zone Aquifer and six months for the Sunnyside Aquifer, respectively. A tracer study will be conducted to validate the groundwater model travel time, which will be initiated once recycled water is injected into the groundwater basin.

1.4.3. Existing Production Wells

Groundwater in the Olympic Well Field is ultimately extracted and treated at the City's Arcadia Water Treatment Plant to produce potable water. The nearest municipal supply well, SM-8, is located approximately 1,400 feet northeast from injection well SM-10i. According to the City's groundwater flow model, the simulated hydraulic travel time from injection well SM-10i to SM-8 is 16 months, including a 90% capture rate in the D-Zone Aquifer and 100% capture rate in the Sunnyside Aquifer. The remaining 10% of D-Zone injected water that is not captured at SM-8 is captured at municipal supply well Santa Monica No. 4 (SM-4) in 20 or more years. The City will implement steps to provide an alternative source of drinking water supply to its residents if DDW determines that the City's GRRP results in a producing drinking water well violates a California or federal drinking water standard; has been degraded to the degree that is no longer a safe source of drinking water; or receives water that fails to meet pathogenic microorganism control specified in section 60320.208 of Title 22 of the California Code of Regulations (22 CCR).

2. RECYCLED WATER DISTRIBUTION SYSTEM

In addition to GRRP, the City plans to distribute a mixture of advanced-treated recycled water, stormwater, brackish groundwater and dry-weather runoff for nonpotable uses such as landscape irrigation and toilet/urinal flushing in dual-

plumbed systems. Table 3 below lists the recycled water users and Attachment C2 depicts the current recycled water distribution area.

TABLE 3. ADVANCED-TREATED RECYCLED WATER USERS

Recycled Water User	Facility Owner	Use Type	Address	Land Use
Tongva Park	City	Irrigation	1700 Main Street	Parks/ Open Space
Palisades Park	City	Irrigation	1250 Ocean Avenue	Parks/ Open Space
Memorial Park	City	Irrigation	1401 Olympic Boulevard	Parks/ Open Space
Municipal Cemetery	City	Irrigation	1823 15 th Street	Institutional/ Public Lands
Municipal Bus Yard	City	Irrigation	1620 6 th Street	Downtown Core
Parking Lot near Metro Station	City	Irrigation	1636 5 th Street	Institutional/ Public Lands
City Hall	City	Irrigation	1685 Main Street	Institutional/ Public Lands
Median at Olympic Boulevard	City	Irrigation	1401 – 2400 Olympic Boulevard	Public Right-of-Way
Parkway at Colorado and 11 th Street	City	Irrigation	1600 11 th Street	Public Right-of-Way
Landscape at Colorado Esplanade	City	Irrigation	224 Colorado Avenue	Public Right-of-Way
The Rand Corp	Private	Irrigation/ Dual Plumbed System	1776 Main Street	Institutional/ Public Lands
Step Up On Colorado L.P.	Private	Irrigation	520 Colorado Avenue	Downtown Core
The Waverly Owners Association	Private	Irrigation	1705 Ocean Avenue	Institutional/ Public Lands
Water Garden Company LLC	Private	Irrigation	1620 26 th Street	Office Campus
Public Safety Building	City	Dual-Plumbed System	333 Olympic Drive	Institutional/ Public Lands
City Yard	City	Irrigation/ Dual Plumbed System	2400 Michigan Avenue	Institutional/ Public Lands

3. ADVANCED-TREATED RECYCLED WATER QUALITY

The advanced-treated recycled water produced at the AWTF will meet the requirements in 22 CCR, division 4, chapter 3, article 5.2 (22 CCR Article 5.2) for indirect potable reuse: Groundwater Replenishment – Subsurface Application. The advanced treated recycled water will be higher quality than is required for nonpotable reuse applications. In addition, the advanced-treated recycled water produced at SMURRF will meet the diluent water requirements contained in 22 CCR section 60320.214.

4. SMURRF TREATED WATER QUALITY

- 4.1.** The City owns and operates the SMURRF, which currently treats stormwater, brackish groundwater and dry-weather runoff collected from the CBI project tank and Pier and Pico-Kenter drainage for nonpotable reuse. The City has been operating SMURRF since 2000 as a stormwater and dry-weather runoff Best Management Practice (BMP) covered under the Los Angeles County Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit Number CAS004001 (Order No. R4-2001-0182), which is superseded by the Regional Municipal Separate Storm Sewer System (MS4) NPDES Permit Number CAS004004 (Order No. R4-2021-0105). SMURRF is capable of producing up to 0.5 mgd of advanced-treated effluent that can be used as GRRP diluent water and for other nonpotable applications.
- 4.2.** Influent water quality to the SMURRF and CBI project tank was monitored for 341 different pollutants from November 18, 2018 to November 25, 2019 and from July 2020 to June 2021. The SMURRF and the CBI tank influent exceeded the Maximum Contaminant Levels (MCLs), or Notification Levels (NLs) for several pollutants. However, the additional treatment by reverse osmosis will reduce those pollutant concentrations to below the MCLs and NLs. The water quality of the SMURRF and CBI tank influent in wet and dry weather is similar; however, iron and manganese concentrations tend to be higher during wet weather in the SMURRF influent. PFOS and PFOA were also closely monitored to ensure the planned treatment process will be sufficient to keep the concentrations of these pollutants below their NLs. The City will continue to monitor the SMURRF and CBI tank influent to determine its suitability as diluent water.
- 4.3.** In July 2022, the City completed upgrades to SMURRF. The current treatment system at the SMURRF consists of screening, grit removal, dissolved air flotation, ultrafiltration, RO, UV disinfection, and sodium hypochlorite disinfection. Refer to Attachment C2 for the SMURRF process flow diagram. The addition of RO to the treatment system was necessary to ensure the SMURRF effluent meets Title 22 diluent water requirements before it is mixed with the AWTF product water and injected into the groundwater basin. The SMURRF effluent is required to meet all MCLs and NLs before it can be used as a diluent water.

5. GROUNDWATER BASIN

- 5.1.** The AWTF, SMURRF and GRRP are all located in the Olympic subbasin, which is within the larger Santa Monica Groundwater Subbasin (SMGB [DWR Basin No. 4-011.01]). The SMGB is one of four groundwater basins within the Coastal Plain of Los Angeles County and encompasses a surface area of approximately 50.2 square miles. The SMGB is bounded by the Newport-Inglewood Fault to the east, the Ballona Escarpment to the south and the Santa Monica Mountains to the north and the Pacific Ocean to the west. The boundaries of the basin underlie the entire city limits and extend beyond the city boundaries into those of the City of Los Angeles to the north, east, and south.

The SMGB is further subdivided into five separate subbasins, namely the Arcadia, Charnock, Coastal, Crestal, and Olympic subbasins. Refer to Attachment C4 for a map depicting each of the subbasins. The subbasin boundaries loosely coincide with major geological structural features (e.g., faults) in the SMGB, but in some cases are defined using a combination of topography, sedimentation and/or geologic faulting. The sediments/rocks within and beneath the City's portion of the SMGB are divided into two broad groups: (1) a potentially water-bearing sediments group (these deposits tend to be readily capable of absorbing, storing, transmitting and yielding groundwater to water wells) and (2) a non-water-bearing rocks group, which underlies the water-bearing sediments group and which is comprised of geologically old, lithified, or cemented sedimentary rocks and/or crystalline rocks of low permeability. Collectively, all five subbasins in the SMGB have an estimated total storage capacity of 340,000 acre-feet. Water quality data collected from the City's municipal supply wells indicates seawater intrusion is not occurring beneath the City's portion of the SMGB.

- 5.2.** The Olympic subbasin contains three distinct water-bearing formations: (in downward succession) the Holocene-aged (Recent) alluvium, the Upper Pleistocene-aged Lakewood Formation, and the Lower Pleistocene-aged San Pedro Formation. Refer to Attachment C6 for the regional and local designation of the aquifer units. The Recent alluvium has a maximum thickness of approximately 90 feet and is generally separated from the underlying San Pedro Formation by a confining layer. The Recent alluvium includes the Ballona Aquifer (locally referred to as the A-Zone Aquifer) and Bellflower Aquiclude. The Recent alluvium is not considered a viable source of groundwater for the City due to their limited areal extent, thickness, and relatively low permeability.

The Lakewood Formation, which underlies the Recent alluvium, is present in the northern half of the SMGB. All aquicludes (A/B and B/C Aquitards) in the formation have low permeability and are not considered usable sources of groundwater. The Lakewood Aquifer (locally referred to as the B-Zone Aquifer) is the only viable water-bearing unit within the Lakewood Formation.

Underlying the Lakewood Formation is the San Pedro Formation, which is the primary source of groundwater for the City. The San Pedro Formation has an average thickness of 200 feet across the SMGB and includes both the Silverado and Sunnyside Aquifers. The Silverado Aquifer contains (in downward succession) the C-Zone Aquifer, the C/D Aquitard, and the D-Zone Aquifer.

Additional fresh water bearing units like the Pico Formation underlie the San Pedro Formation. Historically, the Pico Formation was not thought to be a viable source of groundwater due to its relatively low permeability. More recent borehole test data from the Olympic subbasin of the SMGB suggests that the Pico Formation may be a locally viable source of groundwater. There are no known privately owned wells within the Olympic subbasin for the proposed GRRP operations.

6. PURPOSE OF ORDER

- 6.1.** On August 24, 2020, the City submitted a Report of Waste Discharge (ROWD) to the Los Angeles Water Board to expand AWTF advanced treated recycled water and SMURRF diluent water from nonpotable reuse to indirect potable reuse. On January 06, 2021, the Los Angeles Water Board requested the City provide additional information to complete the application. The City provided additional information on June 30 and November 9, 2021. The Los Angeles Water Board deemed the ROWD complete on May 4, 2022.
- 6.2.** Order No. R4-2021-0044, adopted by the Los Angeles Water Board on February 14, 2021, permitted the City to produce and distribute nonpotable reuse recycled water from the AWTF and SMURRF. As part of Phase 3 of the SWIP expansion, the City plans to use the AWTF advanced treated recycled water and SMURRF diluent water to inject into the D-Zone and Sunnyside Aquifers via injection well SM-10i.
- 6.3.** This Order was developed to establish the requirements for the treatment process of the AWTF, to establish requirements for GRRP operations, to establish requirements for SMURRF, and to update requirements for using the recycled water for nonpotable uses. The Title 22 Engineering Report for the nonpotable uses was conditionally accepted in 2020 and DDW's requirements were incorporated into the current permit and carried over into this Order.
- 6.4.** In August 2020, the City submitted a Title 22 Engineering Report for Phase 3 of the SWIP to the Los Angeles Water Board and DDW. The Engineering Report described the GRRP and how the proposed injection of the AWTF's advanced treated recycled water would comply with 22 CCR Article 5.2 regarding water quality and groundwater recharge using recycled water. The Engineering Report also describes how diluent water from SMURRF would comply with 22 CCR section 60320.214. The City submitted revisions to the Engineering Report in November 2021 and March 2022. A final Engineering Report was submitted in August 2022. DDW issued a conditional acceptance letter of the final Engineering Report on December 1, 2022, including recommendations to the Los Angeles Water Board to consider when developing the permit. DDW's recommendations are incorporated into this Order.
- 6.5.** This Order includes findings and requirements necessary to ensure the advanced-treated recycled water produced by the AWTF and SMURRF complies with the applicable policies. The City is responsible for producing recycled water that is at least equivalent to full advanced treatment in accordance with 22 CCR Article 5.2, processing individual end-user applications, inspecting point-of-use facilities, and ensuring end-users' compliance with the requirements contained in this Order. The actual delivery of recycled water to end-users is subject to approval by DDW and/or its delegated local health agency.
- 6.6.** This Order permits the groundwater recharge operations that will take place in the SMGB. The recycled water use areas, as well as the groundwater injection locations, are located above the SMGB in the Los Angeles Coastal Plain. The

City has submitted an amended Report of Waste Discharge and amended Antidegradation Study, as described in section 8.3 below, and waste discharge requirements in Order No. R4-2021-0044 are being amended to include requirements for the operation of the GRPP.

7. REGULATION OF RECYCLED WATER

- 7.1.** State authority to oversee recycled water use is shared by the State Water Resources Control Board (State Water Board), including DDW, and the regional water boards. DDW is the agency with the primary responsibility for establishing water recycling criteria under the California Code of Regulations (CCR) title 22 to protect the health of the public while using recycled water. The State Water Board and the regional water boards are responsible for issuing WDRs and WRRs for water that is used or proposed to be used as recycled water.
- 7.2.** On January 6, 1977, the State Water Board adopted Resolution No. 77-1, Policy with Respect to Water Reclamation in California, which includes principles that encourage and recommend funding for water recycling and its use in water-short areas of the state. On September 26, 1988 the Los Angeles Water Board also adopted Resolution No. 88-012, which encourages the beneficial use of recycled wastewater and supports water recycling projects.
- 7.3.** The State Water Board adopted the Water Quality Control Policy for Recycled Water (Recycled Water Policy, State Water Board Resolution No. 2009-0011) on February 3, 2009 and amended the Policy on January 22, 2013 (State Water Board Resolution No. 2013-0003). The Recycled Water Policy was further amended and adopted on December 11, 2018 (State Water Board Resolution No. 2018-0057) by the State Water Board and approved by the Office of Administrative Law (OAL) on April 08, 2019. In part, the purpose of the Recycled Water Policy is to increase the beneficial use of recycled water from municipal wastewater sources in a manner consistent with state and federal water quality laws and regulations and to protect groundwater resources. This Order includes requirements consistent with the Recycled Water Policy.
- 7.4.** In section 4 of the amended Recycled Water Policy (Resolution No. 2018-0057), the State Water Board and the regional water boards are the two primary agencies with jurisdiction over the use and regulation of recycled water. The State Water Board:
 - establishes general policies governing the permitting of recycled water projects,
 - develops uniform water recycling criteria appropriate to particular uses of water and processes,
 - approves wastewater change petitions filed by wastewater dischargers for recycled water projects that have the potential to decrease flow in any portion of a watercourse such as a river or stream,
 - adopts statewide orders for the permitting of recycled water projects,

- reviews and approves Title 22 engineering reports for recycled water use, and
- allocates and disperses funding for recycled water projects consistent with its roles of protecting water quality, public health, and sustaining water supplies.

The State Water Board also exercises general oversight of recycled water projects, including review of regional water board permitting practices.

The regional water boards issue permits that include requirements needed to protect water quality, human health, and the environment consistent with the State and Regional Water Quality Control Plans, policies, and applicable law. The regional water boards also exercise their authority to encourage the use of recycled water.

- 7.5.** California Water Code (CWC or Wat. Code) section 13523(a) provides that a regional water board, after consulting with and receiving recommendations from DDW or its delegated local health agency, and after any necessary hearing, shall, if it determines such action to be necessary to protect the health, safety, or welfare of the public, prescribe WRRs for water that is used or proposed to be used as recycled water. CWC section 13523 further provides that, at a minimum, the WRRs shall include, or be in conformance with, the statewide water recycling criteria established by the State Water Board pursuant to CWC section 13521.
- 7.6.** CWC section 13523.5, on WRRs, states that a regional water board may not deny issuance of WRRs to a project that violates only a salinity standard in a Basin Plan. This provision does not apply to WDRs. WDRs for projects that recycle water may contain effluent and other limitations on discharges of salts, as necessary to meet water quality objectives, comply with the Antidegradation Policy or otherwise protect beneficial uses. This is particularly relevant here, where a protected beneficial use is Agricultural Supply, which is sensitive to discharges of salts.
- 7.7.** Pursuant to CWC section 13523, the Los Angeles Water Board has consulted with DDW regarding the proposed recycling project and has incorporated its recommendations into this Order. Final as-built plans and final DDW approvals are required prior to commencing delivery of recycled water for reuse.
- 7.8.** Section 7.4 of the Recycled Water Policy states that site-specific groundwater monitoring shall not be required for irrigation projects where recycled water is applied at rates that minimize percolation of recycled water below the plants' root zone and account for the nutrient levels in the recycled water and nutrient demand by plants when applying fertilizers. The Recycled Water Policy also includes exceptions to this exemption from groundwater monitoring including when a regional water board determines there are unique site-specific conditions or such project-specific monitoring is required under the accepted salt and nutrient management plan, applicable basin plan, or other water board program such as the Irrigated Lands Program. Unique site-specific conditions

include but are not limited to recycled water that is proposed to be used for irrigation over high transmissivity soils over a shallow (5 feet or less) high quality groundwater aquifer or proposed to be stored in unlined ponds where the regional water board determines that it will result in an unacceptable threat to groundwater quality. This Order is being issued without site-specific groundwater monitoring since the irrigation permitted under this Order requires the recycled water to be applied at rates that minimize percolation below the plants' root zone. The exceptions to the exemption do not apply because there are no site-specific conditions that may result in an unacceptable threat to groundwater quality when recycled water is used in compliance with this Order.

- 7.9.** It is the intent of the recycled water policy for salts and nutrients to be addressed regionally rather than imposing requirements solely on individual recycled water projects. Section 6.1.2 of the Recycled Water Policy states, "Salts and nutrients from all sources must be managed on a basin-wide or watershed-wide basis in a manner that ensures attainment of water quality objectives and protection of beneficial uses. The most effective way to address salt and nutrient loading is typically through the development of regional or subregional salt and nutrient management plans rather than imposing requirements solely on individual recycled water projects or other individual sources of salts and nutrients."
- 7.10.** A goal of the Recycled Water Policy is to increase the beneficial use of recycled water from municipal wastewater sources in a manner consistent with state and federal water quality laws and regulations. The Recycled Water Policy directs the regional water boards to collaborate with generators of municipal wastewater and interested parties in the development of SNMPs to manage loadings of salts and nutrients to groundwater basins in a manner that is protective of beneficial uses, thereby supporting the sustainable use of local waters. The City is currently developing a Salt and Nutrient Management Plan for the Santa Monica Groundwater Subbasin. Since there is no SNMP for the Santa Monica Groundwater Subbasin currently, the City has provided an Antidegradation Study of the recycled water, as described in section 8.3 below.

8. OTHER APPLICABLE PLANS, POLICIES AND AUTHORITIES

8.1. THE BASIN PLAN

8.1.1. The *Water Quality Control Plan for the Los Angeles Region: Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties* (Basin Plan) designates beneficial uses for surface and groundwater; establishes narrative and numeric water quality objectives that shall be attained or maintained to protect the designated (existing and potential) beneficial uses and conform to the State's antidegradation policy; and includes implementation provisions, programs, and policies to protect all waters in the region. In addition, the Basin Plan incorporates all applicable State Water Board and the Los Angeles Water Board plans and policies and other pertinent water quality policies and regulations.

8.1.2. The Basin Plan incorporates the primary MCLs found in the California Code of Regulations by reference. This incorporation is prospective, including future changes to the incorporated provisions as the changes take effect. Groundwater designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents and radionuclides greater than the MCLs. The Basin Plan also specifies that groundwaters shall not contain taste or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

8.1.3. The Basin Plan contains water quality objectives for groundwater in the Santa Monica Subbasin of the Coastal Plain of Los Angeles. The beneficial uses of the receiving groundwater basin are as follows:

TABLE 4. BENEFICIAL USES OF GROUNDWATER

Receiving Water Name	Beneficial Uses
Coastal Plain of Los Angeles (Santa Monica Subbasin; Department of Water Resources (DWR) Basin No. 4-11.01)	Existing Beneficial Uses: Municipal and domestic water supply (MUN); industrial service supply (IND); industrial process supply (PROC); and agricultural supply (AGR).

8.1.4. The limitations contained in this Order are intended to protect these uses and maintain water quality in this subbasin. Since MUN is a beneficial use, limitations are based on primary and secondary drinking water MCLs in the Domestic Water Quality and Monitoring Regulations, 22 CCR, division 4, chapter 15, as well as Basin Plan objectives. These limitations are necessary to ensure the protection of public health and the use of the groundwater basin for domestic supply.

8.1.5. The Basin Plan water quality objectives for salts in the Santa Monica Groundwater Subbasin are:

TABLE 5. GROUNDWATER QUALITY OBJECTIVES FOR SALTS

Basin	DWR Basin No.	TDS (mg/L)	Sulfate (mg/L)	Chloride (mg/L)	Boron (mg/L)
Coastal Plain of Los Angeles Santa Monica	4-11.01	1,000	250	200	0.5

8.2 PORTER-COLOGNE WATER QUALITY CONTROL ACT

8.2.1. CWC section 13263 requires that the regional water boards prescribe requirements as to the nature of any discharge to waters of the State, implementing any relevant water quality control plan and taking into consideration beneficial uses, water quality objectives, and the need to prevent nuisance.

8.2.2. Pursuant to CWC section 13263(g), discharges of waste into water of the state are privileges, not rights. Nothing in this Order creates a vested right to continue the discharge. CWC section 13263 authorizes the regional water boards to issue waste discharge requirements that implement any relevant water quality control plan.

8.2.3. This Order includes limits on quantities, rates, and concentrations of chemical, physical, biological, and other constituents in the advanced treated recycled water produced at the AWTF and advanced treated effluent produced at SMURRF that are used for injecting into the groundwater aquifer.

8.2.4. DDW has established Notification Levels (NLs) for constituents in drinking water that warrant notification. NLs are established as precautionary measures for contaminants that may be considered candidates for establishment of MCLs but have not yet undergone or completed the regulatory standard process prescribed for the development of MCLs and are not drinking water standards. A list of these constituents and their current associated NLs is provided in Table E-11 of the MRP and Attachment G, respectively. A response level is the concentration of a contaminant in drinking water delivered for human consumption at which DDW recommends that additional steps beyond notification be taken to reduce public exposure to the contaminant. For example, NDMA includes an NL of 10 ng/L and a response level of 300 ng/L.

8.2.5. CWC section 13267 authorizes the Los Angeles Water Board to require technical and monitoring reports. The attached MRP establishes monitoring and reporting requirements to implement federal and state requirements.

8.2.6. The need for technical and monitoring reports required by this Order, including the MRP, is based on the Report of Waste Discharge (ROWD) and Engineering Report; the recommendations from DDW; and other information in the Los Angeles Water Board's files for the facility. The technical and monitoring reports are necessary to assure compliance with this Order. The burden, including costs, of providing the technical reports required by this Order bears a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. Specifically, the required monitoring is needed to confirm that operation of the AWTF meets the parameters of this Order and complies with the Basin Plan, thus protecting human health, including drinking water supplies, and the environment.

8.2.7. Pursuant to CWC section 13320, any aggrieved party may seek review of this Order by filing a petition with the State Water Board in accordance with CCR, title 23, sections 2050-2068. The State Water Board must receive the petition by 5:00 p.m., within 30 days after adoption of this Order, except that if the thirtieth day following the date of this Order 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. [Copies of the law and regulations applicable to filing petitions \(http://waterboards.ca.gov/public_notices/petitions/water_quality\)](http://waterboards.ca.gov/public_notices/petitions/water_quality) may be found on the State Water Boards' website.

8.2.8. The Los Angeles Water Board has notified the City, interested agencies, and persons of its intent to issue this Order for the production and use of recycled water and has provided them with an opportunity to submit written comments. The Los Angeles Water Board, in a public hearing, heard and considered all comments pertaining to this Order. (Wat. Code § 13263.)

8.3 ANTIDegradation POLICY

8.3.1. On October 28, 1968, the State Water Board adopted Resolution No. 68-16, Statement of Policy with Respect to Maintaining High Quality of Waters in California (Resolution 68-16), establishing an Antidegradation Policy for the State Water Board and regional water boards. Resolution 68-16 requires the regional water boards, in regulating discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality (1) will be consistent with maximum benefit to the people of the State, (2) will not unreasonably affect beneficial uses, and (3) will not result in water quality less than that prescribed in the regional water board's policies. Resolution 68-16 requires the discharge to be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained. The Los Angeles Water Board's Basin Plan incorporates, by reference, the state antidegradation policy. This Order ensures the recycled water will not unreasonably affect beneficial uses of the SMGB and will not result in water quality less than prescribed in Los Angeles Water Board policies because it includes recycled water limitations for salts and nutrients equivalent or more stringent than the groundwater quality objectives. This Order also requires recycled water to be applied to land at agronomic rates, further limiting the amount of recycled water that percolates into the SMGB.

8.3.2. Section 7.2.2 of the Recycled Water Policy requires that, "for non-potable recycled water projects ineligible or inappropriate for enrollment under statewide water reclamation requirements, project proponents must submit an antidegradation analysis to the regional water board with the report of waste discharge to demonstrate compliance with the Antidegradation Policy." The City submitted an Antidegradation Study on May 05, 2020 and the Los Angeles Water Board requested revisions to the study on July 24, 2020. The City submitted a revised Antidegradation Study on November 09, 2021. After review, the Los Angeles Water Board requested revisions to the revised study on December 21, 2021. The City submitted the final Antidegradation Study on February 02, 2022 and the study adequately evaluates the potential impacts of the proposed activities associated with nonpotable and indirect potable reuses of the recycled water in compliance with the Antidegradation Policy.

8.3.3. This Order regulates recycled water discharges to the SMGB. The SMGB contains high quality water, as described in section 8.3.6 below. To the extent use of recycled water for nonpotable and indirect potable reuses may result in the discharge to the SGMB, this Order authorizes limited degradation consistent with the Antidegradation Policy as described in the findings below.

The analysis is based on the information provided in the Antidegradation Study dated January 2022. A SNMP is currently being developed for the Santa Monica subbasin in accordance with the Recycled Water Policy, which will require ongoing analysis to evaluate inputs into the basin, the salt and nutrient mass balance, and the available assimilative capacity.

8.3.4. This Order requires best practicable treatment and control, which is a combination of advanced treatment, storage, and application methods that implement the requirements of 22 CCR and the Basin Plan. Recycled water is generated by treating domestic wastewater adequately to make the water suitable for direct beneficial use that would not otherwise occur. The required level of treatment in this Order corresponds to the proposed use of recycled water for indirect potable and nonpotable uses. This Order includes requirements regarding the storage, application and monitoring of recycled water to protect water quality and to limit public contact with recycled water, as appropriate. In addition to the level of treatment, this Order requires the City to implement control measures, such as automated alarms and shutdowns at the AWTF and SMURRF, during the production and application of nonpotable and indirect potable uses of recycled water. These requirements will assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.

8.3.5. The SWIP, including the AWTF, increases the use of local supplies by reusing water that would otherwise flow to the ocean via the Hyperion Water Reclamation Plant or the storm drain system without supporting beneficial uses during transmission. The application of recycled water to replenish the SMGB increases the local water supply and reduces the City's dependence on imported water. In addition, the use of recycled water in place of potable water supplies for the nonpotable uses allowed under this Order improves local water supply availability and climate change resiliency.

8.3.6. As part of the Antidegradation Study dated January 2022, the City collected five groundwater samples between 2017 and 2020, and monthly sampling data from two groundwater monitoring wells MWi-1 and SMB-1 between October 2020 and September 2021, and had them analyzed for salts and nutrients. The data collected indicates that the average concentrations of chloride (57 mg/L), sulfate (104 mg/L), TDS (524 mg/L), boron (0.131 mg/L), nitrate (1.447 mg/L), nitrite (0.100 mg/L), and nitrate plus nitrite (1.528 mg/L) in the D-Zone and Sunnyside Aquifers are all below the water quality objectives in the Basin Plan for chloride (200 mg/L), sulfate (250 mg/L), TDS (1,000 mg/L), boron (0.5 mg/L), nitrate (10 mg/L), nitrite (1 mg/L), and nitrate plus nitrite (10 mg/L).

A conservative estimate (assuming 100 percent brackish groundwater sourced to and treated by SMURRF and disregarding any impact of dilution by stormwater) of the blended advanced-treated recycled water indicates concentrations of 63 mg/L chloride, 4.6 mg/L sulfate, 184 mg/L TDS, 0.24 mg/L boron, 0.63 mg/L nitrate, <0.1 mg/L nitrite, and 0.6 mg/L nitrate plus nitrite.

Based on these conservative estimates, the advanced-treated recycled water is expected to have lower concentrations of TDS, nitrate, nitrate plus nitrite and sulfate but higher concentrations of boron (0.24 mg/L vs 0.131 mg/L) and chloride (63 mg/L vs 57 mg/L) than the current groundwater quality.

8.3.6.1. Since the concentrations of TDS, sulfate, nitrate plus nitrite, and nitrate in the advanced-treated recycled water are all below the concentrations of these constituents in the groundwater basin, the advanced-treated recycled water will not use any of the available assimilative capacity of the groundwater basin for these constituents, and the recycled water is expected to improve the water quality of the D-Zone and Sunnyside Aquifers.

8.3.6.2. The concentrations of boron and chloride in the advanced-treated recycled water are expected to be far below their respective water quality objectives for the groundwater basin, but both constituents are slightly over the concentrations currently present in the groundwater basin. However, neither boron nor chloride are expected to deplete 10 percent of its assimilative capacity by mass in 10 years. This Order requires the advanced-treated recycled water produced at the AWTF and diluent water from SMURRF to meet all drinking water MCLs and NLs in the California Code of Regulations for the protection of human health and the MUN beneficial use of the groundwater basin. The advanced-treated recycled water is also currently used for irrigation and is not expected to impact the AGR beneficial uses when injected into the groundwater basin because the advanced-treated recycled water has lower salt concentrations than imported water. Any increase in the boron and/or chloride concentrations in the groundwater basin are to the maximum benefit of the people of the state because the advanced-treated recycled water is required to meet the NL for boron and secondary MCL for chloride for the protection of human health and the water will reduce the need for imported water. Since irrigation with recycled water reduces the amount of potable water used for irrigation, any degradation from chloride and TDS from the limited percolation that may occur from irrigation is consistent with the maximum benefit to the people of the State due to the limited potable water supply. In addition, any advanced treated recycled water that is extracted from the groundwater basin will be further treated at the City's Arcadia Water Treatment Plant before being delivered for potable use. The advanced-treated recycled water must also meet the Basin Plan water quality objective for boron, so injection of the advanced-treated recycled water to the groundwater basin will not result in water quality less than prescribed in the applicable policies.

As required by the Antidegradation Policy, the Los Angeles Water Board finds that the limited degradation of groundwater with respect to boron and chloride that may occur as the result of using the advanced-treated recycled water for the nonpotable and indirect potable reuses permitted under the conditions of this Order provides maximum benefit to the people of California, provided the

recycled water treatment and use are managed to ensure long-term reasonable protection of beneficial uses to waters of the State.

8.3.7. 22 CCR imposes limitations on the uses of recycled water, based on the level of treatment and the specific use to protect public health. By restricting the use of recycled water to those meeting the requirements in 22 CCR, this Order ensures the water will be used safely. To the extent that the use of recycled water may result in some waste constituents entering the environment after effective source control, advanced treatment and other control measures are implemented, the conditions of this Order limiting the use of recycled water to agronomic rates is part of the suite of treatment, storage, and application measures that comprise best practical treatment and control for irrigation. Other types of uses that may be approved such as toilet/urinal flushing in dual-plumbed systems, dust control, and other short-term or infrequent applications are unlikely to result in sufficient loading of waste constituents that impact water quality.

8.3.8. Constituents associated with recycled water that have the potential to degrade groundwater include salinity, nutrients, pathogens (represented by coliform bacteria), disinfection byproducts (DBPs), constituents of emerging concern (CECs), and endocrine disrupting chemicals (EDCs). The Los Angeles Water Board finds that the use of recycled water permitted under this Order will not unreasonably affect beneficial uses or result in water quality that is less than that is described in the applicable policies. The characteristics and requirements associated with each of the recycled water constituents of concern are discussed below:

8.3.8.1. Human activities and land use practices can influence inorganic constituents in groundwater. Abnormally high levels of inorganic constituents (such as TDS, chloride, sulfate, and boron) can impair and preclude beneficial uses. This Order requires the advanced-treated recycled water from the AWTF and diluent water from SMURRF to meet the mineral water quality objectives for the Santa Monica Groundwater Subbasin. These final effluent imitations are also within the secondary MCL “Consumer Acceptance Contaminant Level Ranges” in 22 CCR section 64449 (for TDS, chloride, and sulfate) and below the notification level for boron. The AWTF will remove salts using a reverse osmosis system. Although the water delivered to customers for irrigation will be a mixture of advanced-treated recycled water from the AWTF and stormwater and dry-weather runoff treated by the SMURRF, and potable water when alternate water supplies are insufficient to meet the demand, the main source of water will be the advanced-treated recycled water from the AWTF. Since stormwater and dry-weather runoff have low salt concentrations and the majority of water used for irrigation is from the AWTF, and the fact that the advanced-treated recycled water is required to meet the water quality objectives for salts, the use of nonpotable water for irrigation in the Land Use Area will not impair the beneficial uses of groundwater in the SMGB.

8.3.8.2. Nitrogen is a nutrient that may be present in recycled water. High nitrate levels in drinking water can cause health problems in humans. Infants are particularly sensitive and can develop methemoglobinemia (blue-baby syndrome). Human activities and land use practices can also influence the nitrogen concentration in groundwater. The AWTF is designed to remove nitrogen from wastewater using a membrane bioreactor and reverse osmosis system. The AWTF will reduce the concentration of nitrogen compounds below the primary MCLs and Basin Plan objectives, as required in this Order. The discharge limitations in this Order for nitrate, nitrite, and the sum of nitrate and nitrite are based on the regional objectives for groundwater in the Basin Plan and the MCLs for nitrate, nitrite, and the sum of nitrate and nitrite in 22 CCR section 64431. In addition, this Order requires application of recycled water to take into consideration nutrient levels in recycled water and nutrient demand by plants. Application of recycled water at agronomic rates and considering soil, climate, and plant demand minimizes the movement of nutrients below the plants' root zone. When applied to cropped (or landscaped) land, some of the nitrogen in recycled water will be taken up by the plants, lost to the atmosphere through volatilization of ammonia or denitrification, or stored in the soil matrix. As a result, nitrogen will not impair an existing and/or potential beneficial use of groundwater.

8.3.8.3. Pathogens and other microorganisms may be present in recycled water based on the disinfection status. Coliform bacteria are used as a surrogate (indicator) because they are present in untreated wastewater, survive in an environment similar to pathogenic bacteria, and are easy to detect and quantify. Pathogens are generally limited in their mobility when applied to land.

The AWTF includes multiple systems that are engineered to remove pathogenic microorganisms, including a membrane bioreactor, cartridge filters, reverse osmosis, UV/AOP, and chlorine disinfection. The recycled water will meet the pathogenic microorganism requirements in accordance with 22 CCR section 60320.208.

In addition, setbacks from recycled water use areas are required in 22 CCR as a means of reducing pathogenic risks by coupling pathogen inactivation rates with groundwater travel time to the City's municipal water supply well or other potential exposure route (e.g. water contact activities). In general, a substantial unsaturated zone reduces pathogen survival compared to saturated soil conditions. Fine grained soil particles (silt or clay) reduce the rate of groundwater transport and therefore are generally less likely to transport pathogens. Setbacks also provide attenuation of other recycled water constituents through physical, chemical, and biological processes.

