CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SANTA ANA REGION

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ORDER NO. R8-2022-0050

WASTE DISCHARGE REQUIREMENTS AND MASTER RECYCLING PERMIT FOR THE ORANGE COUNTY WATER DISTRICT GROUNDWATER REPLENISHMENT SYSTEM

The following Discharger, as described below, is subject to Waste Discharge Requirements (WDRs) and Master Recycling Permit set forth in this Order:

Table 1 Discharger/Facility Information

Discharger	Orange County Water District
Name of Facility	Groundwater Replenishment System (GWRS)
Facility Address	18700 Ward St., Fountain Valley, CA 92708
	Orange County

Table 2 Discharge Locations

Discharge Point	Effluent Description	Latitude	Longitude	Receiving Waters
DP-001	Up to 130 MGD of Full Advanced Treated (FAT) recycled water	33°41’23” N	117°56’37” W	Orange Groundwater Management Zone (GMZ)

Effective Date

The Order was adopted by the California Regional Water Quality Control Board, Santa Ana Region (Santa Ana Water Board) and is effective on December 2, 2022.

I, Jayne Joy, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the Santa Ana Water Board on December 2, 2022.

Jayne Joy
Digitally signed by Jayne Joy
Date: 2022.12.14 14:09:34 -08'00'
Water Boards

Jayne Joy, P.E., Executive Officer

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I. FACILITY INFORMATION

A. The Orange County Water District (Discharger) owns and operates the Groundwater Replenishment System (GWRS or Facility). The GWRS is a joint project by OCWD and the Orange County Sanitation District (OC San). The GWRS consists of four major components: Advanced Water Purification Facility (AWPF), Talbert Gap Seawater Intrusion Barrier (Talbert Barrier), Mid-Basin Injection Project (MBI), and Kraemer/Miller/Miraloma/La Palma (K-M-M-L) Spreading Basins. Non-potable use of treated water from the AWPF is an additional minor component. The AWPF is located at 18700 Ward St., Fountain Valley, CA 92708.

B. The Discharger is responsible for producing full advanced treated (FAT) recycled water for groundwater recharge (indirect potable reuse). Recycled water produced by the Discharger is used to recharge the Orange County groundwater basin, prevent seawater intrusion at the Talbert Gap, and for limited non-potable uses. Recycled water from the Facility supplements natural recharge into the groundwater basin.

C. General information about the Facility is summarized on sections I and II of the Fact Sheet (Attachment F) of this Order to provide a detailed description of the Facility. Section I of the Fact Sheet also includes information regarding the permit application for the Facility.

II. FINDINGS

A. **Legal Authorities**. This Order serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (CWC), commencing with section 13260. Also, this Order serves as a master recycling permit pursuant to section 13523.1 of article 4, chapter 7, division 7 of the CWC.

B. **Background and Rationale for Requirements**. The Santa Ana Water Board developed the requirements in this Order based on information submitted in the *Title 22 Engineering Report Update for the Groundwater Replenishment System and Final Expansion*[1] (Engineering Report) and the *Orange County Water District GWRSFE Report of Waste Discharge* (ROWD)[2], water quality control plans, policies, and other available information. The Fact Sheet (Attachment F) contains background information and rationale for the requirements in this Order and is incorporated into and constitutes findings for this Order. Attachments B through E are also incorporated in this Order.

C. **California Environmental Quality Act (CEQA)**. This Order incorporates applicable portions of State Water Resources Control Board (State Water Board)

[1] Submitted pursuant to title 22 § 60323
[2] Submitted pursuant to CWC § 13260

Water Quality Control Policy for Recycled Water (Recycled Water Policy)[3] and California Code of Regulations (CCR) title 22, division 4, chapter 3, article 5.2 - Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application.

This Order includes requirements for the production and distribution of recycled water for non-potable reuse at an existing facility. In compliance with the CEQA (Public Resources Code section 21000 et seq.), OCWD prepared and certified an Environmental Impact Report (EIR) for the Groundwater Replenishment System (GWRS), a component of which is the AWPF. The EIR identified no significant adverse impact to water quality as a result of the use of recycled water (See section III.B. of Attachment F for more details).

D. **Antidegradation Policy**. The State Water Board established California's Antidegradation Policy in Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Resolution No. 68-16). Resolution No. 68-16 requires existing quality of waters be maintained unless degradation is justified based on specific findings. The Santa Ana Water Board's *Water Quality Control Plan for the Santa Ana River Basin* (Basin Plan) implements and incorporates by reference the State's antidegradation policy. As discussed in section III.F of the Fact Sheet, the discharge regulated by this Order is consistent with the Basin Plan and Resolution No 68-16.

E. **Executive Officer Delegation of Authority**. The Santa Ana Water Board, by prior resolution, has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to CWC section 13223. Therefore, the Executive Officer is authorized to act on the Santa Ana Water Board's behalf on any matter within this Order unless such delegation is unlawful under CWC section 13223 or as otherwise explicitly stated in this Order. The Santa Ana Water Board's delegated authorities to the Executive Officer include approving modifications to Water Recycling Requirements in Attachment D of this Order, as appropriate, after consulting with and receiving the recommendations from the State Water Board, Division of Drinking Water (DDW).

F. **Notification of Interested Persons**. The Santa Ana Water Board notified the Discharger, local agencies, and interested persons of its intent to prescribe WDRs and Master Recycling Permit for the discharge and provided them with an opportunity to submit written comments and recommendations. The Santa Ana Water Board also provided an opportunity for the Discharger and interested

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

agencies and persons to submit oral comments and recommendations at a public hearing. Notification details are included in section VII.B of the Fact Sheet.

G. **Consideration of Public Comment**. The Santa Ana Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Public Hearing details are included in section VII.D of the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED that this Order supersedes and rescinds Order No. R8-2004-0002 and Order No. R8-2021-0003, except for purposes of enforcement of the previous orders, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and applicable regulations adopted thereunder, the Discharger must comply with the requirements in this Order. The Discharger is hereby authorized to discharge advanced treated recycled water subject to WDRs and Master Recycling Permit in this Order at the discharge locations described in Table 2 within the Orange Groundwater Management Zone. This action in no way prevents the Santa Ana Water Board from taking enforcement action for violations of the previous orders.

III. DISCHARGE PROHIBITIONS

A. The use of recycled water shall be limited to treated effluent that meets the conditions and requirements specified in Section IV.

B. The unauthorized discharge of wastewater and/or of recycled water at a location or in a manner different from those described in the Order is prohibited.

C. The bypass or overflow of untreated wastewater or wastes to surface waters or surface water drainage courses is prohibited.

D. The discharge of any substances in concentrations toxic to animal or plant life in the affected receiving water is prohibited.

E. The discharge of any radiological, chemical, or biological warfare agent or high level radiological waste is prohibited.

F. The distribution and use of recycled water prior to authorization by the California State Water Resources Control Board, DDW, is prohibited.

IV. DISCHARGE SPECIFICATIONS AND EFFLUENT LIMITATIONS

A. The flowrate from the Facility must not exceed 130 million gallons per day (MGD) based on a monthly average flow.

B. The discharger must maintain compliance with the effluent limitations in Table 3, with compliance for DP-001 measured at Monitoring Location REC-001/GWRS-

FPW as described in table E-1 of the Monitoring and Reporting Program (MRP) in Attachment E of the Order.

Table 3 Effluent Limitations

Parameter	Units	Monthly Average[1]	Weekly Average[2]
Biological Oxygen Demand (BOD_5 @ 20°C)[3]	Milligrams per liter (mg/L)	20	30
Total Suspended Solids (TSS)[3]	mg/L	20	30

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

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

3 Compliance is determined based on the monitoring data generated by the Discharger, at a minimum as required in Attachment E of this Order, which will characterize the discharge during the monitoring period.

C. The Discharger must maintain compliance with the effluent limitations in Tables 4 through 9 of this Order, with compliance measured at Monitoring Location REC-001/GWRS-FPW as described in Table E-1 of Attachment E of this Order.

Table 4 Effluent Limitations at REC-001/GWRS-FPW: Constituents with Secondary MCLs and other Required Constituents

Parameter	Units	Average Annual[1]	Daily Maximum	Instantaneous Minimum	Instantaneous Maximum
Aluminum[2]	milligrams per liter (mg/L)	0.2	-	-	-
Boron[3]	mg/l	0.75	-	-	-
Chloride[2,3]	mg/L	55	500	-	-
Color Units[2,3]	Apparent Color Unit (ACU)	15	-	-	-
Copper[2,3,4]	mg/L	1.0	-	-	-
Fluoride[3,4]	mg/L	1.0			
Iron[2,3]	"	0.3	-	-	-
Manganese[2,3]	"	0.05	-	-	-

Parameter	Units	Average Annual[1]	Daily Maximum	Instantaneous Minimum	Instantaneous Maximum
Methylene Blue-Activated Substances (MBAS)[2,3]	"	0.05	0.5	-	-
Methyl-tert-butyl ether (MTBE)[2]	"	0.005	-	-	-
Nitrate (as Nitrogen)[4,12]	"		10	-	-
Nitrate + Nitrite (as Nitrogen)[4,12]	"	-	10	-	-
Nitrite (as Nitrogen)[4,12]	"	-	1	-	-
Total Nitrogen[6]	"	-	10	-	-
Total Inorganic Nitrogen[3]	"	3.4	-	-	-
Odor[2]	Threshold Odor Number (TON)	3	-	-	-
pH[3,13]	pH Units	-	-	6	9
Silver[2,3]	mg/L	0.05	0.1	-	-
Sulfate[2,3]	"	250	500	-	-
Thiobencarb[2]	"	0.001	-	-	-
Total Dissolved Solids (TDS)[3]	"	580	-	-	-
Total Organic Carbon (TOC)[5,7,8]	"	0.5	-	-	0.5
Turbidity[9,10,11]	Nephelometric Turbidity Units (NTU)	-	0.2	-	0.5

Parameter	Units	Average Annual[1]	Daily Maximum	Instantaneous Minimum	Instantaneous Maximum
Zinc[2]	mg/L	5.0	-	-	-

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

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

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

[4] Parameters with primary MCLs established in title 22, section 64431, Table 64431-A.

[5] Parameters with effluent limitations recommended by DDW's *Conditional Acceptance Letter for the Orange County Water District Groundwater Recharge System Final Expansion Engineering Report*, dated June 3, 2022.

[6] Parameters with limits established in title 22, section 60320.210.