8.3.8.4. Disinfection by-products (DBPs) consist of organic and inorganic substances produced by the interaction of chemical disinfectants with naturally occurring substances in the water source. Common disinfection

by-products include trihalomethanes, haloacetic acids, bromate, and chlorite. DBPs present in wastewater will be reduced by treatment at the AWTF and the recycled water will receive additional treatment when applied to land. Biodegradation, adsorption, volatilization, and other attenuative processes that occur naturally in soil will reduce the concentrations and retard migration of DBPs in the subsurface. Since the treatment train minimizes the amount of organics, inorganics, and chlorine in the product water, DBPs are not expected to exceed any MCLs in the recycled water. Nonetheless, DBPs with primary MCLs (chloroform, bromodichloromethane, chlorodibromomethane, and bromoform) are still required to be monitored in this Order to ensure the concentrations do not exceed the MCLs.

8.3.8.5. Chemicals of Emerging Concern (CECs) in recycled water as defined in the Recycled Water Policy are chemicals in personal care products, pharmaceuticals including antibiotics, antimicrobials; industrial, agricultural, and household chemicals; hormones; food additives; transformation products, inorganic constituents; and nanomaterials. CECs are new classes of chemicals, diverse, and relatively unmonitored chemicals. Many of them are so new that standardized measurement methods and toxicological data for interpreting their potential human or ecosystem health effects are unavailable. The State Water Board convened a CEC Advisory Panel to address questions about regulating CECs with respect to the use of recycled water. The Panel's primary charge was to provide guidance for developing monitoring programs that assess potential CEC threats from various water recycling practices, including groundwater recharge/reuse and urban landscape irrigation. The Panel provided recommendations for monitoring specific CECs in recycled water used for groundwater recharge reuse. The RO system of the AWTF is expected to reduce the concentration of some CECs in the recycled water. CEC monitoring requirements are included in this Order and are consistent with the Recycled Water Policy.

8.3.8.6. Endocrine disrupting chemicals (EDCs) are mostly man-made, found in various materials such as pesticides, metals, additives, or contaminants in food, and personal care products. Human exposure to EDCs occurs via ingestion of food, dust and water, via inhalation of gases and particles in the air, and through the skin. The RO system of the AWTF is expected to reduce the concentration of EDCs in the recycled water prior to distribution and this Order requires proper operation and maintenance of all treatment facilities and control systems; therefore, the discharge is not expected to cause degradation with respect to EDCs.

8.3.9. Using recycled water for nonpotable and indirect potable reuses are to the maximum benefit to the people of the State. The use of recycled water for irrigation, dual-plumbed systems, and recharge groundwater using recycled water reduce the region's dependence on imported potable water.

8.3.10. With regard to the land application areas, application of recycled water for irrigation is limited to agronomic rates and therefore is not expected to significantly impact groundwater quality or degrade the beneficial uses of groundwater in the SMGB. To further limit the extent of any degradation, the recycled water is also required to meet the groundwater quality objectives in the Basin Plan for salts and nutrients. To the extent there is any degradation, the use of recycled water for irrigation is to the maximum benefit to the people of the State and the application in accordance with agronomic rates, in addition to the advanced treatment provided by the AWTF, constitutes best practicable treatment and control.

8.4. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA) AND NOTIFICATION

The City circulated a draft Initial Study/ Mitigated Negative Declaration (IS/MND) for the SWIP for a 30-day public review from July 19, 2016 to August 20, 2016. City staff prepared written responses to all comments and presented those comments and responses in the final IS/MND. The final IS/MND, the Mitigation Monitoring and Reporting Plan and the National Environmental Policy Act (NEPA) documents (i.e. CEQA-Plus) for the SWIP were certified by the Santa Monica City Council on September 27, 2016, and the Notice of Determination was filed at the State Clearinghouse on September 30, 2016. The final IS/MND determined that the proposed SWIP would not result in significant impacts to the environment with the incorporation and implementation of mitigation measures in the areas of biological resources, cultural resources, and construction effects. Mitigation measures include the use of cultural resource monitors during earth-disturbing activities and biological resource monitoring (birds and bats) during construction. Construction effects will be mitigated by adherence to City Municipal Code pertaining to work hours. Less than significant or no impacts would occur with respect to aesthetics/shadows, agriculture and forestry resources, air quality, greenhouse gas emissions, hydrology and water quality, land use and planning, mineral resources, population and housing, and public services, utilities, and mandatory findings of significance. To ensure mitigation measures are properly implemented, a Mitigation Monitoring and Reporting Program has been prepared and will be executed during construction and operation of the SWIP. The proposed mitigation measures are provided in the final IS/MND.

The Los Angeles Water Board, as a responsible agency under CEQA, finds that all environmental effects have been identified for project activities that it approves, and that the Project will not have significant adverse impacts on the environment provided that the mitigation presented in the final CEQA-Plus documents is carried out as conditioned in this Order. In adopting this Order, the Los Angeles Water Board has eliminated or substantially lessened the less-than-significant effects on water quality, and therefore approves the project.

8.5 SAFE DRINKING WATER ACT

Pursuant to CWC 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. This Order promotes that policy by reducing the demand for potable water and requiring that the advanced-treated water meets all applicable MCLs and water quality objectives to protect human health.

8.6 ENVIRONMENTAL JUSTICE AND ADVANCING RACIAL EQUITY

The Los Angeles Water Board is committed to developing and implementing policies and programs to advance racial equity and environmental justice so that race can no longer be used to predict life outcomes, and outcomes for all groups are improved. Effective January 1, 2023, Water Code section 13149.2 requires the regional water boards to make a finding considering the potential environmental justice, tribal impact, and racial equity impacts when issuing or reissuing individual waste discharge requirements or waivers of waste discharge requirements that regulate activity or a facility that may impact a disadvantaged or tribal community, and that includes a time schedule in accordance with subdivision (c) of Section 13263 for achieving an applicable water quality objective, an alternative compliance path that allows time to come into compliance with water quality objectives, or a water quality variance. Under Water Code section 13149.2, subdivision (c), for permit reissuances, “the finding may be limited to considerations related to any changes to the requirements of the prior waste discharge requirements...”

This Order does not include a time schedule, alternative compliance path, or variance. Therefore, Water Code section 13149.2 does not apply to this permit issuance. Nevertheless, the Los Angeles Water Board anticipates that the issuance of this Order will not result in water quality impacts to disadvantaged or tribal communities because the Order requires the Permittee to meet water quality standards to protect public health and the environment.

Water Code section 189.7 requires the Los Angeles Water Board to conduct outreach in affected disadvantaged and/or tribal communities. This Order regulates discharge that does not disproportionately impact the water quality of an economically disadvantaged community defined at Water Code section 189.7(d)(1). According to the 2021 U.S. Census, the median household income (MHI) for Santa Monica was \$99,849, which is 18.7% above the state MHI (\$84,097). Since Santa Monica’s MHI is not less than 80% of the state’s MHI, it is not considered to be economically disadvantaged. The area (Census Tract No. 6037701902) surrounding the AWTF and SMURRF has an overall Cal EnviroScreen 4.0 score of 81 and a pollution burden score of 81, which indicates that the surrounding community may be disproportionately burdened by pollution.

This Order may impact tribal communities. Therefore, the Los Angeles Water Board has conducted outreach per Water Code section 189.7 by reaching out

to tribal communities about this Order. The Los Angeles Water Board reached out to the Native American Heritage Commission to determine the tribes that may be impacted by this project and the tentative order was sent to each tribal representative.

THEREFORE, IT IS HEREBY ORDERED that Order No. R4-2021-0044 is hereby rescinded upon the effective date of this Order except for enforcement purposes, and in order to meet the provisions contained in division 7 of the CWC (commencing with section 13000) and regulations and guidelines adopted thereunder, and CCR, title 22, division 4, chapter 3, the City shall comply with the requirements in this Order.

9. INFLUENT SPECIFICATIONS

The influent to the AWTF shall be raw wastewater, stormwater and dry-weather runoff from the City of Santa Monica as described in this Order. The raw wastewater is primarily from residential and commercial users. The City of Santa Monica shall maintain an active pretreatment program to control pollutants that may interfere with treatment or pass through the AWTF.

10. RECYCLED WATER TREATMENT SPECIFICATIONS

Treatment of recycled water shall be as described in the findings of this Order and as described in DDW’s conditional approval letters issued on August 19, 2020 for nonpotable uses and December 1, 2022 for GRRP (Attachment F).

11. RECYCLED WATER DISCHARGE LIMITATIONS

Refer to section 12 of this Order for additional information concerning the rationale for the limitations for turbidity, constituents with primary MCLs, constituents with secondary MCLs, constituents with notification levels, pathogenic microorganism, total organic carbon, nitrogen compounds, radioactivity, total coliform, salts, and nutrients.

11.1. Nonpotable Uses

The advanced-treated recycled water produced at the AWTF for nonpotable uses such as landscape irrigation and dual-plumbed systems shall not contain constituents in excess of the following limitations, with compliance measured at Monitoring Location EFF-001 as described in the MRP, Attachment E.

TABLE 6. DISCHARGE LIMITATIONS NONPOTABLE USES

Constituents	Units	Average Monthly	7-day Median	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Notes
Oil and Grease	mg/L	10	---	15	---	---	---
Total coliform	MPN/100 mL	23	2.2	---	---	240	a
pH	Units	---	---	---	6.5	8.5	---

Constituents	Units	Average Monthly	7-day Median	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Notes
Turbidity	NTU	---	---	0.2	---	0.5	b
Total Dissolved Solids	mg/L	---	---	1,000	---	---	---
Chloride	mg/L	---	---	200	---	---	---
Sulfate	mg/L	---	---	250	---	---	---
Boron	mg/L	---	---	0.5	---	---	---
Nitrate-N + Nitrite-N (as Nitrogen)	mg/L	---	---	10	---	---	---
Nitrate as Nitrate	mg/L	---	---	45	---	---	---
Nitrate as Nitrogen	mg/L	---	---	10	---	---	---
Nitrite as Nitrogen	mg/L	---	---	1	---	---	---

Footnotes for Table 6

- a. The median concentration of total coliform bacteria measured in the disinfected effluent shall not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria shall not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period. No sample shall exceed an MPN of 240 total coliform per 100 milliliters (22 CCR section 60301.230).
- b. The turbidity of the treated effluent shall not exceed any of the following: 1) 0.2 NTU more than 5% of the time (72 minutes) within a 24-hour period, 2) 0.5 NTU at any time (22 CCR section 60301.320). The turbidity limit must be met in the filtered effluent, prior to disinfection, per 22 CCR section 60301.320(b).

End of footnotes for Table 6

11.2. Subsurface Application

The advanced-treated recycled water produced at the AWTF and SMURRF for subsurface application shall not contain constituents in excess of the following limitations in Tables 7 and 8, with compliance measured at Monitoring Locations EFF-001 and SM-EFF-001 as described in the MRP, Attachment E.

TABLE 7. DISCHARGE LIMITATIONS SUBSURFACE APPLICATION

Constituents	Units	Average Monthly	Average Weekly	Maximum Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Notes
Total Coliform	MPN/100 mL	--	---	1.1	---	---	---	---
pH	Units	---	---	---	---	6.5	8.5	---

Constituents	Units	Average Monthly	Average Weekly	Maximum Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	Notes
Turbidity	NTU	---	---	---	0.2	---	0.5	a
Total Dissolved Solids	mg/L	---	---	---	1,000	---	---	---
Chloride	mg/L	---	---	---	200	---	---	---
Sulfate	mg/L	---	---	---	250	---	---	---
Boron	mg/L	---	---	---	0.5	---	---	---
Total Nitrogen	mg/L	---	10	---	---	---	---	---
Nitrate-N + Nitrite-N (as Nitrogen)	mg/L	10	---	---	---	---	---	---
Nitrate as Nitrate	mg/L	45	---	---	---	---	---	---
Nitrate as Nitrogen	mg/L	10	---	---	---	---	---	---
Nitrite as Nitrogen	mg/L	1	---	---	---	---	---	---
Lead	mg/L	0.015	---	---	---	---	---	---
Copper	mg/L	1.0	---	---	---	---	---	---
Total Organic Carbon (TOC)	mg/L	0.5	---	---	---	---	---	---

Footnotes for Table 7

a. The turbidity of the treated effluent shall not exceed any of the following: (a) 0.2 NTU more than 5 percent of the time (72 minutes) within a 24-hour period; and (b) 0.5 NTU at any time. For meeting pathogen LRVs for GRRP and per DDW's conditional acceptance letter, the turbidity limit must be met in the MBR effluent.

End of footnotes for Table 7

TABLE 8. DISCHARGE LIMITATIONS PATHOGENIC MICROORGANISM CONTROL

Parameter	Units	Limitation	Notes
<i>Giardia</i> cyst	log reduction	10	a
<i>Cryptosporidium</i> oocyst	log reduction	10	a
Enteric virus	log reduction	12	a

Footnotes for Table 8

a. Compliance shall be determined in accordance with 22 CCR section 60320.208 and the approved Operation Optimization Plan (OOP). See MRP Section 1.21.

End of footnotes for Table 8

11.3. Other Applicable Discharge Limitations for Nonpotable Use and Indirect Potable Reuse

The advanced treated recycled water (sampled at EFF-001 and SM-EFF-001) shall meet all primary and secondary MCLs and other limitations specified in the Drinking Water Quality and Monitoring Requirements in 22 CCR, division 4, chapter 15. The City shall maintain an updated list of pollutants with primary and secondary MCLs; monitor these pollutants; and ensure that treated recycled water does not exceed any primary or secondary MCL. The list of pollutants with primary and secondary MCLs and their corresponding limitations as of the adoption of this Order are listed in Tables 9 through 14. See Section 1.16 and 1.17 of the MRP for accelerated monitoring and notification procedures.

TABLE 9. DISCHARGE LIMITATIONS INORGANICS – PRIMARY MCLs

Constituents	Units	Running 4-Week Average	Notes
Aluminum	mg/L	1	---
Antimony	mg/L	0.006	---
Arsenic	mg/L	0.010	---
Asbestos (for fibers exceeding 10 µm in length)	million fibers per liter (MFL)	7	a
Barium	mg/L	1	---
Beryllium	mg/L	0.004	---
Cadmium	mg/L	0.005	---
Total Chromium	mg/L	0.05	---
Cyanide	mg/L	0.15	---
Fluoride	mg/L	2.0	---
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	---

Footnotes for Table 9

a. If four consecutive quarterly results for asbestos are below the detection limit in Table 64432-A of Title 22 for asbestos, monitoring for asbestos may be reduced to one sample every three years. Quarterly monitoring shall resume if asbestos is detected.

End of footnotes for Table 9

**TABLE 10. DISCHARGE LIMITATIONS VOLATILE ORGANIC
 CHEMICALS (VOCs) - PRIMARY MCLs**

Constituents	Units	Running 4-Week Average	Notes
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 (1,2-DCA)	mg/L	0.0005	---
1,1-Dichloroethylene (1,1-DCE)	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	---
Methyl-tert-butyl-ether (MTBE)	mg/L	0.013	---
Monochlorobenzene	mg/L	0.07	---
Styrene	mg/L	0.1	---
1,1,2,2-Tetrachloroethane	mg/L	0.001	---
Tetrachloroethylene (PCE)	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 (TCE)	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	---
Xylenes (m,p)	mg/L	1.750	a

Footnotes for Table 10

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

End of footnotes for Table 10

**TABLE 11. DISCHARGE LIMITATIONS SYNTHETIC ORGANIC
 CHEMICALS (SOCs) - PRIMARY MCLs**

Constituents	Units	Running 4-Week Average
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

Constituents	Units	Running 4-Week Average
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	0.07
Dalapon	mg/L	0.2
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	0.0002
Di(2-ethylhexyl)adipate	mg/L	0.4
Di(2-ethylhexyl)phthalate (DEHP)	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 (EDB)	mg/L	0.00005
Glyphosate	mg/L	0.7
Heptachlor	mg/L	0.00001
Heptachlor epoxide	mg/L	0.00001
Hexachlorobenzene	mg/L	0.001
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-TCDD (Dioxin)	mg/L	3 x 10 ⁻⁸
2,4,5-TP (Silvex)	mg/L	0.05

TABLE 12. DISCHARGE LIMITATIONS DISINFECTION BYPRODUCTS – PRIMARY MCLS

Constituents	Units	Running 4-Week Average
Total Trihalomethanes (TTHMs) <ul style="list-style-type: none"> • Bromodichloromethane • Bromoform • Chloroform • Dibromochloromethane 	mg/L	0.080
Haloacetic acid (five) (HAA5) <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

TABLE 13. DISCHARGE LIMITATIONS RADIONUCLIDES – PRIMARY MCLs

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

TABLE 14. DISCHARGE LIMITATIONS CONSTITUENTS – SECONDARY MCLs

Constituents	Units	Running Annual Average
Aluminum	mg/L	0.2
Color	Apparent Color Unit (ACU)	15
Foaming agents (MBAS)	mg/L	0.5
Iron	mg/L	0.3
Manganese	mg/L	0.05
Methyl-tert-butyl ether (MTBE)	mg/L	0.005
Odor Threshold	Threshold Odor Number (TON)	3
Silver	mg/L	0.1
Thiobencarb	mg/L	0.001
Zinc	mg/L	5.0
Total Dissolved Solids	mg/L	1,000
Chlorides	mg/L	500
Sulfates	mg/L	500

12. RATIONALE FOR DISCHARGE LIMITATIONS

12.1. Turbidity

Turbidity is an expression of the optical property that causes light to be scattered in water due to particulate matter such as clay, silt, organic matter, and microscopic organisms. The turbidity discharge limitations are based on the definition of filtered wastewater in 22 CCR section 60301.320.

12.2. Total Coliform

Total coliform bacteria are used to indicate the likelihood of pathogenic bacteria in groundwater. The total coliform discharge limitations in this Order for nonpotable uses are based on the definition of disinfected tertiary recycled water in 22 CCR section 60301.230 and the discharge limitations for total coliform in this Order for subsurface application are based on the regional objectives for groundwaters with MUN beneficial use in the Basin Plan.

12.3. TDS, Chloride, Sulfate, and Boron

Human activities and land use practices can influence inorganic constituents in groundwater. Abnormally high levels of inorganic constituents (such as TDS, chloride, sulfate, and boron) can impair and preclude beneficial uses. The discharge limitations for TDS, chloride, sulfate, and boron in Table 6 were carried over from the previous permit to prevent backsliding and these limitations were incorporated into Table 7 and 14 because the concentrations are lower than or equivalent to the secondary MCL “Consumer Acceptance Contaminant Level Ranges” in 22 CCR section 64449 (for TDS, chloride, and sulfate) and the notification level for boron. In addition, the limitations for TDS, chloride and boron are equivalent to the numeric mineral water quality objectives for the Santa Monica Groundwater Subbasin in Table 3-13 of the Basin Plan.

12.4. Nitrogen Compounds

High nitrate levels in drinking water can cause health problems in humans. Infants are particularly sensitive and can develop methemoglobinemia (blue-baby syndrome). Human activities and land use practices can also influence the nitrogen concentration in groundwater. The discharge limitations in this Order for nitrate, nitrite, and the sum of nitrate and nitrite are based on the regional objectives for groundwater in the Basin Plan and the MCLs for nitrate, nitrite, and the sum of nitrate and nitrite in 22 CCR section 64431. The discharge limitation for total nitrogen is based on 22 CCR section 60320.210 for subsurface application and on the regional objectives for groundwater in the Basin Plan for nonpotable uses.

12.5. Lead and Copper

The discharge limitation for copper is based on its secondary MCL included in 22 CCR section 64449. The discharge limitation for lead is based on its action level in 22 CCR section 64678.

12.6. Total Organic Carbon

Total organic carbon provides a medium for the formation of disinfection byproducts such as trihalomethanes and haloacetic acids. Drinking water containing these byproducts in excess of their corresponding MCL may lead to adverse health effects, liver or kidney problems, or nervous system effects, and may lead to an increased risk of cancer. The discharge limitation for total organic carbon is based on 22 CCR section 60320.218(b).

12.7. Pathogenic Microorganism Control

The discharge limitations for pathogenic microorganisms are based on 22 CCR section 60320.208.

12.8. Constituents with Primary and Secondary MCLs

Chemical constituents in excessive amounts in drinking water are harmful to human health. The Basin Plan prohibits the discharge of concentrations of chemical constituents and radionuclides in excess of their corresponding MCLs. The discharge limitations for constituents with primary and secondary MCLs are

therefore based on the Basin Plan and 22 CCR sections 64431, 64444, 64449, 64442, and 64533.

13. GENERAL REQUIREMENTS

- 13.1.** Advanced treated recycled water shall not be used for direct human consumption, except for small quantities used for public education purposes, or for the direct processing of food or drink intended for human consumption. However, the City cannot serve treated recycled water for demonstration purposes to more than 25 people daily for at least 60 days out of the year (Health and Safety Code (H&SC), section 116275(h) and 22 CCR section 64400). In addition, the treated recycled water cannot be bottled and distributed unless it meets the requirements stated the H&SC, section 111070.5 and the CWC section 13570.
- 13.2.** As stated in the Engineering Report, the advanced treated recycled water injected into the SMGB shall be retained underground for a minimum of 8 months prior to being withdrawn at a domestic supply well. Any change in the minimum retention time of 8 months must be proposed to DDW for review and acceptance.
- 13.3.** Bypass, discharge, or delivery to the use area of inadequately treated recycled water, at any time, is prohibited.
- 13.4.** The recycling facility shall be adequately protected from inundation and damage by storm flows.
- 13.5.** Recycled water use or disposal shall not result in earth movement in geologically unstable areas.
- 13.6.** Adequate freeboard and/or protection shall be maintained in any recycled water storage tanks, process tanks, and impoundments to ensure direct rainfall will not cause overtopping.
- 13.5.** The AWTF and SMURRF shall not be the source of pollution or nuisance at any time outside the boundary of the facility, including odors that unreasonably affect beneficial uses, odors injurious to health, or odors offensive to the senses of members of the community.
- 13.6.** The wastewater treatment and use of recycled water shall not result in problems caused by breeding of mosquitoes, gnats, midges, or other pests.
- 13.7.** The use of recycled water shall not impart tastes, odors, color, foaming, or other objectionable characteristics to the receiving groundwater.
- 13.8.** Recycled water shall not contain any substance in concentrations toxic to human, animal, or plant life.
- 13.9.** Odors of sewage origin shall not be perceivable beyond the limits of the property owned or controlled by the City and/or recycled water user.
- 13.10.** The City shall always properly operate and maintain all treatment facilities and control systems (and related appurtenances) which are installed or used by the

City to achieve compliance with the conditions of this Order. 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).

- 13.11. A copy of these requirements shall be maintained at the AWTF and shall always be available to operating personnel.
- 13.12. The City shall furnish each user of recycled water a copy of these requirements and ensure that the requirements are maintained at the user's facility and always available to operating personnel.
- 13.13. Supervisors and operators of this publicly owned wastewater treatment facility shall possess a certificate of appropriate grade as specified in 23 CCR section 3680.
- 13.14. For any material change or proposed change in character, location, or volume of recycled water, or its uses, the City shall submit, at least 120 days prior to the proposed change, an engineering report or addendum to the existing engineering report to the Los Angeles Water Board and DDW (pursuant to CWC section 13522.5 and 22 CCR § 60323) for approval. The Engineering Report shall be prepared by a qualified engineer registered in California. Any updates to the engineering report shall describe the current treatment plant, the impacts on the recycled water operation, and contain the operation optimization plan (OOP) including a preventive (fail-safe) procedure and contingency plan for controlling accidental discharge and/or delivery to users of inadequately treated recycled water. (Refer to DDW's *Guidelines for the Preparation of an Engineering Report for the Production, Distribution and Use of Recycled Water, June 2023*).
- 13.15. If the City chooses to use one or more wastewater chemicals in lieu of TOC, the City shall obtain approval from DDW as required in 22 CCR section 60320.218.
- 13.16. **Climate Change Effects Vulnerability Assessment and Mitigation Plan**

On March 07, 2017 the State Water Board adopted Resolution No. 2017-0012 recognizing the challenges posed by climate change that require a proactive approach in all State Water Board actions, including drinking water regulation, water quality protection, and financial assistance. The resolution lays the foundation for a response to climate change that is integrated into all State Water Board actions by providing direction to the State Water Board divisions and encouraging coordination with the regional water boards. In addition to the State Water Board's resolution No. 2017-0012, the Los Angeles Water Board adopted Resolution No. R18-004, "A Resolution to Prioritize Actions to Adapt to and Mitigate the Impacts of Climate Change on the Los Angeles Region's Water Resources and Associated Beneficial Uses" on May 10, 2018. The resolution summarizes the steps taken so far to address the impacts of climate change within the Los Angeles Water Board's programs and lists a series of steps to move forward. These include the identification of potential regulatory

adaptation and mitigation measures that could be implemented on a short-term and long-term basis by each of the Los Angeles Water Board's programs to take into account, and assist in mitigating where possible, the effects of climate change on water resources and associated beneficial uses. This Order contains provisions to require planning and actions to address climate change impacts in accordance with both the State and Los Angeles Water Board resolutions.

On February 11, 2022, pursuant to Order R4-2021-0044, The City submitted a Climate Change Effects Vulnerability Assessment and Mitigation Plan (Climate Change Plan) to assess and manage climate change-related effects that may impact the wastewater treatment facility's operation, water supplies, its collection system, and water quality, including any projected changes to the influent water temperature and pollutant concentrations, beneficial uses, as well as the impact of rising sea level (where applicable). The Los Angeles Water Board approved the City's Climate Change Plan on March 01, 2022. The City shall consider the impacts of climate change as they affect the operations of the AWTF, SMURRF, the collection system, and the recycled water distribution system due to flooding, wildfire, or other climate-related changes, and shall update the current Climate Change Plan as appropriate. The updated Climate Change Plan is due 12 months after the effective date of this Order.

14. SPECIFICATIONS FOR USE OF RECYCLED WATER

14.1. The treated water from the AWTF may be used for the following nonpotable uses:

14.1.1. Surface irrigation in the following areas:

- Food crops, including all edible root crops, where the recycled water comes into contact with the edible portion of the crop;
- Parks and playgrounds;
- School yards;
- Residential and freeway landscaping;
- Unrestricted and restricted access golf courses;
- Cemeteries;
- Decorative fountains
- Ornamental nursery stock where the public is not restricted; and
- Other allowable irrigation applications specified in 22 CCR provided approval from DDW and the Los Angeles Water Board Executive Officer prior to delivery.

14.1.2. A dual-plumbed system may be used to deliver recycled water to end users. The detailed dual-plumbed system requirements are included in Section 19 of this Order.

14.2. Recycled water shall be produced, managed, distributed, stored, and used in conformance with the applicable regulations contained in 22 CCR and 17 CCR.

- 14.3. Recycled water shall not be used for direct human consumption or for the processing of food or drink intended for human consumption.
- 14.4. The delivery of recycled water to end users shall be subject to DDW approval and/or its delegated local agency.
- 14.5. The recycled water shall not be used for any other uses than those specified above unless an engineering report has been submitted for those uses and has been approved in writing by the Executive Officer and DDW.
- 14.6. Recycled water shall be retained in the areas of use and shall not be allowed to escape as surface flow except as authorized under an NPDES permit.

15. USE AREA REQUIREMENTS

Use area is an area of recycled water use with defined boundaries, which may contain one or more facilities where recycled water is used. The City shall ensure that all users of recycled water comply with the following:

- 15.1. All use areas where recycled water is used that are accessible to the public shall be posted with signs that are visible to the public no less than 4 inches high by 8 inches wide that include the following wording, "RECYCLED WATER – DO NOT DRINK." Each sign shall display an international symbol to alert people who do not read English.
- 15.2. No physical connection shall be made or allowed to exist between any recycled water piping and any piping conveying potable water, except as allowed under 17 CCR section 7604.
- 15.3. The portions of the recycled water piping system that are in areas subject to access by the general public shall not include any hose bibs. Only quick couplers that differ from those used on the potable water system shall be used on the portions of the recycled water piping system in areas subject to public access.
- 15.4. No impoundment or storage ponds containing disinfected recycled water shall occur within 100 feet of any domestic water wells, potable water reservoirs, and streams used as sources of water supply.
- 15.5. Whenever a cooling system uses recycled water in conjunction with an air conditioning facility and utilizes a cooling tower or otherwise creates a mist that could contact employees or members of the public, the cooling system shall comply with the following:
 - 15.5.1. A drift eliminator shall be used whenever the cooling system is in operation.
 - 15.5.2. Chlorine or another biocide shall be used to treat the cooling system recirculating water to minimize the growth of *Legionella* and other microorganisms.
- 15.6. No recycled water irrigation areas shall be located within 50 feet of any domestic supply well unless all the following conditions have been met:

- 15.6.1.** A geological investigation demonstrates that an aquitard exists at the well between the uppermost aquifer being drawn from and the ground surface;
- 15.6.2.** The well contains an annular seal that extends from the surface into the aquitard;
- 15.6.3.** The well is housed to prevent any recycled water spray from contacting the wellhead facilities;
- 15.6.4.** The ground surface immediately around the wellhead is contoured to allow surface water to drain away from the wellhead;
- 15.6.5.** The owner of the well approves of the elimination of the buffer zone requirement.
- 15.7.** No irrigation shall take place within 50 feet of any reservoir or stream used as a source of domestic drinking water.
- 15.8.** Recycled water shall be applied at agronomic rates. Special precautions must be taken to prevent clogging of spray nozzles, prevent overwatering, and to minimize the production of runoff. Pipelines shall be maintained to prevent leakage.
- 15.9.** Any irrigation runoff shall be confined to the recycled water use area and shall not be allowed to escape as surface flow, unless the runoff does not pose a public health threat and is authorized under an NPDES permit, Waste Discharge Requirements, a Conditional Waiver of Waste Discharge Requirements for Irrigated Lands, or other orders issued by the State or Los Angeles Water Board. For the purpose of this requirement, however, minor amounts of irrigation return water from peripheral areas shall not be considered a violation of this Order.
- 15.10.** Spray, mist, or runoff shall not enter dwellings, designated outdoor eating areas, or food handling facilities, and shall not contact any drinking water fountain and public present. Drinking water fountains must be equipped with hoods or covers.
- 15.11.** Recycled water shall not be used for irrigation during periods of rainfall and/or runoff.
- 15.12.** All above-ground irrigation appurtenances need to be marked appropriately.
- 15.13.** All recycled water use areas shall be inspected periodically, but no less than annually, by the City.
- 15.14.** Supervisors shall be appointed for the recycled water use areas and their staff shall be trained on the hazards of working with recycled water and periodically retrained.
- 15.15.** The City shall maintain User Agreements and Ordinances with the potential agricultural, industrial, and recreational users of recycled water. Copies of the User Agreements and Ordinances shall be provided to the Los Angeles Water Board and DDW for review within 90 days of the effective date of this Order.

- 15.16.** If the recycled water system lateral pipelines are located along the property lines of homeowners, there may be a potential for cross connections. A buffer zone between the recycled water lines and the property owners is necessary. If the City cannot maintain adequate control of the recycled water system pipelines, the pipelines need to be relocated or a physical barrier needs to be installed to prevent cross connections, and the City shall implement a public outreach program to inform the public. If the recycled water system lateral pipelines are located on an easement contiguous to a homeowner's private property and where there is a reasonable probability that an illegal or accidental connection to the recycled water line could be made, the City shall provide a buffer zone or other necessary measures between the recycled water lines and the easement to prevent any illegal or accidental connection to the recycled water lines. The City shall notify homeowners about the recycled water lateral and restrictions on usage of recycled water.
- 15.17.** For each new/proposed recycled water use area, a use site report that addresses compliance with the use area requirements and includes results of a completed shut-down test shall be submitted to the Los Angeles Water Board and to DDW for approval.
- 15.18.** The use and distribution of recycled water shall comply with 22 CCR Division 4, Chapter 3 - *Water Recycling Criteria*; and the 17 CCR Division 1, Chapter 5, Subchapter 1, Group 4, Cross-Connection Control Requirements.
- 15.19.** All back-up/ auxiliary potable supplies shall discharge through approved airgaps or swivel-ell connections with approved backflow prevention on the potable supply line. Back-up/auxiliary supply piping plans shall be submitted and reviewed by DDW and/or its delegated local agency. A certified tester shall test all backflow devices annually. Air gaps shall be at least twice the pipe diameter and be located above ground. Swivel-ell connections shall be controlled by the domestic water supplier. The use site agreements shall include conditions that clarify the control and operation of swivel-ell connections.
- 15.20.** All recycled water pipelines and valves shall be installed with purple identification tape or purple polyethylene vinyl wraps according to the American Water Works Association's (AWWA) California-Nevada Section guidelines. Adequate separation of at least 4-foot horizontal and 1-foot vertical separation shall be provided between recycled water lines and domestic potable water lines.
- 15.21.** Plans and maps showing domestic water lines and recycled water lines at each use site shall be maintained. The lines shall be marked clearly and labeled as domestic water lines and recycled water lines. Shut-down tests may be needed to demonstrate that cross-connections do not exist.
- 15.22.** Incidental runoff from landscape irrigation shall be controlled through the following practices:

- Implementation of an operations and management plan that may apply to multiple sites and provides for detection of leaks, (for example, from broken sprinkler heads), and correction either within 72 hours of learning of the runoff, or prior to the release of 1,000 gallons, whichever occurs first,
- Proper design and aim of sprinkler heads,
- Refraining from application during precipitation events, and
- Management of any ponds containing recycled water such that no discharge occurs unless the discharge is otherwise regulated pursuant to an NPDES permit.

15.23. Recycled water used for landscape or crop irrigation shall be limited to hours when the public is not present.

16. SPECIFICATIONS AND REQUIREMENTS FOR DUAL-PLUMBED SYSTEMS

16.1. The public water supply shall not be used as a backup or supplemental source of water for a dual-plumbed recycled water system unless the connection between the two systems is protected by an air gap separation which complies with the requirements of 17 CCR sections 7602 (a) and 7603 (a), and that such connection has been approved by DDW and/or its delegated local agency.

16.2. The City shall not deliver recycled water to a facility using a dual-plumbed system unless the report of recycled water use, required pursuant to CWC section 13522.5, and which meets the requirements set forth in this Order, has been submitted and approved by DDW and/or its delegated local agency. The Los Angeles Water Board shall be furnished with a copy of DDW approval together with the aforementioned report within 30 days following the approval.

16.3. The report of recycled water use, submitted pursuant to CWC section 13522.5, shall contain the following information for dual-plumbed systems, in addition to the information required by 22 CCR section 60323 (Engineering Report):

16.3.1. A detailed description of the intended use site identifying the following:

- The number, location, and type of facilities within the use area proposing to use dual-plumbed systems;
- The average daily number of persons estimated to be served by each facility;
- The specific boundaries of the proposed use site including a map showing the location of each facility to be served;
- The person or persons responsible for operation of the dual-plumbed system at each facility; and,
- The specific use to be made of the recycled water at each facility.