[7] As required under title 22, section 60320.218, TOC must not exceed 0.5 mg/L based on a 20-week running average of all TOC results and the average of the last four monitoring results for TOC.

[8] During the first twenty weeks of full-scale operation of any added RO units, the RO permeate must not exceed TOC concentrations of 0.25 mg/L in more than five percent of the sample results.

[9] Parameters with limits established in title 22, section 60301.320(b).

[10] The effluent turbidity must not exceed an average of 0.2 NTU more than 5% of the time within a 24-hour period or 0.5 NTU at any time.

[11] The Discharger may monitor turbidity at Monitoring Location MFE rather than REC-001

[12] Running 4-Week Average per title 22, section 60320.212.

[13] The total time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month. No individual excursion from the range of pH values shall exceed 60 minutes.

Table 5 Effluent Limitations at REC-001/GWRS-FPW with Primary MCLs

Parameter[1,2]	Units	Running 4-Week Average
Aluminum	mg/L	1
Antimony	"	0.006
Arsenic	"	0.010

Parameter[1,2]	Units	Running 4-Week Average
Asbestos (for fibers exceeding 10 micrometers (µm) in length[3]	Million fibers per liter (MFL)	7
Barium	mg/L	1
Beryllium	"	0.004
Cadmium	"	0.005
Chromium	"	0.05
Copper[3]	"	1.3
Cyanide	"	0.15
Fluoride	"	2.0
Lead[3]	"	0.015
Mercury	"	0.002
Nickel	"	0.1
Perchlorate	"	0.006
Selenium	"	0.05
Thallium	"	0.002

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

2 Compliance with the running 4-week average will be determined based on the average of all samples collected during the 4-week period. The Discharger will be deemed in compliance with effluent limitation(s) during any 4-week period when samples are neither required nor collected.

3 The federal action level for lead and copper are applied.

Table 6 Effluent Limitations at REC-001/GWRS-FPW: Volatile Organic Chemicals (VOCs) with Primary MCLs

Parameter[1,2]	Units	Running 4-Week Average
Benzene	mg/L	0.001
Carbon Tetrachloride	"	0.0005
1,2-Dichlorobenzene	"	0.6
1,4-Dichlorobenzene	"	0.005
1,1-Dichloroethane	"	0.005
1,2-Dichloroethane	"	0.0005

Parameter[1,2]	Units	Running 4-Week Average
1,1-Dichloroethylene	"	0.006
Cis-1,2-Dichloroethylene	"	0.006
Trans-1,2-Dichloroethylene	"	0.01
Dichloromethane	"	0.005
1,2-Dichloropropane	"	0.005
1,3-Dichloropropene	"	0.0005
Ethylbenzene	"	0.3
MTBE	"	0.013
Monochlorobenzene	"	0.07
Styrene	"	0.1
1,1,2,2-Tetrachloroethane	"	0.001
Tetrachloroethylene	"	0.005
Toluene	"	0.15
1,2,4-Trichlorobenzene	"	0.005
1,1,1-Trichloroethane	"	0.200
1,1,2-Trichloroethane	"	0.005
Trichloroethylene	"	0.005
Trichlorofluoromethane	"	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane	"	1.2
Vinyl Chloride	"	0.0005
Xylenes	"	1.750[3]

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

[2] Compliance with the running 4-week average will be determined based on the average of all samples collected during the 4-week period. The Discharger will be deemed in compliance with effluent limitation(s) during any 4-week period when samples are neither required nor collected.

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

Table 7 Effluent Limitations at REC-001/GWRS-FPW: Synthetic Organic Chemicals (SOCs) with Primary MCLs

Parameter[1,2]	Units	Running 4-Week Average
Alachlor	mg/L	0.002
Atrazine	"	0.001
Bentazon	"	0.018
Benzo(a)pyrene	"	0.0002
Carbofuran	"	0.018
Chlordane	"	0.0001
2,4-Dichlorophenoxyacetic acid	"	0.07
Dalapon	"	0.2
1,2-Dibromo-3-chloropropane	"	0.0002
Di(2-ethylhexyl) adipate	"	0.4
Di(2-ethylhexyl) phthalate	"	0.004
Dinoseb	"	0.007
Diquat	"	0.02
Endothall	"	0.1
Endrin	"	0.002
Ethylene Dibromide	"	0.00005
Glyphosate	"	0.7
Heptachlor	"	0.00001
Heptachlor epoxide	"	0.00001
Hexachlorobenzene	"	0.001
Hexachlorocyclopentadiene	"	0.05
Gamma BHC (Lindane)	"	0.0002
Methoxychlor	"	0.03
Molinate	"	0.02
Oxamyl	"	0.05
Pentachlorophenol	"	0.001
Picloram	"	0.5
Polychlorinated Biphenyls (PCBs)	"	0.0005
Simazine	"	0.004

Parameter[1,2]	Units	Running 4-Week Average
Thiobencarb	"	0.07
Toxaphene	"	0.003
1,2,3-Trichloropropane	"	0.000005
2,3,7,8-tetrachlorodibenzodioxin (Dioxin)	"	3×10^{-8}
2-(2,4,5-trichlorophenoxy)propionic acid (Silvex)	"	0.05

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

2 Compliance with the running 4-week average will be determined based on the average of all samples collected during the 4-week period. The Discharger will be deemed in compliance with effluent limitation(s) during any 4-week period when samples are neither required nor collected.

Table 8 Effluent Limitations at REC-001/GWRS-FPW: Disinfection Byproducts with Primary MCLs

Parameter[1,2]	Units	Running 4-Week Average
Total Trihalomethanes (TTHMs) • Bromodichloromethane • Bromoform • Chloroform • Dibromochloromethane	mg/L	0.080
Haloacetic acid (five) • Monochloroacetic acid • Dichloroacetic acid • Trichloroacetic acid • Monobromoacetic acid • Dibromoacetic acid	"	0.060
Bromate	"	0.010
Chlorite	"	1.0

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

2 Compliance with the running 4-week average will be determined based on the average of all samples collected during the 4-week period. The Discharger will be deemed in compliance with effluent limitation(s) during any 4-week period when samples are neither required nor collected.

Table 9 Effluent Limitations at REC-001/GWRS-FPW: Radionuclides with Primary MCLs

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

[1] Parameters with primary MCLs established in title 22, section 64442 and 64443, Tables 64442 and 64443.

[2] Compliance with the running 4-week average will be determined based on the average of all samples collected during the 4-week period. The Discharger will be deemed in compliance with effluent limitation(s) during any 4-week period when samples are neither required nor collected.

V. NOTIFICATION AND RESPONSE LEVELS

A. Notification Levels (NLs) are health-based advisory levels established by DDW for constituents in drinking water without MCLs. The Discharger must monitor the following constituents with NLs at Monitoring Location REC-001/GWRS-FPW as described in Table E-1 of the MRP. The Santa Ana Water Board does not use NLs for compliance determination. If DDW elevates an NL to an MCL, through a formal regulatory process, the Santa Ana Water Board will use that MCL for compliance determination. Any exceedance of NLs must be reported to DDW within 72 hours.

B. Table 10 lists the pollutants with NLs and their corresponding Response Levels (RLs) at the time of adoption of this Order. The Discharger must maintain an updated list of pollutants with notification levels and monitor these pollutants as DDW issues NL and RLs for additional pollutants pursuant to California Health and Safety Code (Health and Safety Code) section 116455.

Table 10 Notification Levels (NL) and Response Levels (RL)

Parameter	Units	NL	RL
Boron	mg/L	1	10
n-Butylbenzene	"	0.26	2.6
sec-Butylbenzene	"	0.26	2.6
tert-Butylbenzene	"	0.26	2.6
Carbon Disulfide	"	0.16	1.6
Chlorate	"	0.8	8
2-Chlorotoluene	"	0.14	1.4
4-Chlorotoluene	"	0.14	1.4
Diazinon	"	0.0012	0.012
Dichlorodifluoromethane (Freon 12)	"	1	10
1,4-Dioxane	"	0.001	0.035
Ethylene Glycol	"	14	140
Formaldehyde	"	0.1	1
HMX (Octogen)	"	0.35	3.5
Isopropylbenzene	"	0.77	7.7
Manganese	"	0.5	5
Methyl Isobutyl Ketone	"	0.12	1.2
Naphthalene	"	0.017	0.17
N-Nitrosodimethylamine (NDEA)	"	0.00001	0.0001
N-Nitrosodimethylamine (NDMA)	"	0.00001	0.0003
N-Nitrosodi-n-propylamine (NDPA)	"	0.00001	0.0005
Perfluorobutanesulfonic acid (PFBS)	"	0.0005	0.005
Perfluorohexanesulfonic acid (PFHxS)	"	0.000003	0.00002
Perfluorooctanesulfonoic acid (PFOS)	"	0.0000065	0.00004
Perfluorooctanoic acid (PFOA)	"	0.0000051	0.00001
Propachlor	"	0.09	0.9
n-Propylbenzene	"	0.26	2.6
1,3,5-Trinitroperhydro-1,3,5-triazine (RDX)	"	0.0003	0.03
Tertiary Butyl Alcohol (TBA)	"	0.012	1.2
1,2,4-Trimethylbenzene	"	0.33	3.3

Parameter	Units	NL	RL
1,3,5-Trimethylbenzene	"	0.33	3.3
2,4,6-Trinitrotoluene (TNT)	"	0.001	1
Vanadium	"	0.05	0.5

VI. WATER RECYCLING REQUIREMENTS

A. The Discharger must comply with the site-specific water recycling requirements (WRRs) contained in Attachment D, which are based on information from the Discharger's Engineering Report and recommendations in DDW's *Conditional Acceptance Letter for the Orange County Water District Groundwater Recharge System Final Expansion Engineering Report*, dated June 3, 2022, and DDW's June 19, 2020, letter giving conditional acceptance for the use of FAT recycled water for non-potable uses, including at a non-restricted recreational impoundment for the operation of the Anaheim Adventure Aquapark at the Discharger's Miraloma Spreading Basin and other non-potable uses. GWRS water may also be used to supplement the OCWD Green Acres Project (GAP). This use is covered under a separate Order issued by the Santa Ana Water Board, Order No. R8-2002-0077, *Water Reclamation Requirements for Orange County Water District (OCWD), Primary Producer and User of Recycled Water, Green Acres Project (GAP), Orange County.*

B. Attachment D is incorporated by reference into this Order.

VII. STANDARD PROVISIONS

A. The Discharger must comply with all conditions of this Order. Any noncompliance with this Order constitutes a violation of the Water Code and is grounds for (a) enforcement action; (b) termination and reissuance or modification of this

Order; or (c) denial of an application for new or revised WDRs and Master Recycling Permit.