16.3.2. Plans and specifications describing the following:

- Proposed piping system to be used;

- Pipe locations of both the recycled and potable systems;
- Type and location of the outlets and plumbing fixtures that will be accessible to the public; and,
- The methods and devices to be used to prevent backflow of recycled water into the public water system.

16.3.3. The methods to be used by the City to assure that the installation and operation of the dual-plumbed system will not result in cross connections between the recycled water piping system and the potable water piping system. These shall include a description of pressure, dye or other test methods to be used to test the system every four years.

16.3.4. Prior to the initial operation of the dual-plumbed recycled water system and annually thereafter, the dual-plumbed system within each facility and use site shall be inspected for possible cross connections with the potable water system. The recycled water system shall also be tested for possible cross connections at least once every four years. The testing shall be conducted in accordance with the method described in the report submitted pursuant to 22 CCR section 60314. The inspections and the testing shall be performed by a cross connection control specialist certified by the California-Nevada Section of the AWWA or an organization with equivalent certification requirements. A written report documenting the result of the inspection and testing for the prior year shall be submitted to DDW within 30 days following completion of the inspection or test.

16.3.5. The City shall notify DDW of any incidence of backflow from the dual-plumbed recycled water system into the potable water system within 24 hours of discovery of the incident.

16.3.6. Any backflow prevention device installed to protect the public water system serving the dual-plumbed recycled water system shall be inspected and maintained in accordance with 17 CCR section 7605.

17. DDW SPECIFICATIONS AND REQUIREMENTS

The City shall comply with the requirements set forth in DDW's conditional acceptance letter to the Los Angeles Water Board dated December 1, 2022, as listed below:

17.1. The City must comply with all components of 22 CCR Article 5.2 – Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application.

17.2. The City must ensure that the full flow of the AWTF effluent water used for recharge is continuously treated with full advanced treatment in accordance with 22 CCR Article 5.2 and as detailed in the Engineering Report and Operations Optimization and Plan (OOP). Per 22 CCR section 60320.222(b), the City must ensure that all GRRP treatment processes shall be operated in a manner providing optimal reduction of all chemicals and contaminants.

- 17.3.** The City must implement the following regarding zones of controlled drinking water well construction:
- 17.3.1.** Prior to operation of the GRRP, the City must establish a primary zone of controlled drinking water well construction (“primary boundary”), including private wells, in accordance with 22 CCR section 60320.200(e)(2).
- 17.3.2.** Prior to operation of the GRRP, the City must establish a secondary zone of potential controlled drinking water well construction (“secondary boundary”), including private wells, in accordance with 22 CCR section 60320.200(e)(3).
- 17.3.3.** Prior to operation of the GRRP and regularly as needed, the City must coordinate with the Los Angeles County Department of Public Health to administer the primary and secondary boundaries in accordance with 22 CCR section 60320.200(e).
- 17.3.4.** As necessary, the City must provide the primary and secondary boundary maps established in accordance with 22 CCR section 60320.200(e), locations of the Project’s 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 Los Angeles Water Board, and the Los Angeles County Department of Public Health.
- 17.4.** The recharge water flow rate (i.e., the sum of recycled municipal wastewater and diluent water) at SM-10i must not exceed 200 gallons per minute as described in the Engineering Report. The City must notify DDW and the Los Angeles Water Board and submit the necessary documents if any monitoring wells or injection wells are to be added or removed, or if the recharge water flow rates are changed.
- 17.5.** Prior to implementing any change to the Project that would require an update to the Engineering Report, the City must submit an updated Engineering Report to DDW for review and approval.
- 17.6.** If directed by DDW, the City must update the Project’s hydrogeological model, zones of controlled drinking water well construction, underground retention time, and response retention times in accordance with 22 CCR section 60320.200(e), 22 CCR section 60320.208, and 22 CCR section 60320.224.
- 17.7.** The City must have and utilize alarms for the AWTF as described in the Engineering Report, OOP, and this conditional acceptance letter. Commissioning must validate and confirm the operation setpoints for the RO and UVAOP processes per 22 CCR section 60320.201. A full description of the alarms must be included in the OOP, in accordance with 22 CCR section 60320.222.
- 17.8.** Per 22 CCR section 60320.200(g), prior to operation of the GRRP, the City must demonstrate during an on-site inspection that all treatment processes, alarms, and associated responses were implemented and can achieve their

intended function as described in the Engineering Report and OOP. The City must repeat this testing on a regular basis as specified in the OOP or otherwise as requested by DDW. At a minimum, testing must occur after any expansion or modification of the treatment train.

17.9. The City must adequately staff the AWTF with operators. The AWTF shall be supervised and operated by persons possessing certificates of appropriate grade as required by the RWQCB. The City must track the expiration dates for all certified operators to ensure certifications are maintained. In addition, the City must staff the AWTF with operators that possess valid California-Nevada Section of the American Water Works Association/California Water Environment Association, Advanced Water Treatment Operator (AWTOTM) certifications as follows:

17.9.1. Upon start-up of the GRRP, the City must staff the AWTF with at least one AWT3™ certified Chief Plant Operator and with at least one AWT3™ or higher certified operator available for on-call support for each operating shift.

17.9.2. Within 36 months of permit adoption, the City must staff the AWTF with at least one AWT5™ certified Chief Plant Operator and with at least one AWT3™ or higher certified operator available for on-call support for each operating shift.

17.10. Per 22 CCR section 60320.200(k), if the City has been directed by DDW or the RWQCB to suspend subsurface application of recycled water, subsurface application of recycled water must not resume until the City has obtained approval from DDW and the RWQCB.

17.11. If directed by DDW, the City must optimize stabilization processes to control metal mobilization in groundwater impacted by the GRRP; optimization of any Project operations must be reflected in an updated OOP. Furthermore, if directed by DDW or the RWQCB, the City must conduct geochemical analysis for the purpose of controlling metal mobilization to the groundwater.

17.12. To meet the requirement of 22 CCR section 60320.201(b), the City must conduct weekly grab sampling, routine RO pressure vessel conductivity profiling, and monitoring online electrical conductivity (EC) on the influent and permeate of each RO train as described in the OOP. In the OOP, the City must describe the overall RO monitoring program that must include at least the following elements:

17.12.1. Description of how on-going performance monitoring will be conducted to indicate when the integrity of the RO process has been compromised.

17.12.2. 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.

17.12.3. Description of the RO pressure vessel conductivity profiling, including a full standard operating procedure (SOP) used by the AWTF staff.

17.12.4. 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 AWTF and updated as needed.

17.12.5. 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.

17.12.6. 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).

17.13. The UVAOP must be operated as designed and described in the Engineering Report and OOP to meet all applicable requirements, achieving a minimum 0.5- \log_{10} reduction of 1,4-dioxane, and meeting Notification Levels (NLs) for all chemicals with a NL under the normal full-scale operating conditions.

17.13.1. Each of the two UVAOP trains must be operated with online monitoring and built-in reliability features dedicated to each train that must trigger automatic diversion of the respective train's effluents (or another reliability feature, such as train shutdown, as approved by DDW), if the following critical alarm setpoints are reached (i-vi) for any train. The City may use the UVAOP model predicted 1,4-dioxane and NDMA \log_{10} reduction as a substitute for setpoint (v) and/or setpoint (vi) provided that the UVAOP model is validated during the startup and commissioning and receives approval from DDW.

17.13.1.1. For any train, complete UV reactor failure, including but not limited to train power or train communication loss.

17.13.1.2. For any train, instantaneous flow rate exceeds design flow rate of 0.6 MGD per train (or another setpoint approved by DDW).

17.13.1.3. For any train, UVT less than 96% entering the UV system for more than 15 minutes (or another setpoint approved by DDW).

17.13.1.4. For any train, pH greater than 6 entering the UV system for more than 15 minutes (or another setpoint approved by DDW).

17.13.1.5. For any train, free chlorine residual less than 3 mg/L as Cl_2 entering the UV system (or another setpoint approved by DDW).

17.13.1.6. For any train, UV reactor ballast power less than 60% (or another setpoint approved by DDW).

17.13.2. If directed by DDW, the City must monitor and/or calculate the radical scavenging demand as specified in the OOP and monitoring results to be included in the quarterly reports. If directed by DDW, the City must update the UVAOP system to incorporate radical scavenging demand to adjust operations as specified in the OOP.

17.14. The City must provide continuous monitoring of flow rate, UV transmittance (UVT), pH, free chlorine, total chlorine, monochloramine/ammonia, ballast power, and calculated UV dose at their respective UVAOP system compliance points. All instrumentation used to measure or calculate these parameters must be calibrated per the manufacturers' recommendations.

17.14.1. At least weekly, the UVT meter must be inspected and checked against a reference unit 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.

17.15. Per 22 CCR section 60320.201(h), the City must perform calculations to document proper on-going performance of the reverse osmosis and advanced oxidation processes and report in the quarterly reports. The City must report the percent of results of the quarter's monitoring for the RO and UVAOP in accordance with 22 CCR section 60320.201(b) and (c) that did not meet the surrogate or operational parameter limits. The City must also state if the limits were exceeded by greater than 10% for each quarter.

17.16. In accordance with 22 CCR section 60320.204, all laboratory analyses for contaminants having a primary or secondary maximum contaminant level (MCL) must be conducted using a drinking water method approved by DDW for the contaminant and by a laboratory accredited by the State Water Board Environmental Laboratory Accreditation Program (ELAP) for the analytical method used. Analyses for chemicals other than those having primary or secondary MCLs must be described in the City's OOP.

17.17. 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.

17.17.1. The City must use DDW-provided Primary Station Codes (ps-codes) to electronically submit the water quality monitoring results for the Project.

17.17.2. 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 the appropriate reports (e.g., quarterly reports).

17.17.3. Data produced and reports submitted for analysis required by 22 CCR 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.

17.18. The City 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. The City must not reduce the monitoring frequency for the chemicals having NLs, including all chemicals that overlap with constituents of emerging concern in the Recycled Water Policy, without the approval of DDW.

17.19. Per 22 CCR section 60320.208(c), the City must validate each of the treatment processes used to meet the required virus, Giardia cyst, and Cryptosporidium oocyst reductions. The City must include in its OOP the necessary monitoring and calculations that validates the performance of each treatment process's ability to achieve its pathogen LRV as proposed in the Engineering Report and OOP. Flow-weighted averaging cannot be used for the purpose of calculating the pathogen LRV for any treatment process, including between parallel treatment trains of the same process. Pathogen LRV for each pathogen for each of the treatment processes must be calculated and reported in accordance with the following:

17.19.1. The MBR treatment process will be credited pathogen LRVs in accordance with recommendations for a Tier 1 strategy outlined in the Water Research Foundation Project 4997 *Membrane Bioreactor Validation Protocols for Water Reuse*. To obtain pathogen LRV credit, the City must conduct monitoring and reporting for the MBR as follows:

17.19.1.1. The MBR will receive a credit of 1.0 LRV for virus and 2.5 LRV for Giardia cyst and Cryptosporidium oocyst if MBR filter effluent turbidities do not exceed the following:

17.19.1.1.1. 0.2 NTU more than 5% of the time within a 24-hour period; and

17.19.1.1.2. 0.5 NTU at any time.

17.19.1.2. To meet the MBR filtrate turbidity requirements, turbidity must be monitored as follows:

17.19.1.2.1. The primary compliance meters for turbidity will be the turbidimeters on each of the individual MBR filter effluent lines. When all individual MBR filter effluent turbidimeters are online, pathogen LRV credit for each online MBR train will be calculated using the respective MBR filter effluent turbidities. LRV credit for the MBR system must be calculated using the minimum calculated pathogen LRV of any online individual MBR train.

17.19.1.2.2. The secondary compliance meter for turbidity will be the turbidimeter on the combined MBR filter effluent line. When any of the primary MBR filter effluent turbidimeters are offline, LRV credit for the MBR system must be determined using the turbidimeter on the combined MBR filter effluent line. 0.5 NTU at any time.

17.19.2. To receive pathogen LRV credit for cartridge filtration upstream of RO, the City must use Harmsco HC/170-LT2 cartridge filters, which have been previously approved by DDW as an Alternative Filtration Technology per the *Conditional Acceptance of the Harmsco Potable Water Cartridge Filtration System as an Alternative Filtration Technology* ("Harmsco Conditional Acceptance Letter", dated June 17, 2015). The cartridge filters will be credited 2.5 LRV for Giardia cysts and 2.0 LRV for Cryptosporidium oocysts for meeting

all applicable requirements in the Harmsco Conditional Acceptance Letter and operating per the Engineering Report and OOP, including but not limited to:

17.19.2.1. Maximum filter flux rate of 0.80 gpm/ft².

17.19.2.2. Max differential pressure (as measured across the final filter) no greater than 30 psid measured across each filter housing. If exceeded, cartridge filter must be replaced with a new, unused filter.

17.19.2.3. Cartridge filter effluent turbidity not to exceed 0.3 NTU 95% of the time, and not to exceed 1.0 NTU at any time.

17.19.2.4. Cartridge filter replacement must be once a year minimum.

17.19.3. The RO treatment system will be credited pathogen LRVs by demonstrating in an on-going fashion the removal of surrogates as described herein (or as otherwise approved by DDW). Initially, approved surrogates will include EC and TOC.

17.19.3.1. RO LRV pathogen credit will be determined by Tier 1 (if available) or by Tier 2 (if Tier 1 is unavailable), as described below:

17.19.3.1.1. Tier 1: Continuous TOC monitoring (at least once every 15 minutes) of the RO system must be conducted at (1) the combined RO feed stream and (2) each RO train's combined permeate stream, results of which must be used to calculate a daily average TOC reduction for each RO Train. Daily Tier 1 pathogen LRV credit must be calculated as the minimum daily TOC log₁₀ reduction achieved among all the RO trains in operation that day.

17.19.3.1.2. Tier 2: Continuous EC monitoring (at least once every 15 minutes) of each RO train must be conducted at (1) the combined RO feed stream and (2) each RO train's combined permeate stream, results of which must be used to calculate a minimum daily EC reduction for each RO train. Daily Tier 2 pathogen LRV credit must be calculated as the minimum daily EC log₁₀ reduction achieved among all the RO trains in operation that day.

17.19.3.2. In the monthly reports, the City must report the daily average, maximum value, and calculated reduction for the surrogates from all tiers for all RO trains. The City must indicate which tier is used for reporting the RO LRV credit for a given day.

17.19.3.3. The City must apply the logarithmic function as the last step in the calculation for the LRV for all pathogens.

17.19.4. The UVAOP treatment system will be credited 6.0 LRV for viruses, Giardia cysts, and Cryptosporidium oocysts each day the UV reduction equivalent dose (RED) is greater than 300 mJ/cm² throughout the entire day.

17.19.5. The chlorine contact tank will be credited LRV for virus using free chlorine disinfection. LRV credit for virus will be granted as described as follows (or as otherwise approved by DDW): a maximum of 5.0 LRV for virus will be

credited each day that the free chlorine CT (i.e., the product of the chlorine residual and the disinfection contact time (i.e., t_{10}) measured at the point of compliance) is greater than or equal to 9.0 mg-min/L and all the following conditions are met:

17.19.5.1. The City must provide continuous monitoring of the following constituents at their respective compliance points as described in the Engineering Report: free chlorine, ammonia, combined chlorine, pH, temperature, and turbidity.

17.19.5.2. The City must calculate a free chlorine CT on SCADA based on a 15-minute running average using continuous data from the free chlorine residual analyzer and flow meters as described in the OOP.

17.19.5.3. The free chlorine disinfection process must be operated with the following alarm setpoints that, if exceeded, must trigger corrective actions as described in the OOP:

17.19.5.3.1. pH greater than 7 (or another setpoint approved by DDW) for more than 15 minutes.

17.19.5.3.2. Temperature less than 15 degrees Celsius (or another setpoint approved by DDW) for more than 15 minutes.

17.19.5.3.3. Free chlorine residual less than 1.0 mg/L (or another setpoint approved by DDW) at the point at which t_{10} is achieved for more than 15 minutes.

17.19.5.3.4. Flow rate exceeds maximum design flow rate of 1.2 MGD (or another setpoint approved by DDW).

17.20. Per 22 CCR section 60320.208(d) and section 60320.224(c), the City must conduct a tracer study to validate underground retention time. The tracer study must be conducted prior to the end of the third month following the start of operations of the GRRP.

17.20.1. Per 22 CCR section 60320.224, the City must submit a groundwater tracer study protocol for review and approval by DDW. The tracer study protocol must be submitted at least 60 days prior to the start of the tracer study.

17.20.2. The City must submit the completed tracer study report to DDW and the RWQCB. The City must update the Engineering Report and OOP based on the results of the tracer study; the update of the Engineering Report may coincide with the five year update required by 22 CCR section 60320.228(b).

17.20.3. Until the completed tracer study report and validated underground retention time based on the tracer study report are approved by DDW, the City must use a minimum underground response retention time (RRT) of eight months as described in the Engineering Report.

17.20.4. Based on the results of the tracer study, and if necessary based on consultation with DDW, the City must revise the primary and secondary boundaries in accordance with 22 CCR section 60320.200(e) and coordinate

any necessary actions based on these updates with the Los Angeles County Department of Public Health.

17.20.5. The City must update the hydrogeological model based on the results documented in the tracer study.

17.21. The City must treat the full flow of water at the SMURRF with reverse osmosis and as described in the Engineering Report. The City must ensure that all treatment processes at the SMURRF are operated in a manner such that the SMURRF effluent meets all chemical and contaminant requirements in accordance with 22 CCR section 60320.214.

17.22. Per 22 CCR section 60320.214(c), the City must implement a monitoring plan for the SMURRF for DDW-specified contaminants to ensure the SMURRF effluent complies with primary MCLs, secondary MCLs, and NLs. The monitoring plan must be fully described in the OOP for approval by DDW. At any time, DDW may require an update to the SMURRF monitoring plan, which must be updated in the OOP and submitted to DDW for approval. The SMURRF effluent quality monitoring plan must include the actions the City will take in the event of non-compliance of the SMURRF effluent with respect to any primary MCLs, secondary MCLs, or NLs.

17.23. Per 22 CCR section 60320.214(a), the City must monitor the SMURRF effluent at least quarterly for nitrate and nitrite. Within 72 hours of being informed of results from the laboratory that exceed a nitrate, nitrite, or nitrate plus nitrite MCL, the City must collect a confirmation sample of the SMURRF effluent. If the average of the two samples is greater than an MCL, the City must:

17.23.1. Notify DDW and the RWQCB within 48 hours of receiving the confirmation sample result.

17.23.2. Investigate the cause(s) and implement corrective actions.

17.23.3. Initiate increased frequency of sampling of SMURRF effluent where, each week, the City must collect and analyze two grab samples at least three days apart as specified in the OOP. If the average of the results for a two-week period exceeds the MCL, subsurface application of the SMURRF effluent shall not be used in the calculation of the Recycled Water Contribution until corrective actions are made. Quarterly monitoring may resume if four consecutive results are below the nitrate, nitrite, and nitrate plus nitrite MCLs.

17.24. The maximum recycled municipal wastewater contribution (RWC) for this Project is 1.0 (100%) in accordance with 22 CCR section 60320.216.

17.25. All monitoring and reporting requirements from 22 CCR Article 5.2 (as applicable) and this conditional acceptance letter must be incorporated into the OOP.

17.26. The City must complete compliance monitoring and reporting as required by DDW and the RWQCB. If there are duplications or overlap in these monitoring and reporting requirements, the City must comply with the more stringent requirement.

- 17.27.** The City must electronically submit Monthly Reports no later than the 10th day of the month following the month of sampling. These Monthly Reports must be prepared as described in the OOP.
- 17.28.** The City must electronically submit quarterly reports no later than the 15th day of the third month following the end of each quarterly monitoring period. These Quarterly Reports must be prepared as described in the OOP.
- 17.29.** Per 22 CCR section 60320.228(a), the City must submit an Annual Report to DDW and RWQCB no later than six months after the end of each calendar year. These Annual Reports must be prepared as described in the OOP.
- 17.30.** Per 22 CCR section 60320.228(b), the City must update the Engineering Report to address any changes to the Project and submit to DDW and the RWQCB at least every five years.
- 17.31.** The City must record the daily pathogen LRV for each pathogen achieved by (1) each treatment process at the AWTF and (2) the entire treatment train. The City must also record “Yes” or “No” as to whether the daily total pathogen LRV for the entire treatment train met the total required LRVs for each pathogen.
- 17.31.1.** The daily total pathogen LRV for the entire treatment train must be calculated as the sum of the minimum pathogen LRVs attributed to each treatment process for each pathogen for each day.
- 17.31.2.** The pathogen LRV for the treatment train must be calculated and recorded every day, unless the treatment train is offline for the full day (i.e., midnight to midnight).
- 17.32.** In addition to the requirements of the Recycled Water Policy, the City must monitor for DDW-specified performance indicator constituents across the following treatment processes. DDW specifies sucralose (or another performance indicator as approved by DDW) and NDMA (or another performance indicator as approved by DDW) as performance indicators for RO and UVAOP, respectively. These constituents must be monitored monthly both immediately prior to and immediately after the corresponding treatment processes.
- 17.32.1.** Results for each indicator must be provided in quarterly and annual reports, including percent reduction for each performance indicator.
- 17.32.2.** In the OOP, the City must use sampling data to develop a baseline value and lower and upper control limits using statistical methodology to monitor performance of respective processes.
- 17.32.3.** The City may reduce the monitoring frequencies for the RO and UVAOP indicators from monthly to quarterly for these constituents in the selected locations following DDW review and acceptance based on at least 12 months of water quality data.
- 17.33.** Per 22 CCR section 60320.218, the applied recycled municipal wastewater must be sampled prior to replenishment at least weekly for TOC.

- 17.33.1.** The City must report the following in the quarterly reports:
- 17.33.1.1.** Results of the product water TOC monitoring per 22 CCR section 60320.218(a)
 - 17.33.1.2.** 20-week running average of all TOC results
 - 17.33.1.3.** The average of the last four results
- 17.33.2.** The City may use a continuous analyzer to satisfy TOC monitoring requirements of 22 CCR section 60320.218 based on DDW review and acceptance. Use of the continuous analyzer must be described in an updated OOP.
- 17.34.** Per 22 CCR section 60320.222, the City must operate the Project in accordance with the OOP. The OOP must be, at all times, representative of the current operations, maintenance, staffing, analytical methods, monitoring, and reporting of the Project in accordance with 22 CCR section 60320.222.
- 17.34.1.** Within six months of optimizing treatment processes in accordance with 22 CCR section 60320.222(b), and anytime thereafter operations are optimized that result in a change in operation, the City must update the OOP to include such changes in operational procedures and submit the OOP for review and acceptance by DDW.
- 17.35.** The City must provide process control 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:
- 17.35.1.** All alarms that trigger reliability features: diversion, retreatment, or shutdown.
 - 17.35.2.** All alarms that trigger responses other than diversion, retreatment, or shutdown.
 - 17.35.3.** For each alarm, include the associated response and key instrumentation information. At a minimum, this must include:
 - 17.35.3.1.** Instrument tag and description
 - 17.35.3.2.** Alarm type (i.e., low-low, low, high, high-high, etc.)
 - 17.35.3.3.** Alarm setpoint or trigger value and if the setpoint or trigger value is hardcoded
 - 17.35.3.4.** Alarm effect (e.g., SCADA alarm, automatic diversion, shutdown, etc.)
 - 17.35.3.5.** Alarm time delay
 - 17.35.3.6.** The required frequency of calibration for instrumentation associated with alarms
- 17.36.** The City must update the OOP to incorporate any future revisions to chemical monitoring lists (e.g., MCLs, NLs).

- 17.37.** The City must have no undesired or unintended reversal of flow of water or other liquids, gases, or other substances into the AWTF's product water lines. Any such undesired or unintended reversal of flow must be reported to the RWQCB and DDW within 24 hours of the City's knowledge of the incident.
- 17.38.** The AWTF 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.
- 17.39.** The City must submit a comprehensive cross-connection control program report for the AWTF to DDW and the RWQCB. The cross-connection control program report must be submitted as a standalone document, separate from the OOP.
- 17.39.1.** The City 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 AWTF. 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, the RWQCB, and Los Angeles County Department of Public Health.
- 17.39.2.** 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 ANSI-accredited program.
- 17.40.** The AWTF 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 AWTF and once every year thereafter. Piping systems must be inspected for possible cross-connections after making any modification to the AWTF plumbing system. The AWTF must have internal protection from cross-connections.
- 17.40.1.** 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.
- 17.40.2.** The City 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.

In addition, the City shall comply with the requirements set forth in DDW's conditional acceptance letter for non-potable reuse to the Los Angeles Water Board dated August 19, 2020, as listed below:

- 17.41.** Prior to start of operations and delivery of recycled water, an Operations and Maintenance Manual for the AWTF must be submitted to the Division for review and acceptance.
- 17.42.** The City must submit an updated engineering report to the Division for review and acceptance if any changes to the information provided in the current Report are considered in the future.
- 17.43.** Sampling of the recycled water for total coliform bacteria must be conducted daily in accordance with Title 22 section 60301.230.
- 17.44.** Continuous monitoring of turbidity in the recycled water must be conducted in accordance with the requirements specified in Title 22 section 60301.320.
- 17.45.** A monthly summary of operating records including analyses, records of operational problems, plant and equipment breakdowns, and diversions to emergency storage or disposal, and all corrective or preventive actions taken shall be filed monthly with the Los Angeles RWQCB as required by Title 22 section 60329.
- 17.46.** At startup of the AWTF, the City must conduct a demonstration of the critical alarms that would trigger an immediate diversion to take place. The City must notify the Division when this demonstration is scheduled to take place and the Division's staff may witness the critical alarms testing.
- 17.47.** Prior to delivery of recycled water to any use sites not owned by the City, the City must develop and adopt enforceable rules and regulations that cover design, construction, operation, maintenance, and control measures of the recycled water use areas. The City adopted *Recycled Water Use Guidelines, Policy and Procedures* on April 18, 2022.
- 17.48.** The City must submit a supplementary engineering report along with all necessary information and drawings for any new recycled water use sites in the future for review and acceptance by the Division.
- 17.49.** Prior to the delivery of recycled water to any dual plumbed recycled water systems, plans and specifications for the dual plumbed facilities must be submitted to the Division for review and acceptance in accordance with Title 22 section 60314. The proposed plans and specifications must be in accordance with the requirements of Title 22 sections 60313 through 60316.

18. ADDITIONAL PROVISIONS

- 18.1.** The irrigation or injection of recycled water shall not cause or contribute to an exceedance of water quality objectives in the Santa Monica Groundwater Subbasin.
- 18.2.** The City shall submit plans for proposed and as-built drawings for recycled water projects to obtain approval from DDW or its delegated local health

agency for each recycled water project. The *AWWA Guidelines for the Distribution of Non-Potable Water* shall be followed, including installation of purple pipe, adequate signs, etc. As-built drawings shall show the final locations of the potable water, sewer, and recycled water pipelines, and indicate adequate separation between the recycled water and potable domestic water lines, both of which shall also be marked clearly or labeled using separate colors for identification. In addition, a copy of each application to DDW for a recycled water project shall be delivered to the Los Angeles Water Board for inclusion in the administrative file with the following information:

18.2.1. A description of each use area including, but not limited to, a description of what will be irrigated (e.g., landscape, specific food crop, etc.); method of irrigation (e.g., spray, flood, or drip); the location of domestic water supply facilities adjacent to the use areas; site containment measures; the party responsible for the distribution and use of the recycled water at the site; and, identification of other governmental entities which may have regulatory jurisdiction over the reuse site(s); and,

18.2.2. A map showing specific areas of use, areas of public access, surrounding land uses, the location and construction details of wells in or near the use areas, the location and type of signage, the degree of potential access by employees or the public, and any exclusionary measures (e.g. fencing). The City shall submit to the Los Angeles Water Board a copy of the approved Recycled Water Project for the recycled water distribution system and DDW approval within 30 days of approval.

18.3. For any extension or expansion of the recycled water system, including the addition of new uses not covered under this Order or new use areas not covered by the Engineering Report, the City shall submit an updated Engineering Report or addendum to the Engineering Report detailing the extension or expansion plan for review by DDW or its delegated local health agency, and the Los Angeles Water Board, and for approval by DDW or its delegated local health agency. The report shall include, but not be limited to, the information specified in Sections 18.2.1 and 18.2.2., above, a use site report, and the results of any required shut-down tests. The City shall submit to the Los Angeles Water Board a copy of the approved expansion plan and DDW approval within 30 days of approval. The City shall not deliver recycled water to the new use site or for the new uses until the Executive Officer of the Los Angeles Water Board ensures the requirements in these WDRs/WRRs are protective of human health and the groundwater basin and approves the distribution of the recycled water to the new use sites or for the new uses. Following construction, as-built drawings shall be submitted to DDW or its delegated local health agency for approval prior to delivery of recycled water. The City shall submit to the Los Angeles Water Board a copy of as-built drawings and DDW approval within 30 days of DDW's approval.

18.4. The City shall inspect the recycled water use areas on a periodic basis. The City shall update the inspection schedule, based on the type of use site, for

approval by DDW within 90 days of the effective date of this Order. An annual report including the findings of each inspection shall be submitted to DDW, the County Health Department, and the Los Angeles Water Board.

- 18.5.** The City shall submit to the Los Angeles Water Board, signed under penalty of perjury by the designated responsible party, technical self-monitoring reports according to the specifications contained in the Monitoring and Reporting Program, as may be amended by the Executive Officer.
- 18.6.** The City shall notify this Los Angeles Water Board and DDW, immediately by telephone, of any confirmed coliform counts that could cause a violation of the requirements. This information shall be confirmed in the following monitoring report. For any actual coliform limit violation that occurred, the report shall also include the cause(s) of the high coliform counts, the corrective measures undertaken (including dates thereof), and the preventive measures undertaken to prevent a recurrence.
- 18.7.** This Order does not exempt the City from compliance with any other laws, regulations, or ordinances which 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 site(s) that may be contained in other statutes or required by other agencies.
- 18.8.** This Order does not alleviate the responsibility of the City to obtain other necessary local, state, and federal permits to construct facilities necessary for compliance with this Order; nor does this Order prevent imposition of additional standards, requirements, or conditions by any other regulatory agency. Expansion of the recycled water distribution facility shall be contingent upon issuance of all necessary requirements and permits, including a conditional use permit.
- 18.9.** The City shall furnish, within a reasonable time, any information the Los Angeles Water Board or DDW may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order. Upon request, the City shall also furnish the Los Angeles Water Board with copies of records required to be kept under this Order for at least three years.
- 18.10.** This Order includes the attached *Standard Provisions Applicable to Waste Discharge Requirements* (Attachment D). If there is any conflict between the provisions stated in this Order and the Standard Provisions, the provisions stated in this Order shall prevail.
- 18.11.** This Order includes the attached Monitoring and Reporting Program No. CI-10569 (Attachment E). If there is any conflict between provisions stated in the Monitoring and Reporting Program and the Standard Provisions, those provisions stated in the Monitoring and Reporting Program prevail.

19. REOPENER

- 19.1.** This Order may be modified, revoked and reissued, or terminated for cause, including but not limited to: (1) failure to comply with any condition in this Order,

(2) endangerment of human health or environment resulting from the permitted activities in this Order, (3) obtaining this Order by misrepresentation or failure to disclose all relevant facts, or (4) new information that justifies the application of different conditions. The filing of a request by the City for modification, revocation and reissuance, or termination of the Order or a notification of planned changes or anticipated noncompliance does not stay any condition of this Order.

- 19.2.** This Order may be reopened to include the most scientifically relevant and appropriate limitations for this discharge, including a revised Basin Plan limit based on monitoring results, studies, or other Board policy, or the application of an attenuation factor based upon an approved site-specific attenuation study.
- 19.2.** This Order may be reopened to modify limitations for constituents to protect beneficial uses, based on new information not available at the time this Order was adopted.
- 19.3.** If after additional monitoring, reporting, and trend analysis documenting changed aquifer conditions, this Order may be reopened to ensure the groundwater is protected in a manner consistent with the state and federal water quality laws and regulations.
- 19.4.** This Order may be reopened to incorporate any new regulatory requirements for sources of drinking water that are adopted after the effective date of this Order.
- 19.5.** This Order may be reopened upon a determination by DDW that treatment and disinfection of recycled water is insufficient to protect human health.
- 19.6.** This Order may be reopened if the Executive Officer of the Los Angeles Water Board determines additional requirements are needed to permit new use sites to protect human health or to prevent degradation of the groundwater basin.
- 19.7.** This Order may be reopened to include new requirements for new uses not currently covered in this Order.

20. ENFORCEMENT

- 20.1.** The requirements of this Order are subject to enforcement under Water Code sections 13261, 13264, 13265, 13268, 13300, 13301, 13304, 13350, and enforcement provisions in Water Code, Division 7, Chapter 7 (Water Reclamation).
- 20.2.** The City is subject to the terms and conditions of this Order.

21. GROSS BETA/PHOTON EMITTERS COMPLIANCE DETERMINATION

Compliance with the recycled water discharge limitations for Gross Beta/photon emitters contained in Section 11 of this Order will be determined as follows:

The monthly average effluent limitation for gross beta/photon is equal to 4 millirem/year with a screening level of 50 picocuries per liter (pCi/L). Due to naturally occurring Potassium-40, the results of the Potassium-40 gross beta activity may be

subtracted from the total gross beta activity to determine if the screening level is exceeded. The Potassium-40 beta particle activity must be calculated by multiplying elemental potassium concentration (in mg/L) by a factor of 0.82 to determine activity from Potassium-40. The Potassium-40 must be analyzed from the same or equivalent sample used for the gross beta analysis. If the gross beta particle activity minus the naturally occurring Potassium-40 beta particle is less than or equal to 50 pCi/L, the facility is in compliance with the effluent limitation and the value shall be reported as <4 millirem/year. If the gross beta particle activity minus the naturally occurring Potassium-40 beta particle exceeds the screening level, the City must have the samples further analyzed for the individual nuclides. The calculation for the sum of the fractions is presented below.

The maximum contaminant level (MCL) for gross beta/photon is equal to 4 millirem per year. A millirem is a dose of energy to the body. US EPA regulates 179 man-made nuclides, and each of them has a concentration of radiation measured in pCi/L, which produces the 4 millirem dose. These concentrations are listed on the table, Derived Concentrations of (pCi/L) of Beta and Photon Emitters in Drinking Water, which shall be used to determine compliance.