B. The Discharger must allow the Santa Ana Water Board or an authorized representative, upon the presentation of credentials, the following:

1. Enter upon the Discharger's premises where the regulated Facility or activity is located, conducted, or where the Discharger keeps the required records under the conditions of this Order.

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order.

3. Inspect at reasonable times the Facility, equipment (including monitoring and control equipment), practices, or operations that are regulated or required under this Order.

4. Sample or monitor, at reasonable times for the purposes of assuring compliance with this Order or as otherwise authorized by the Water Code, any substances or parameters at any location.

C. The Discharger must report any noncompliance that may endanger human health, safety, or the environment. Pursuant to Health and Safety Code, section 5411.5, any sewage overflow or spill must be immediately reported to the California Office of Emergency Services (OES) and the Environmental Health Division of the Orange County Health Care Agency (OCHCA). In addition, any such information must be provided verbally to the Santa Ana Water Board within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission must also be provided to the Santa Ana Water Board within 5 days of the time the Discharger becomes aware of the circumstances. The written report must contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; 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 Santa Ana Water Board may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

The Discharger's verbal and written notifications for spills will be deemed compliant with the requirements of this section if the notification is also in compliance with the following permits, including any revision, amendment, or reissuance of the permits:

1. Order No. R8-2022-0002 (NPDES No. CA8000408), Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit for the Orange County Water District Groundwater Replenishment System Advanced Water Purification Facility Emergency Discharge to Reach 1 of

the Santa Ana River.

2. Order No. R8-2021-0010 (NPDES No. CA0110604), Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit for the Orange County Sanitation District Reclamation Plant No. 1, Treatment Plant No. 2, Wastewater Collection System, and Outfalls.

D. The Discharger must report the following occurrence(s) to the Santa Ana Water Board and DDW within 24 hours:

1. Any intentional or unintentional bypass of any portion of the Facility,

2. Any discharge of treated or untreated wastewater resulting from sewer line breaks, obstruction, surcharge, or any other circumstances,

3. Any treatment plant upset resulting in an exceedance of the discharge specifications and effluent limitations of this Order,

4. Failure of the disinfection system, and/or

5. An exceedance of any primary MCLs.

E. If the Discharger, without regard to intent or negligence, causes or permits an unauthorized discharge of 50,000 gallons or more of advanced treated recycled water, or 1,000 gallons or more of recycled water that is treated at a level less than disinfected tertiary recycled water, the Discharger must immediately notify the Santa Ana Water Board in accordance with reporting requirements in Standard Provision VII.C. The Discharger must notify the Santa Ana Water Board as soon as (1) the Discharger has knowledge of the discharge, (2) notification is possible, and (3) notification can be provided without substantially impeding cleanup or other emergency measures.

F. Upon reduction, loss, or failure of the Facility the Discharger must, to the extent necessary to maintain compliance with this Order, control production and/or control all discharges, until the Facility is restored, or until an alternative method of treatment is provided. This provision applies, for example, when the primary source of power to the Facility has failed or is reduced and backup power sources are insufficient.

G. Any person who, without regard to intent or negligence, causes or permits any hazardous substance to be discharged in or on any waters of the State, must immediately notify OCHCA and OES of the discharge. The Discharger must notify OCHCA and OES as soon as (a) the Discharger has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, in accordance with Health and Safety Code, section 5411.5, and the spill reporting provision of the State toxic disaster contingency plan adopted pursuant to title 2, Government

Code, division 1, chapter 7, article 3.7 (commencing with section 8574.17). This provision does not require reporting of any discharge that is less than a reportable quantity as provided for under CWC, section 13271, subdivisions (f) and (g), (see CCR, title 23, sections 2250-2251), unless the Discharger is in violation of a prohibition in the Basin Plan.

H. Except for a discharge which is in compliance with this Order, any person who, without regard to intent or negligence, causes or permits any oil or petroleum product to be discharged in or on any waters of the State, or discharged or deposited where the oil or petroleum product is or probably will be discharged in or on any waters of the State must immediately notify OES of the discharge. The Discharger must notify OES as soon as (a) the Discharger has knowledge of the discharge, (b) notification is possible, and (c) notification can be provided without substantially impeding cleanup or other emergency measures, in accordance with the spill reporting provision of the State oil spill contingency plan adopted pursuant to Government Code title 2, division 1, chapter, article 3.7 (commencing with section 8574.1). This requirement does not require reporting of any discharge that is less than 42 gallons unless the discharge is also required to be reported pursuant to Clean Water Act (CWA) section 311, or the discharge is in violation of a Basin Plan prohibition.

I. The Discharger must maintain a copy of this Order at the Facility and must always be available to operating personnel.

J. This Order may be modified, rescinded and reissued, or terminated at any time for reasons including, but not limited to:

    1. Violation of any terms of this Order,

    2. Obtaining the Order by misrepresentation or failing to disclose fully all relevant facts, and/or

    3. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge. The Discharger must provide written notification of the change in action to the Santa Ana Water Board, DDW, and OCHCA.

K. The filing of a request by the Discharger for the modification or rescission of this Order, or notification by the Discharger of planned changes or anticipated noncompliance does not stay any condition of this Order.

L. At least 120 days prior to any proposed changes to the Facility, the Discharger must submit a new or amended ROWD to the Santa Ana Water Board for review and response. The ROWD must be stamped and signed by a licensed

professional. The following are examples of changes that require submittal of a new or amended ROWD:

1. Significant change in the treatment or discharge method (e.g. change in the method of treatment which would significantly alter the nature of the waste).

2. Change in the discharge area from that described in the findings of this Order.

3. Increase in discharge flowrate beyond that specified in this Order.

4. Addition or reduction of project monitoring, injection, and/or production wells and surface spreading basins not described in this Order. The Discharger is required to submit a new or updated boundary representing a zone of controlled drinking water well construction with the new or amended ROWD.

5. Other circumstances that result in a material change in character, amount, or location of the waste discharge.

6. Any planned change in the Facility or activity which may result in noncompliance with this Order.

M. This Order is not transferable to any person except after notice to the Santa Ana Water Board. The notice must be in writing and received by the Santa Ana Water Board at least 120 days in advance of any proposed transfer. The notice must include a written agreement between the existing and new discharger containing a specific date for the transfer of this Order's responsibility and coverage between the existing and the new discharger. This agreement must include an acknowledgement that the existing Discharger is liable for violations occurring before the transfer date and that the new discharger is liable from the transfer date and thereafter. The Santa Ana Water Board may require modification or revocation and reissuance of this Order to change the name of the Discharger and incorporate other requirements as may be necessary.

N. Where the Discharger becomes aware that it failed to submit any relevant facts in an ROWD or submitted incorrect information in an ROWD or in any report to the Santa Ana Water Board or DDW, the Discharger must promptly submit such facts or information.

O. The Discharger must sign and certify all applications, reports, or information submitted to the Santa Ana Water Board as follows:

1. An ROWD must be signed as follows:

    a) For a municipality, State, federal or other public agency, by either a public executive officer or ranking elected official, or

    b) By a licensed professional performing engineering or geological judgments. The lead professional must sign and affix their license

stamp to the report, plan, or document by direction of the person designated in paragraph "a." of this provision, only if:

i. The authorization is made in writing by a person described in paragraph "a" of this provision.

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

2. All other reports required by this Order and other information required by the Santa Ana Water Board must be signed by a person designated in section VII. Standard Provision O.1 of this Order or a duly authorized representative of that person. An individual is a duly authorized representative only if all the following are true:

a) The authorization is made writing by a person described in section VII. Standard Provision O.1.a of this Order.

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

c) The written authorization is submitted to the Santa Ana Water Board.

3. Any person signing a document under this section must 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 a fine and imprisonment."

P. The Discharger must comply with the MRP and any future revisions specified by the Santa Ana Water Board. Monitoring results must be reported at the frequency specified in MRP.

Q. The Discharger must provide to the Santa Ana Water Board, within a reasonable time, any information which the Santa Ana Water Board may request to determine whether cause exists for modifying, rescinding and reissuing, or terminating this Order. The Discharger must also furnish to the Santa Ana Water Board, upon request, copies of records required to be kept by this Order.

R. The Discharger must submit reports required under this Order to the Santa Ana Water Board via the GeoTracker database at https://geotracker.waterboards.ca.gov/. The Santa Ana Water Board may also request hard copies and/or electronic copies on a compact disc (CD) or universal

serial bus (USB) drive or other appropriate media, including electronic mail (email). Report submittals must include a signed cover/transmittal letter that includes the Facility name and Facility contact information, unless directed otherwise by the Executive Officer. sections VI, VII, and VIII of the MRP contain additional information regarding report submittal requirements.

VIII. SPECIAL PROVISIONS

A. **Spill Preventive and Contingency Plan (SPCP).** The Discharger must update the SPCP required under section J.17. of Order No. R8-2004-0002. The Discharger must submit the updated SPCP within one year of the effective date of this Order.

B. The Discharger must develop a Climate Change Action Plan (CCAP) and must include the discharges, all components of the Facility, and the injection, spreading, and monitoring wells regulated under this Order. The Discharger must submit the CCAP within three years of the effective date of this Order.

C. All waste treatment, containment, and disposal facilities must be protected against a 100-year storm event as defined by the Orange County Public Works (OCPW).

D. All waste treatment, containment, and disposal facilities must be protected against erosion, overland runoff, and other impacts resulting from a 100-year, 24-hour storm event as defined by the OCPW.

E. If the Santa Ana Water Board or DDW direct the Discharger to suspend surface and/or subsurface discharge of advanced treated recycled water due to noncompliance with this Order, surface and/or subsurface discharge must not resume until the Discharger has obtained approval from the Santa Ana Water Board and DDW.

IX. NOTICES

A. If any person uses, transports, or stores recycled water in a manner which creates, or threatens to create conditions of pollution, contamination, or nuisance, as defined in CWC section 13050, the Santa Ana Water Board may initiate enforcement action against the Discharger, which may result in the termination of the recycled water discharge.

B. This Order does not convey property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the Discharger from

liability under federal, State or local laws, nor create a vested right for the Discharger to continue the waste discharge.