Derived Concentrations (pCi/l) of Beta and Photon Emitters in Drinking Water

Yielding a Dose of 4 mrem/yr to the Total Body or to any Critical Organ as defined in NBS Handbook 69

Nuclide	pCi/l	Nuclide	pCi/l	Nuclide	pCi/l	Nuclide	pCi/l	Nuclide	pCi/l	Nuclide	pCi/l
H-3	20,000	Ni-65	300	Nb-95	300	Sb-124	60	Nd-147	200	Os-191	600
Be-7	6,000	Cu-64	900	Nb-97	3,000	Sb-125	300	Nd-149	900	Os-191m	9,000
C-14	2,000	Zn-65	300	Mo-99	600	Te-125m	600	Pm-147	600	Os-193	200
F-18	2,000	Zn-69	6,000	Tc-96	300	Te-127	900	Pm-149	100	Ir-190	600
Na-22	400	Zn-69m	200	Tc-96m	30,000	Te-127m	200	Sm-151	1,000	Ir-192	100
Na-24	600	Ga-72	100	Tc-97	6,000	Te-129	2,000	Sm-153	200	Ir-194	90
Si-31	3,000	Ge-71	6,000	Tc-97m	1,000	Te-129m	90	Eu-152	200	Pt-191	300
P-32	30	As-73	1,000	Tc-99	900	Te-131m	200	Eu-154	60	Pt-193	3,000
S-35 inorg	500	As-74	100	Tc-99m	20,000	Te-132	90	Eu-155	600	Pt-193m	3,000
Cl-36	700	As-76	60	Ru-97	1,000	I-126	3	Gd-153	600	Pt-197	300
Cl-38	1,000	As-77	200	Ru-103	200	I-129	1	Gd-159	200	Pt-197m	3,000
K-42	900	Se-75	900	Ru-105	200	I-131	3	Tb-160	100	Au-196	600
Ca-45	10	Br-82	100	Ru-106	30	I-132	90	Dy-165	1,000	Au-198	100
Ca-47	80	Rb-86	600	Rh-103m	30,000	I-133	10	Dy-166	100	Au-199	600
Sc-46	100	Rb-87	300	Rh-105	300	I-134	100	Ho-166	90	Hg-197	900
Sc-47	300	Sr-85 m	20,000	Pd-103	900	I-135	30	Er-169	300	Hg-197m	600
Sc-48	80	Sr-85	900	Pd-109	300	Cs-131	20,000	Er-171	300	Hg-203	60
V-48	90	Sr-89	20	Ag-105	300	Cs-134	80	Tm-170	100	Tl-200	1,000
Cr-51	6,000	Sr-90	8	Ag-110m	90	Cs-134m	20,000	Tm-171	1,000	Tl-201	900
Mn-52	90	Sr-91	200	Ag-111	100	Cs-135	900	Yb-175	300	Tl-202	300
Mn-54	300	Sr-92	200	Cd-109	600	Cs-136	800	Lu-177	300	Tl-204	300
Mn-56	300	Y-90	60	Cd-115	90	Cs-137	200	Hf-181	200	Pb-203	1,000
Fe-55	2,000	Y-91	90	Cd-115m	90	Ba-131	600	Ta-182	100	Bi-206	100
Fe-59	200	Y-91m	9,000	In-113m	3,000	Ba-140	90	W-181	1,000	Bi-207	200
Co-57	1,000	Y-92	200	In-114m	60	La-140	60	W-185	300	Pa-230	600
Co-58	300	Y-93	90	In-115	300	Ce-141	300	W-187	200	Pa-233	300
Co-58m	9000	Zr-93	2,000	In-115m	1,000	Ce-143	100	Re-186	300	Np-239	300
Co-60	100	Zr-95	200	Sn-113	300	Ce-144	30	Re-187	9,000	Pu-241	300
Ni-59	300	Zr-97	60	Sn-125	60	Pr-142	90	Re-188	200	Bk-249	2,000
Ni-63	50	Nb-93m	1,000	Sb-122	90	Pr-143	100	Os-185	200		

The sum of the fraction method is used because each photon emitter targets a different organ of the body, which results in a different magnitude of risk. The sum of the beta and photon emitters shall not exceed 4 millirem/year (40 C.F.R. section 141.66(d)(2)).

Each nuclide has a different concentration that produces 4 millirem dose because different radionuclides have different energy levels. Some nuclides need to be in a higher concentration to give the same 4 millirem dose.

The laboratory shall measure the nuclide concentration in the water and compare this result to the concentration allowed for that nuclide (see table below). The comparison results in a fraction. This is shown in calculation below:

Fraction of the Maximum 4 millirem/year exposure limit

$$= \frac{\text{pCi/L found in sample (from laboratory results)}}{\text{pCi/L equivalent from 4 millirem of exposure (from conversion table)}}$$

Each fraction must then be converted to a dose equivalent of 4 millirem/year by multiplying the fraction by 4. The results for each emitter must be summed to determine compliance.

A sample calculation is presented in the table below:

	X	Y	X/Y	4(X/Y)
Emitter	Lab Analysis (pCi/L)	Conversion from table (pCi / 4 millirem)	Calculate Fraction	Calculate Total (millirem)
Cs-134	5,023	20,000	0.25115	1.0
Cs-137	30	200	0.150	0.6
Sr-90	4	8	0.5	2.0
I-131	2	3	0.7	2.8
Sum of the Fractions	---	---	1.60115	6.4

This example system would be considered in violation of the gross beta/photon effluent limitation if the calculated total millirem = 6.4 millirem, which means that the sum of the annual dose equivalent to the total body, or to any internal organ, exceeds 4 millirem/year.

ATTACHMENT A – DEFINITIONS

Added Tracer

A non-reactive substance, with measurable characteristics distinctly different from the receiving groundwater, intentionally added to the water applied at a GRRP for the purpose of being a tracer such that the tracer can be readily identified in the groundwater downgradient of the GRRP to determine the underground retention time of the applied water.

Advanced Treated Recycled Water

In this permit, it refers to the treated recycled water produced by the Advanced Water Treatment Facility (AWTF).

Agronomic Rate

The rate of application of recycled water to plants necessary to satisfy the plants' evapotranspiration requirements, considering allowances for supplemental water (e.g., effective precipitation), irrigation distribution uniformity, and leaching requirement, thus minimizing the movement of nutrients below the plants' root zone.

Arithmetic Mean (μ)

Also called the average, is the sum of measured values divided by the number of samples.

Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during the calendar month divided by the number of daily discharges measured during that month.

Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

Coagulated Wastewater

Oxidized wastewater in which colloidal and finely divided suspended matter have been destabilized and agglomerated upstream from a filter by the addition of suitable flocc-forming chemicals.

Composite Sample, 24-hour

An aggregate sample derived from no fewer than eight samples collected at equal time intervals or collected proportional to the flow rate over the compositing period. The aggregate sample shall reflect the average source water quality covering the composite 24-hour sample period.

Conventional Treatment

A treatment chain that utilizes a sedimentation unit process between the coagulation and filtration processes and produces an effluent that meets the definition for disinfected tertiary recycled water.

Daily Discharge

Daily Discharge is defined as either: (1) the total mass of a constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

Detected, but Not Quantified (DNQ)

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Diluent Water

"Diluent Water" means water, meeting the diluent requirements of chapter 3, division 4 of Title 22 of the California Code of Regulations, used for reducing the recycled municipal wastewater contribution over time.

Disinfected Secondary-2.2

Recycled water that has been oxidized and disinfected so that the median concentration of total coliform bacteria in the disinfected effluent does not exceed a most probable number (MPN) of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed, and the number of coliform organisms does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period.

Disinfected Tertiary Recycled Water

A filtered and subsequently disinfected wastewater that meets the following criteria:

- (a) The filtered wastewater which has been disinfected by either:
 - (1) A chlorine disinfection process following filtration that provides a contact time (CT, the product of total chlorine residual and modal contact time measured at the same point) value of not less than 450 milligram-minutes per liter at all times with a modal contact time of at least 90 minutes, based on peak dry weather design flow; or
 - (2) A disinfection process that, when combined with the filtration process, has been demonstrated to inactivate and/or remove 99.999 percent of the plaque forming units of F-specific bacteriophage MS2, or polio virus in the

wastewater. A virus that is at least as resistant to disinfection as polio virus may be used for purposes of the demonstration.

- (b) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30-day period. No sample exceeds an MPN of 240 total coliform bacteria per 100 milliliters.

Dual-Plumbed System

A system that utilizes separate piping systems for recycled water and potable water within a facility and where the recycled water is used for either of the following purposes:

- (a) To serve plumbing outlets (excluding fire suppression systems) within a building or
- (b) Outdoor landscape irrigation at individual residences.

Estimated Chemical Concentration

The estimated chemical concentration results from the confirmed detection of the substance by the analytical method below the ML value.

Filtered Wastewater

An oxidized wastewater that meets the criteria in subsection (a) or (b):

- (a) Has been coagulated and passed through natural undisturbed soils or a bed of filter media pursuant to the following:
 - (1) At a rate that does not exceed 5 gpm per square foot of surface area in mono, dual or mixed media gravity, upflow or pressure filtration systems, or does not exceed 2 gpm per square foot of surface area in travelling automatic backwash filters; and
 - (2) So that the turbidity of the filtered wastewater does not exceed any of the following:
 - i An average 2 NTU within a 24-hour period;
 - ii 5 NTU more than 5 percent of the time within a 24-hour period; and
 - iii 10 NTU at any time.
- (b) Has been passed through a microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane so that the turbidity of the filtered wastewater does not exceed any of the following:
 - (1) 0.2 NTU more than 5 percent of the time within a 24-hour period; and
 - (2) 0.5 NTU at any time.

F-specific bacteriophage MS-2

A strain of a specific type of virus that infects coliform bacteria that is traceable to the American Type Culture Collection (ATCC 15597B1) and is grown on lawns of *E. Coli* (ATCC 15597).

Grab Sample

An individual sample collected during a period not to exceed 15 minutes. Grab samples shall be collected during normal peak loading conditions for the parameter of interest, which may or may not occur during hydraulic peaks.

Groundwater Replenishment Reuse Project or GRRP

A project involving the planned use of recycled municipal wastewater that is operated for the purpose of replenishing a groundwater basin designated in the Water Quality Control Plan (as defined in Water Code section 13050(j)) for use as a source of municipal and domestic water supply.

Haloacetic Acids, Total

The sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.

Indicator Compound

An individual chemical in a GRRP's municipal wastewater that represents the physical, chemical, and biodegradable characteristics of a specific family of trace organic chemicals; is present in concentrations that provide information relative to the environmental fate and transport of those chemicals; may be used to monitor the efficiency of trace organic compounds removal by treatment processes; and provides an indication of treatment process failure.

Incidental Runoff

Unintended small amounts (volume) of runoff from recycled water use areas, such as unintended, minimal over-spray from sprinklers that escapes the recycled water use area.

Instantaneous Maximum Effluent Limitation

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

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

Intrinsic Tracer

A substance or attribute present in the recharge water at levels different from the receiving groundwater such that the substance in the water applied at the GRRP can be distinctly and sufficiently detected in the groundwater downgradient of the GRRP to determine the underground retention time of the water.

Maximum Contaminant Level (MCL)

The maximum permissible concentration of a contaminant established pursuant to section 116275(c)(1) and (d) of the Health and Safety Code or established by the United States Environmental Protection Agency (U.S. EPA).

Maximum Daily Effluent Limitation (MDEL)

The highest allowable daily discharge of a pollutant over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

Median

The middle measurement in a set of data. The median of a data set is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements (n) is odd, then the median = $X_{(n+1)/2}$. If n is even, then the median = $(X_{n/2} + X_{(n/2) + 1})/2$ (i.e., the midpoint between the n/2 and n/2+1).

Method Detection Limit

MDL is the minimum concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results.

Minimum Level (ML)

The concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

Minimum Reporting Level (MRL)

The smallest measured concentration of a substance that can be reliably measured by using a given analytical method. It is the “less-than” value reported when an analyte either is not detected or is detected at a concentration less than the MRL.

Modal Contact Time

The amount of time elapsed between the time that a tracer, such as salt or dye, is injected into the effluent at the entrance to a chamber and the time that the highest concentration of the tracer is observed in the effluent from the chamber.

Nitrogen, Total

The sum of ammonia, nitrite, nitrate, and organic nitrogen-containing compounds, expressed as nitrogen.

Not Detected (ND)

Sample results which are less than the laboratory's MDL.

Notification Level (NL)

The concentration of a contaminant established by the Department pursuant to section 116455 of the Health and Safety Code.

NTU (Nephelometric Turbidity Unit)

A measurement of turbidity as determined by the ratio of the intensity of light scattered by the sample to the intensity of incident light scattered by the sample to the intensity of incident light as measured by method 2130 B. in Standard Methods for the Examination of Water and Wastewater, 20th ed.; Eaton, A.D., Clesceri, L.S., and Greenberg, A.E., Eds; American Public Health Association: Washington, DC, 1995; p.2-8.

Oxidized Wastewater

Wastewater in which the organic matter has been stabilized, is nonputrescible, and contains dissolved oxygen.

Polychlorinated Biphenyls (PCBs)

The sum of chlorinated biphenyls whose analytical characteristics resemble those of Arochlor-1016, Arochlor-1221, Arochlor-1232, Arochlor-1242, Arochlor-1248, Arochlor-1254, and Arochlor-1260.

Recharge Water

Recycled municipal wastewater, or the combination of recycled municipal wastewater and credited diluent water, which is utilized by a GRRP for groundwater replenishment.

Recycled Municipal Wastewater

Recycled water that is the effluent from the treatment of wastewater of municipal origin.

Recycled Municipal Wastewater Contribution or RWC

The fraction equal to the quantity of recycled municipal wastewater applied at the GRRP divided by the sum of the quantity of recycled municipal wastewater and credited diluent water.

Recycled Water

Water which, as a result of treatment of waste, is suitable for a direct beneficial use or a controlled use that would not otherwise occur therefore considered a valuable resource. (Wat. Code § 13050(n).)

Running Annual Average

The arithmetic mean, calculated quarterly, of the monitoring results from the previous four consecutive quarters. If no sample was collected during a quarter or a result for a quarter is not available, only available data shall be used in the calculation of the running annual average.

Running Four-Week Average

The arithmetic mean, calculated weekly, of the monitoring results from the previous four consecutive weekly sample results.

Spray Irrigation

The application of recycled water to plants to maintain vegetation or support growth of vegetation by applying it from sprinklers.

Subsurface Application

The application of recharge water to a groundwater basin(s) by a means other than surface application.

Surface Irrigation

Application of recycled water by means other than spraying such that contact between the edible portion of any food crop and recycled water is prevented (i.e., drip or flood irrigation).

Surrogate Parameter

A measurable physical or chemical property that has been demonstrated to provide a direct correlation with the concentration of an indicator compound, can be used to monitor the efficiency of trace organic compounds removal by a treatment process, and/or provides an indication of a treatment process failure.

T₁₀ Value

The time it takes for 10 percent of the tracer mass to leave the contact tank.

Total Organic Carbon (TOC)

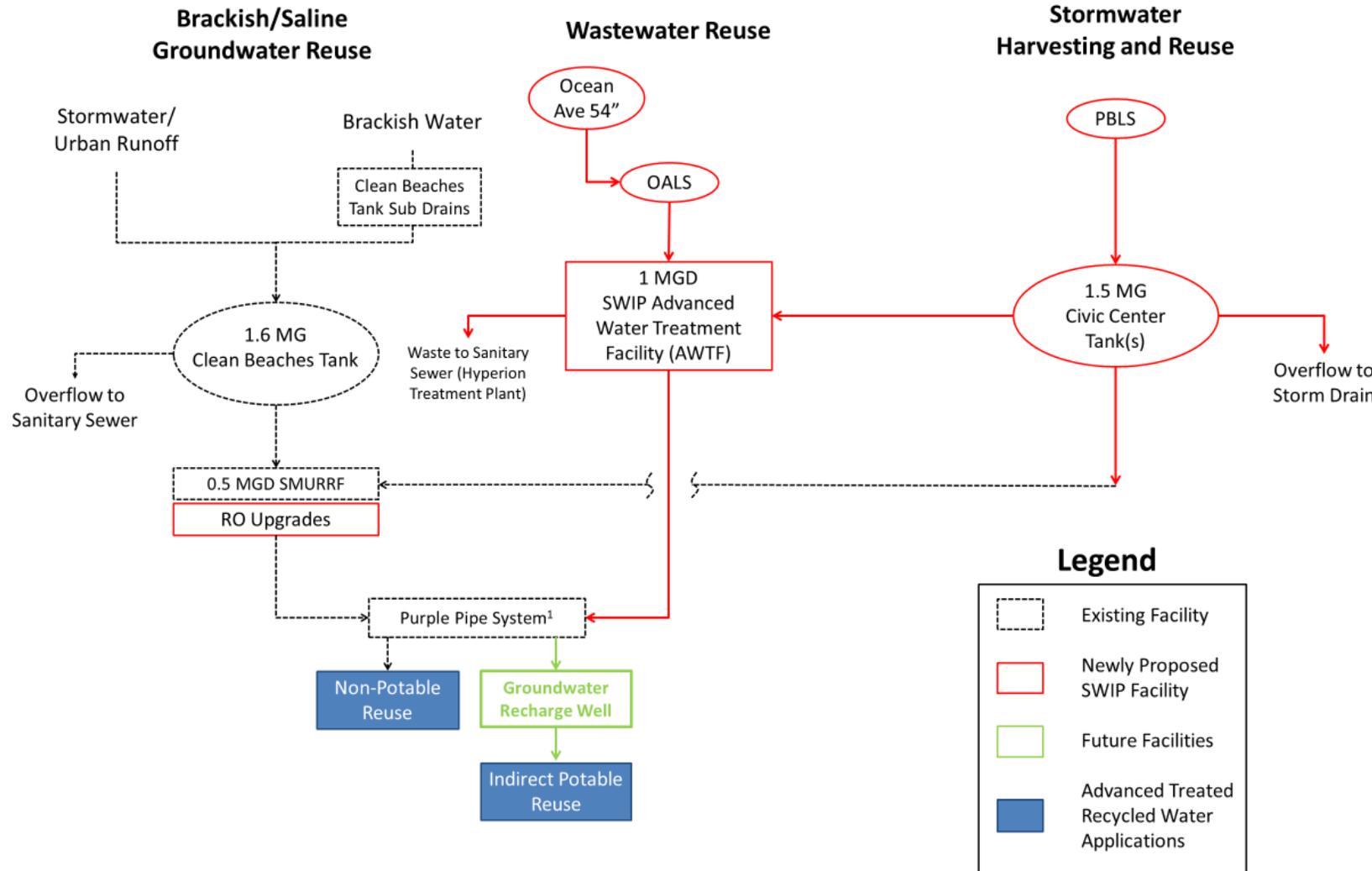
The concentration of organic carbon present in water.

Trihalomethanes, Total

The sum of Bromodichloromethane, Bromoform, Chloroform, and Dibromochloromethane.

Use Area

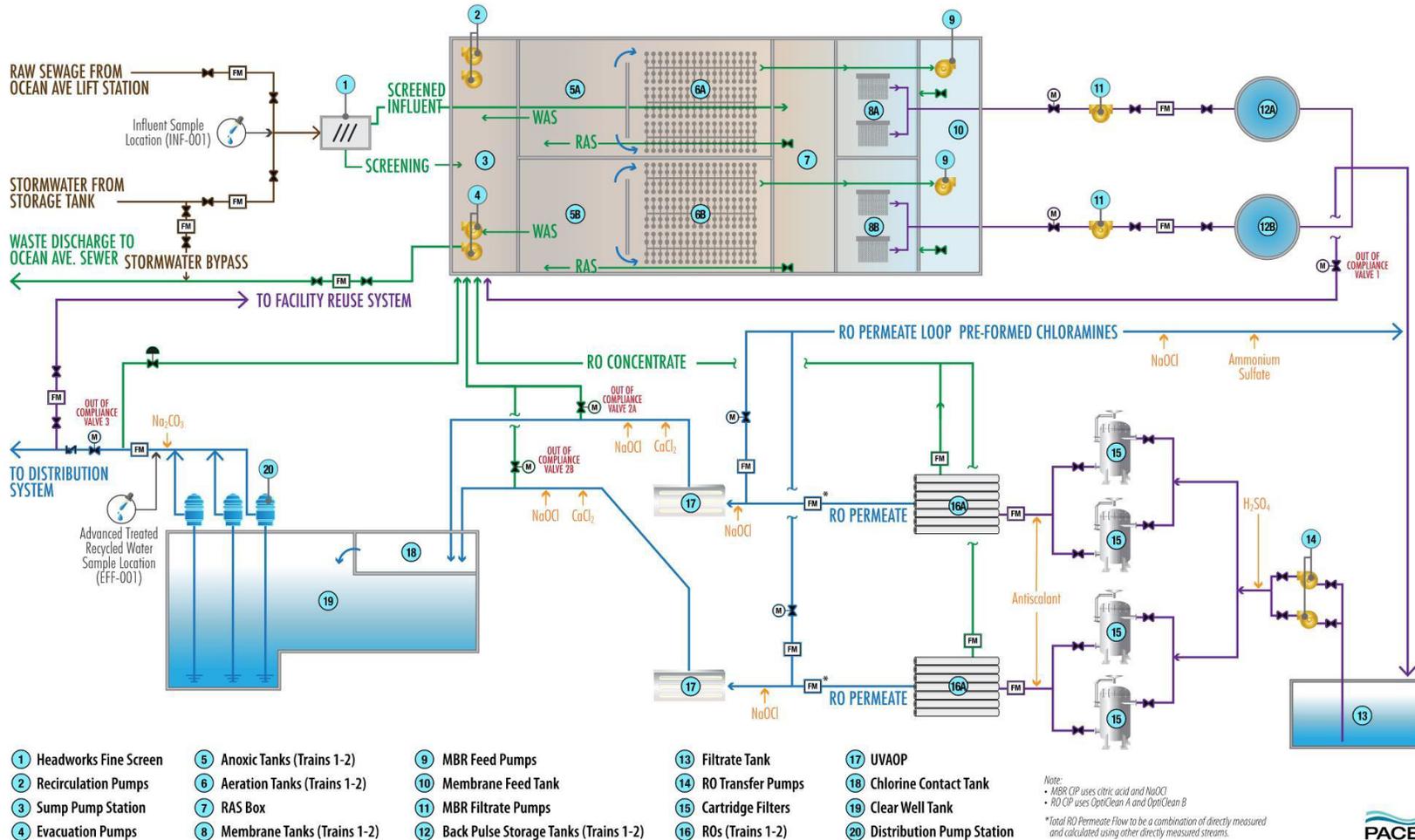
An area of recycled water use with defined boundaries. Agricultural use areas may contain one or more facilities (ditch, irrigated fields, pumping stations, etc.); use areas may also consist of an aggregate of small lots (e.g., residential/ industrial developments, roadway median irrigation, etc.).



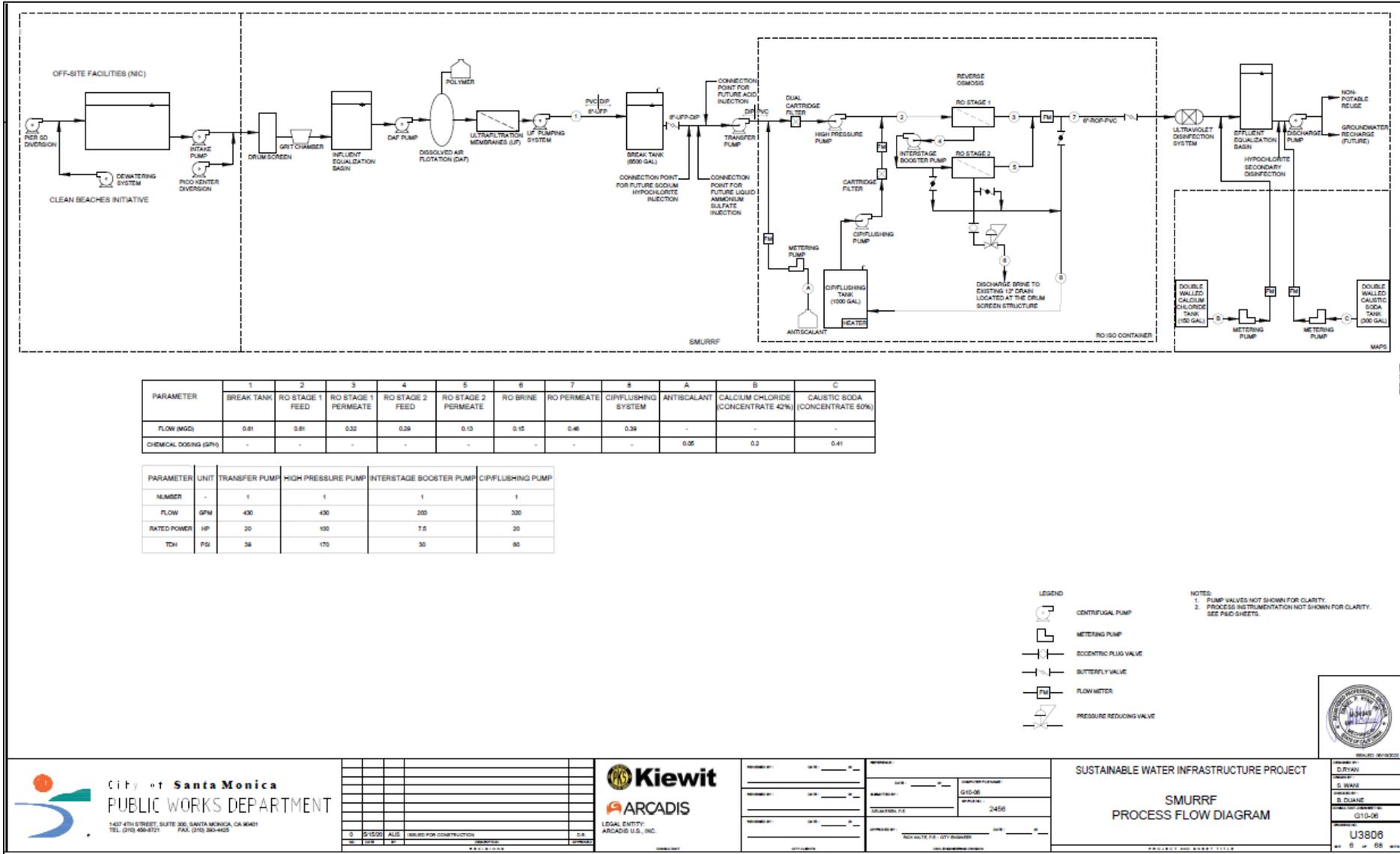
1) SMURRF and SWIP AWTF effluents are mixed within the purple pipe system connection at Ocean Ave and Moomat Ahiko Way

ATTACHMENT C1 – AWTF PROCESS FLOW DIAGRAM

SANTA MONICA SUSTAINABLE WATER INFRASTRUCTURE PROJECT (SWIP)
 AWTF PROCESS FLOW DIAGRAM



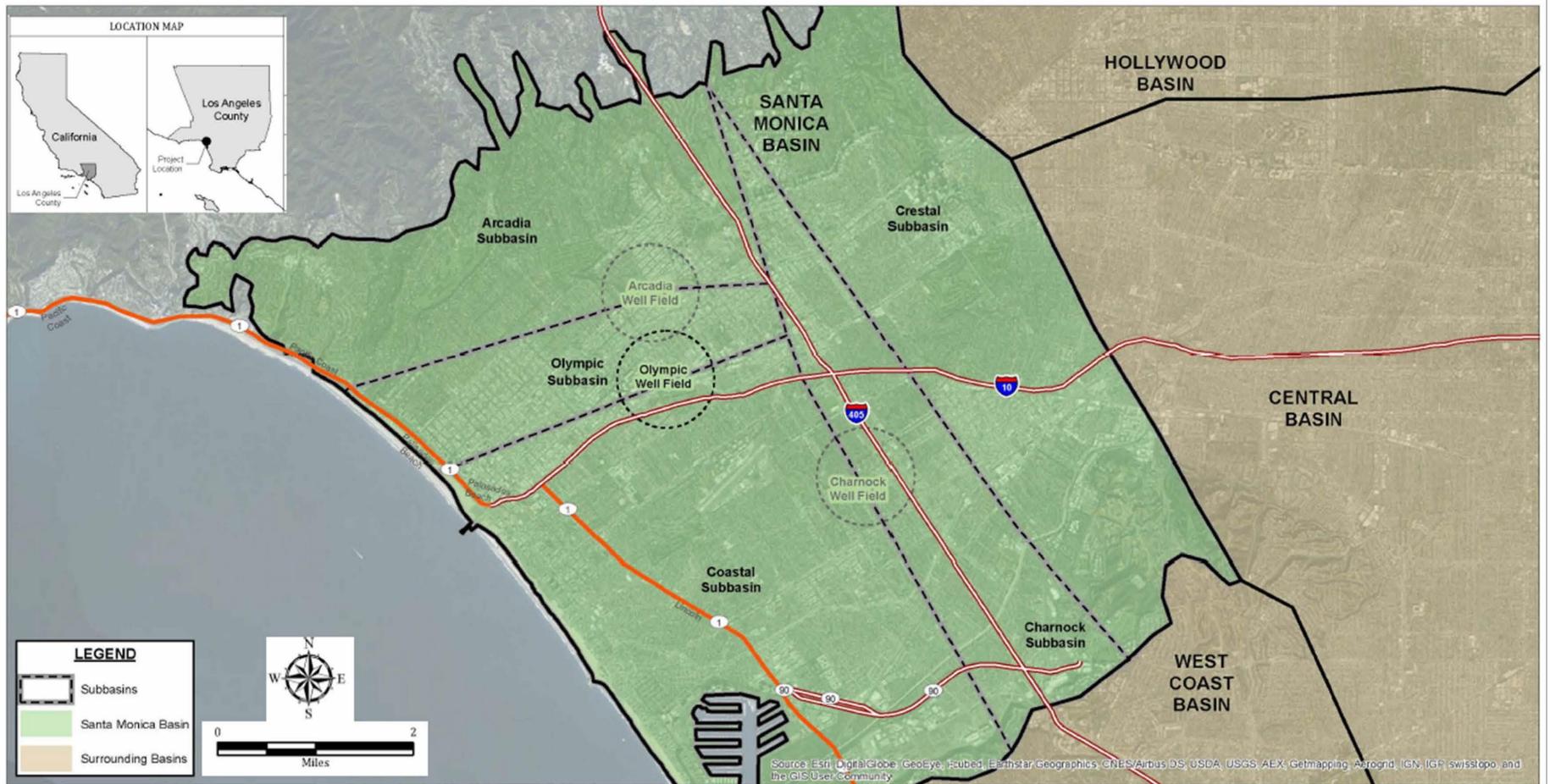
ATTACHMENT C2 – SMURRF PROCESS FLOW DIAGRAM



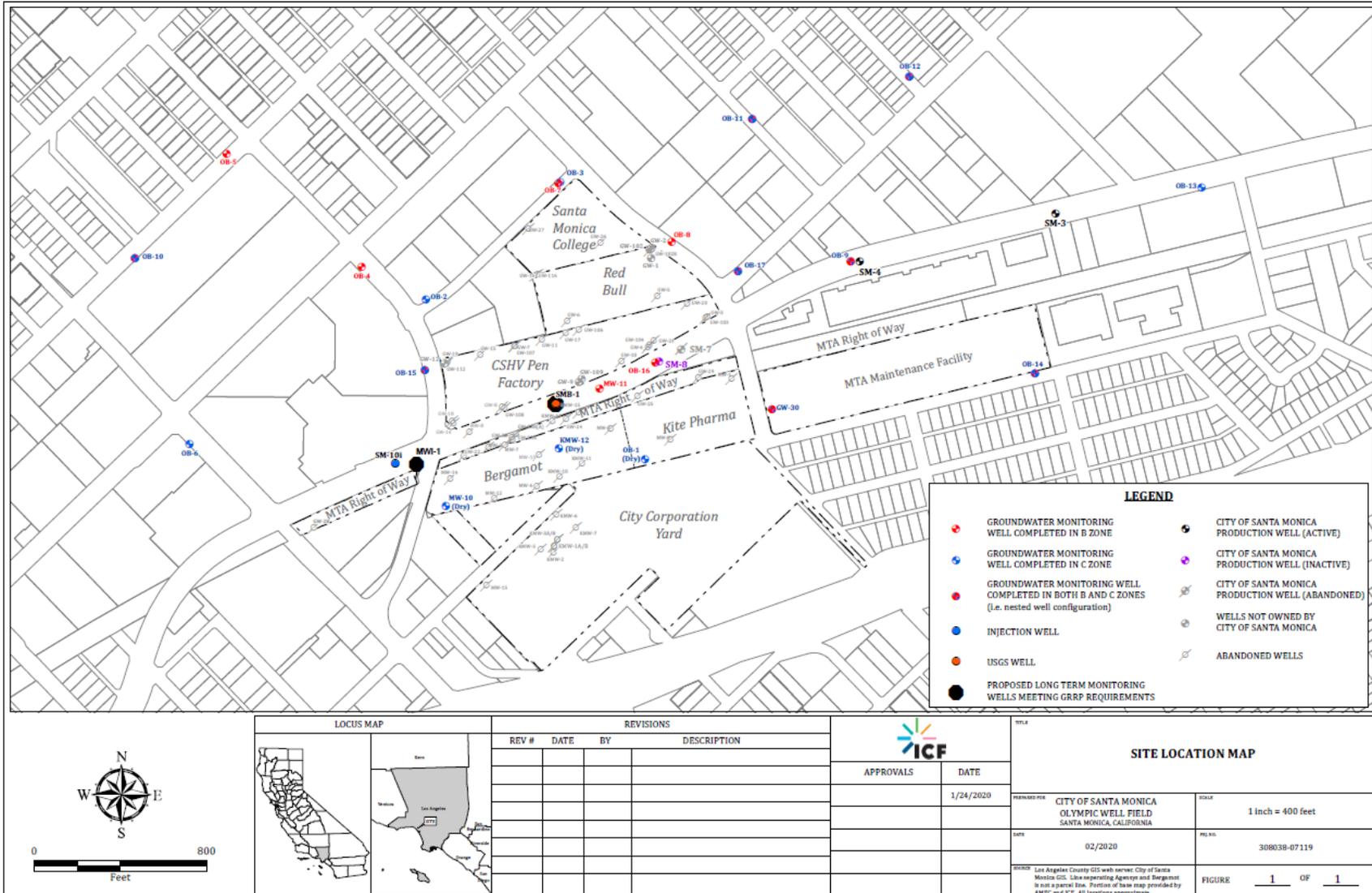
ATTACHMENT C3 – RECYCLED WATER DISTRIBUTION AREA



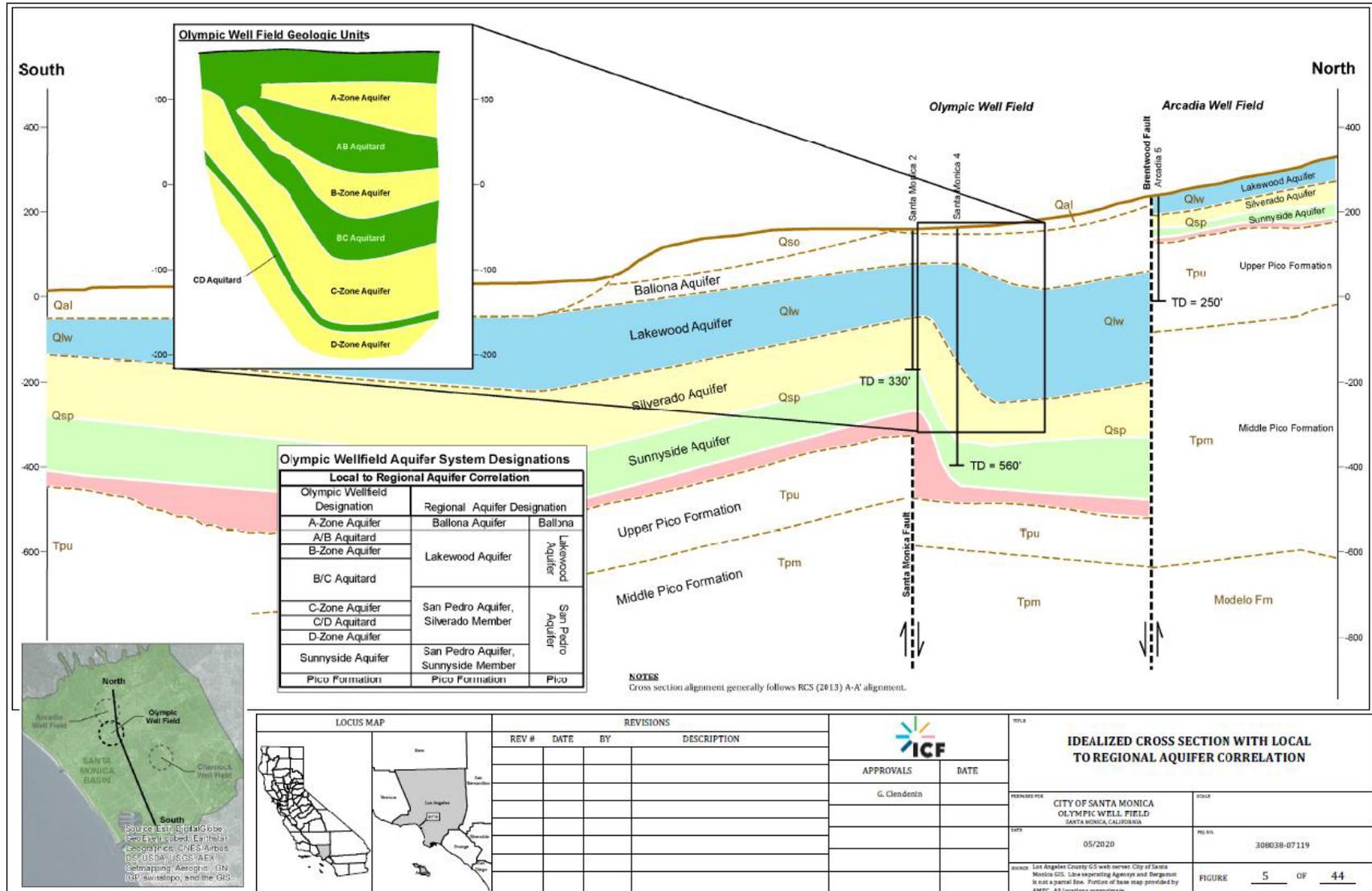
ATTACHMENT C4 – SANTA MONICA GROUNDWATER SUBBASINS



ATTACHMENT C5 – MONITORING WELL NETWORK



ATTACHMENT C6 – LOCAL AND REGIONAL AQUIFER DESIGNATION



ATTACHMENT D - STANDARD PROVISIONS
STANDARD PROVISIONS
APPLICABLE TO WASTE DISCHARGE REQUIREMENTS

1. Duty to Comply

The Permittee shall comply with all conditions of these waste discharge requirements. A responsible party has been designated in the Order for this project and is legally bound to maintain the monitoring program and permit. Violations may result in enforcement actions, including Los Angeles Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these waste discharge requirements by the Los Angeles Water Board (Wat. Code §§ 13261, 13263, 13265, 13268, 13300, 13301, 13304, 13340, 13350). Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or other order or prohibition issued, reissued, or amended by the Los Angeles Water Board or State Water Board is a violation of these waste discharge requirements and the Water Code, which can result in the imposition of civil liability. (Wat. Code § 13350, subd. (a)).