C. These requirements have not been reviewed by the United States Environmental Protection Agency (USEPA) and are not issued pursuant to CWA section 402.

D. Any person aggrieved by this action of the Santa Ana Water Board may petition the State Water Board to review the action in accordance with CWC section 13320 and CCR title 23, section 2050. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except if this date falls on a Saturday, Sunday, or State holiday, then the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request. The provisions of this Order are severable, and if any provision of this Order, or the application of any provision of this Order to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this Order must not be affected.

ATTACHMENT A – DEFINITIONS

Part 1 – ABBREVIATIONS

Abbreviation	Definition
40 CFR	Title 40, Code of Federal Regulations
ACU	Apparent color units
AGR	Agricultural Supply beneficial use
AhR	Aryl hydrocarbon receptor
AOP	Advanced Oxidation Process
AWPF	Advanced Water Purification Facility
AWT3	Advanced water treatment grade 3 operator certification
AWWA	American Water Works Association
Basin Plan	Water Quality Control Plan for the Santa Ana River Basin
BOD_5	Biochemical Oxygen Demand (5-day @ 20° C)
CCR	California Code of Regulations
CEC	Constituents of Emerging Concern
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CT	Contact time
CWA	Clean Water Act
CWC	California Water Code
DDT	Dichlorodiphenyltrichloroethane
DDW	State Water Board, Division of Drinking Water
Dioxin	2,3,7,8-tetracholordibenzodioxin
Discharger	Orange County Water District
EC	Electrical conductivity
EED	Electrical energy dose
EIR/EIS	Addendum No. 6 to the GWRS Environmental Impact Report/Environmental Impact Statement and Mitigated Negative Declaration for the GWRS Water Conveyance Facilities
ELAP	Environmental Laboratory Accreditation Program
ER-α	Estrogen receptor alpha
Facility	Groundwater Replenishment System (GWRS)

Abbreviation	Definition
FAT	Full Advanced Treated (recycled water)
FCD	OCPW Flood Control
FCRCT	Free chlorine residual contact time
MND	Mitigate Negative Declaration
GAP	Green Acres Project
GMZ	Groundwater Management Zone
GWRS	Groundwater Replenishment System (Facility)
HA	Hydrologic Area
HAS	Hydrologic Subarea
IND	Industrial Service Supply beneficial use
IRWD	Irvine Ranch Water District
Lindane	Gamma BHC
LRV	Log reduction value
MBAS	Methylene blue-activated substances
MTBE	Methyl-tert-butyl ether
MCL	Maximum contaminant level
MF	Membrane filtration (microfiltration or ultrafiltration)
µm	Microns or micrometers
mg/L	Milligrams per liter
MGD	Million gallons per day
MIT	Membrane integrity testing (aka pressure decay test [PDT])
mJ/cm^2	Millijoules per centimeter squared
mmho/cm	Millimho per centimeter
MRP	Monitoring and Reporting Program
MUN	Municipal and Domestic Supply beneficial use
MWRP	Michelson Water Reclamation Plant (IRWD)
NDEA	N-Nitrosodiethylamine
NDMA	N-Nitrosodimethylamine
NDPA	N-Nitrosodi-n-propylamine
NL	Notification level

Abbreviation	Definition
NMOR	N-Nitrosomorpholine
NPDES	National Pollutant Discharge Elimination System
NTU	Nephelometric Turbidity Unit
OCHCA	Environmental Health Division of the Orange County Health Care Agency
OOP	Operation Optimization Plan
Order	Order No. R8-2022-0050
OC San	Orange County Sanitation District
OCWD	Orange County Water District
PCBs	Polychlorinated biphenyls
pCi/L	Picocuries per liter
PDT	Pressure decay test
PFBS	Perfluorobutanesulfonic acid
PFHxS	Perfluorohexanesulfonic acid
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
Plant 1	OC San Reclamation Plant 1 (RP-1)
Plant 2	OC San Treatment Plant 2 (TP-2)
POTW	Publicly Owned Treatment Works
PS Codes	Primary station codes
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
Recycled Water Policy	State Water Resources Control Board Water Quality Control Policy for Recycled Water
RL	Response Level
ROWD	Report of Waste Discharge
RO	Reverse osmosis
Santa Ana Water Board	California Regional Water Quality Control Board, Santa Ana Region
SIC	Standard Industrial Classification

Abbreviation	Definition
Silvex	2-(2,4,5-trichlorophenoxy) propionic acid
SMR	Self-Monitoring Report
SOC	Synthetic organic chemicals
SPCP	Spill preventive and contingency plan
SRT	Solids retention time
State Water Board	State Water Resources Control Board
SWPPP	Storm Water Pollution Prevention Plan
TDS	Total Dissolved Solids
Title 22	California Code of Regulations Title 22
Title 23	California Code of Regulations Title 23
TOC	Total organic carbon
TON	Threshold odor number
TSS	Total Suspended Solids
TTHMS	Total trihalomethanes
µg/L	Micrograms per liter
USEPA	United States Environmental Protection Agency
UVI	Ultraviolet intensity
UVT	Ultraviolet transmittance
VOC	Volatile organic compounds
WDRs	Waste Discharge Requirements
WQOs	Water Quality Objectives
WRRs	Water Recycling Requirements

Part 2 – Glossary of Common Terms

Advanced Treated Recycled Water

Advanced treated recycled water is the final effluent produced from the Facility which is discharged to groundwater and to limited non-potable uses in the Orange County Groundwater Basin.

Agricultural Supply

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

Average

An average is the sum of measured values divided by the number of measured values.

Average Annual Effluent Limitation

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

Bioassay

Bioassay is a test used to evaluate the relative potency of a chemical or a mixture of chemicals by comparing its effect on a living organism with the effect of a standard preparation on the same type of organism.

Biochemical Oxygen Demand

BOD is a measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified period (usually 5 days, i.e. BOD5) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

California Code of Regulations

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

Chlordane

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

Clean Water Act

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

Code of Federal Regulations

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

Composite Sample

A 24-hour composite sample means an aggregate sample derived from no fewer than eight discrete 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.

Daily Maximum Effluent Limitation

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

Dichlorodiphenyltrichloroethane

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

Grab Sample

A grab sample is any individual sample collected in less than 15 minutes.

Facility

The Facility is the Orange County Water District Groundwater Replenishment System located at 18700 Ward Street, Fountain Valley, CA 92708.

Indirect Potable Reuse

Indirect potable reuse for groundwater recharge is defined in the California Water Code, section 13561(c), as "*the planned use of recycled water for replenishment of a groundwater basin or an aquifer that has been designated as a source of drinking water supply for a public water system."* Subsurface discharge of advanced treated recycled water, such as direct injection to the groundwater through a well, is the controlled discharge to a groundwater basin or aquifer by a means other than surface discharges.

Industrial Service Supply

Industrial Service Supply is the beneficial use of water resources as defined by the Basin Plan for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.

Injection Well

An injection well is a subsurface device that discharges advanced treated recycled water into the groundwater within the Orange GMZ.

Instantaneous Maximum Effluent Limitation

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

Instantaneous Minimum Effluent Limitation

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

Maximum Contaminant Level

MCLs are standards set by the United States Environmental Protection Agency (USEPA) for drinking water quality. An MCL is the legal threshold limit on the amount of a substance that is allowed in public water systems under the Safe Drinking Water Act MCL is for either a single isomer or the sum of the isomers. States may establish their own more stringent MCLs. California MCLs are found in CCR Title 22.

Million Gallons Per Day

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

Municipal and Domestic Supply

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

Off-Specification Water

Off-specification water is effluent from the Facility that does not meet effluent limitations specified in this Order or treatment criteria specified in title 22, chapter 3 Water Recycling Criteria.

Polychlorinated biphenyls

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

Percent Reduction

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

Publicly Owned Treatment Works

A POTW is a treatment works, as defined by section 212 of the CWA is owned by the State or a municipality. This definition includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. A POTW also includes the sewers, pipes, and other conveyances if they convey wastewater to a POTW treatment plant (40 CFR section 403.3).

Purified Recycled Water

Same as advanced treated recycled water or FAT (full advanced treated) recycled water, which is the final effluent produced by the Facility and discharged to recharge the Orange GMZ.

Recycled Municipal Wastewater

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

Sludge

Sludge is any solid, semisolid, or liquid waste generated from a municipal, commercial, or industrial wastewater treatment plant, water supply treatment plant, or air pollution control facility or any other such waste having similar characteristics and effect.

Source of Drinking Water

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

Total Nitrogen

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

Total Trihalomethanes

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

Waste

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

Water Quality Objectives

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

Water Recycling

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

ATTACHMENT B – MAPS AND FIGURES

FIGURE B-1 – OCWD GWRS LOCATION MAP

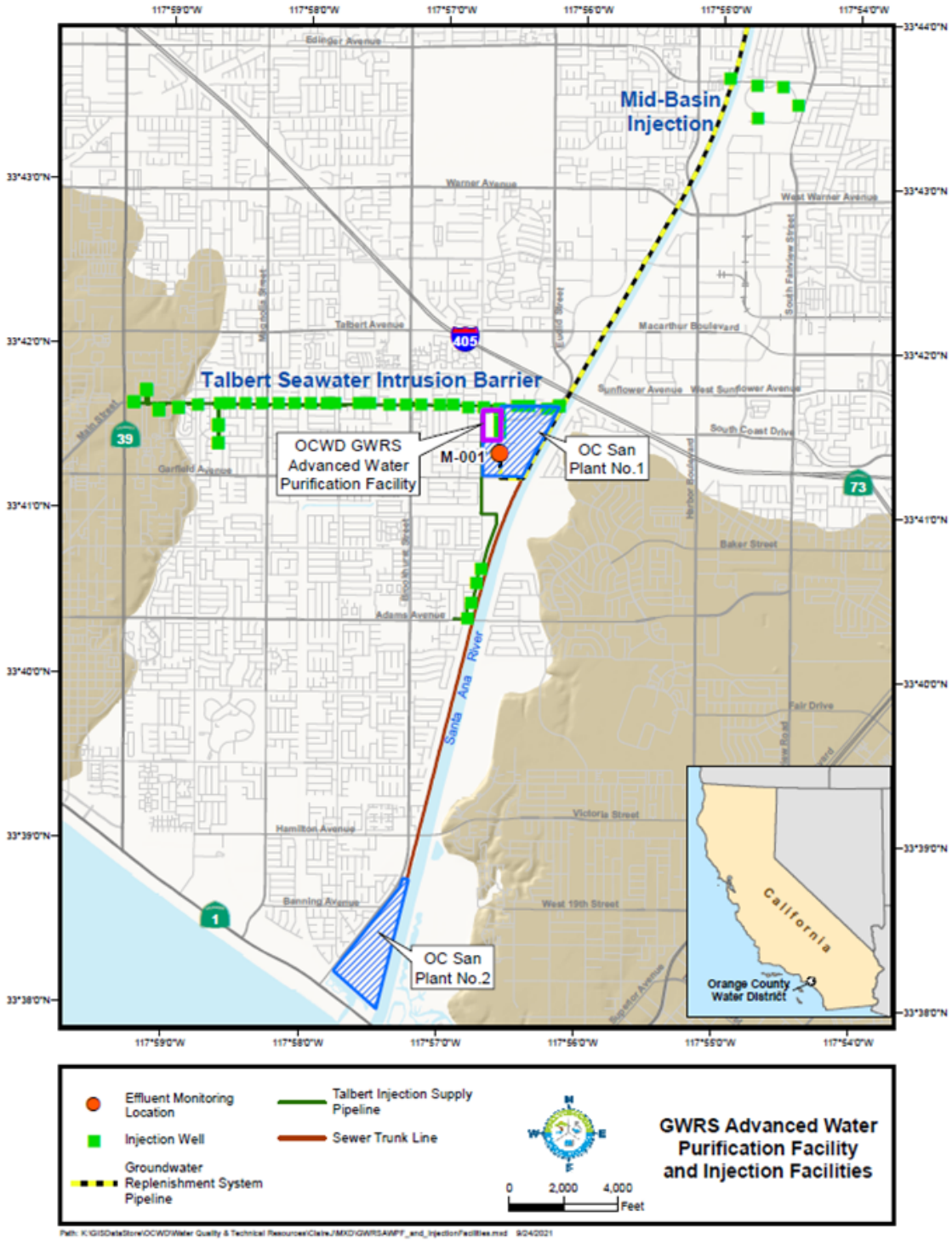


FIGURE B-2 – EXISTING GWRS AWPF SITE LAYOUT

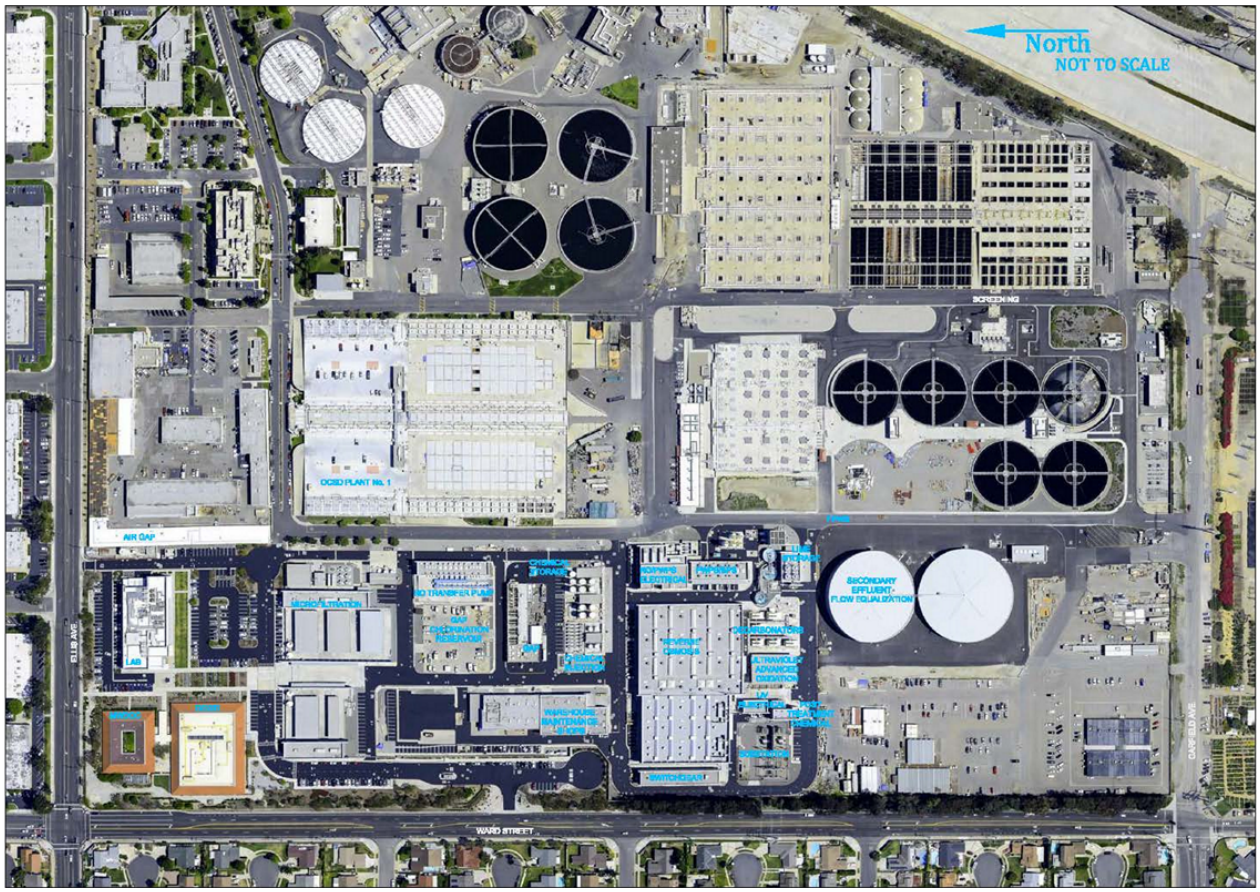


FIGURE B-3 – EXPANDED GWRS (GWRSFE) AWPF SITE LAYOUT

FIGURE B-4 – TALBERT BARRIER INJECTION WELLS

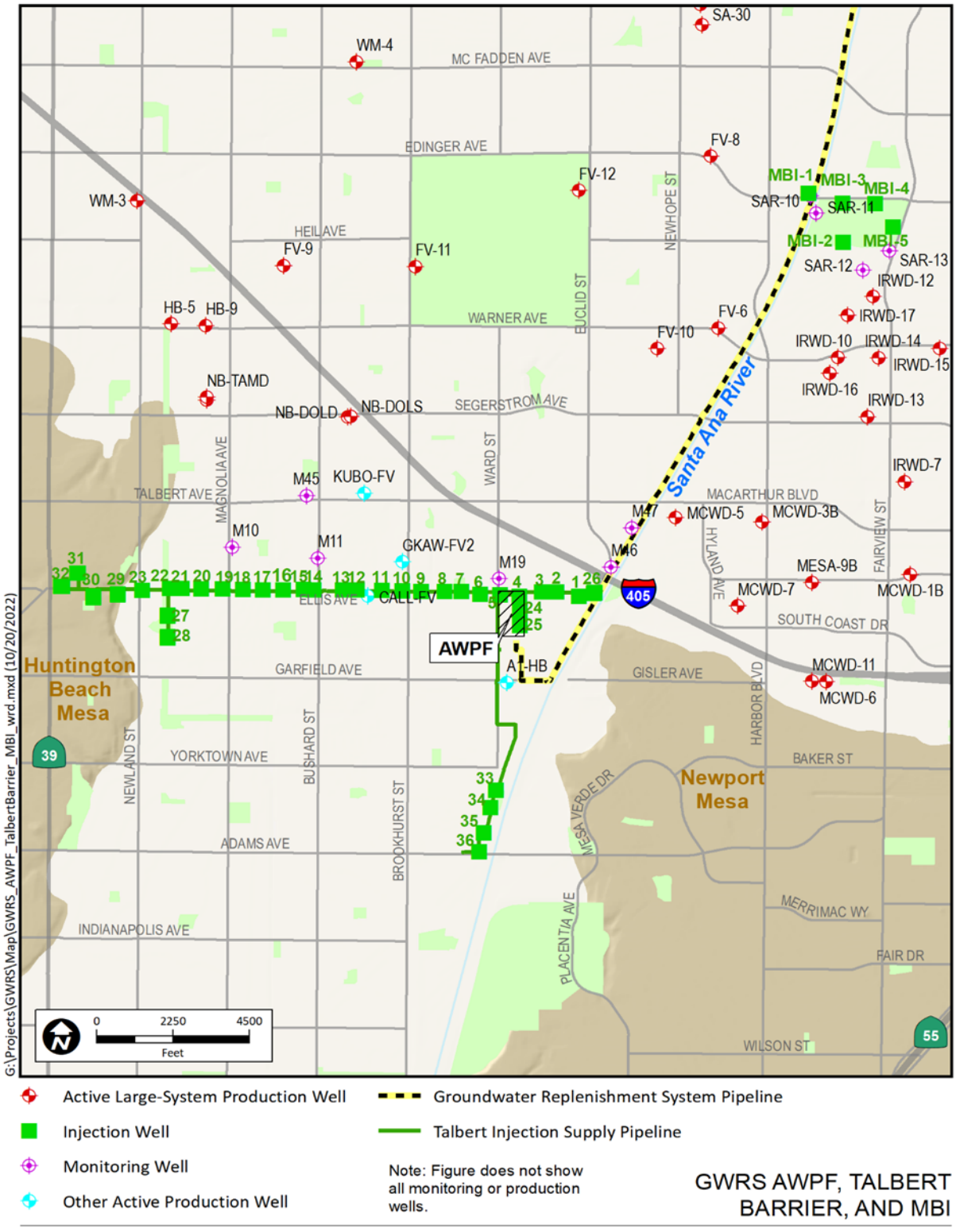
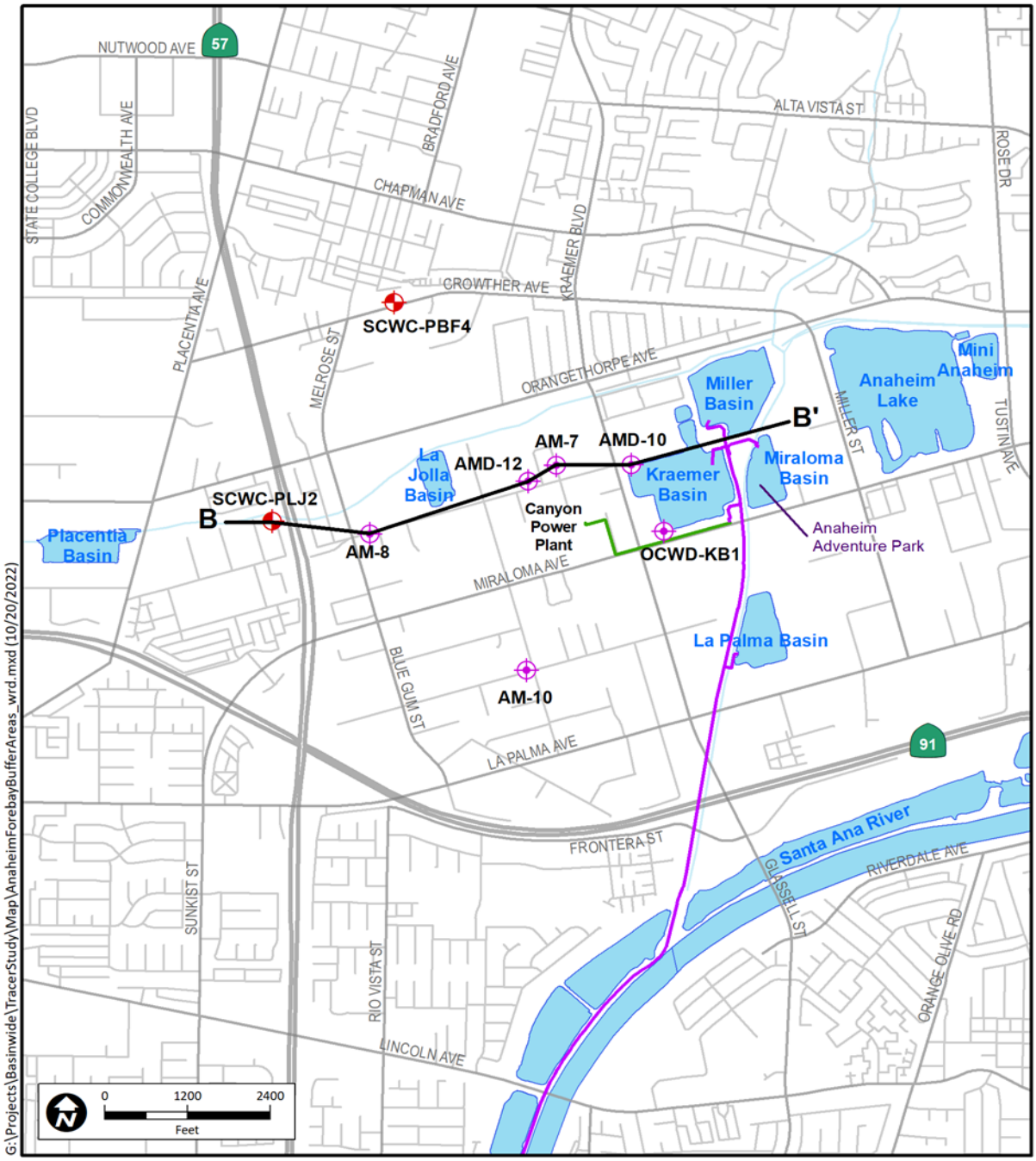
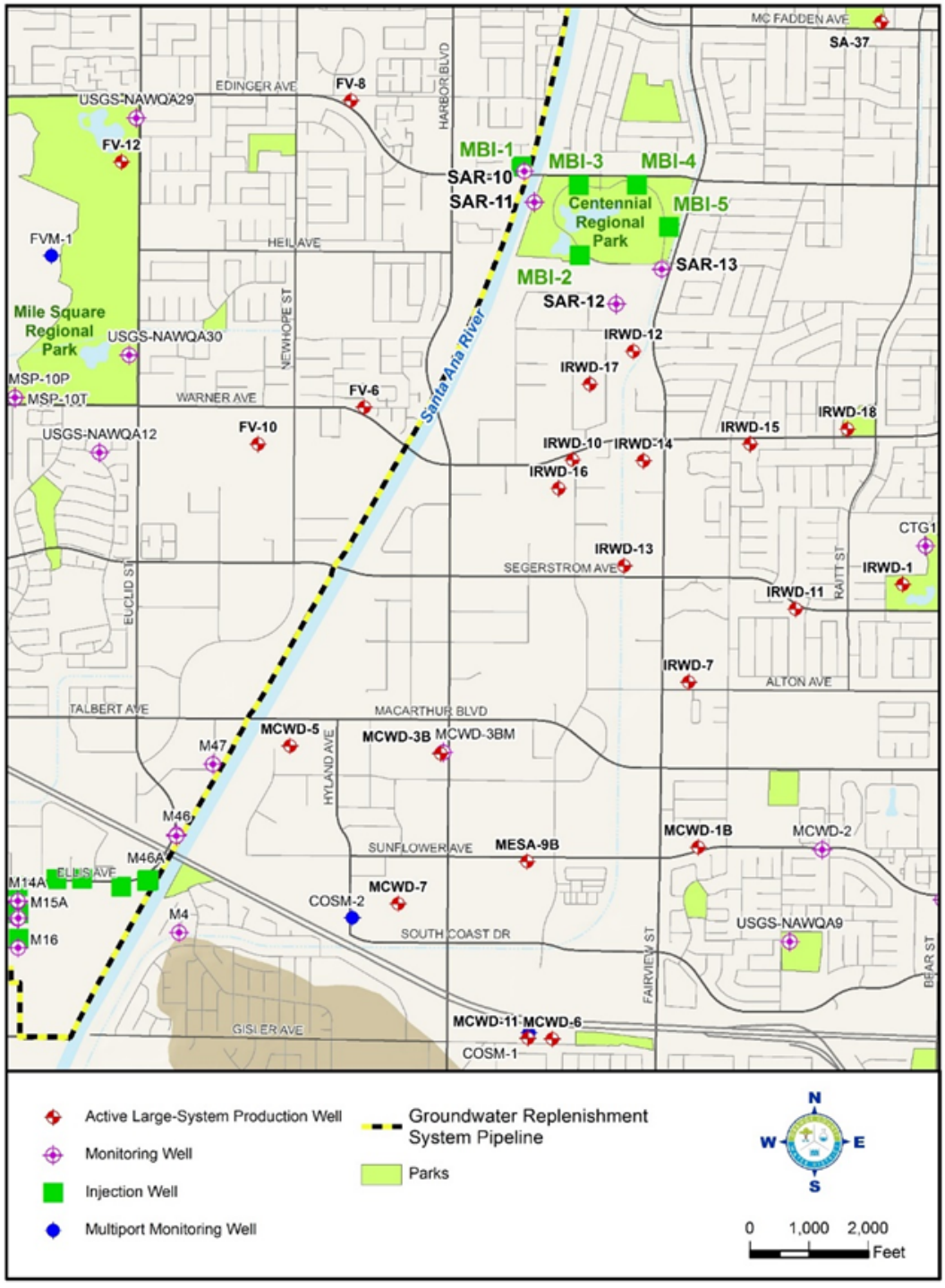


FIGURE B-5 – ANAHEIM FOREBAY (K-M-M-L BASINS) RECHARGE AREA



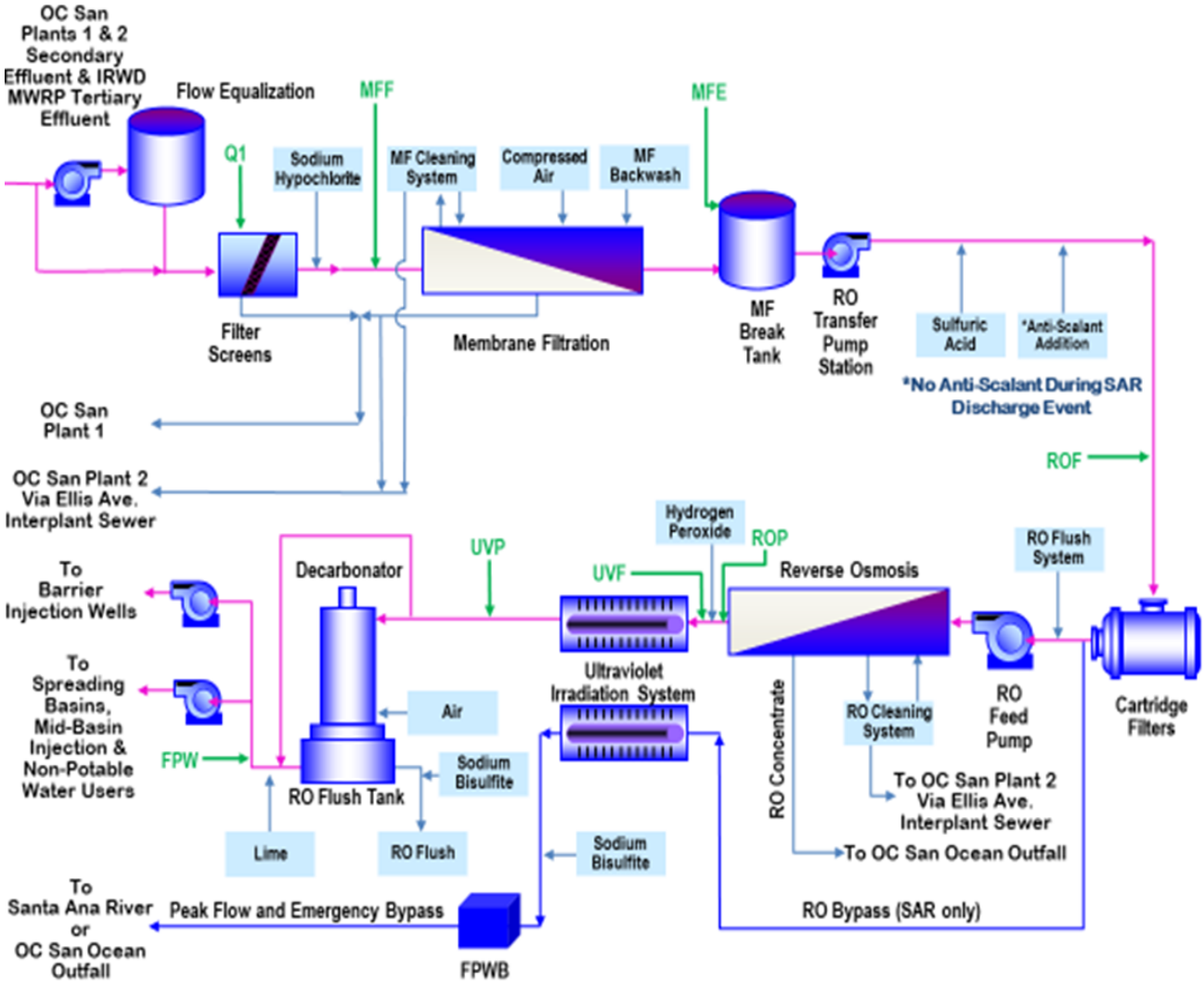
SOURCE: OCWD (10/2022)