2. General Prohibition

Neither the treatment nor the discharge of waste shall create a pollution, contamination or nuisance, as defined by CWC section 13050. In addition, the discharge of waste classified as hazardous, as defined in 23 CCR section 2521(a), is also prohibited.

3. Availability

A copy of these waste discharge requirements shall be maintained at the discharge facility and be available at all times to operating personnel (Wat. Code § 13263).

4. Change in Ownership

The Permittee shall notify any succeeding owner or operator of the existence of this Order by letter, a copy of which shall be forwarded to the Los Angeles Water Board. The Permittee shall notify the Los Angeles Water Board, in writing, at least 60 days in advance of ownership change and provide a date on which the transfer of this Order's responsibility and coverage will go from the current discharger to the new discharger. The notification shall include an agreement between the parties to transfer responsibility for compliance with the Order. The agreement shall include an acknowledgement that the existing discharger is liable for violations up to the transfer date and that the new discharger is liable from the transfer date forward. The succeeding owner or operator shall submit a Report of Waste Discharge that requests an amendment to formally amend the Order to acknowledge the transfer.

5. Change in Discharge

In the event of a material change in the character, location, or volume of a discharge, the Permittee shall file with the Los Angeles Water Board a new Report

of Waste Discharge (Wat. Code § 13260, subd. (c)). A material change includes, but is not limited to, the following:

- 5.1. Addition of a major industrial waste discharge to a discharge of essentially domestic sewage, or the addition of a new process or product by an industrial facility resulting in a change in the character of the waste.
- 5.2. Significant change in disposal method, e.g., change from a land disposal to a direct discharge to water, or change in the method of treatment which would significantly alter the characteristics of the waste.
- 5.3. Significant change in the disposal area, e.g., moving the discharge to another drainage area, to a different water body, or to a disposal area significantly removed from the original area potentially causing different water quality or nuisance problems.
- 5.4. Increase in flow beyond that specified in the waste discharge requirements.
- 5.5. Increase in area or depth to be used for solid waste disposal beyond that specified in the waste discharge requirements (23 CCR section 2210).

6. Revision

These waste discharge requirements are subject to review and revision by the Regional Water Board (Wat. Code § 13263).

7. Notification

Where the Permittee becomes aware that it failed to submit any relevant facts in a Report of Waste Discharge or submitted incorrect information in a Report of Waste Discharge or in any report to the Regional Water Board, it shall promptly submit such facts or information (Wat. Code §§ 13260 and 13267).

8. Vested Rights

This Order does not convey any 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, do not protect the Permittee from his liability under Federal, State or local laws, nor do they create a vested right for the Permittee to continue the waste discharge (Wat. Code § 13263 subd. (g)).

9. Severability

Provisions of these waste discharge requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected (Wat. Code § 921).

10. Operation and Maintenance

The Permittee shall, at all times, properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with conditions of this Order. Proper operation and maintenance includes effective performance, adequate funding, adequate operator staffing and training, and adequate laboratory and

process controls including appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems only when necessary to achieve compliance with the conditions of this Order (Wat. Code § 13263, subd. (f)).

11. Hazardous Releases

Except for a discharge which is in compliance with these waste discharge requirements, any person who, without regard to intent or negligence, causes or permits any hazardous substance or sewage to be discharged in or on any waters of the State, or discharged or deposited where it is, or probably will be, discharged in or on any waters of the State, shall, as soon as (a) that person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to Article 3.7 (commencing with section 8574.16) of the Government Code, and immediately notify the State Water Board or the appropriate Regional Water Board of the discharge. This provision does not require reporting of any discharge of less than a reportable quantity as provided for under subdivisions (f) and (g) of CWC section 13271 unless the discharge is in violation of a prohibition in the applicable Water Quality Control Plan (Wat. Code § 13271, subd. (a)).

12. Oil or Petroleum Releases

Except for a discharge which is in compliance with these waste discharge requirements, 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 it is, or probably will be, discharged in or on any water of the State, shall, as soon as (a) such person has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, immediately notify the Office of Emergency Services of the discharge in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Article 3.5 (commencing with section 8574.1) of the Chapter 7, Division 1, of Title 2 of the Government Code. This provision does not require reporting of any discharge of less than 42 gallons unless the discharge is also required to be reported pursuant to Section 311 of the Clean Water Act or the discharge is in violation of a prohibition in the applicable Water Quality Control Plan (Wat. Code § 13272).

13. Entry and Inspection

The Permittee shall allow the Los Angeles Water Board, or an authorized representative upon the presentation of credentials and other documents as may be required by law, to:

- 13.1. Enter upon the Permittee's processes where a regulated facility or activity is located or conducted, or where records shall be kept under the conditions of this Order;
- 13.2. Have access to and copy at reasonable times, any records that shall be kept under the conditions of this Order;
- 13.3. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order; and
- 13.4. Sample or monitor at reasonable times, for the purposes of assuring compliance with this Order, or as otherwise authorized by the California Water Code, any substances or parameters at any location (Wat. Code § 13267).
- 13.5. Except for material determined to be confidential in accordance with applicable law, all reports prepared in accordance with the terms of this Order shall be available for public inspection at the Los Angeles Water Board office. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

14. Monitoring Program and Devices

The Permittee shall furnish, under penalty of perjury, technical monitoring program reports; such reports shall be submitted in accordance with specifications prepared by the Executive Officer, which specifications are subject to periodic revisions as may be warranted (Wat. Code § 13267).

All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices. Annually, the Permittee shall submit to the Executive Officer a written statement, signed by a registered professional engineer, certifying that all flow measurement devices have been calibrated and will reliably achieve the accuracy required.

The analysis of any material required pursuant to Division 7 of the Water Code shall be performed by a laboratory that has accreditation or certification pursuant to Article 3 (commencing with section 100825) of Chapter 4, Part 1, Division 101 of the Health and Safety Code. However, this requirement does not apply to field tests, such as tests of color, odor, turbidity, pH, temperature, dissolved oxygen, conductivity, and disinfectant residual chlorine (Wat. Code § 13176).

Unless otherwise permitted by the Los Angeles Water Board Executive Officer, all analyses shall be conducted at an accredited laboratory certified under the Environmental Laboratory Accreditation Program (ELAP) for such analyses by the State Water Resources Control Board, Division of Drinking Water. All analyses shall be required to be conducted in accordance with the latest edition of

“Guidelines Establishing Test Procedures for Analysis of Pollutants” (40 C.F.R. section 136) promulgated by the U.S. EPA (23 CCR section 2230). The Quality Assurance-Quality Control Program must conform with the U.S. EPA guidelines, “Laboratory Documentation Requirements for Data Validation,” August 2001, USEPA Region 9) or procedures approved by the Los Angeles Water Board.

All quality assurance and quality control (QA/QC) analyses must be run on the same dates when samples were actually analyzed. All QA/QC data shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantification limits, percent recovery, and an explanation for any recovery that falls outside the QC limits, the results of the method and equipment blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (e.g. field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

The Permittee shall make all QA/QC data available for inspection by Los Angeles Water Board staff and submit the QA/QC documentation with its respective monitoring report. Proper chain of custody procedures must be followed, and a copy of that documentation shall be submitted with the monitoring report.

15. Treatment Failure

In an enforcement action, it shall not be a defense for the Permittee that it would have been necessary to halt or to reduce the permitted activity in order to maintain compliance with this Order. Upon reduction, loss, or failure of the treatment facility, the Permittee shall, to the extent necessary to maintain compliance with this Order, control production or all discharges, or both, until the facility is restored, or an alternative method of treatment is provided. This provision applies, for example, when the primary source of power of the treatment facility fails, is reduced, or is lost (Wat. Code § 13263, subd. (f)).

16. Discharge to Navigable Waters

Any person discharging or proposing to discharge to navigable waters of the United States within the jurisdiction of this state or a person who discharges dredged or fill material or proposes to discharge dredged or fill material into navigable waters of the United States within jurisdiction of this state, shall file a report of waste discharge in compliance with the procedures set forth in CWC section 13260 (Wat. Code § 13376).

17. Endangerment to Health and Environment

The Permittee shall report any noncompliance which may endanger health or the environment. Any such information shall be provided verbally to the Executive Officer within 24 hours from the time the Permittee becomes aware of the circumstances. A written submission shall also be provided within five days of the time the Permittee becomes aware of the circumstances. The written submission

shall contain a description and times, and if the noncompliance has not been corrected; the anticipated time it is expected to continue and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. The Executive Officer, or an authorized representative, may waive the written report on a case-by-case basis if the oral report has been received within 24 hours. The following occurrence(s) shall be reported to the Executive Officer within 24 hours:

- 17.1. Any bypass from any portion of the treatment facility;
- 17.2. Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge or any other circumstances; and,
- 17.3. Any treatment plant upset which causes the effluent limitation of this order to be exceeded (Wat. Code §§ 13263 and 13267).

18. Maintenance of Records

The Permittee shall retain records of all monitoring information including all calibration and maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of three years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Los Angeles Water Board Executive Officer.

Records of monitoring information shall include:

- 18.1. The date, exact place, and time of sampling or measurements;
- 18.2. The individual(s) who performed the sampling or measurements;
- 18.3. The date(s) analyses were performed;
- 18.4. The individual(s) who performed the analyses;
- 18.5. The analytical techniques or method used; and
- 18.6. The results of such analyses.

19. Signatory Requirement

- 19.1. All application reports or information to be submitted to the Executive Officer shall be signed and certified as follows:
 - 19.1.1. For a corporation – by a principle executive officer or at least the level of vice president.
 - 19.1.2. For a partnership or sole proprietorship – by a general partner or the proprietor, respectively.
 - 19.1.3. For a municipality, state, federal or other public agency – by either a principal executive officer or ranking elected official.

19.2. A duly authorized representative of a person designated in paragraph (a) of this provision may sign documents if:

19.2.1. The authorization is made in writing by a person described in paragraph (a) of this provision.

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

19.2.3. The written authorization is submitted to the Executive Officer.

Any person signing a document under this section shall make the following certification:

“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 fine and imprisonment. [Wat. Code §§ 13263, 13267, and 13268].”

20. Operator Certification

Supervisors and operators of water recycling treatment plants shall possess a certificate of appropriate grade in accordance with 23 CCR section 3680. State Water Boards may accept experience in lieu of qualification training (23 CCR § 3680). In lieu of a properly certified wastewater treatment plant operator, the State Water Board may approve use of a water treatment plant operator of appropriate grade certified by the State Department of Public Health where reclamation is involved (23 CCR § 3670.1).

**ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP) CI-10569
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ATTACHMENT E - MONITORING AND REPORTING PROGRAM (MRP) CI-10569

This Monitoring and Reporting Program is issued by the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) pursuant to California Water Code (Wat. Code § 13267(b)(1), which authorizes the Los Angeles Water Board to require the submittal of technical and monitoring reports. It is also issued pursuant to the State Water Board's Recycled Water Policy and Title 22 of the California Code of Regulations (22 CCR) section 60320.200 et seq., which requires monitoring and reporting for recycled water discharges. The reports required by this MRP are necessary to ensure compliance with Waste Discharge Requirements (WDRs) and Water Reclamation Requirements (WRRs) Order No. R4-2023-0366 for the Santa Monica Advanced Water Treatment Facility (AWTF) and Santa Monica Urban Runoff Recycling Facility (SMURRF). The City of Santa Monica (City or Permittee) owns and operates the AWTF, SMURRF and the recycled water distribution system, and is, therefore, responsible for compliance with this Order. The City shall implement this MRP on the effective date of this Order. Failure to comply with this MRP could result in the imposition of monetary civil liability pursuant to Division 7 of the California Water Code and other applicable laws.

1. GENERAL MONITORING AND REPORTING REQUIREMENTS

1.1. The City shall monitor the following according to the manner and frequency specified in this MRP:

1.1.1. Influent to the AWTF

1.1.2. Feedwater to RO or RO/UVAOP for Recycled Water Policy CECs and surrogates

1.1.3. Influent to SMURRF

1.1.4. Advanced treated recycled water used for groundwater recharge

1.1.5. SMURRF effluent (diluent water)

1.1.6. Receiving groundwater (in monitoring wells MWi-1 and SMB-1)

1.2. Monitoring reports shall include, but are not limited to, the following:

1.2.1. Analytical results.

1.2.2. Location of each sampling station where representative samples are obtained.

1.2.3. Analytical test methods used and the corresponding minimum reporting levels (MRLs).

1.2.4. Name(s) of the laboratory that conducted the analyses.

1.2.5. Copy of laboratory certifications by the State Water Resources Control Board, Division of Drinking Water's (DDW) Environmental Laboratory Accreditation Program (ELAP).

1.2.6. A summary of quality assurance and control (QA/QC) measures, including documentation of chain of custody.

- 1.2.7.** Applicable Maximum Contaminant Levels (MCLs), Notification Levels (NLs), response levels, DDW conditions or advanced treated recycled water discharge limits.
- 1.2.8.** A summary of noncompliance during the monitoring period.
- 1.3.** The City shall have written sampling protocols in place. For groundwater monitoring, the sampling protocols shall outline the methods and procedures used for measuring water levels; purging wells; collecting samples; decontaminating equipment; containing, preserving, and shipping samples, and maintaining appropriate documentation. The sampling protocols shall also include the procedures for handling, storing, testing, and disposing of purge and decontamination waters generated from the sampling events.
- 1.4.** The City shall notify the Los Angeles Water Board and DDW by telephone (Adam Taing at (213) 576-6752 and Thomas Tsui at (818) 551-2036) or by electronic means (losangeles@waterboards.ca.gov and ddwrecycledwater@waterboards.ca.gov and Terrance.Kim@waterboards.ca.gov) within 24 hours of knowledge of any violations of this Order that may endanger human health or the environment. Written confirmation shall be submitted within 5 working days from the date of notification. The report shall include, but shall not be limited to the following information:
- 1.4.1.** The nature and extent of the violation.
- 1.4.2.** The date and time when the violation started; when compliance was achieved; and, when distribution of recycled water was suspended and restored, as applicable.
- 1.4.3.** The duration of the violation.
- 1.4.4.** The cause(s) of the violation.
- 1.4.5.** Any corrective and/or remedial actions that have been taken and/or will be taken with a time schedule for implementation to prevent future violations.
- 1.4.6.** Any impact of the violation.
- 1.5.** Samples shall be analyzed using analytical methods described in Section 141 of Title 40 of the Code of Federal Regulations (40 C.F.R. section 141); or where no methods are specified for a given pollutant, by methods approved by DDW, the Los Angeles Water Board and/or the State Water Board, the City shall select the analytical methods that provide Minimum Reporting Levels (MRLs) lower than the limits prescribed in this Order or as low as possible that will provide reliable data.
- 1.6.** Analyses for chemicals other than those with primary MCLs and secondary MCLs, the City shall select methods based on the following approach:
- 1.6.1.** Use the drinking water methods or wastewater methods sufficient to evaluate all water quality objectives and protect all beneficial uses.
- 1.6.2.** Use DDW-recommended methods for unregulated chemicals, if available.

- 1.6.3.** If there is no DDW-recommended drinking water method for a chemical, and more than a single United States Environmental Protection Agency (U.S. EPA)-approved method is available, use the most sensitive of the U.S. EPA-approved method.
- 1.6.4.** If there is no U.S. EPA-approved method for a chemical, and more than one method is available from the scientific literature and commercial laboratory, after consultation with DDW, use the most sensitive method.
- 1.6.5.** If no approved method is available for a specific chemical, the City's laboratory may develop or use its own methods and should provide the analytical methods to DDW for review. Those methods may be used until DDW-recommended or U.S. EPA-approved methods are available.
- 1.6.6.** If the only method available for a chemical is for wastewater analysis (e.g. a chemical listed as a priority pollutant only), that chemical will be sampled and analyzed using wastewater methods specified in 40 C.F.R. section 136. This approach will be used until a DDW-recommended or U.S. EPA-approved drinking water method is available.
- 1.6.7.** For CECs subject to the Recycled Water Policy, monitoring of advanced treated recycled water and tertiary treated recycled water prior to RO/AOP shall use analytical methods selected to achieve the Reporting Limits included in the Recycled Water Policy. Any modifications to the published or certified methods shall be reviewed by DDW and subsequently submitted to the Los Angeles Water Board in an updated quality assurance plan.
- 1.7.** The City shall instruct its laboratories to establish calibration standards so that the MRLs (or equivalent if there is a different treatment of samples relative to calibration standards) are the lowest calibration standard. At no time shall the analytical data be derived from extrapolation beyond the lowest point of the calibration curve.
- 1.8.** Pursuant to 22 CCR section 60320.204, analyses for contaminants having primary or secondary MCLs shall be performed by laboratories approved to perform such analyses by DDW using DDW-approved drinking water methods.
- 1.9.** For regulated constituents, the laboratory conducting the analyses shall be certified by ELAP or approved by DDW or the Los Angeles Water Board.
- 1.10.** Upon request by the City, the Los Angeles Water Board, in consultation with DDW and the State Water Board Quality Assurance Program, may establish MRLs, in any of the following situations:
- 1.10.1.** When the pollutant has no established method under 40 C.F.R. section 141.
- 1.10.2.** When the method under 40 C.F.R. section 141 for the pollutant has an MRL higher than the limit specified in this Order.
- 1.10.3.** When the City agrees to use a test method that is more sensitive than those specified in 40 C.F.R. section 141.

- 1.11. Samples shall be analyzed within allowable holding time limits as specified in 40 C.F.R. section 141. All QA/QC analyses shall be conducted on the same dates the samples are analyzed. The City shall retain the QA/QC documentation in its files for three years and make available for inspection and/or submit them when requested by the Los Angeles Water Board or DDW. Proper chain of custody procedures shall be followed, and a copy of this documentation shall be submitted with the quarterly report.
- 1.12. Each monitoring report shall include a separate section titled "Summary of Non-compliance" which discusses the compliance record and corrective actions taken or planned that may be needed to bring the discharge into full compliance with waste discharge requirements. This section shall clearly list all non-compliance as well as all excursions of advanced treated recycled water limitations.
- 1.13. For bacterial analyses, sample dilutions shall be performed so the expected range of values is bracketed (for example, with multiple tube fermentation method or membrane filtration method, 2 to 16,000 per 100 mL for total, fecal coliform, and *E. coli*, at a minimum, and 1 to 1,000 per 100 mL for *Enterococcus*). The detection methods used for each analysis shall be reported with the results of the analyses.
- 1.14. Quarterly monitoring shall be performed during the months of February, May, August, and November; semiannual monitoring shall be performed during the months of February and August; and annual monitoring shall be performed during the third quarter (July thru September) of each calendar year. Should there be instances when monitoring could not be conducted during the specified months, the City shall conduct the monitoring as soon as possible and state in the monitoring report the reason monitoring could not be conducted during the specified month. Results of quarterly, semiannual and annual analyses shall be reported in the quarterly monitoring report following the analysis.
- 1.15. For CECs subject to the State Water Board's *Recycled Water Policy* as amended December 11, 2018, analytical methods for laboratory analyses of CECs shall be selected to achieve the Reporting Limits presented in Table 1 of Attachment A of the *Recycled Water Policy*. The analytical methods shall be based on methods approved by the U.S. EPA, the Standards Methods Committee, the American Society for Testing and Materials International, or other methods that have been validated and approved by the regional water boards or State Water Board for the analytes in the applicable matrix. Any modifications to the published or certified methods shall be included in an updated quality assurance project plan and submitted to the Los Angeles Water Board and State Water Board.
- 1.16. **Compliance with Primary MCLs**
 - 1.16.1. This section applies to recycled water or recharge water only and does not apply to pre-existing conditions such as from background groundwater samples prior to project startup. Compliance with primary MCLs is based on the results of accelerated monitoring.

1.16.2. For all pollutants except total nitrogen, nitrate, nitrite, nitrate plus nitrite, perchlorate, asbestos, lead, copper and any other pollutant for which DDW determines should not comply with this section, compliance shall be determined as follows:

1.16.2.1. If a result of the monitoring performed exceeds a contaminant's MCL or action level (for lead and copper), the City shall collect another sample within 72 hours of notification of the result and then have it analyzed for the contaminant as confirmation.

1.16.2.2. 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 pursuant to this subsection, the City shall notify DDW and the Los Angeles Water Board within 24 hours and initiate weekly monitoring until four consecutive weekly results are below the contaminant's MCL or action level. If the running four-week average exceeds the contaminant's MCL or action level, the City shall notify DDW and the Los Angeles Water Board within 24 hours and, if directed by DDW or the Los Angeles Water Board, suspend application of the recycled municipal wastewater.

1.16.3. For perchlorate, asbestos, lead, copper and any other pollutant for which DDW determines does not need to comply with the requirements in section 1.16.2 or 1.19 of this MRP, compliance shall be determined as follows:

1.16.3.1. If a result of the monitoring performed exceeds a contaminant's MCL or action level (for lead and copper), the City shall collect another sample within 72 hours of notification of the result and then have it analyzed for the contaminant as confirmation.

1.16.3.2. If the average of the initial and confirmation sample exceeds the contaminant's MCL, or a confirmation sample is not collected and analyzed pursuant to this subsection, the City shall initiate weekly monitoring for the contaminant until the running four-week average no longer exceeds the contaminant's MCL.

1.16.3.3. If the running four-week average exceeds the contaminant's MCL, the City shall describe the reason(s) for the exceedance and provide a schedule for completion of corrective actions in a report submitted to DDW and the Los Angeles Water Board no later than 45 days following the quarter in which the exceedance occurred.

1.16.3.4. If the running four-week average exceeds the contaminant's MCL for sixteen consecutive weeks, a City shall notify DDW and the Los Angeles Water Board within 48 hours of knowledge of the exceedance and, if directed by DDW or the Los Angeles Water Board, suspend application of the recycled municipal wastewater.

1.17. Compliance with Secondary MCLs

If any single sample monitoring result from EFF-001 or SM-EFF-001 exceeds the contaminant's secondary MCL (or Secondary MCL Upper Limit), the City shall initiate quarterly monitoring of the advanced treated recycled water for the

contaminant. In addition, if the running annual average of quarterly-averaged results from EFF-001 or SM-EFF-001 exceeds a contaminant's secondary MCL or Secondary MCL Upper Limit, the City shall describe the reason(s) for the exceedance and any corrective actions taken. A report shall be submitted to the Los Angeles Water Board no later than 45 days following the quarter in which the exceedance occurred, with a copy concurrently provided to DDW. The annual monitoring may resume if the running annual average of quarterly results does not exceed a contaminant's secondary MCL or Secondary MCL Upper Limit.

1.18. Procedures for Monitoring Pollutants with Notification Levels

1.18.1. During each quarter, the City shall sample and analyze the advanced treated recycled water at EFF-001 and advanced treated effluent at SM-EFF-001 for DDW-specified chemicals having notification levels (NLs). Refer to Table E-11 and Attachment G for the list of constituents and NLs, respectively.

1.18.2. If the result of the monitoring from EFF-001 or SM-EFF-001 exceeds an NL, within 72 hours of notification of the result, the City shall collect another sample, and have it analyzed for the contaminant as confirmation. If the average of the initial and confirmation sample from EFF-001 or SM-EFF-001 exceeds the contaminant's NL, or a confirmation sample is not collected and analyzed, the City shall initiate weekly monitoring for the contaminant until the running four-week average no longer exceeds the NL.

1.18.2.1. If the running four-week average exceeds the contaminant's NL, the City shall describe the reason(s) for the exceedance and provide a schedule for completion of corrective actions in a report submitted to DDW and Los Angeles Water Board no later than 45 days following the quarter in which the exceedance occurred.

1.18.2.2. If the running four-week average exceeds the contaminant's NL for 16 consecutive weeks, the City shall notify DDW and the Los Angeles Water Board within 48 hours of knowledge of the exceedance.

1.19. Nitrogen Compounds Control

Compliance with the nitrogen compounds requirements of this Order shall be demonstrated in the advanced treated recycled water for subsurface injection at Monitoring Locations EFF-001 and SM-EFF-001.

1.19.1. Total nitrogen samples shall be analyzed within 72 hours and the results shall be reported to the City within the same 72 hours if the result of any single sample exceeds 10 mg/L.

1.19.2. If the average of the results of two consecutive total nitrogen samples exceeds 10 mg/L, the City shall:

1.19.2.1. Collect a confirmation sample and notify DDW and the Los Angeles Water Board within 48 hours of being notified by the laboratory.

1.19.2.2. Investigate the cause for the exceedances and take actions to reduce the total nitrogen concentrations to ensure continued or future exceedances do not occur.

1.19.2.3. Initiate additional monitoring for nitrogen compounds, 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.

1.19.3. If the average of the results of four consecutive total nitrogen samples collected at EFF-001 exceeds 10 mg/L, the City shall suspend the subsurface application of the advanced treated recycled water but SMURRF effluent can be used for subsurface application as long as its water quality meets the effluent limitations. The same conditions apply to SMURRF in the event of four consecutive total nitrogen exceedances. Subsurface application shall not resume until corrective actions have been taken and at least two consecutive total nitrogen sampling results are less than 10 mg/L.

1.19.4. Following DDW and Los Angeles Water Board approval, the City may initiate reduced monitoring frequencies for total nitrogen, nitrate, and nitrite. The City may apply to DDW and the Los Angeles Water Board for reduced monitoring frequencies for total nitrogen, nitrate, and nitrite if, for the most recent 12 months:

1.19.4.1. The average of all results did not exceed 5 mg/L total nitrogen.

1.19.4.2. The average of a result and its confirmation sample (taken within 24 hours of receipt of the initial result) did not exceed 10 mg/L total nitrogen.

1.19.4.3. If the results of reduced monitoring exceed the total nitrogen concentration of 10 mg/L, the City shall revert to the monitoring frequencies for total nitrogen prior to implementation of the reduced frequencies. Reduced frequency monitoring shall not resume unless the requirements in section 1.19.4.1 and 1.19.4.2 are met.

1.20. Total Organic Carbon Monitoring

1.20.1. If the advanced treated recycled water limitation for total organic carbon (TOC) is exceeded based on a 20-week running average, the City shall:

1.20.1.1. Immediately suspend subsurface application of the advanced treated recycled water until at least two consecutive results, three days apart, are less than the limit.

1.20.1.2. Notify DDW and the Los Angeles Water Board within seven days of suspending operations.

1.20.1.3. Within 60 days, submit a report to DDW and the Los Angeles Water Board describing the reasons for the exceedance and the corrective actions taken to avoid future exceedances. At a minimum the corrective actions shall include a reduction of the recycled water contribution sufficient to comply with the limit, if applicable.

1.20.2. If the advanced treated recycled water limitation for TOC is exceeded based on the average of the last four TOC results, the City shall, within 60 days of being notified of the results, submit a report to DDW and the Los Angeles Water Board describing the reasons for the exceedance and the corrective actions taken to avoid future exceedance.

1.21. Pathogenic Organisms

1.21.1. The City shall design and operate the GRRP such that the recycled municipal wastewater used as recharge water for the GRRP receives treatment that achieves at least 12-log enteric virus reduction, 10-log *Giardia* cyst reduction, and 10-log *Cryptosporidium* oocyst reduction. The treatment train shall consist of at least three separate treatment processes. For each pathogen (i.e., virus, *Giardia* cyst, or *Cryptosporidium* oocyst), a separate treatment process may be credited with no more than 6-log reduction, with at least three processes each being credited with no less than 1.0-log reduction.

1.21.2. For each month retained underground as demonstrated in section 1.21.5, the recycled municipal wastewater or recharge water will be credited with virus reduction in accordance to Table 60320.208 in 22 CCR section 60320.208.

1.21.3. With the exception of log reduction credited pursuant to section 1.21.2, the City shall validate each of the treatment processes used to meet the requirements in section 1.21.1 for their log reduction by submitting a report for DDW's review and approval, or by using a challenge test approved by DDW, that provides evidence of the treatment process's ability to reliably and consistently achieve the log reduction. The report and/or challenge test shall be prepared by an engineer registered in California with at least five years of experience, as a licensed engineer, in wastewater treatment and public water supply, including the evaluation of treatment processes for pathogen control. With the exception of underground retention time, the City shall propose and include in its Operation Optimization Plan prepared pursuant to 22 CCR section 60320.222, on-going monitoring using the pathogenic microorganism of concern or a microbial, chemical, or physical surrogate parameter(s) that verifies the performance of each treatment process's ability to achieve its credited log reduction.

1.21.4. To demonstrate the retention time underground in section 1.21.2, a tracer study utilizing an added tracer shall be implemented under hydraulic conditions representative of normal GRRP operations. The retention time shall be the time representing the difference from when the water with the tracer is applied at the GRRP to when either; two percent (2%) of the initially introduced tracer concentration has reached the downgradient monitoring point, or ten percent (10%) of the peak tracer unit value observed at the downgradient monitoring point reached the monitoring point. The City shall initiate the tracer study prior to the end of the third month of operation. With DDW approval, an intrinsic tracer may be used in lieu of an added tracer, with no more credit provided than the corresponding virus log reduction in column 2 of Table 60320.208 in 22 CCR section 60320.208.

1.21.5. For the purpose of siting a GRRP location during project planning and until the City has met the requirements of section 1.21.4, for each month of retention time estimated using the method in column 1 of Table 60320.208 in 22 CCR section 60320.208, the recycled municipal wastewater or recharge

water shall be credited with no more than the corresponding virus log reduction in column 2 of Table 60320.208 in 22 CCR section 60320.208.

1.21.6. Within 24 hours of becoming aware of an exceedance of the pathogen reduction required in 22 CCR section 60320.208(a) based on monitoring required in subsection (c), the City shall immediately investigate the cause and initiate corrective actions. The City shall immediately notify DDW and the Los Angeles Water Board if the advanced treated recycled water fails to meet the pathogen reduction criteria longer than 4 consecutive hours, or more than a total of 8 hours during any 7-day period. Failure of shorter duration shall be reported to the Los Angeles Water Board and DDW no later than 10 days after the month in which the failure occurred.

2. DDW MONITORING REQUIREMENTS

The City shall comply with all monitoring requirements specified in section 17 of the Order, in accordance with the DDW conditional acceptance letter dated August 19, 2020 and December 1, 2022.

3. MONITORING REQUIREMENTS

3.1. MONITORING LOCATIONS

The City shall establish the following monitoring locations to demonstrate compliance with the recycled water discharge limitations and other requirements in this Order. Should the need for a change in the sampling station(s) arise in the future, the City shall seek approval of the proposed station by the Executive Officer prior to use.