FIGURE B-6 – MID-BASIN INJECTION WELLS



ATTACHMENT C – FLOW SCHEMATIC

FIGURE C-1 – GWRS AWPF FLOW DIAGRAM AND MONITORING LOCATIONS



ATTACHMENT D – WATER RECYCLING REQUIREMENTS

In accordance with section VI of Order No. R8-2022-0050, Waste Discharge Requirements and Master Recycling Permit for the Orange County Water District Groundwater Replenishment System (Order), Orange County Water District (Discharger) must comply with the following site-specific water recycling requirements (WRRs). The WRRs are based on information from the *Title 22 Engineering Report Update for the Groundwater Replenishment System and Final Expansion dated April 2022* (Engineering Report) and recommendations in State Water Resources Control Board (State Water Board) Division of Drinking Water's (DDW's) *Conditional Acceptance Letter for the Orange County Water District Groundwater Recharge System Final Expansion Engineering Report* dated June 3, 2022. Additional water reclamation requirements included in DDW's June 19, 2020, letter granting conditional acceptance of the Discharger's proposed use of Full Advanced Treated (FAT) recycled water, as a non-restricted recreational impoundment, for the operation of the Anaheim Adventure Aquapark at the Discharger's Miraloma Spreading Basin are also incorporated.

I. GENERAL REQUIREMENTS

A. The Discharger must ensure that the operations of the Facility complies with CCR's title 22, division 4 (title 22), chapter 3, article 5.2 – Indirect Potable Reuse: Groundwater Replenishment – Subsurface Application.

B. Prior to discharging advanced treated recycled water to the Orange GMZ, or as directed by DDW, the Discharger must:

1. Demonstrate to DDW that all treatment processes described in the Engineering Report are installed and can be operated as designed, to achieve their intended function as required by title 22, section 60320.200(g).

2. Develop and submit a draft Operation Optimization Plan (OOP) to DDW and the Santa Ana Water Board for review and comment. At a minimum, the draft OOP must provide the information specified in sections III and IV of these WRRs (Attachment D of the Order).

3. Demonstrate to DDW that the alarms and responses, including automatic shutdown, are functional and in conformance with the OOP during an on-site inspection. The Discharger must repeat this testing on a regular basis as specified in the OOP.

4. Identify potential points of vulnerability between the potable water, industrial water, wastewater, recycled water, chemical or other onsite waste or non-

potable piping systems. This identification must occur as part of the OOP required under WRRs section I.B.2. above.

5. Adopt a resolution stablishing (1) a zone of controlled drinking water well construction, and (2) a zone of potential controlled drinking water well construction, including private wells, consistent with title 22, section 60320.200(e), prior to operations or another timeframe approved by DDW. The Discharger must also coordinate with the local well permitting authorities (Orange County Health Care Agency, City of Anaheim, City of Orange, and City of Fountain Valley) to administer the primary zone representing a zone of controlled drinking water well construction ("primary boundary")and secondary boundary representing a zone of potential controlled drinking water well construction (i.e. "secondary boundary"), prior to discharging to the groundwater basin pursuant to title 22, section 60320.200(e) and regularly as needed. The Discharger must provide the necessary boundary map(s), locations of the Facility's monitoring wells, and locations of drinking water wells within two years travel time of the Facility based on groundwater flow directions and velocities expected under the Facility's normal operating conditions (130 million gallons per day (MGD), or lower) as needed to local well permitting authorities.

6. Establish the alarms identified in the Engineering Report and these WDRs for the Facility. The Discharger must validate and confirm the operational parameter limits for the reverse osmosis (RO) process and advanced oxidation process (AOP), in accordance with title 22, section 60320.201, and the alarm setting must be specified in the OOP in accordance with title 22, section 60320.222.

7. Ensure upon start-up of the Facility, that:

    a) An advanced water treatment (AWT) Grade 3 (AWT3) certified Chief Plant Operator is on staff, and

    b) An AWT 3 certified operator is available for on-call support, 24-hours, 7-days a week.

C. The Discharger must ensure that the entire applied recycled water flow used for the purpose of indirect potable reuse us continuously treated with full advanced treatment meeting Article 5.2 and as detailed in the Engineering Report and OOP. The Discharger must operate all treatment processes in a manner ensuring optimal reduction of all chemicals and contaminants in accordance with title 22, section 60320.222.

D. The Discharger must staff the Facility with persons possessing certificates of appropriate grade as specified by the State Water Board and Santa Ana Water

Board. The Discharger must track the expiration dates for all certified operators to ensure certifications are maintained.

1. The Discharger, by December 1, 2025, must ensure the Facility staff includes at a minimum:

    a) An AWT grade 5 certified Chief Plant Operator, and

    b) An AWT grade 3 or higher certified plant operator for each operational shift.

E. The Discharger must ensure that the maximum recycled municipal wastewater contribution[4] for the Facility is 1.0 (100%) as described in the Engineering Report and in accordance with title 22, section 60320.216.

F. The Discharger must follow the process described in title 22, section 60320.230, if proposing an alternative to any of the requirements in title 22, article 5.2. If directed by DDW to demonstrate public health equivalency, the Discharger must administer an independent advisory panel in consultation with DDW.

G. The Discharger must comply with Health and Safety Code, section 111070.5 and CWC section 13570 to provide advanced purified demonstration water. The Discharger must coordinate with California Department of Public Health – Food and Drug Branch for the conditional acceptance of bottling of advanced treated demonstration water.

II. WASTEWATER SOURCE CONTROL

A. The Discharger must ensure that the municipal wastewater used for the Facility be from a wastewater management agency that meets the wastewater source control requirements in accordance with title 22, section 60320.206.

III. ADVANCED TREATMENT CRITERIA

A. The Discharger must monitor the RO permeate at least weekly for total organic carbon (TOC) during the first 20 weeks of operation of any added RO units, in accordance with title 22's section 60320.201(a)(2). TOC concentrations must be no greater than 0.25 milligrams per liter (mg/L) in at least 95% of the samples. If the Facility's product water exceeds the TOC limit 0.5 mg/L based on a 20-week running average, the Discharger must immediately suspend the application of recycled water until at least two consecutive results, three days apart, are less than the limit of 0.5 mg/L. Upon being notified of an exceedance of the 4-week sample average, the Discharger shall, within 60 days of being notified of the

[4] Recycled municipal wastewater contribution is defined in title 22, section 60301.705 as the fraction equal to the quantity of recycled municipal wastewater discharged by the Facility divided by the sum of the quantity of recycled municipal wastewater and credited diluent water. The Discharger does not receive any credit for diluent water.

results, submit a report to the Santa Ana Water Board and DDW describing the reasons for the exceedance and the corrective actions taken to avoid future exceedances.

B. The Discharger must operate the AOP as designed and described in the Engineering Report to meet title 22, section 60320.201(d), achieving a minimum 0.5-log reduction of 1,4-dioxane and meeting notification levels of all chemicals with a Notification Level under the normal full-scale operating conditions.

C. The Discharger must ensure the combined filter effluent turbidity from the Facility's existing microfiltration and newly installed ultrafiltration (UF) membranes does not exceed any of the following (1-2). Combined effluent of four membrane cells ("half-train") may be monitored in lieu of combined filter effluent for the following requirements (1-2). An exceedance of the following requirements must trigger immediate half-train shutdown and corresponding corrective action(s).

    1. 0.2 nephelometric turbidity units (NTU) more than 5% of the time within a 24-hour period.

    2. 0.5 NTU at any time.

D. The Discharger must perform membrane integrity testing (MIT) (i.e. pressure decay test) on each of the membrane filtration cells. At a minimum, the Discharger must perform the MIT once every 24 hours of operation. If a membrane unit fails the MIT, the membrane unit must be removed from service, repaired, and have acceptable MIT results prior to being placed back into service.

E. The Discharger must operate the AOP with online monitoring and built-in automatic reliability features that must trigger automatic corrective actions if the following operational parameter limit(s) are reached, setpoints specified in III.E.1 through 6, below. Time delay of 15 minutes is inclusive of the time needed for the system to adjust to complete the corrective actions. The Discharger must switch from existing operational parameter limits as described in the Title 22

Engineering Report (section 12.2.3.1) to operational parameter limits specified in III.E.1 through 6 no later than December 1, 2023.

1. For any UV train, the Adenovirus reduction equivalent dose (RED) is less than 300 mJ/cm^2,

2. For any train, complete UV reactor failure including train power or train communication loss,

3. For any train, the instantaneous flowrate exceeds the design flowrate for more than 15 minutes,

4. For any train, the UV electrical energy dose (EED) is less than 0.23 kWh/kgal for more for more than 15 minutes or another setpoint approved by DDW after the AOP commissioning,

5. For any train, the ballast power is less than 74 kWh for more than 15 minutes or another setpoint approved by DDW after the AOP commissioning, and

6. The bulk influent ultraviolet transmittance (UVT) is less than 95% for more than 15 minutes or another setpoint approved by DDW after the AOP commissioning.

F. The bulk calculated hydrogen peroxide dose must not be less than 3.0 mg/L or another value approved by DDW after the AOP commissioning.

G. The Discharger must inspect the UVT meter at least weekly and check the UVT meter results against a reference unit to document accuracy. The OOP must include the tolerance and response actions to the UVT meter results.

H. The Discharger must optimize the stabilization process to control metal mobilization in recharge water as specified in the OOP. If directed by DDW or the Santa Ana Water Board, the Discharger must conduct additional geochemical analysis for the purpose of controlling metal mobilization.

I. The Discharger must comply with the Advanced Treatment Criteria Monitoring and Reporting specified in section VII.C of these WRRs.

IV. PATHOGENIC MICROORGANISM CONTROL

A. The Discharger must design and operate the Facility to produce advanced treated recycled water that achieves at least a 12-log enteric virus reduction, 10-log Giardia cyst reduction, and 10-log Cryptosporidium oocyst reduction in accordance with title 22, section 60320.208.