TABLE E-1. MONITORING LOCATIONS

Monitoring Location Name	Description
INF-001	The influent monitoring location shall be located immediately before the headworks to the AWTF and after the municipal wastewater mixes with stormwater and dry-weather runoff provided to the AWTF, where a representative sample of the influent can be obtained.
EFF-001	The effluent monitoring location shall be located downstream of any in-plant return flows, the final disinfection process, and after stabilization with sodium carbonate addition, where representative samples of the AWTF effluent can be obtained.
SM-INF-001	The SMURRF influent monitoring location shall be located immediately downstream of the drum screen at SMURRF, where a representative sample of the influent can be obtained.
SM-EFF-001	The SMURFF effluent monitoring location shall be located downstream of any in-plant return flows, the final disinfection process, and after the finished water pumps, where representative samples of the effluent can be obtained.

Monitoring Location Name	Description
PreRO-001	The Pre-RO monitoring location shall be located immediately upstream of the RO Trains at the AWTF.
PreAOP-001	The PreAOP monitoring location shall be located downstream of the RO process and immediately upstream of UV/AOP treatment at the AWTF.
SM-PreRO-001	The SM-PreRO monitoring location shall be located immediately upstream of the RO Trains at the SMURRF
Groundwater Monitoring Wells	Refer to Table E-16

3.2. INFLUENT MONITORING

3.2.1. Influent monitoring is required to determine compliance with water quality conditions and standards and to assess AWTF and SMURRF performances.

3.2.2. The City shall monitor the influent to the AWTF at INF-001 and SMURRF at SM-INF-001 described in Table E-2.

3.2.3. In addition to the listed parameters in Table E-2 for influent monitoring, the City shall comply with DDW’s monitoring requirements as described in Section 17 of the Order.

The following shall constitute the influent monitoring program:

TABLE E-2. AWTF AND SMURRF INFLUENT MONITORING

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Notes
Total Sewer Flow	MGD	Recorder	Continuous	Note a, b
Total Stormwater/ Dry-Weather Runoff Flow	MGD	Recorder	Continuous	Note a
Total Volume	Million Gallons	Calculated	Monthly	---
Biochemical Oxygen Demand (BOD ₅ 20°C)	mg/L	Grab	Weekly	b
Total Suspended Solids (TSS)	mg/L	Grab	Weekly	---
pH	pH Units	Grab	Weekly	---
Total Organic Carbon	mg/L	Grab	Weekly	---
Total Dissolved Solids (TDS)	mg/L	Grab	Weekly	---
Total Nitrogen	mg/L	Grab	Weekly	---
Nitrate	mg/L	Grab	Weekly	---

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Notes
Nitrite	mg/L	Grab	Weekly	---

Footnotes for Table E-2

- a. For those pollutants with a continuous minimum monitoring frequency, the monthly minimum and maximum, and daily average values shall be reported.
- b. Monitoring for this parameter is not required for SM-INF-001.

End of Footnotes for Table E-2

3.3. RECYCLED WATER AND DILUENT WATER MONITORING

3.3.1. Recycled water and diluent water monitoring is required to determine compliance with the permit conditions: (1) identify operational problems and aid in improving facility performance, and (2) provide information on wastewater characteristics and flows for use in interpreting water quality and biological data.

3.3.2. The City shall monitor the advanced treated recycled water used for nonpotable and indirect potable uses at monitoring locations EFF-001 and advanced treated effluent at SM-EFF-001. The monitoring locations are described in Table E-1. The parameters to be monitored and monitoring frequencies are listed in Tables E-3 to E-12.

3.3.3. In addition to the listed parameters in Tables E-3 through E-12 for effluent and any intermediate monitoring, the City shall comply with DDW’s monitoring requirements as listed in Section 17 of the Order.

3.3.4. MRP Sections 1.16 through 1.20 includes accelerated monitoring and reporting procedures.

3.3.5. EFF-001 Minimum Sampling Frequency

For those constituents in Tables E-3 through Table E-12 that include a “monthly/quarterly” minimum sampling frequency, the constituent shall be monitored monthly for the first year and the City may request a reduction to quarterly monitoring from DDW and the Los Angeles Water Board Executive Officer if no results exceed an MCL or NL per 22 CCR section 60320.201(i).

3.3.6. SM-EFF-001 Minimum Sampling Frequency

For those constituents in Tables E-3 through Table E-12 that include a “monthly/quarterly” minimum sampling frequency, the constituent shall be monitored quarterly, unless otherwise specified.

3.3.7. For total nitrogen, nitrate, nitrite, nitrate plus nitrite, and ammonia monitoring, the City may request a reduction in monitoring frequency after the first year of operation. To qualify for reduced monitoring, the average of all results shall not exceed 5 mg/L total nitrogen and the average of a result and its confirmation sample (taken within 24 hours of receipt of the initial result) shall not exceed 10 mg/L total nitrogen.

3.3.8. The priority pollutants in Table E-12 shall be monitored quarterly for the first two years of operation and the City may request a reduction to annual monitoring from DDW and the Los Angeles Water Board Executive Officer per 22 CCR section 60320.220.

3.3.9. For those pollutants with a continuous minimum monitoring frequency, the monthly minimum and maximum, and daily average values shall be reported.

3.3.10. For those pollutants with a daily minimum monitoring frequency, samples shall be collected seven days per week unless otherwise specified.

The following shall constitute the recycled water monitoring program:

TABLE E-3. RECYCLED WATER MONITORING

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Notes
Total flow recycled water produced	MGD	Recorder Calculated	Continuous	a
Total volume recycled water produced	MGD	Recorder Calculated	Continuous	a
Total volume recycled water delivered to each end user	MGD	Recorder Calculated	Continuous Monthly	a
Total volume diluent water produced	MGD	Recorder Calculated	Continuous Monthly	a
pH	pH units	Recorder	Continuous	a
Turbidity (after MBR/UF and prior to RO)	NTU	Recorder	Continuous	---
Turbidity	NTU	Grab	Weekly	---
Total Coliform	MPN/100 mL	Grab	Daily	b
Total Chlorine Residual	mg/L	Recorder	Continuous	a, i
Oil & Grease	mg/L	Grab	Quarterly	---
Settleable Solids	mL/L	Grab	Weekly	---
Total Suspended Solids (TSS)	mg/L	24-hour composite	Weekly	---
Biochemical Oxygen Demand (BOD ₅ 20°C)	mg/L	24-hour composite	Weekly	---
Total Organic Carbon	mg/L	24-hour composite	Weekly	c
Copper	mg/L	24-hour composite	Monthly	---
Lead	mg/L	24-hour composite	Monthly	---
Conductivity	µS	Recorder	Continuous	a, h
Total Dissolved Solids (TDS)	mg/L	24-hour composite	Monthly	---

Constituent	Units	Type of Sample	Minimum Frequency of Analysis	Notes
Sulfate	mg/L	24-hour composite	Monthly	---
Chloride	mg/L	24-hour composite	Monthly	---
Boron	mg/L	24-hour composite	Monthly	---
Total Nitrogen	mg/L	24-hour composite	Weekly	d
Nitrate-N + nitrite-N	mg/L	24-hour composite	Weekly	---
Nitrate-N	mg/L	24-hour composite	Weekly	---
Nitrite-N	mg/L	24-hour composite	Weekly	---
Remaining Priority Pollutants (Table E-4 through E-9)	varies	varies	varies	e, f, g, j

Footnotes for Table E-3

- a. For those pollutants with a continuous minimum monitoring frequency, the monthly minimum and maximum, and daily average values shall be reported.
- b. For those pollutants with a daily minimum monitoring frequency, samples shall be collected seven days per week unless otherwise specified.
- c. Monitoring results for advanced treated recycled water shall be reported as a single result and as a 20-week running average of all TOC results and the average of the last four TOC results. The daily average and maximum TOC reading and the percent of time that the TOC is greater than 0.5 mg/L shall be reported. See MRP Section 1.20 for additional monitoring requirements.
- d. See MRP Section 1.19 for additional monitoring requirements.
- e. After three years of annual monitoring for priority pollutants and pollutants with primary MCLs, the Permittee may consult with the Los Angeles Water Board to discuss the water quality results. If the Los Angeles Water Board determines a reduction or elimination of monitoring is warranted, the Executive Officer of the Los Angeles Water Board may approve a reduction in monitoring frequency or elimination of this monitoring requirement.
- f. The list of Priority Pollutants is provided in Appendix A to 40 C.F.R. section 423.
- g. The list of pollutants with primary MCLs is provided in 22 CCR sections 64431, 64672.3, 64442, 64443, 64444, and 64533.
- h. For SMURRF, the monitoring location for this constituent is continuously measured using an online analyzer at the RO permeate.
- i. For SMURRF, the monitoring location for this constituent is continuously measured using a free chlorine analyzer at injection well SM-10i.
- j. For those constituents which list “24-hour composite” for sample type, unless otherwise specified, the Los Angeles Water Board will accept grab sample results as long as grab sampling is in conformance with the type that is suggested by the analytical method(s).

End of Footnotes for Table E-3

TABLE E-4. INORGANIC CHEMICALS

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Aluminum	mg/L	24-hour composite	monthly / quarterly	a
Antimony	mg/L	24-hour composite	monthly / quarterly	---
Arsenic	mg/L	24-hour composite	monthly / quarterly	---
Asbestos	MFL	24-hour composite	monthly / quarterly	---
Barium	mg/L	24-hour composite	monthly / quarterly	---
Beryllium	mg/L	24-hour composite	monthly / quarterly	---
Cadmium	mg/L	24-hour composite	monthly / quarterly	---
Total Chromium	mg/L	24-hour composite	monthly / quarterly	---
Cyanide	mg/L	grab	monthly / quarterly	---
Fluoride	mg/L	24-hour composite	monthly / quarterly	---
Mercury	mg/L	24-hour composite	monthly / quarterly	---
Nickel	mg/L	24-hour composite	monthly / quarterly	---
Perchlorate	mg/L	24-hour composite	monthly / quarterly	---
Selenium	mg/L	24-hour composite	monthly / quarterly	---
Thallium	mg/L	24-hour composite	monthly / quarterly	---

Footnotes for Table E-4

a. The minimum sampling frequency for this constituent at SM-EFF-001 is monthly.

End of Footnotes for Table E-4

TABLE E-5 ORGANIC CHEMICALS (VOLATILE ORGANIC CHEMICALS (VOCS))

Constituent	Units	Sample Type	Minimum Sampling Frequency
Benzene	mg/L	grab	monthly / quarterly
Carbon Tetrachloride	mg/L	grab	monthly / quarterly
1,2-Dichlorobenzene	mg/L	grab	monthly / quarterly
1,4-Dichlorobenzene	mg/L	grab	monthly / quarterly
1,1-Dichloroethane	mg/L	grab	monthly / quarterly
1,2-Dichloroethane (1,2-DCA)	mg/L	grab	monthly / quarterly
1,1-Dichloroethylene (1,1-DCE)	mg/L	grab	monthly / quarterly
cis-1,2-Dichloroethylene	mg/L	grab	monthly / quarterly
trans-1,2-Dichloroethylene	mg/L	grab	monthly / quarterly
Dichloromethane	mg/L	grab	monthly / quarterly

Constituent	Units	Sample Type	Minimum Sampling Frequency
1,2-Dichloropropane	mg/L	grab	monthly / quarterly
1,3-Dichloropropene	mg/L	grab	monthly / quarterly
Ethylbenzene	mg/L	grab	monthly / quarterly
Methyl-tert-butyl-ether (MTBE)	mg/L	grab	monthly / quarterly
Monochlorobenzene	mg/L	grab	monthly / quarterly
Styrene	mg/L	grab	monthly / quarterly
1,1,2,2-Tetrachloroethane	mg/L	grab	monthly / quarterly
Tetrachloroethylene (PCE)	mg/L	grab	monthly / quarterly
Toluene	mg/L	grab	monthly / quarterly
1,2,4-Trichlorobenzene	mg/L	grab	monthly / quarterly
1,1,1-Trichloroethane	mg/L	grab	monthly / quarterly
1,1,2-Trichloroethane	mg/L	grab	monthly / quarterly
Trichloroethylene (TCE)	mg/L	grab	monthly / quarterly
Trichlorofluoromethane	mg/L	grab	monthly / quarterly
1,1,2-Trichloro-1,2,2-Trifluoroethane	mg/L	grab	monthly / quarterly
Vinyl Chloride	mg/L	grab	monthly / quarterly
Xylenes (m,p)	mg/L	grab	monthly / quarterly

TABLE E-6 ORGANIC CHEMICALS (NON-VOLATILE SYNTHETIC ORGANIC CHEMICALS (SOCS))

Constituent	Units	Sample Type	Minimum Sampling Frequency
Alachlor	mg/L	24-hour composite	monthly / quarterly
Atrazine	mg/L	24-hour composite	monthly / quarterly
Bentazon	mg/L	24-hour composite	monthly / quarterly
Benzo(a)pyrene	mg/L	24-hour composite	monthly / quarterly
Carbofuran	mg/L	24-hour composite	monthly / quarterly
Chlordane	mg/L	24-hour composite	monthly / quarterly
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	24-hour composite	monthly / quarterly
Dalapon	mg/L	24-hour composite	monthly / quarterly
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	24-hour composite	monthly / quarterly
Di(2-ethylhexyl)adipate	mg/L	24-hour composite	monthly / quarterly
Di(2-ethylhexyl)phthalate (DEHP)	mg/L	24-hour composite	monthly / quarterly
Dinoseb	mg/L	24-hour composite	monthly / quarterly

Constituent	Units	Sample Type	Minimum Sampling Frequency
Diquat	mg/L	24-hour composite	monthly / quarterly
Endothall	mg/L	24-hour composite	monthly / quarterly
Endrin	mg/L	24-hour composite	monthly / quarterly
Ethylene Dibromide (EDB)	mg/L	24-hour composite	monthly / quarterly
Glyphosate	mg/L	24-hour composite	monthly / quarterly
Heptachlor	mg/L	24-hour composite	monthly / quarterly
Heptachlor epoxide	mg/L	24-hour composite	monthly / quarterly
Hexachlorobenzene	mg/L	24-hour composite	monthly / quarterly
Hexachlorocyclopentadiene	mg/L	24-hour composite	monthly / quarterly
Gamma BHC (Lindane)	mg/L	24-hour composite	monthly / quarterly
Methoxychlor	mg/L	24-hour composite	monthly / quarterly
Molinate	mg/L	24-hour composite	monthly / quarterly
Oxamyl	mg/L	24-hour composite	monthly / quarterly
Pentachlorophenol	mg/L	24-hour composite	monthly / quarterly
Picloram	mg/L	24-hour composite	monthly / quarterly
Polychlorinated Biphenyls (PCBs)	mg/L	24-hour composite	monthly / quarterly
Simazine	mg/L	24-hour composite	monthly / quarterly
Thiobencarb	mg/L	24-hour composite	monthly / quarterly
Toxaphene	mg/L	24-hour composite	monthly / quarterly
1,2,3-Trichloropropane	mg/L	grab	monthly / quarterly
2,3,7,8-TCDD (Dioxin)	mg/L	24-hour composite	monthly / quarterly
2,4,5-TP (Silvex)	mg/L	24-hour composite	monthly / quarterly

TABLE E-7 DISINFECTION BYPRODUCTS

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Total trihalomethanes (TTHM)	mg/L	grab	monthly / quarterly	a
Bromodichloromethane	mg/L	grab	monthly / quarterly	a
Bromoform	mg/L	grab	monthly / quarterly	a
Chloroform	mg/L	grab	monthly / quarterly	a
Dibromochloromethane	mg/L	grab	monthly / quarterly	a
Haloacetic acids (five) (HAA5)	mg/L	grab	monthly / quarterly	a
Monochloroacetic Acid	mg/L	grab	monthly / quarterly	a
Dichloroacetic Acid	mg/L	grab	monthly / quarterly	a
Trichloroacetic Acid	mg/L	grab	monthly / quarterly	a

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Monobromoacetic Acid	mg/L	grab	monthly / quarterly	a
Dibromoacetic Acid	mg/L	grab	monthly / quarterly	a
Bromate	mg/L	grab	monthly / quarterly	a
Chlorite	mg/L	grab	monthly / quarterly	---

Footnotes for Table E-7

a. The minimum sampling frequency for this constituent at SM-EFF-001 is monthly.

End of Footnotes for Table E-7

TABLE E-8 RADIOACTIVITY

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Combined Radium-226 and Radium-228	pCi/L	24-hour composite	monthly / quarterly	---
Gross Alpha particle activity (excluding radon and uranium)	pCi/L	24-hour composite	monthly / quarterly	---
Uranium	pCi/L	24-hour composite	monthly / quarterly	---
Gross Beta/photon emitters	millirem/yr	24-hour composite	monthly / quarterly	a
Strontium-90	pCi/L	24-hour composite	monthly / quarterly	---
Tritium	pCi/L	24-hour composite	monthly / quarterly	---

Footnotes for Table E-8

a. If the results of testing for all beta and photon emitters is less than or equal to 50 pCi/L, the facility is in compliance and the value shall be reported as <4 millirem/year. If the test results for all beta and photon emitters are greater than 50 pCi/L, the City must have the samples further analyzed for the individual nuclides. If the sum of the fractions of the detected nuclides is <4 millirem/year, the facility is in compliance. The procedures for calculating the sum of fractions is presented in Section 21 of the Order.

End of Footnotes for Table E-8

TABLE E-9 GENERAL PHYSICAL MINERALS

Constituent	Units	Sample Type	Minimum Sampling Frequency
Calcium	µg/L	24-hour composite	quarterly
Potassium	µg/L	24-hour composite	quarterly
Sodium	µg/L	24-hour composite	quarterly
Total hardness	µg/L	24-hour composite	quarterly

TABLE E-10 SECONDARY MCLS

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Zinc	mg/L	24-hour composite	annually	---
Foaming agents (MBAS)	mg/L	24-hour composite	annually	---
Iron	mg/L	24-hour composite	annually	a
Silver	mg/L	24-hour composite	annually	---
Methyl-tert-butyl ether (MTBE)	mg/L	24-hour composite	monthly / quarterly	---
Color	ACU	24-hour composite	monthly / quarterly	a
Manganese	mg/L	24-hour composite	monthly / quarterly	a
Odor - Threshold	TON	24-hour composite	monthly / quarterly	a
Total Dissolved Solids	mg/L	24-hour composite	monthly	---
Sulfate	mg/L	24-hour composite	monthly	---
Chloride	mg/L	24-hour composite	monthly	---
Turbidity	NTU	24-hour composite	weekly	---

Footnotes for Table E-10

a. The minimum sampling frequency for this constituent at SM-EFF-001 is monthly.

End of Footnotes for Table E-10

TABLE E-11 CONSTITUENTS WITH NOTIFICATION LEVELS

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Boron	µg/L	24-hour composite	monthly / quarterly	---
n-butylbenzene	µg/L	grab	monthly / quarterly	---
sec-butylbenzene	µg/L	grab	monthly / quarterly	---
tert-butylbenzene	µg/L	grab	monthly / quarterly	---
Carbon Disulfide	µg/L	grab	monthly / quarterly	---
Chlorate	µg/L	24-hour composite	monthly / quarterly	a
2-chlorotoluene	µg/L	grab	monthly / quarterly	---
4-chlorotoluene	µg/L	grab	monthly / quarterly	---
Diazinon	µg/L	grab	monthly / quarterly	---
Dichlorodifluoromethane (Freon 12)	µg/L	grab	monthly / quarterly	---
1,4-dioxane	µg/L	grab	monthly / quarterly	a
Ethylene Glycol	µg/L	grab	monthly / quarterly	---
Formaldehyde	µg/L	grab	monthly / quarterly	---
HMX	µg/L	24-hour composite	monthly / quarterly	---

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Isopropylbenzene	µg/L	grab	monthly / quarterly	---
Manganese	µg/L	24-hour composite	monthly / quarterly	a
Methyl Isobutyl Ketone (MIBK)	µg/L	grab	monthly / quarterly	---
Naphthalene	µg/L	grab	monthly / quarterly	---
N-Nitrosodiethylamine (NDEA)	µg/L	24-hour composite	monthly / quarterly	---
N-Nitrosodimethylamine (NDMA)	µg/L	grab	monthly / quarterly	a
N-Nitrosodi-n-propylamine (NDPA)	µg/L	24-hour composite	monthly / quarterly	---
Perfluorobutane sulfonic acid (PFBS)	µg/L	24-hour composite	monthly / quarterly	a
Perfluorohexane sulfonic acid (PFHxS)	µg/L	24-hour composite	monthly / quarterly	---
Perfluorooctanoic acid (PFOA)	µg/L	24-hour composite	monthly / quarterly	a
Perfluorooctanesulfonic acid (PFOS)	µg/L	24-hour composite	monthly / quarterly	a
Propachlor	µg/L	grab	monthly / quarterly	---
N-propylbenzene	µg/L	grab	monthly / quarterly	---
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	µg/L	24-hour composite	monthly / quarterly	---
Tertiary Butyl Alcohol (TBA)	µg/L	grab	monthly / quarterly	---
1,2,4-Trimethylbenzene	µg/L	grab	monthly / quarterly	---
1,3,5-Trimethylbenzene	µg/L	grab	monthly / quarterly	---
2,4,6-Trinitrotoluene (TNT)	µg/L	grab	monthly / quarterly	a
Vanadium	µg/L	24-hour composite	monthly / quarterly	---

Footnotes for Table E-11

a. The minimum sampling frequency for this constituent at SM-EFF-001 is monthly.

End of Footnotes for Table E-11

TABLE E-12 REMAINING PRIORITY TOXIC POLLUTANTS

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Acenaphthene	µg/L	24-hour composite	quarterly / annually	---
Acrolein	µg/L	24-hour composite	quarterly / annually	---
Acrylonitrile	µg/L	grab	quarterly / annually	---
Benzidine	µg/L	24-hour composite	quarterly / annually	---
Chlorobenzene	µg/L	grab	quarterly / annually	---
Hexachloroethane	µg/L	grab	quarterly / annually	---
Chloroethane	µg/L	grab	quarterly / annually	---

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Bis(2-chloroethyl) ether	µg/L	24-hour composite	quarterly / annually	---
2-chloroethyl vinyl ether	µg/L	grab	quarterly / annually	---
2-chloronaphthalene	µg/L	24-hour composite	quarterly / annually	---
2,4,6-trichlorophenol	µg/L	24-hour composite	quarterly / annually	---
Parachlorometa cresol	µg/L	24-hour composite	quarterly / annually	---
2-chlorophenol	µg/L	24-hour composite	quarterly / annually	---
1,3-dichlorobenzene	µg/L	grab	quarterly / annually	---
3,3'-dichlorobenzidine	µg/L	24-hour composite	quarterly / annually	---
2,4-dichlorophenol	µg/L	24-hour composite	quarterly / annually	---
2,4-dimethylphenol	µg/L	24-hour composite	quarterly / annually	---
2,4-dinitrotoluene	µg/L	grab	quarterly / annually	---
2,6-dinitrotoluene	µg/L	grab	quarterly / annually	---
1,2-diphenylhydrazine	µg/L	24-hour composite	quarterly / annually	---
Fluoranthene	µg/L	grab	quarterly / annually	---
4-chlorophenyl phenyl ether	µg/L	24-hour composite	quarterly / annually	---
4-bromophenyl phenyl ether	µg/L	24-hour composite	quarterly / annually	---
Bis(2-chloroisopropyl) ether	µg/L	24-hour composite	quarterly / annually	---
Bis(2-chlorethoxy) methane	µg/L	24-hour composite	quarterly / annually	---
Methyl chloride (chloromethane)	µg/L	grab	quarterly / annually	---
Methyl bromide (bromomethane)	µg/L	grab	quarterly / annually	---
Hexachlorobutadiene	µg/L	grab	quarterly / annually	---
Isophorone	µg/L	grab	quarterly / annually	---
Nitrobenzene	µg/L	24-hour composite	quarterly / annually	---
2-nitrophenol	µg/L	24-hour composite	quarterly / annually	---
4-nitrophenol	µg/L	24-hour composite	quarterly / annually	---
2,4-dinitrophenol	µg/L	24-hour composite	quarterly / annually	---
4,6-dinitro-o-cresol	µg/L	24-hour composite	quarterly / annually	---
N-nitrosodiphenylamine	µg/L	24-hour composite	quarterly / annually	---
Phenol	µg/L	24-hour composite	quarterly / annually	---
Bis(2-ethylhexyl) phthalate	µg/L	grab	quarterly / annually	a
Butyl benzyl phthalate	µg/L	grab	quarterly / annually	---
Di-n-butyl phthalate	µg/L	grab	quarterly / annually	---
Di-n-octyl phthalate	µg/L	grab	quarterly / annually	---

Constituent	Units	Sample Type	Minimum Sampling Frequency	Notes
Diethyl phthalate	µg/L	grab	quarterly / annually	---
Dimethyl phthalate	µg/L	grab	quarterly / annually	---
Benzo(a) anthracene	µg/L	grab	quarterly / annually	---
Benzo(b) fluoranthene	µg/L	grab	quarterly / annually	---
Benzo(k) fluoranthene	µg/L	grab	quarterly / annually	---
Chrysene	µg/L	grab	quarterly / annually	---
Acenaphthylene	µg/L	grab	quarterly / annually	---
Anthracene	µg/L	grab	quarterly / annually	---
Benzo(ghi) perylene	µg/L	grab	quarterly / annually	---
Fluorene	µg/L	grab	quarterly / annually	---
Phenanthrene	µg/L	grab	quarterly / annually	---
Dibenzo(a,h)anthracene	µg/L	grab	quarterly / annually	---
Indeno(1,2,3-c,d) pyrene	µg/L	grab	quarterly / annually	---
Pyrene	µg/L	grab	quarterly / annually	---
Aldrin	µg/L	grab	quarterly / annually	---
Dieldrin	µg/L	grab	quarterly / annually	---
4,4'-DDT	µg/L	24-hour composite	quarterly / annually	---
4,4'-DDE	µg/L	24-hour composite	quarterly / annually	---
4,4'-DDD	µg/L	24-hour composite	quarterly / annually	---
Alpha-endosulfan	µg/L	grab	quarterly / annually	---
Beta-endosulfan	µg/L	grab	quarterly / annually	---
Endosulfan sulfate	µg/L	grab	quarterly / annually	---
Endrin aldehyde	µg/L	grab	quarterly / annually	---
Alpha-BHC	µg/L	grab	quarterly / annually	---
Beta-BHC	µg/L	grab	quarterly / annually	---
Delta-BHC	µg/L	grab	quarterly / annually	---

Footnotes for Table E-12

a. The minimum sampling frequency for this constituent at SM-EFF-001 is monthly.

End of Footnotes for Table E-12

3.4. Constituents of Emerging Concerns (CECs) Monitoring and Bioanalytical Screening

3.4.1. The following CEC monitoring requirements and Attachment H are consistent with the Recycled Water Policy and DDW's recommendations.

3.4.2. Compliance with health-based CECs shall be determined by analyzing samples of the advanced treated recycled water produced at the AWTF (EFF-001) and SMURRF (SM-EFF-001) prior to injection into the SMGB.

3.4.3. Compliance with performance indicator CECs shall be determined by analyzing samples collected prior to treatment by RO at the AWTF (PreRO-001) and SMURRF (SM-PreRO-001) and following treatment at the AWTF (EFF-001) and SMURRF (SM-EFF-001) prior to injection into the SMGB. The removal percentages for the performance indicator CECs shall be included in the Annual Summary Report.

3.4.4. The removal percentages for the surrogates shall be determined based on the daily averages for electrical conductivity and weekly values for TOC and included in the quarterly compliance monitoring reports.

3.4.5. For groundwater recharge-reuse using subsurface application, the removal percentage shall be determined by comparing recycled water quality before treatment by RO/AOPs and after treatment prior to release to the aquifer.

3.4.6. The City shall develop and maintain a Quality Assurance Project Plan (QAPP) for monitoring CECs to ensure the project data are of known, consistent, and documented quality and that the monitoring is consistent with the Recycled Water Policy. The QAPP shall be developed using the *Guidance for Quality Assurance Project Plans*, EPA QA/G-5 (EPA/240/R-2/009, 2002). The QAPP shall be submitted to the Los Angeles Water Board within 90 days of the adoption of this Order and approved by the Los Angeles Water Board and State Water Board prior to beginning any sampling or analysis. The QAPP shall be updated and resubmitted to the Los Angeles 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.

3.4.7. The City shall submit the quality assurance data specified in the QAPP, including percent recoveries and acceptable recovery ranges for each analyte, to the Los Angeles Water Board with each data set.

3.4.8. Laboratories shall use analytical methods that have been validated and approved for the analytes in the applicable matrix and can achieve the reporting limits in Tables E-13 through E-15. This includes methods that have been approved by U.S. EPA, the Standards Methods Committee, the American Society for Testing and Materials International, or other methods that have been validated and approved by the regional water boards or State Water Board for the analytes in the applicable matrix. The QAPP shall include minimum method validation requirements developed by the Los Angeles Water Board in consultation with the State Water Board if proposing to (1) use a method that has not been validated and approved, (2) use a validated and approved method that has been modified, or (3) use a method for an application that is outside the intended use of the method (e.g., different matrix, new analyte).

3.4.9. A laboratory providing analyses of CECs and bioanalytical screening must hold a valid certificate of accreditation from ELAP for the analytical test methods or analytes selected, if such methods or analytes are accredited by ELAP at the time that monitoring is required to begin. If ELAP accreditation for analytical test methods or an analyte becomes available after monitoring is initiated, then the laboratory providing analysis of CECs shall be accredited by ELAP for those methods or analytes within one year of such accreditation becoming available. If ELAP accreditation is unavailable for a method or an analyte, the recycled water producer shall use a laboratory that has been accredited for a similar analytical method, instrumentation, or analyte until ELAP accreditation becomes available, unless otherwise approved by the Los Angeles Water Board or State Water Board for bioanalytical screening tools.

3.4.10. The City shall conduct a three-phased monitoring approach for the CEC monitoring parameters in Table E-13 through E-15, which includes an initial assessment monitoring phase, followed by a baseline monitoring phase, and then a standard operation monitoring phase. The City shall conduct these phases in accordance with Attachment H.

TABLE E-13 CECS TO BE MONITORED (SUBSURFACE APPLICATION)

Constituent	Relevance/ Indicator Type	Sample Type	Reporting Limit (µg/L)	Prior to RO (PreRO- 001 and SM- PreRO- 001)	Post RO/Pre AOP (PreAOP- 001)	Following Treatment Prior to Injection (EFF-001 and SM- EFF-001)	Notes
1,4-dioxane	Health	grab	0.1	NO	NO	YES	a
N-Nitrosodimethylamine (NDMA)	Health and Performance	grab	0.002	YES	YES	YES	b
N-Nitrosomorphine (NMOR)	Health	grab	0.002	NO	NO	YES	---
Perfluorooctanoic sulfonate (PFOS)	Health	grab	0.0065	NO	NO	YES	---
Perfluorooctanoic Acid (PFOA)	Health	grab	0.0051	NO	NO	YES	---
Sucralose	Performance	grab	0.1	YES	YES	YES	---
Sulfamethoxazole	Performance	grab	0.01	YES	YES	YES	---

Footnotes for Table E-13

- a. 1,4-dioxane is required to be monitored monthly and then quarterly if there are no detections for a year of monthly monitoring per table E-11 and MRP Section 3.3.5. Analytical results from this monitoring may be used to comply with the CEC monitoring requirement.
- b. NDMA is required to be monitored monthly and then quarterly if there are no detections for a year of monthly monitoring per table E-11 and MRP Section 3.3.5.

Analytical results from this monitoring may be used to comply with the CEC monitoring requirement prior to injection; however, NDMA is also required to be monitored prior to RO.

End of Footnotes for Table E-13

TABLE E-14 SURROGATES TO BE MONITORED (SUBSURFACE APPLICATION)

Constituent	Sample Type	Prior to RO (PreRO-001 and SM-PreRO-001)	Post RO/Pre AOP (PreAOP-001)	Following Treatment Prior to Injection (EFF-001 and SM-EFF-001)	Notes
Electrical Conductivity	online	YES	NO	YES	---
Dissolved Organic Carbon	24-hour composite/grab	YES	NO	YES	---
UV Light Absorbance	online	NO	YES	YES	a

Footnotes for Table E-14

a. For SMURRF, the City shall monitor for UV light absorbance after RO/prior to the UV system and following treatment prior to injection.

End of Footnotes for Table E-14

TABLE E-15 BIOANALYTICAL SCREENING TOOLS FOR CECS

Endpoint Activity	Example Relevant CECS	Reporting Limit (ng/L)	Prior to RO (PreRO-001 and SM-PreRO-001)	Following Treatment Prior to Injection (EFF-001 and SM-EFF-001)
Estrogen Receptor α (ER- α)	Estradiol, bisphenol A, nonylphenol	0.5	NO	YES
Aryl Hydrocarbon receptor (AhR)	Dioxin-like chemicals, polycyclic aromatic hydrocarbons, pesticides	0.5	NO	YES

3.5. Groundwater Monitoring Associated with Subsurface Application (Injection Wells)

Pursuant to 22 CCR section 60320.226, prior to operating a GRRP, the City is required to site and construct at least two monitoring wells downgradient of the GRRP such that: (1) at least one monitoring well is located no less than two weeks but no more than six months of travel time from the GRRP, and at least 30 days upgradient of the nearest potable well; and (2) in addition, at least one monitoring well is located between the GRRP and the nearest upgradient

drinking water well. Furthermore, the City is required to collect groundwater samples independently from each aquifer receiving the recycled water.

The City selected two wells to meet the GRRP monitoring well requirements: nested monitoring wells MWi-1 and USGS' Santa Monica Basin-1 (SMB-1). The modeled travel time between the injection well SM-10i and monitoring well MWi-1 is approximately 1 to 2 months in the D-Zone and 2 to 4 weeks in the Sunnyside Aquifer. The modeled travel time between SMB-1-B#1 and SM-8 (the nearest downgradient drinking well) in the D-Zone is approximately one year. The modeled travel time between SMB-1 #4 and SM-8 in the Sunnyside Aquifer is 6 months. The City shall monitor the following monitoring wells, associated with subsurface application:

TABLE E-16 GROUNDWATER MONITORING WELLS

Well Name	Perforated Interval (feet bgs)	Aquifer
MWi-1	241 – 250	D-Zone (Silverado)
MWi-1	311 – 331	Sunnyside
SMB-1-B#1	240 – 260	D-Zone (Silverado)
SMB-1 #4	350 – 370	Sunnyside

3.6. Groundwater Monitoring and Sampling Frequency (Subsurface Applications)

3.6.1. The City shall monitor the quality of groundwater to assess any impact(s) from the recharge of advanced treated recycled water. Representative samples of groundwater shall be collected from the listed monitoring wells in Table E-16.

3.6.2. If any of the monitoring results indicate that an MCL has been exceeded or coliforms are present in the monitoring wells at the injection areas as a result of the use of advanced treated recycled water, the City shall notify DDW and the Los Angeles Water Board within 72 hours of receiving the results and make note of any positive finding in the next monitoring report submitted to the Los Angeles Water Board. Subsurface application shall be discontinued until corrective actions are taken or a determination is made that injection well activity was not responsible for the contamination.

3.6.3. Per Title 22, section 60320.220, priority pollutants shall be monitored in the groundwater quarterly for two years and may be reduced to annually following approval from DDW and the Los Angeles Water Board Executive Officer.

TABLE E-17 GROUNDWATER MONITORING

Parameters	Units	Sample Type	Minimum Sampling Frequency	Note
Water level elevation	feet	---	quarterly	a

Parameters	Units	Sample Type	Minimum Sampling Frequency	Note
TOC	mg/L	grab	quarterly	---
Total Coliform	MPN/100 mL	grab	quarterly	---
BOD ₅ 20°C	mg/L	grab	annually	---
Oil and grease	mg/L	grab	annually	---
Nitrate-N	mg/L	grab	quarterly	---
Nitrite-N	mg/L	grab	quarterly	---
Total Nitrogen	mg/L	grab	quarterly	---
Total Dissolved Solids	mg/L	grab	quarterly	---
Sulfate	mg/L	grab	quarterly	---
Chloride	mg/L	grab	quarterly	---
Boron	mg/L	grab	quarterly	---
Odor	TON	grab	quarterly	---
Color	ACU	grab	quarterly	---
Total Suspended Solids (TSS)	mg/L	grab	quarterly	---
Remaining Inorganics with Primary MCLs (Table E-4)	µg/L, MFL	grab	quarterly	---
Remaining Regulated Organics (Tables E-5 and E-6)	µg/L	grab	quarterly	---
Remaining Constituents/parameters with Secondary MCLs (Table E-10)	varies	grab	quarterly	---
Disinfection Byproducts (Table E-7)	µg/L	grab	quarterly	---
Radioactivity (Table E-8)	pCi/L, millirem/year	grab	quarterly	---
Remaining General Physical and General Minerals (Table E-9)	µg/L	grab	annually	---
Remaining Constituents with Notification Levels (Table E-11)	µg/L	grab	quarterly	---
Remaining Priority Pollutants (Table E-12)	µg/L	grab	quarterly/annually	---

Footnotes for Table E-17

- a. Water level elevations shall be measured to the nearest 0.01 feet and referenced to mean sea level.

End of Footnotes for Table E-17

3.6.4. If any of the groundwater monitoring results indicates 80% of the sum of a nitrate, nitrite, or nitrate plus nitrite MCL has been exceeded, another sample shall be collected for confirmation within 48 hours of receiving the results from the laboratory. If the average of the initial sample and confirmation sample exceeds the MCL, DDW and Los Angeles Water Board shall be notified within 24 hours. Subsurface application shall be discontinued until corrective actions are taken or a determination is made that GRRP activity was not responsible for the contamination.

4. USE AREA MONITORING

The City is responsible for ensuring use area data is collected and submitted in the annual report. The following shall be recorded for each user with additional reporting for use areas as appropriate. The frequency of use area inspections shall be based on the complexity and risk of each use area. Use areas may be aggregated to combine acreage for calculation or observation purposes. Use area monitoring shall include:

TABLE E-18. USE AREA MONITORING

Parameter	Units	Sample Type	Sampling Frequency	Reporting Frequency
Recycled Water User	---	---	---	Annually
Average Monthly Recycled Water Flow	Gallons per day (gpd)	Meter	Monthly	Annually
Acreage Applied	Acres	Calculated	---	Annually
Application Rate	Inches/acre/year	Calculated	---	Annually
Soil Saturation and Ponding	---	Observation	Quarterly	Annually
Nuisance Odors/Vectors	---	Observation	Quarterly	Annually
Discharge Off-Site	---	Observation	Quarterly	Annually
Notification Signs	---	Observation	Quarterly	Annually

Footnotes for Table E-18

a. Notification signs shall be consistent with the requirements of 22 CCR section 60310(g).

End of Footnotes for Table E-18

5. REPORTING REQUIREMENTS

The City shall submit the required reports, outlined in this section, to the State Water Board’s GeoTracker database by the specified dates.

- 5.1.** For the purpose of reporting compliance with numerical limitations, analytical data shall be reported using the following reporting protocols:
- 5.1.1.** Sample results greater than or equal to the MRL must be reported “as measured” by the laboratory (i.e., the measured chemical concentration in the sample).
- 5.1.2.** Sample results less than the MRL, but greater than or equal to the laboratory’s Minimum Detection Limit (MDL), shall be reported as “Detected, but Not Quantified”, “DNQ.” The laboratory shall write the estimated chemical concentration of the sample next to “DNQ.”
- 5.1.3.** Sample results less than the laboratory’s MDL shall be reported as “Not-Detected”, or ND.
- 5.1.4.** If the City samples and performs analyses (other than for process/operational control, startup, research, or equipment testing) on any sample more frequently than required in this MRP using approved analytical methods, the results of those analyses shall be included in the report. These results shall be reflected in the calculation of the average used in demonstrating compliance with average effluent, receiving water, etc., limitations.
- 5.1.5.** The Los Angeles Water Board or DDW may request supporting documentation, such as daily logs of operations.
- 5.1.6.** All reports shall reference Compliance File No. CI-10569 and shall be uploaded to GeoTracker under Global ID WDR100053004. Compliance monitoring reports shall be submitted separately from other technical reports.
- 5.1.7.** All submittals shall comply with the Electronic Submittal of Information (ESI) requirements by submitting all reports required under the Order, including groundwater monitoring data, discharge location data, and searchable Portable Document Format. If any file exceeds 10 megabytes then the report shall be uploaded in multiple parts. Upon request, the data shall be provided in Excel format.
- 5.1.8.** The City shall submit to the Los Angeles Water Board, together with the first monitoring report required by this Order, a list of all chemicals and proprietary additives which could affect the quality of the recycled water, including quantities of each. Any subsequent changes in types and/or quantities shall be reported promptly. An annual summary of the quantities of all chemicals, listed by both trade and chemical names, which are used in the treatment process shall be included in the annual report.

5.2. Monthly Monitoring Reports

Monthly monitoring reports shall be submitted to the Los Angeles Water Board and DDW by the 10th day of the month following the month of sampling and shall include:

- 5.2.1.** The calculated log reduction values (LRVs).

5.2.2. The daily average and maximum conductivity readings for the RO effluent for each RO train, the percent of time the conductivity is greater than 350 micro-Siemens, and the average reduction in electrical conductivity achieved.

5.2.3. Continuous turbidity analytical results for the month for the AWTF advanced-treated recycled water (located after MBR and before RO) including the daily average, daily maximum, and percent of time turbidity exceeds 0.2 NTU. The City shall also report if the MBR effluent turbidity exceeded 0.5 NTU at any time.

5.2.4. Summary of the NDMA log reduction along with Ultraviolet Intensity (UVI), Ultraviolet Transmittance (UVT), power, flow rate (Q), calculated UVI/Q, calculated chlorine dose, and any reactor failures.

5.2.5. Based on the daily log reduction calculation, report a “Yes” or “No” for each day to indicate if the necessary pathogenic microorganism log reductions (12-logs virus, 10-logs *Giardia* and *Cryptosporidium* oocyst) have been achieved. The daily minimum model predicated 1,4-dioxane and NDMA log reduction shall also be reported. An overall log reduction calculated value must be provided daily unless the AWTF is offline for a 24-hour period.

5.2.6. Daily coliform analytical results for the AWTF advanced-treated recycled water.

5.2.7. Summary of the monthly operational parameters for UV and chlorine dose.

5.2.8. TOC results for the RO influent and effluent including the average and maximum, average reduction of TOC by RO, and the percent of time TOC is greater than 0.5 mg/L.

5.2.9. Records of operational problems, plant and equipment breakdowns, and diversion of emergency storage or disposal, and all corrective or preventative actions taken.

5.3. Quarterly Monitoring Reports

5.3.1. Quarterly monitoring reports shall be submitted to the Los Angeles Water Board by the 15th day of the third month following the end of each quarterly monitoring period.

5.3.2. The quarterly reports shall include, at a minimum, the following information:

5.3.2.1. A one-page summary of operational concerns that address changes in reporting conditions including influent and AWTF and SMURRF recycled water since the last report.

5.3.2.2. Summary of monthly operational parameters for calculated 1,4-dioxane and NDMA log reduction along with flowrate, UVT, pH and any reactor failure(s).

5.3.2.3. Volume of the influent wastewater, stormwater, dry-weather runoff, and advanced-treated recycled water used for nonpotable and indirect

potable reuses. If no advanced treated recycled water was used during the quarter, the report shall so state.

5.3.2.4. A table listing the users serviced during the quarter, the amount of recycled water delivered to each user (reported in both gallons and in acre-feet), and the use of the recycled water.

5.3.2.5. The date and time of sampling and analyses.

5.3.2.6. All analytical results of samples collected during the monitoring period for the AWTF advanced treated recycled, SMURRF effluent and groundwater.

5.3.2.7. The analytical method used, the method detection limit (MDL), and the RDL for each constituent analyzed.

5.3.2.8. The applicable MCL, condition, or permit limitation.

5.3.2.9. The name(s) of the laboratory that conducted the analyses and a copy of laboratory certifications from ELAP.

5.3.2.10. Records of any operational problems, plant upset(s), equipment breakdowns or malfunctions, and any diversion(s) of off-specification recycled water and the location(s) of final disposal.

5.3.2.11. Discussion of compliance, noncompliance, or violation of requirements.

5.3.2.12. Summary of operational concerns describing changes in reporting conditions, including influent, AWTF advanced treated recycled water, SMURRF effluent and any groundwater monitoring results, since the last report.

5.3.2.13. All corrective or preventive action(s) taken or planned with a schedule of implementation, if any.

5.3.2.14. Calculations indicating what percent results of the quarter's monitoring did not meet the surrogate and/or operational parameter limits established to assure proper on-going performance of the RO and AOP processes. If the calculated percent exceeds 10 percent, the City will submit a report to DDW and the Los Angeles Water Board within 45 days of the end of the quarter. The report will describe corrective actions planned or taken to reduce the percent to less than 10. If necessary, the City shall consult with regulators, and comply with an alternative monitoring plan approved by DDW and Los Angeles Water Board.

5.3.2.15. Summary of monitoring results, calculations, and analyses for Health-Based CECs, Performance Indicator CECs, and CEC surrogates.

5.4. Annual Summary Reports

5.4.1. The Annual Summary Report shall be received by April 30 of each year and shall contain a discussion of the previous calendar year's analytical results, as well as graphical and tabular summaries of the monitoring analytical data.

5.4.2. Public water systems, owners of small water systems and other active production wells having down-gradient sources potentially affected by the injection well or within 10 years groundwater travel time from the injection well location shall be notified by direct mail and/or electronic mail of the availability of the annual report.

5.4.3. Annual monitoring reports shall include a minimum of the following:

5.4.3.1. The amount of advanced treated recycled water produced by the AWTF and SMURRF, the total volume of recycled water injected into the injection well SM-10i each year, and the amount distributed for nonpotable reuse.

5.4.3.2. Documentation demonstrating the requirements for retention time underground and the distance from the nearest extraction well are being met.

5.4.3.3. Tabular and graphical summaries of the monitoring data obtained during the previous calendar year including advanced treated recycled water and groundwater quality data.

5.4.3.4. A table listing the users and use areas serviced during the year, the amount of recycled water delivered to each user (reported in both gallons and in acre-feet), and the use of the recycled water. Newly permitted recycled water users shall be identified. When applicable, a supplement to the Title 22 Engineering Report and the State Water Board approval letter supporting those additions shall be included.

5.4.3.5. A summary of compliance status with the applicable monitoring requirements during the previous calendar year.

5.4.3.6. For any non-compliance during the previous calendar year, a description of:

5.4.3.6.1. The date, duration, and nature of the violation.

5.4.3.6.2. A summary of any corrective actions and/or suspensions of subsurface application of recycled municipal wastewater resulting from a violation.

5.4.3.6.3. If uncorrected, a schedule for and summary of all remedial actions.

5.4.3.7. Any detections of monitored chemicals or contaminants, and any observed trends in the monitoring wells (and if applicable, in diluent water supplies).

5.4.3.8. Information regarding the vertical and horizontal migration of the plume from the injection well.

5.4.3.9. Information regarding the vertical and horizontal migration of the VOC plumes in the overlying B and C-Zone Aquifers.

5.4.3.10. A description of any changes and anticipated changes, including any impacts on the operation of any unit processes or facilities shall be provided.

5.4.3.11. Title 22 drinking water quality data for the nearest domestic water supply well.

5.4.3.12. An estimated quantity and quality of the advanced treated recycled water to be utilized for the next calendar year.

5.4.3.13. A description of any changes in the operation of any unit processes or facilities. Provide an evaluation of the expected impact of the changes on the subsequent unit processes.

5.4.3.14. A summary of the measures taken to comply with wastewater source control program and the effectiveness of the implementation of the measures.

5.4.3.15. A list of the analytical methods used for each test and associated laboratory quality assurance/quality control procedures shall be included. The report shall identify the laboratories used by the City to monitor compliance with this Order, their status of certification, and provide a summary of their proficiency test.

5.4.3.16. A list of current operating personnel, their responsibilities, and their corresponding grade and date of certification.

5.4.3.17. A summary of monitoring reports, and reporting and trend analyses, 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.

5.4.3.18. Results of any tracer studies performed throughout the year, if applicable.

5.4.3.19. The Annual Summary Report shall be prepared by an engineer licensed in California and experienced in the fields of wastewater treatment and public water supply.

5.4.3.20. The date of the facility's Operation and Optimization Plan (OOP), the date the plan was last reviewed, and whether the plan is complete and valid for the current facilities.

5.4.3.21. A summary table of all inspections and enforcement activities initiated by the City. Include a discussion of compliance and corrective actions taken, as well as any planned or proposed actions needed to bring the discharge into compliance. Copies of documentation of any enforcement actions taken by the City shall be provided.

5.4.3.22. An evaluation of the performance of the recycled water system for the AWTF including a discussion of capacity issues, system problems, and a forecast of the flows anticipated for the following year.

5.5. Annual Volumetric Reports

The Annual Volumetric Report shall be received by April 30 of each year. All volumetric data measured monthly shall be reported as acre-feet (af) to the GeoTracker database under the “Other Tools: submit Annual Volumetric Water Data.” Monthly volume of influent, recycled water produced, and distributed for beneficial use in compliance with Title 22 in each of the use categories below:

5.5.1. Agricultural irrigation: pasture or crop irrigation

5.5.2. Landscape irrigation: irrigation of parks, greenbelts, playgrounds, school yards, athletic fields, cemeteries, residential landscaping, freeway landscaping, highway landscaping, and street landscaping.

5.5.3. Golf course irrigation: irrigation of golf courses, including water used to maintain aesthetic impoundments within golf courses.

5.5.4. Commercial application: commercial facilities, business use (such as laundries or office buildings), car washes, retail nurseries, and appurtenant landscaping that is not separately metered.

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

5.5.6. Geothermal energy production: augmentation of geothermal fields.

5.5.7. Other nonpotable uses including but not limited to dust control, flushing sewers, fire protection, fill stations, snow making, and dual-plumbed systems.

5.5.8. Groundwater recharge: surface or subsurface application, except for seawater intrusion barrier use.

6. DUAL-PLUMBED RECYCLED WATER SYSTEMS TESTING/MONITORING

For dual-plumbed systems, DDW and/or its delegated local agency shall be consulted for additional reporting, design, and operation requirements. The potential for cross-connections and backflow prevention devices shall be monitored as listed below, or more frequently if specified by DDW.

TABLE E-19 DUAL-PLUMBED SYSTEMS TESTING/MONITORING

Requirement	Frequency	Reporting Frequency	Notes
Cross Connection Testing	Four Years	30 days/Annually	a, b
Backflow incident	Continuous	24 hours from discovery	---
Backflow Prevention Device Testing and Maintenance	Annually	Annually	c

Footnotes for Table E-19

- a. Testing shall be performed at least every 4 years, or more frequently at the discretion of DDW.
- b. Cross connection testing shall be reported pursuant to 22 CCR section 60314. The report shall be submitted to DDW within 30 days and included in the annual report to the Los Angeles Water Board.
- c. Backflow prevention device maintenance shall be tested by a qualified person as described in 17 CCR section 7605.

End of Footnotes for Table E-19

7. REPORT SUBMITTAL DATES

Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

TABLE E-20. MONITORING PERIODS AND REPORTING SCHEDULE

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with quarterly report
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with quarterly report
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with quarterly report
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1 st day of calendar month through last day of calendar month	By the 10 th day of the month following the month of sampling
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	June 15 September 15 December 15 March 15
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	Submit with corresponding quarterly report.
Annually	January 1 following (or on) permit effective date	January 1 through December 31	April 30

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Volumetric Annual reporting	January 1 following (or on) permit effective date	January 1 through December 31	April 30

7. CERTIFICATION STATEMENT

Each report shall include the following declaration:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments thereto; and that, based on my inquiry of the 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 fine and imprisonment.”

Executed on the _____ day of _____ at _____.

_____ (Signature)

_____ (Title)

8. OPERATIONS OPTIMIZATION PLAN

In September 2021, the City submitted an Operations Optimization Plan (OOP) in accordance with 22 CCR 60320.122 for the recycled water system. The City must submit an amended OOP to Los Angeles Water Board and DDW for review and approval after the completion of DDW’s site inspection (conducted per 22 CCR section 60320.100(g)) and incorporate and clearly identify any changes in operation procedures from startup and commissioning and any other changes as directed by DDW. The OOP must be, at all times, representative of the current operations, maintenance, analytical methods, monitoring, and reporting of the GRRP in accordance with 22 CCR Article 5.2.

9. CLIMATE CHANGE VULNERABILITY ASSESSMENT AND MANAGEMENT PLAN

On February 11, 2022, the City submitted a Climate Change Effects Vulnerability Assessment and Management Plan (Climate Change Plan). The Los Angeles Water Board approved the City’s Climate Change Plan on March 01, 2022. The City shall update the Climate Change Plan and submit the updated plan to the Los Angeles Water Board for the Executive Officer’s approval no later than 12 months after the effective date of this Order. The Climate Change Plan shall include an assessment of short-term and long-term vulnerabilities of the AWTF, SMURRF, all treatment systems, the collection system, recycled water distribution system, outfalls, and operations for predicted impacts in order to ensure that the facility operations are not disrupted, compliance with permit conditions is achieved, and receiving waters are not adversely impacted by discharges. Control measures shall include, but are not

limited to, emergency procedures, contingency plans, alarm/notification systems, training, backup power and equipment, and the need for planned mitigation measures to ameliorate climate-induced impacts including, but not limited to changing influent and receiving water quality conditions, as well as the impact of rising sea level (where applicable), wildfires, storm surges, and back-to-back severe storms that are expected to become more frequent.

ATTACHMENT F – DDW CONDITIONAL ACCEPTANCE LETTERS



State Water Resources Control Board Division of Drinking Water

December 1, 2022

(Sent via email: Renee.Purdy@waterboards.ca.gov)

Renee Purdy
Executive Officer
Regional Water Quality Control Board
Los Angeles Region
320 W 4th St Suite 200
Los Angeles, CA 90013

Subject: Division of Drinking Water's Conditional Acceptance of the Title 22 Engineering Report for the City of Santa Monica – Phase 3 Sustainable Water Infrastructure Project (1995004-703)

Dear Ms. Purdy,

This letter transmits the California State Water Resources Control Board, Division of Drinking Water (DDW) conditional acceptance of the final Title 22 Engineering Report (Engineering Report; dated August 2022) for the City of Santa Monica's (City) Phase 3 Sustainable Water Infrastructure Project (Project). Per Title 22 of the California Code of Regulations (i.e., 22 CCR), the proposed Project meets the definition of a Groundwater Replenishment Reuse Project (GRRP; 22 CCR § 60301.390) using Subsurface Application (22 CCR § 60301.840), and therefore is subject to the requirements of 22 CCR § 60320.200 through 22 CCR § 60320.230. Per 22 CCR § 60323, the City is required to receive DDW approval for an Engineering Report that describes the Project's design and means for compliance with Title 22 regulations and any other features specified by DDW. The first draft of the Engineering Report was received by DDW in August 2020. DDW provided several rounds of comments on revisions of the Engineering Report and received the final revised Engineering Report on August 25, 2022.

The City is the Project Sponsor (22 CCR § 60301.670) of the Project. Recharge water (22 CCR § 60301.685) will consist of a blend of advanced treated water (22 CCR § 60320.201) from a newly constructed Advanced Water Treatment Facility (AWTF) and diluent water (22 CCR § 60301.190) from the Santa Monica Urban Runoff Recycling Facility (SMURRF). Per 22 CCR § 60320.216, the maximum recycled water contribution (RWC) for the Project will be 1.0 based on DDW review of the Engineering Report, and therefore diluent water is not required. However, SMURRF effluent was evaluated for compliance with all diluent water requirements (22 CCR § 60320.214). SMURRF

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

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effluent flow may vary seasonally and diurnally, as the SMURRF treats a mixture of urban stormwater runoff and brackish groundwater.

The AWTF production capacity will be 1.2 MGD, but the Project at initial build-out will only utilize one injection well to inject up to approximately 0.3 million gallons per day (MGD) of recharge water for subsurface injection into the Santa Monica Basin for use as a source of drinking water. AWTF source water includes raw sewage sourced from the 54-inch Ocean Avenue sewer line, which is blended with stormwater (when available) from the City's Civic Center stormwater storage tank. When present in the Civic Center storage tank, stormwater will be metered into the AWTF influent stream at a set ratio to the wastewater, with the stormwater constituting no more than 30% of the final influent blend. There are two design conditions for the AWTF influent: Condition 1 is characterized as 1.38 MGD wastewater (100% wastewater / 0% stormwater mix) and Condition 2 is characterized as 0.97 MGD wastewater and 0.41 MGD stormwater (70% wastewater / 30% stormwater mix). The wastewater source control program for the Project is an extension of the City of Los Angeles' Pretreatment Program, which includes an industrial pretreatment program. Two significant industrial users contribute to the wastewater influent flow for the proposed AWTF: Providence St. John's Hospital Health Care Center and the Santa Monica UCLA Hospital. The AWTF will produce advanced treated water for recharge through treatment of raw sewage via a membrane bioreactor (MBR), cartridge filtration, reverse osmosis (RO), a free chlorine-based ultraviolet advanced oxidation process (UVAOP), and free chlorine disinfection.

The SMURRF source waters include a combination of brackish groundwater, stormwater, and dry-weather urban runoff. The SMURRF was constructed as a best management practice (BMP) under the Los Angeles County Municipal Stormwater National Pollutant Discharge Elimination System (NPDES) Permit Number CAS004001 (Order Number R4-2001-0182) to treat and reuse urban runoff under the City's stormwater program. On an annual average, the influent to the SMURRF is estimated to be 80% brackish groundwater and 20% urban and stormwater runoff, but the proportions will likely vary by season. SMURRF will treat these flows using dissolved air flotation, ultrafiltration, reverse osmosis, ultraviolet disinfection, and free chlorine addition.

Treated flows from the AWTF and SMURRF are mixed within the City's recycled water distribution system at Ocean Ave and Moomat Ahiko Way. The blended water will be distributed to both non-potable reuse customers and to the GRRP injection well SM-10i for injection into the D-Zone and Sunnyside Aquifers in the Olympic Well Field of the Santa Monica Basin. Groundwater in the Olympic Well Field are ultimately treated at the City's Arcadia Water Treatment Plant to produce potable water. The use of advanced treated water from the AWTF for non-potable reuse was covered by a Title 22 Engineering Report dated July 16, 2020, previously approved by DDW.

To meet the requirement of 22 CCR § 60320.202, the City held a virtual Public Hearing for the Project on April 28, 2022. The City summarized the public noticing for the hearing, the hearing attendees, and the comments received in a letter dated May 9, 2022. The public hearing was held online via Zoom webinar with four members of the

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public attending. The public did not provide any comments during the online meeting or written comments via email or mail to the City.

DDW recommends that the Los Angeles Regional Water Quality Control Board (RWQCB) include the following conditions in the permit for the Project's compliance with DDW's Title 22 requirements for a GRRP using subsurface application.

A. General Requirements

1. The City must comply with all components of Article 5.2 – Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application.
2. The City must ensure that the full flow of the AWTF effluent water used for recharge is continuously treated with full advanced treatment in accordance with Article 5.2 and as detailed in the Engineering Report and Operations Optimization and Plan (OOP). Per 22 CCR § 60320.222(b), the City must ensure that all GRRP treatment processes shall be operated in a manner providing optimal reduction of all chemicals and contaminants.
3. The City must implement the following regarding zones of controlled drinking water well construction:
 - a. Prior to operation of the GRRP, the City must establish a primary zone of controlled drinking water well construction ("primary boundary"), including private wells, in accordance with 22 CCR § 60320.200(e)(2).
 - b. Prior to operation of the GRRP, the City must establish a secondary zone of potential controlled drinking water well construction ("secondary boundary"), including private wells, in accordance with 22 CCR § 60320.200(e)(3).
 - c. Prior to operation of the GRRP and regularly as needed, the City must coordinate with the Los Angeles County Department of Public Health to administer the primary and secondary boundaries in accordance with 22 CCR § 60320.200(e).
 - d. As necessary, the City must provide the primary and secondary boundary maps established in accordance with 22 CCR § 60320.200(e), locations of the Project's 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 RWQCB, and the Los Angeles County Department of Public Health.
4. The recharge water flow rate (i.e., the sum of recycled municipal wastewater and diluent water) at SM-10i must not exceed 200 gallons per minute as described in the Engineering Report. The City must notify DDW and the RWQCB and submit the necessary documents if any monitoring wells or injection wells are to be added or removed, or if the recharge water flow rates are changed.

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5. Prior to implementing any change to the Project that would require an update to the Engineering Report, the City must submit an updated Engineering Report to DDW for review and approval.
6. If directed by DDW, the City must update the Project's hydrogeological model, zones of controlled drinking water well construction, underground retention time, and response retention times in accordance with 22 CCR § 60320.200(e), 22 CCR § 60320.208, and 22 CCR § 60320.224.
7. The City must have and utilize alarms for the AWTF as described in the Engineering Report, OOP, and this conditional acceptance letter. Commissioning must validate and confirm the operation setpoints for the RO and UVAOP processes per 22 CCR § 60320.201. A full description of the alarms must be included in the OOP, in accordance with 22 CCR § 60320.222.
8. Per 22 CCR § 60320.200(g), prior to operation of the GRRP, the City must demonstrate during an on-site inspection that all treatment processes, alarms, and associated responses were implemented and can achieve their intended function as described in the Engineering Report and OOP. The City must repeat this testing on a regular basis as specified in the OOP or otherwise as requested by DDW. At a minimum, testing must occur after any expansion or modification of the treatment train.
9. The City must adequately staff the AWTF with operators. The AWTF shall be supervised and operated by persons possessing certificates of appropriate grade as required by the RWQCB. The City must track the expiration dates for all certified operators to ensure certifications are maintained. In addition, the City must staff the AWTF 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:
 - a. Upon start-up of the GRRP, the City must staff the AWTF with at least one AWT3™ certified Chief Plant Operator and with at least one AWT3™ or higher certified operator available for on-call support for each operating shift.
 - b. Within 36 months of permit adoption, the City must staff the AWTF with at least one AWT5™ certified Chief Plant Operator and with at least one AWT3™ or higher certified operator available for on-call support for each operating shift.
10. Per 22 CCR § 60320.200(k), if the City has been directed by DDW or the RWQCB to suspend subsurface application of recycled water, subsurface application of recycled water must not resume until the City has obtained approval from DDW and the RWQCB.
11. If directed by DDW, the City must optimize stabilization processes to control metal mobilization in groundwater impacted by the GRRP; optimization of any Project operations must be reflected in an updated OOP. Furthermore, if directed

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by DDW or the RWQCB, the City must conduct geochemical analysis for the purpose of controlling metal mobilization to the groundwater.

B. Advanced Treatment Requirements

12. To meet the requirement of 22 CCR § 60320.201(b), the City must conduct weekly grab sampling, routine RO pressure vessel conductivity profiling, and monitoring online electrical conductivity (EC) on the influent and permeate of each RO train as described in the OOP. In the OOP, the City must describe the overall RO monitoring program that must include at least the following elements:
 - a. Description of how on-going performance monitoring will be conducted to indicate when the integrity of the RO process has been compromised.
 - b. 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.
 - c. Description of the RO pressure vessel conductivity profiling, including a full standard operating procedure (SOP) used by the AWTF staff.
 - d. 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 AWTF and updated as needed.
 - e. 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.
 - f. 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).
13. The UVAOP must be operated as designed and described in the Engineering Report and OOP to meet all applicable requirements, achieving a minimum 0.5- \log_{10} reduction of 1,4-dioxane, and meeting Notification Levels (NLs) for all chemicals with a NL under the normal full-scale operating conditions.
 - a. Each of the two UVAOP trains must be operated with online monitoring and built-in reliability features dedicated to each train that must trigger automatic diversion of the respective train's effluents (or another reliability feature, such as train shutdown, as approved by DDW), if the following critical alarm setpoints are reached (i-vi) for any train. The City may use the UVAOP model predicted 1,4-dioxane and NDMA \log_{10} reduction as a substitute for setpoint (v) and/or setpoint (vi) provided that the UVAOP model is validated during the startup and commissioning and receives approval from DDW.

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- i. For any train, complete UV reactor failure, including but not limited to train power or train communication loss.
 - ii. For any train, instantaneous flow rate exceeds design flow rate of 0.6 MGD per train (or another setpoint approved by DDW).
 - iii. For any train, UVT less than 96% entering the UV system for more than 15 minutes (or another setpoint approved by DDW).
 - iv. For any train, pH greater than 6 entering the UV system for more than 15 minutes (or another setpoint approved by DDW).
 - v. For any train, free chlorine residual less than 3 mg/L as Cl₂ entering the UV system (or another setpoint approved by DDW).
 - vi. For any train, UV reactor ballast power less than 60% (or another setpoint approved by DDW).
 - b. If directed by DDW, the City must monitor and/or calculate the radical scavenging demand as specified in the OOP and monitoring results to be included in the quarterly reports. If directed by DDW, the City must update the UVAOP system to incorporate radical scavenging demand to adjust operations as specified in the OOP.
14. The City must provide continuous monitoring of flow rate, UV transmittance (UVT), pH, free chlorine, total chlorine, monochloramine/ammonia, ballast power, and calculated UV dose at their respective UVAOP system compliance points. All instrumentation used to measure or calculate these parameters must be calibrated per the manufacturers' recommendations.
- a. At least weekly, the UVT meter must be inspected and checked against a reference unit 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.
15. Per 22 CCR § 60320.201(h), the City must perform calculations to document proper on-going performance of the reverse osmosis and advanced oxidation processes and report in the quarterly reports. The City must report the percent of results of the quarter's monitoring for the RO and UVAOP in accordance with 22 CCR § 60320.201(b) and (c) that did not meet the surrogate or operational parameter limits. The City must also state if the limits were exceeded by greater than 10% for each quarter.

C. Laboratory Analyses

16. In accordance with 22 CCR § 60320.204, all laboratory analyses for contaminants having a primary or secondary maximum contaminant level (MCL) must be conducted using a drinking water method approved by DDW for the contaminant and by a laboratory accredited by the State Water Board

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Environmental Laboratory Accreditation Program (ELAP) for the analytical method used. Analyses for chemicals other than those having primary or secondary MCLs must be described in the City's OOP.

17. 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.
 - a. The City must use DDW-provided Primary Station Codes (ps-codes) to electronically submit the water quality monitoring results for the Project.
 - b. Laboratory results required by DDW that cannot be transmitted electronically¹ via ps-codes to California Laboratory Intake Portal (CLIP), such as bacteriological data, must be submitted to DDW in the appropriate reports (e.g., quarterly reports).
 - c. 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.
18. The City 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. The City must not reduce the monitoring frequency for the chemicals having NLs, including all chemicals that overlap with constituents of emerging concern in the Recycled Water Policy², without the approval of DDW.

D. Pathogenic Microorganism Control

19. Per 22 CCR § 60320.208(c), the City must validate each of the treatment processes used to meet the required virus, Giardia cyst, and Cryptosporidium oocyst reductions. The City must include in its OOP the necessary monitoring and calculations that validates the performance of each treatment process's ability to achieve its pathogen LRV as proposed in the Engineering Report and OOP. Flow-weighted averaging cannot be used for the purpose of calculating the pathogen LRV for any treatment process, including between parallel treatment trains of the same process. Pathogen LRV for each pathogen for each of the treatment processes must be calculated and reported in accordance with the following:
 - a. The MBR treatment process will be credited pathogen LRVs in accordance with recommendations for a Tier 1 strategy outlined in the Water Research Foundation Project 4997 *Membrane Bioreactor Validation Protocols for Water*

¹ The City should contact DDW for any required water quality data that cannot be transmitted electronically.

² Currently these chemicals are 1,4-dioxane, NDMA, PFOA and PFOS. Future versions of the Recycled Water Policy may have different overlapping chemicals (if any).

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Reuse. To obtain pathogen LRV credit, the City must conduct monitoring and reporting for the MBR as follows:

- i. The MBR will receive a credit of 1.0 LRV for virus and 2.5 LRV for Giardia cyst and Cryptosporidium oocyst if MBR filter effluent turbidities do not exceed the following:
 1. 0.2 NTU more than 5% of the time within a 24-hour period; and
 2. 0.5 NTU at any time.
- ii. To meet the MBR filtrate turbidity requirements, turbidity must be monitored as follows:
 1. The primary compliance meters for turbidity will be the turbidimeters on each of the individual MBR filter effluent lines. When all individual MBR filter effluent turbidimeters are online, pathogen LRV credit for each online MBR train will be calculated using the respective MBR filter effluent turbidities. LRV credit for the MBR system must be calculated using the minimum calculated pathogen LRV of any online individual MBR train.
 2. The secondary compliance meter for turbidity will be the turbidimeter on the combined MBR filter effluent line. When any of the primary MBR filter effluent turbidimeters are offline, LRV credit for the MBR system must be determined using the turbidimeter on the combined MBR filter effluent line.
- b. To receive pathogen LRV credit for cartridge filtration upstream of RO, the City must use Harmsco HC/170-LT2 cartridge filters, which have been previously approved by DDW as an Alternative Filtration Technology per the *Conditional Acceptance of the Harmsco Potable Water Cartridge Filtration System as an Alternative Filtration Technology* ("Harmsco Conditional Acceptance Letter", dated June 17, 2015). The cartridge filters will be credited 2.5 LRV for Giardia cysts and 2.0 LRV for Cryptosporidium oocysts for meeting all applicable requirements in the Harmsco Conditional Acceptance Letter and operating per the Engineering Report and OOP, including but not limited to:
 - i. Maximum filter flux rate of 0.80 gpm/ft².
 - ii. Max differential pressure (as measured across the final filter) no greater than 30 psid measured across each filter housing. If exceeded, cartridge filter must be replaced with a new, unused filter.
 - iii. Cartridge filter effluent turbidity not to exceed 0.3 NTU 95% of the time, and not to exceed 1.0 NTU at any time.
 - iv. Cartridge filter replacement must be once a year minimum.

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- c. The RO treatment system will be credited pathogen LRVs by demonstrating in an on-going fashion the removal of surrogates as described herein (or as otherwise approved by DDW). Initially, approved surrogates will include EC and TOC.
 - i. RO LRV pathogen credit will be determined by Tier 1 (if available) or by Tier 2 (if Tier 1 is unavailable), as described below:
 1. Tier 1: Continuous TOC monitoring (at least once every 15 minutes) **of the RO system** must be conducted at (1) the combined RO feed stream and (2) each RO train's combined permeate stream, results of which must be used to calculate a daily average TOC reduction for each RO Train. Daily Tier 1 pathogen LRV credit must be calculated as the minimum daily TOC log₁₀ reduction achieved among all the RO trains in operation that day.
 2. Tier 2: Continuous EC monitoring (at least once every 15 minutes) of **each RO train** must be conducted at (1) the combined RO feed stream and (2) each RO train's combined permeate stream, results of which must be used to calculate a minimum daily EC reduction for each RO train. Daily Tier 2 pathogen LRV credit must be calculated as the minimum daily EC log₁₀ reduction achieved among all the RO trains in operation that day.
 - ii. In the monthly reports, the City must report the daily average, maximum value, and calculated reduction for the surrogates from all tiers for all RO trains. The City must indicate which tier is used for reporting the RO LRV credit for a given day.
 - iii. The City must apply the logarithmic function as the last step in the calculation for the LRV for all pathogens.
- d. The UVAOP treatment system will be credited 6.0 LRV for viruses, Giardia cysts, and Cryptosporidium oocysts each day the UV reduction equivalent dose (RED) is greater than 300 mJ/cm² throughout the entire day.
- e. The chlorine contact tank will be credited LRV for virus using free chlorine disinfection. LRV credit for virus will be granted as described as follows (or as otherwise approved by DDW): a maximum of 5.0 LRV for virus will be credited each day that the free chlorine CT (i.e., the product of the chlorine residual and the disinfection contact time (i.e., t₁₀) measured at the point of compliance) is greater than or equal to 9.0 mg-min/L and all the following conditions are met:
 - i. The City must provide continuous monitoring of the following constituents at their respective compliance points as described in the

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Engineering Report: free chlorine, ammonia, combined chlorine, pH, temperature, and turbidity.

- ii. The City must calculate a free chlorine CT on SCADA based on a 15-minute running average using continuous data from the free chlorine residual analyzer and flow meters as described in the OOP.
 - iii. The free chlorine disinfection process must be operated with the following alarm setpoints that, if exceeded, must trigger corrective actions as described in the OOP:
 1. pH greater than 7 (or another setpoint approved by DDW) for more than 15 minutes.
 2. Temperature less than 15 degrees Celsius (or another setpoint approved by DDW) for more than 15 minutes.
 3. Free chlorine residual less than 1.0 mg/L (or another setpoint approved by DDW) at the point at which t_{10} is achieved for more than 15 minutes.
 4. Flow rate exceeds maximum design flow rate of 1.2 MGD (or another setpoint approved by DDW).
20. Per 22 CCR § 60320.208(d) and § 60320.224(c), the City must conduct a tracer study to validate underground retention time. The tracer study must be conducted prior to the end of the third month following the start of operations of the GRRP.
- a. Per 22 CCR § 60320.224, the City must submit a groundwater tracer study protocol for review and approval by DDW. The tracer study protocol must be submitted at least 60 days prior to the start of the tracer study.
 - b. The City must submit the completed tracer study report to DDW and the RWQCB. The City must update the Engineering Report and OOP based on the results of the tracer study; the update of the Engineering Report may coincide with the five year update required by 22 CCR § 60320.228(b).
 - c. Until the completed tracer study report and validated underground retention time based on the tracer study report are approved by DDW, the City must use a minimum underground response retention time (RRT) of eight months as described in the Engineering Report.
 - d. Based on the results of the tracer study, and if necessary based on consultation with DDW, the City must revise the primary and secondary boundaries in accordance with 22 CCR § 60320.200(e) and coordinate any necessary actions based on these updates with the Los Angeles County Department of Public Health.

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- e. The City must update the hydrogeological model based on the results documented in the tracer study.

E. SMURRF Diluent Water Requirements

- 21. The City must treat the full flow of water at the SMURRF with reverse osmosis and as described in the Engineering Report. The City must ensure that all treatment processes at the SMURRF are operated in a manner such that the SMURRF effluent meets all chemical and contaminant requirements in accordance with 22 CCR § 60320.214.
- 22. Per 22 CCR § 60320.214(c), the City must implement a monitoring plan for the SMURRF for DDW-specified contaminants to ensure the SMURRF effluent complies with primary MCLs, secondary MCLs, and NLs. The monitoring plan must be fully described in the OOP for approval by DDW. At any time, DDW may require an update to the SMURRF monitoring plan, which must be updated in the OOP and submitted to DDW for approval. The SMURRF effluent quality monitoring plan must include the actions the City will take in the event of non-compliance of the SMURRF effluent with respect to any primary MCLs, secondary MCLs, or NLs.
- 23. Per 22 CCR § 60320.214(a), the City must monitor the SMURRF effluent at least quarterly for nitrate and nitrite. Within 72 hours of being informed of results from the laboratory that exceed a nitrate, nitrite, or nitrate plus nitrite MCL, the City must collect a confirmation sample of the SMURRF effluent. If the average of the two samples is greater than an MCL, the City must:
 - a. Notify DDW and the RWQCB within 48 hours of receiving the confirmation sample result.
 - b. Investigate the cause(s) and implement corrective actions.
 - c. Initiate increased frequency of sampling of SMURRF effluent where, each week, the City must collect and analyze two grab samples at least three days apart as specified in the OOP. If the average of the results for a two-week period exceeds the MCL, subsurface application of the SMURRF effluent shall not be used in the calculation of the Recycled Water Contribution until corrective actions are made. Quarterly monitoring may resume if four consecutive results are below the nitrate, nitrite, and nitrate plus nitrite MCLs.
- 24. The maximum recycled municipal wastewater contribution (RWC) for this Project is 1.0 (100%)³ in accordance with 22 CCR § 60320.216.

³ Diluent water may be mixed with recycled water prior to groundwater injection, and therefore at times the Project may have less than 100% RWC.

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F. Compliance Monitoring and Reporting

25. All monitoring and reporting requirements from Article 5.2 (as applicable) and this conditional acceptance letter must be incorporated into the OOP.
26. The City must complete compliance monitoring and reporting as required by DDW and the RWQCB. If there are duplications or overlap in these monitoring and reporting requirements, the City must comply with the more stringent requirement.
27. The City must electronically submit Monthly Reports no later than the 10th day of the month following the month of sampling. These Monthly Reports must be prepared as described in the OOP.
28. The City must electronically submit quarterly reports no later than the 15th day of the second month following the end of each quarterly monitoring period. These Quarterly Reports must be prepared as described in the OOP.
29. Per 22 CCR § 60320.228(a), the City must submit an Annual Report to DDW and RWQCB no later than six months after the end of each calendar year. These Annual Reports must be prepared as described in the OOP.
30. Per 22 CCR § 60320.228(b), the City must update the Engineering Report to address any changes to the Project and submit to DDW and the RWQCB at least every five years.
31. The City must record the daily pathogen LRV for each pathogen achieved by (1) each treatment process at the AWTF and (2) the entire treatment train. The City must also record “Yes” or “No” as to whether the daily total pathogen LRV for the entire treatment train met the total required LRVs for each pathogen.
 - a. The daily total pathogen LRV for the entire treatment train must be calculated as the sum of the minimum pathogen LRVs attributed to each treatment process for each pathogen for each day.
 - b. The pathogen LRV for the treatment train must be calculated and recorded every day, unless the treatment train is offline for the full day (i.e., midnight to midnight).
32. In addition to the requirements of the Recycled Water Policy, the City must monitor for DDW-specified performance indicator constituents across the following treatment processes.⁴ DDW specifies sucralose (or another performance indicator as approved by DDW) and NDMA (or another performance indicator as approved by DDW) as performance indicators for RO and UVAOP, respectively. These constituents must be monitored monthly both

⁴ This monitoring is intended for the optimization of advanced treatment processes and to ensure DDW's goal of protection of public health.

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immediately prior to and immediately after⁵ the corresponding treatment processes.

- a. Results for each indicator must be provided in quarterly and annual reports, including percent reduction for each performance indicator.
- b. In the OOP, the City must use sampling data to develop a baseline value and lower and upper control limits using statistical methodology to monitor performance of respective processes.
- c. The City may reduce the monitoring frequencies for the RO and UVAOP indicators from monthly to quarterly for these constituents in the selected locations following DDW review and acceptance based on at least 12 months of water quality data.

G. Total Organic Carbon Requirements

33. Per 22 CCR § 60320.218, the applied recycled municipal wastewater must be sampled prior to replenishment at least weekly for TOC.
 - a. The City must report the following in the quarterly reports:
 - i. Results of the product water TOC monitoring per 22 CCR § 60320.218(a)
 - ii. 20-week running average of all TOC results
 - iii. The average of the last four results
 - b. The City may use a continuous analyzer to satisfy TOC monitoring requirements of 22 CCR § 60320.218 based on DDW review and acceptance. Use of the continuous analyzer must be described in an updated OOP.

H. Operation Optimization and Plan

34. Per 22 CCR § 60320.222, the City must operate the Project in accordance with the OOP. The OOP must be, at all times, representative of the current operations, maintenance, staffing, analytical methods, monitoring, and reporting of the Project in accordance with 22 CCR § 60320.222.
 - a. Within six months of optimizing treatment processes in accordance with 22 CCR § 60320.222(b), and anytime thereafter operations are optimized that result in a change in operation, the City must update the OOP to include such changes in operational procedures and submit the OOP for review and acceptance by DDW.

⁵ These monitoring locations, frequencies, and methods may differ from SWRCB's Recycled Water Policy requirements.

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35. The City must provide process control 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:
 - a. All alarms that trigger reliability features: diversion, retreatment, or shutdown.
 - b. All alarms that trigger responses other than diversion, retreatment, or shutdown.
 - c. For each alarm, include the associated response and key instrumentation information. At a minimum, this must include:
 - i. Instrument tag and description
 - ii. Alarm type (i.e., low-low, low, high, high-high, etc.)
 - iii. Alarm setpoint or trigger value and if the setpoint or trigger value is hardcoded
 - iv. Alarm effect (e.g., SCADA alarm, automatic diversion, shutdown, etc.)
 - v. Alarm time delay
 - vi. The required frequency of calibration for instrumentation associated with critical control alarms.
36. The City must update the OOP to incorporate any future revisions to chemical monitoring lists (e.g., MCLs, NLs).

I. Cross-Connection Control Program

37. The City must have no undesired or unintended reversal of flow of water or other liquids, gases, or other substances into the AWTF's product water lines. Any such undesired or unintended reversal of flow must be reported to the RWQCB and DDW within 24 hours of the City's knowledge of the incident.
38. The AWTF 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.
39. The City must submit a comprehensive cross-connection control program report for the AWTF to DDW and the RWQCB. The cross-connection control program report must be submitted as a standalone document, separate from the OOP.
 - a. The City 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 AWTF. 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

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applicable corrective actions, and subsequently submitted to DDW, the RWQCB, and Los Angeles County Department of Public Health.

- b. 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 ANSI-accredited program.
40. The AWTF 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 AWTF and once every year thereafter. Piping systems must be inspected for possible cross-connections after making any modification to the AWTF plumbing system. The AWTF must have internal protection from cross-connections.
- a. 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.
 - b. The City 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.

If you have any questions regarding this conditional acceptance letter, please contact Scott Miller at (510) 620-3464 or via email at Scott.Miller@waterboards.ca.gov or me at (818) 551-2046 or via email at Ginachi.Amah@waterboards.ca.gov.

Sincerely,

 Digitally signed by
Ginachi Amah
Date: 2022.12.01
15:44:09 -08'00'

Ginachi Amah P.E., D.Env
Recycled Water Unit Supervisor
Recycled Water Unit
Division of Drinking Water
State Water Resources Control Board
500 North Central Ave., Suite 500
Glendale, CA 91203

Enclosure:
N/A

cc: Scott Miller, DDW (via email)

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Renee Purdy

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Ginachi Amah, DDW (via email)
Brian Bernados, DDW (via email)
Jing-Tying Chao, DDW (via email)
Sherly Rosilela, DDW (via email)
Randy Barnard, DDW (via email)
Sutida Bergquist, DDW (via email)
Terrence Kim, DDW (via email)
Jeff O'Keefe, DDW (via email)
Kurt Souza, DDW (via email)

Jeong-Hee Lim, Los Angeles RWQCB (via email)
Adam Taing, Los Angeles RWQCB (via email)
Steven Webb, Los Angeles RWQCB (via email)

Sunny Wang, City of Santa Monica (via email: Sunny.Wang@santamonica.gov)
Alex Waite, City of Santa Monica (via email: Alex.Waite@santamonica.gov)

bc: RWU files



State Water Resources Control Board
Division of Drinking Water

August 19, 2020

Renee Purdy
Executive Officer
Los Angeles Regional Water Quality Control Board
320 W. 4th Street, Suite 200, 1st floor
Los Angeles, CA 90013

CONDITIONAL ACCEPTANCE LETTER FOR THE CITY OF SANTA MONICA RECYCLED WATER ENGINEERING REPORT FOR THE SUSTAINABLE WATER INFRASTRUCTURE PROJECT (1995004-703)

Dear Ms. Purdy,

This letter transmits the State Water Resources Control Board's Division of Drinking Water (Division) conditional acceptance of the Title 22 Engineering Report (Report) submitted by the City of Santa Monica (City), entitled "Recycled Water Engineering Report", dated July 16, 2020. This Report is for the production, distributions, and use of recycled water from the City's new advanced water treatment facility (AWTF) for non-potable reuse purposes. A previous engineering report was submitted by the City on April 22, 2020 which the Division reviewed for compliance with the California Water Recycling Criteria (Title 22) requirements and issued review comments in a letter dated June 1, 2020. The Division reviewed the July 16, 2020 Report and finds that it addressed the previous review comments.

The City must implement all applicable recycled water requirements found in Title 17 and Title 22 for production and use of recycled water in addition to the requirements below:

1. Prior to start of operations and delivery of recycled water, an Operations and Maintenance Manual for the AWTF must be submitted to the Division for review and acceptance.
2. The City must submit an updated engineering report to the Division for review and acceptance if any changes to the information provided in the current Report are considered in the future.
3. Sampling of the recycled water for total coliform bacteria must be conducted daily in accordance with Title 22 section 60301.230.
4. Each UV disinfection train must be operated independently to deliver a minimum validated UV dose of 300 mJ/cm² at all times.

E. JOAQUIN ESQUIVEL, CHAIR | EILEEN SOBECK, EXECUTIVE DIRECTOR

1350 Front Street, Room 2050, San Diego, CA 92101 | www.waterboards.ca.gov

Renee Purdy
Los Angeles Regional Water Board

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5. Continuous Monitoring of turbidity in the recycled water must be conducted in accordance with the requirements specified in Title 22 section 60301.320.
6. A monthly summary of operating records including analyses, records of operational problems, plant and equipment breakdowns, and diversions to emergency storage or disposal, and all corrective or preventive actions taken shall be filed monthly with the Los Angeles RWQCB as required by Title 22 section 60329.
7. At startup of the AWTF, the City must conduct a demonstration of the critical alarms that would trigger an immediate diversion to take place. The City must notify the Division when this demonstration is scheduled to take place and the Division's staff may witness the critical alarms testing.
8. Prior to delivery of recycled water to any use sites not owned by the City, the City must develop and adopt enforceable rules and regulations that cover design, construction, operation, maintenance, and control measures of the recycled water use areas.
9. The City must submit a supplementary engineering report along with all necessary information and drawings for any new recycled water use sites in the future for review and acceptance by the Division.
10. Prior to the delivery of recycled water to any dual plumbed recycled water systems, plans and specifications for the dual plumbed facilities must be submitted to the Division for review and acceptance in accordance with Title 22 section 60314. The proposed plans and specifications must be in accordance with the requirements of Title 22 sections 60313 through 60316.

If you have any questions regarding this letter, please contact Saeedreza Hafeznezami at (818) 551-2972 or via email at Saeedreza.Hafeznezami@waterboards.ca.gov or me at (619) 525-4022 or via email at Randy.Barnard@waterboards.ca.gov.

Sincerely,

Randy Barnard Digitally signed by Randy Barnard
Date: 2020.08.19 09:33:51 -07'00'

Randy Barnard, P.E.
Recycled Water Unit Chief
Recycled Water Unit

Renee Purdy
Los Angeles Regional Water Board

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August 19, 2020

Division of Drinking Water
State Water Resources Control Board
1350 Front St., Rm. 2050
San Diego, CA 92101

cc:

Sunny Wang, City of Santa Monica, Public Works Department – Water Resources (via email: sunny.wang@smgov.net)

Sutida Bergquist, Central District, State Water Resources Control Board – Division of Drinking Water (via email)

Jeff O'Keefe, State Water Resources Control Board – Division of Drinking Water (via email)

Kurt Souza, State Water Resources Control Board – Division of Drinking Water (via email)

Brian Bernados, State Water Resources Control Board – Division of Drinking Water (via email)

Steven Webb, Los Angeles Regional Water Quality Control Board (via email)

Jeong-Hee Lim, Los Angeles Regional Water Quality Control Board (via email)

Cris Morris, Los Angeles Regional Water Quality Control Board (via email)

RWU File

ATTACHMENT G – POLLUTANTS WITH NOTIFICATION LEVELS

The following is a list of pollutants with notification levels at the time this permit was adopted. The Permittee shall maintain an updated list of pollutants with notification levels and monitor these pollutants as they are adopted into the California Code of Regulations.

Constituents	Units	Notification Level (NLs)
Boron	mg/L	1
n-Butylbenzene	mg/L	0.26
sec-Butylbenzene	mg/L	0.26
tert-Butylbenzene	mg/L	0.26
Carbon disulfide	mg/L	0.16
Chlorate	mg/L	0.8
2-Chlorotoluene	mg/L	0.14
4-Chlorotoluene	mg/L	0.14
Diazinon	mg/L	0.0012
Dichlorodifluoromethane (Freon 12)	mg/L	1
1,4-Dioxane	mg/L	0.001
Ethylene glycol	mg/L	14
Formaldehyde	mg/L	0.1
Octahydro—1,3,5,7-tetranitro-1,3,5,7-tetrazocine (HMX)	mg/L	0.35
Isopropylbenzene	mg/L	0.77
Manganese	mg/L	0.5
Methyl isobutyl ketone (MIBK)	mg/L	0.12
Naphthalene	mg/L	0.017
n-Nitrosodiethylamine (NDEA)	mg/L	0.00001
n-Nitrosodimethylamine (NDMA)	mg/L	0.00001
n-Nitrosodi-n-propylamine (NDPA)	mg/L	0.00001
Perfluorobutane sulfonic acid (PFBS)	mg/L	0.0005
Perfluorohexane Sulfonic Acid (PFHxS)	mg/L	0.000003
Perfluorooctanoic acid (PFOA)	mg/L	0.0000051
Perfluorooctanesulfonic acid (PFOS)	mg/L	0.0000065
Propachlor	mg/L	0.09
n-Propylbenzene	mg/L	0.26
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	mg/L	0.0003
Tertiary butyl alcohol (TBA)	mg/L	0.012
1,2,4-Trimethylbenzene	mg/L	0.33
1,3,5-Trimethylbenzene	mg/L	0.33
2,4,6-Trinitrotoluene (TNT)	mg/L	0.001
Vanadium	mg/L	0.05

ATTACHMENT H – CEC PHASED MONITORING REQUIREMENTS

The City shall conduct a three-phased monitoring approach for the CEC monitoring parameters required in this Order. This approach includes an initial assessment monitoring phase, a baseline monitoring phase, and a standard operation monitoring phase. The purpose of phased monitoring is to allow the Los Angeles Water Board to review monitoring results for the CEC monitoring required in this Order at each phase and to refine the specific monitoring requirements based on the monitoring results and findings of the previous phase. Each CEC monitoring phase is described in detail below.

The City may submit existing CEC monitoring data for the health-based CECs and performance indicator CECs, surrogates for CECs, and bioanalytical screening tools from the Facility permitted under this Order to satisfy the requirements of the initial assessment or baseline monitoring phase. If the Los Angeles Water Board, in consultation with the State Water Board, determines the existing CEC monitoring data meet the intent of the initial assessment phase, the Los Angeles Water Board may allow the City to initiate the baseline monitoring phase. If the Los Angeles Water Board, in consultation with the State Water Board, determines the existing CEC monitoring data meet the intent of the baseline monitoring phase, the Los Angeles Water Board may allow the City to initiate the standard operation monitoring phase.

1. Initial Assessment Monitoring Phase

The monitoring requirements for the initial assessment phase applies to this facility because this is a new project where the recycled water will be used for direct groundwater injection.

The purpose of the initial assessment phase is to: (1) identify the occurrence of health-based CECs, performance indicator CECs, and surrogates in recycled water for groundwater recharge or reservoir augmentation; (2) determine treatment effectiveness; (3) define the project-specific performance indicator CECs and surrogates to monitor during the baseline monitoring phase; (4) specify the expected removal percentages for performance indicator CECs and surrogates; and (5) gather bioactivity data for ER- α and AhR bioanalytical screening tools to determine the range of responses for the bioassays for standardized water quality monitoring.

The City shall monitor for the constituents in Tables E-13, E-14, and E-15 of the MRP consistent with the initial assessment phase requirements. Following completion of the initial assessment monitoring phase, the Permittee shall submit the data to the Los Angeles Water Board for evaluation and determination of the appropriate monitoring requirements for the baseline monitoring phase.

1.1. Monitoring for Health-Based CECs, Performance Indicator CECs and Surrogates

1.1.1. The Permittee shall conduct an initial assessment monitoring phase consistent with Table H-1 of this attachment for one year for each of the health-based CECs and performance indicator CECs listed in Table E-13 of the MRP and project specific surrogates identified in Table E-14 of the MRP or other

surrogates proposed by the City (and approved by the Executive Officer) that are indicative of CEC removal through individual unit processes.

1.1.2. The City shall evaluate data from performance indicator CECs and surrogates and prepare an updated Table H-2 of this attachment with expected (rather than example) removal percentages for the Facility and submit to the Los Angeles Water Board with the initial assessment monitoring data.

1.1.3. Following each sampling event, the City shall evaluate monitoring results for health-based CECs using the direction in section 4.2 of this attachment and implement appropriate response actions. The City shall also evaluate monitoring results for surrogates and evaluate the suitability of the surrogates.

1.2. Monitoring for Bioanalytical Screening Tools

1.2.1. The City shall conduct an initial assessment monitoring phase consistent with Table H-1 of this attachment for three years for each of the bioanalytical screening tools listed in Table E-15 of the MRP.

1.2.1. Following each sampling event, the City shall evaluate monitoring results for bioanalytical screening tools. The Permittee may elect to follow the response actions for bioanalytical screening tools using the direction in section 4.2 of this attachment, but implementation of the response actions during the initial assessment monitoring phase is not required.

Table H-1. Monitoring Phase Requirements: Subsurface Application

Constituent	Initial Assessment Monitoring Frequency	Baseline Monitoring Frequency	Standard Operation Monitoring Frequency	Monitoring Location	Notes
Health-Based CECs: Refer to Table E-13	Quarterly	Semiannually	Semiannually or Annually	Following treatment prior to release to the aquifer. (EFF-001 and SM-EFF-001)	---
Performance Indicator CECs: Refer to Table E-13	Monthly	Monthly or Quarterly	Monthly or Quarterly	1. Prior to RO treatment (PreRO-001 and SM-PreRO-001) 2. Following treatment prior to release to the aquifer (EFF-001 and SM-EFF-001) 3. Following RO and prior to AOP treatment (PreAOP-001)	a

Constituent	Initial Assessment Monitoring Frequency	Baseline Monitoring Frequency	Standard Operation Monitoring Frequency	Monitoring Location	Notes
Surrogates: Refer to Table E-14.	Continuous for online analyzers and weekly for DOC (monthly for DOC for SM-EFF-001)	Continuous for online analyzers and weekly for DOC (monthly for DOC for SM-EFF-001)	Continuous for online analyzers and weekly for DOC (monthly for DOC for SM-EFF-001)	1. Prior to RO treatment (PreRO-001 and SM-PreRO-001) 2. Following treatment prior to release to the aquifer (EFF-001 and SM-EFF-001) 3. Following RO and prior to UV/AOP (PreAOP-001)	a
Bioanalytical Screening Tools: Refer to Table E-15	Quarterly	Quarterly	Semiannually or Annually	Following treatment prior to release to the aquifer. (EFF-001 and SM-EFF-001)	---

Footnotes for Table H-1

a. If the Permittee can demonstrate that the RO unit will not substantially remove a CEC, the Permittee may request to monitor for that CEC prior to the AOP, instead of prior to the RO unit.

End of Footnotes for Table H-1

2. Baseline Monitoring Phase

The Permittee shall initiate the baseline monitoring phase upon completion of the initial assessment phase or upon receiving approval from the Regional Water Board to proceed with this phase given the existing data for the Facility meet the intent of the initial assessment phase.

The purpose of the baseline monitoring phase is to: (1) gather occurrence data for health-based CECs; (2) evaluate performance indicator CECs and surrogates and determine treatment effectiveness; (3) gather bioactivity data for ER- α and AhR bioanalytical screening tools and pilot test the framework for response actions; and (4) assess the list of health-based CECs, performance indicator CECs, surrogates, and bioanalytical screening tools and identify an appropriate list of constituents to monitor the removal of CECs and treatment system performance in the standard operation monitoring phase of the Facility.

2.1. Monitoring for Health-Based CECs, Performance Indicator CECs and Surrogates

2.1.1. The Permittee shall conduct a baseline monitoring phase consistent with Table 1 of this attachment for three years for each of the health-based CECs in Table E-13 of the MRP, and performance-based CECs and surrogates identified by the Los Angeles Water Board.

2.1.2. Performance indicator CECs and surrogates that exhibited reduction by unit processes and/or provided an indication of operational performance shall be selected for monitoring in the baseline monitoring phase. Surrogates not reduced through a unit process are not good indicators of the unit's intended performance. For example, soil aquifer treatment may not effectively lower electrical conductivity. Therefore, electrical conductivity may not be a good surrogate for soil aquifer treatment.

2.1.3. If a performance indicator CEC listed in Table E-13 of the MRP is not a good indicator of CEC removal, the City shall propose an alternative performance indicator CEC to monitor that is representative of the constituent group. This performance indicator CEC shall be subject to approval by the Los Angeles Water Board.

2.1.4. The City shall evaluate data from performance indicator CECs and surrogates and prepare an updated Table H-2 with the expected (rather than example) removal percentages for the Facility and submit to the Los Angeles Water Board with the baseline monitoring data.

2.1.5. Following each sampling event, the City shall evaluate monitoring results for health-based CECs using the direction in section 4.2. of this attachment and implement appropriate response actions.

2.2. Monitoring for Bioanalytical Screening Tools

2.2.1. The City shall conduct a baseline monitoring phase consistent with Table 1 of this attachment for one year for each of the bioanalytical screening tools listed in Table E-15 of the MRP.

2.2.2. Following each sampling event, the City shall evaluate monitoring results for bioanalytical screening tools using the direction in section 4.2. of this attachment and implement appropriate response actions.

3. Standard Operation Monitoring Phase

The City shall initiate the standard operation monitoring phase upon completion of the baseline monitoring phase or upon receiving approval from the Los Angeles Water Board to proceed with this phase given the existing data for the Facility.

The purpose of the standard operation monitoring phase is to monitor CECs under standard operating conditions at the Facility. In this phase, the Los Angeles Water Board in consultation with the State Water Board will identify a list of health-based CECs, performance-based CECs, surrogates, and bioanalytical screening tools to monitor based on the Facility's data from the first two monitoring phases.

3.1. Monitoring for Health-Based CECs, Performance Indicator CECs and Surrogates

3.1.1. For the standard operation monitoring phase, the City shall conduct the monitoring requirements in Table 1 of this attachment while the facility is operating.

3.1.2. The City may request removal of a health-based CEC from the required monitoring list if the monitoring results meet the conditions of the minimum threshold level presented in Table 3.

3.1.3. Performance indicator CECs and surrogates that exhibited reduction by a unit process and/or provided an indication of operational performance shall be selected for monitoring of standard operations. If a performance indicator CEC is not a good indicator, the City shall propose an alternative performance indicator CEC representative of the constituent group to monitor. This performance indicator CEC shall be subject to approval by the Los Angeles Water Board.

3.1.4. Monitoring for health-based CECs and performance indicator CECs shall be conducted on a semiannual basis, unless the project demonstrates consistency in treatment effectiveness in removal of CECs, treatment operational performance, and appropriate recycled water quality. These projects may be monitored for health-based CECs and performance indicator CECs on an annual basis.

3.1.5. Following each sampling event, the City shall evaluate monitoring results for health-based CECs using the direction in section 4.2 of this attachment and implement appropriate response actions.

3.1.6. If evaluation of monitoring results indicates a concern, such as finding a health-based CEC above the thresholds described in Table 2 of this attachment or a decline in removal of a performance indicator CEC from the performance levels established during the initial and baseline monitoring phases, the Los Angeles Water Board may require more frequent monitoring to further evaluate the effectiveness of the treatment process. Additional actions may also be warranted, which may include, but are not limited to, resampling to confirm a result, additional monitoring, implementation of a source identification program, toxicological studies, engineering removal studies, and/or modification of facility operation.

3.2. Monitoring for Bioanalytical Screening Tools

3.2.1. The Los Angeles Water Board may remove a bioanalytical screening tool from the required monitoring list if monitoring results meet the conditions of the minimum threshold level presented in Table H-5 of this attachment.

3.2.2. Following each sampling event where bioassay monitoring is required, the City shall evaluate monitoring results for bioanalytical screening tools using the direction in section 4.2. of this attachment and implement appropriate response actions.

3.2.3. Semiannual monitoring for bioanalytical screening tools shall be conducted, unless the project demonstrates consistency in treatment effectiveness in removal of CECs, treatment operational performance, and appropriate recycled water quality. These projects may be monitored for CECs and with bioanalytical screening tools on an annual basis. Monitoring frequencies for CECs and surrogates for standard operation monitoring are specified in Table 1 of this attachment.

4. Evaluation of CECs, Surrogates, and Bioanalytical Screening Tool Monitoring Results

This section describes the approaches for evaluating treatment process performance and health-based CEC and bioanalytical screening tool monitoring results. Monitoring results for performance indicator CECs and surrogates shall be used to evaluate the operational performance of a treatment process and the effectiveness of a treatment process in removing CECs. For evaluation of health-based CEC and bioanalytical screening tool monitoring results, a multi-tiered approach of thresholds and corresponding response actions is specified in section 4.2. and 4.3. of this attachment, respectively. The evaluation of monitoring results shall be included in monitoring reports submitted to the Los Angeles Water Board.

4.1. Evaluation of Performance Indicator CEC and Surrogate Results

4.1.1. The effectiveness of a treatment process to remove CECs shall be evaluated 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 a treatment process (e.g., soil aquifer treatment or RO followed by AOPs), divided by the concentration prior to the treatment process and multiplied by 100.

$$\text{Removal Percentage} = \left(\frac{X_{in} - X_{out}}{X_{in}} \right) (100)$$

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

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

During the initial assessment, the recycled water producer shall monitor performance to determine removal percentages for performance indicator CECs and surrogates. The removal percentages shall be confirmed during the baseline monitoring phase. One example of removal percentages for each application scenario and their associated processes (i.e., soil aquifer treatment or RO/AOPs) is presented in Table 2 of this attachment. The established removal percentages for each project shall be used to evaluate treatment effectiveness and operational performance.

4.1.2. For groundwater recharge using subsurface application, the removal percentage shall be determined by comparing the CEC monitoring parameters before treatment by RO/AOP and after treatment prior to release into the aquifer.

4.2. Evaluation of Health-based CEC Results

The City shall evaluate the health-based CEC monitoring results. To determine the appropriate response actions, the City shall compare measured environmental concentrations (MECs) to their respective monitoring trigger levels (MTLs) listed in Table H-2 of this attachment to determine MEC/MTL ratios. The City shall compare the calculated MEC/MTL ratios to the thresholds specified in Table H-3 and implement the response actions corresponding to the threshold.

Table H-2. Monitoring Trigger Levels and Example Removal Percentages

Constituent/ Parameter	Relevance/ Indicator Type/ Surrogate	Monitoring Trigger Level (µg/L)	Example Removal Percentages
1,4-dioxane	Health	1	---
NDMA	Health & Performance	0.010	25-50, >80
NMOR	Health	0.012	---
PFOS	Health	0.013	---
PFOA	Health	0.014	---
Sucralose	Performance	---	>90
Sulfamethoxazole	Performance	---	>90
Electrical Conductivity	Surrogate	---	>90
DOC	Surrogate	---	>90
UV Absorbance	Surrogate	---	>50

Table H-3. MEC/MTL Thresholds and Response Actions for Health-Based CECs

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	A) After completion of the baseline monitoring phase, consider requesting removal of the CEC from the monitoring program.

MEC/MTL Threshold	Response Action
phase and/or subsequent monitoring	
If MEC/MTL ratio is greater than 0.1 and less than or equal to 1	B) Continue to monitor.
If MEC/MTL ratio is greater than 1 and less than or equal to 10	C) Check the data and continue to monitor.
If MEC/MTL ratio is greater than 10 and less than or equal to 100	D) Check the data, 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	E) Check the data, resample within 72 hours of notification of the result and analyze to confirm CEC result. Continue to monitor. Contact the Los Angeles Water Board and DDW 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.)

4.3. Evaluation of Bioanalytical Screening Tool Results

The City shall evaluate bioanalytical assay monitoring results. During the baseline monitoring phase and standard operation monitoring phase, the City shall determine the appropriate response actions. The City shall compare bioanalytical equivalent concentrations (BEQs) to their respective MTLs listed in Table 4 of this attachment to determine BEQ/MTL ratios. The City shall compare the calculated BEQ/MTL ratios to the thresholds presented in Table 5 of this attachment and implement the response actions corresponding to the threshold.

Table H-4. Required Equivalency Agonists and Monitoring Trigger Levels for Bioanalytical Screening Tools

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

Table H-5. BEQ/MTL Thresholds and Response Actions for Bioanalytical Screening Tools

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	A) 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	B) Continue to monitor.
If BEQ/MTL ratio is greater than 10 and less than or equal to 1,000	C) Check the data, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor. Contact the Los Angeles Water Board and DDW 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.

BEQ/MTL Threshold	Response Action
If BEQ/MTL ratio is greater than 1,000	D) Check the data, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor. Contact the Los Angeles Water Board and DDW to discuss additional actions, which may include, but are not limited to, targeted and/or non-targeted 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.