B. The Discharger must validate each of the treatment processes used to meet the required Cryptosporidium oocyst, Giardia cyst, and virus reductions, in accordance with title 22, section 60320.208(c) and as proposed in the

Engineering Report and OOP. The Discharger must include in its approved OOP, the necessary monitoring and calculations that validate the performance of each treatment process's ability to achieve its pathogen log reduction value (LRV) as proposed in the Engineering Report and OOP.

C. The Discharger has existing injection well complexes for subsurface application (Talbert Barrier and Mid-Basin) in addition to existing spreading basin complex for surface application (Anaheim Forebay). Tracer studies have been completed for these existing recharge areas. The Discharger must evaluate historical tracer data for the Talbert Barrier to validate the existing time of travel used to establish the zone of controlled drinking water well construction and secondary boundary in accordance with the title 22, section 60320.208(d) tracer evaluation methodology. Based on the results of the evaluation, and if necessary, the Discharger must revise the boundary representing a zone of controlled drinking water well construction and secondary boundary in accordance with title 22, section 60320.200(e) and coordinate with the local well permitting authorities. A final report must be submitted to DDW by June 1, 2023.

D. The Discharger must comply with the Pathogenic Microorganism Control Reporting specified in section VII.D of these WRRs.

E. The Discharger, in accordance with title 22, section 60320.208(h), must investigate the cause and initiate corrective actions, within 24-hours of becoming aware that the required Cryptosporidium oocyst, Giardia cyst, and virus reductions are not met based on the required on-going monitoring detailed in the approved OOP. If there is a failure to meet the pathogen reduction criteria longer than 4 consecutive hours or more than a total of 8 hours in any 7-day period, the Discharger must notify DDW and the Santa Ana Water Board within 24 hours of its knowledge of such a failure. Failures of shorter duration must be reported to DDW and the Santa Ana Water Board no later than 10 days after the end of the month in which the failure occurred.

F. The Discharger must ensure that each specific treatment process performs within the defined operational parameter limits. The calculated minimum log reduction value (LRV) is the LRV attributed to each treatment process for each pathogen unless otherwise stated in the WRRs. The Discharger will receive a daily LRV credit of 0.18-log virus, or another value if approved by DDW, for primary and secondary treatment if the operational range values are not exceeded. The MF LRV credit is the minimum calculated LRV of any online individual MF cell for a 24-hour period. The Discharger will receive a daily LRV credit of 6-log for each pathogen if the Adenovirus reduction equivalent dose (RED) is always greater than 300 millijoules per centimeter squared (mJ/cm^2). Exceedance of the RED requirement must trigger immediate discontinuation of recycled water application. The Discharger will receive a daily LRV credit of 1-log virus for each month retained underground as demonstrated in accordance with title 22, section

60320.208(e), unless higher LRV credit for each month retained underground is approved by DDW in accordance with title 22, section 60320.230.

G. Per title 22, section 60320.208(i), if the effectiveness of a treatment train's ability to reduce enteric viruses is less than 10-logs, or *Giardia cyst* or *Cryptosporidium oocyst* reduction is less than 8-logs, the Discharger must immediately notify the Santa Ana Water Board and DDW, and discontinue the application of recycled water, unless directed otherwise by the Santa Ana Water Board or DDW.

V. CROSS-CONNECTION CONTROL AND PRODUCT WATER PROTECTION

A. The Discharger must prohibit any undesired or unintended reversal of flow of water or other liquids, gases, or other substances into the Facility's product water lines. The Discharger must report any such undesired or unintended reversal of flow to DDW and the Santa Ana Water Board within 24 hours of becoming aware of the incident.

B. The Facility 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.

C. The Discharger must inspect all connections between the Facility and the potable water supply. Inspections must be conducted annually. Backflow prevention assembly testing must be performed by persons certified as backflow preventer assembly testers by AWWA or the Orange County Health Care Agency or certified as a cross-connection control specialist by AWWA or equivalent ANSI-accredited program.

D. The Discharger must comply with the Cross-Connection Control and Product Water Protection Reporting specified in section VII.E of these WRRs.

VI. NON-POTABLE RECYCLED WATER SPECIFICATIONS

A. The recycled water used for non-potable reuse shall all times be adequately oxidized disinfected tertiary treated recycled water, which is a filtered and subsequently disinfected wastewater that meets the following limitations:

1. When filtration[5] is through microfiltration, ultrafiltration, nanofiltration, or reverse osmosis membrane turbidity shall not exceed any of the following:

   a) 0.2 Nephelometric Turbidity Unit (NTU) more than 5 percent of the time within any 24-hour period; and

   b) 0.5 NTU at any time.

2. Disinfected wastewater shall meet the following:

   a) The 7-day median concentration of total coliform bacteria in the disinfected effluent shall not exceed a Most Probable Number (MPN) of 2.2 per 100 milliliters (ml), utilizing the bacteriological results of the last seven days for which analysis has been completed.

   b) The number of total coliform organism shall not exceed an MPN of 23 total coliform bacteria per 100 ml in more than one sample in any 30-day period.

   c) No total coliform sample shall exceed an MPN of 240 total coliform bacteria per 100 ml.

   d) UV disinfection shall meet the requirements specified in the Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse, published by the National Water Research Institute, Second Edition, and/or the acceptance conditions specified by DDW.

   e) When a disinfection process combined with the filtration process is utilized, the combined process shall demonstrate inactivation and/or removal of 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. The facility must be operated and maintained in accordance the OOP described in Section VIII, of Attachment D. The OOP shall become an enforceable part of this Order.

B. Prior to the delivery of recycled water to any new user, the Discharger shall submit to the DDW's and the Orange County Environmental Health Department

[5] *For recycled water use, other acceptable filtration technology that complies with title 22 of the California Code of Regulations and approved by DDW may be used. Compliance determination will be based on DDW's guidance*.

for review and approval a report containing the information listed in Section VI.G. of these WRRs, below.

C. The Discharger shall be responsible for assuring that recycled water is delivered and utilized in conformance with this Order and the recycling criteria contained in CCR title 22, Division 4, Chapter 3, sections 60301 through 60355. The Discharger shall conduct periodic inspections of the facilities of the recycled water users to monitor compliance by the users with this Order.

D. The Discharger shall establish and enforce Rules and Regulations for Recycled Water users, governing the design and construction of recycled water use facilities and the use of recycled water in accordance with the uniform statewide recycling criteria established pursuant to CWC section 13521.

1. Use of recycled water by the Discharger shall be consistent with its Rules and Regulations for Recycled Water Use.

2. Any revisions made to the Rules and Regulations shall be subject to the review of the Santa Ana Water Board, DDW, and the Orange County Environmental Health Department. The revised Rules and Regulations or a letter certifying that the Discharger's Rules and Regulations contain the updated provisions in this Order, shall be submitted to the Santa Ana Water Board within 60 days of adoption of this Order by the Santa Ana Water Board or within 60 days of finalization of the Recycled Water Use Site Procedures in Orange County, California, whichever is later.

E. The Discharger shall conduct periodic inspections of recycled water reuse sites to monitor compliance with the Discharger's Rules and Regulations for Recycled

Water Use and the uniform statewide reclamation criteria established pursuant to CWC section 13521.

F. The storage, delivery, or use of recycled water shall not individually or collectively, directly or indirectly, result in a pollution or nuisance, or adversely affect water quality, as defined in the California Water Code.

G. The Discharger shall maintain and make available upon request by the Santa Ana Water Board, DDW, and/or the County Environmental Health Department the following information for any recycled water users:

1. The average number of persons estimated to be served at each use area on a daily basis.

2. The specific boundaries of the proposed use area including a map showing the location of each facility, drinking water fountain, and impoundment to be used.

3. The person or persons responsible for operation of the recycled water system at each use area.

4. The specific use to be made of the recycled water at each use area.

5. The methods to be used to assure that the installation and operation of the recycled water system will not result in cross connections between the recycled water and potable water piping systems. This shall include a description of the pressure, dye or other test methods to be used to test the system.

6. Plans and specifications which include following:

a) Proposed piping system to be used.

b) Pipe locations of both the recycled and potable water systems.

c) Type and location of the outlets and plumbing fixtures that will be accessible to the public.

d) The methods and devices to be used to prevent backflow of recycled water into the potable water system.

e) Plan notes relating to specific installation and use requirements.

H. The Discharger shall require each user to designate an on-site supervisor responsible for the operation of the recycled water distribution system within the use area. The supervisor shall be responsible for complying with this Order,

prevention of potential hazards, the installation, operation and maintenance of the distribution system as approved by DDW.

I. The recycled water use for the Anaheim Adventure Aquapark (Aquapark) must adhere to the following conditions:

1. The Discharger must use FAT recycled water for the Miraloma Basin while the Aquapark is operational.

2. Recycled water use signs must be posted at the proposed locations shown in Exhibit 12 of the Discharger's Aquapark approval request letter dated April 17, 2020 (Discharger's letter) and the signage wording must be per Exhibit 11 of the Discharger's letter. The information conveyed in the signs must also be included in the Aquapark customer waiver document.

3. The modular restrooms must be always open during Aquapark hours of operation.

4. The Discharger must maintain a schmutzdecke layer for pathogen and chemical control. If the Discharger finds that a schmutzdecke layer cannot be established with concurrent operations of the Aquapark, then the Discharger must stop Aquapark operations and propose a plan to DDW on how the Miraloma Basin meets the requirements of this Order and the title 22 Engineering Report.

VII. COMPLIANCE MONITORING AND REPORTING

A. The Discharger must complete compliance monitoring and reporting as required by the Monitoring and Reporting Program (MRP), in Attachment E and these WRRs. If there are duplications, the Discharger must comply with the frequency of whichever requirement is more stringent.

B. The Discharger must electronically submit compliance monitoring result to DDW, using the Primary Station Codes (PS Codes) provided by DDW to electronically submit monitoring results for the Facility. Data produced and reports submitted for analysis, as required by title 22, article 5.2, must be generated by a laboratory accredited by the State Water Board's Environmental Laboratory Accreditation Program (ELAP). Analyses for contaminants having primary or secondary MCLs shall be performed by laboratories approved to perform such analyses by DDW utilizing DDW-approved drinking water methods or as authorized by DDW in case there are no approved drinking water methods available for a contaminant. Methods for analyses for other contaminants must be described in the Discharger's OOP. The laboratories performing the analyses must submit the results electronically to DDW's database by the tenth day of the following month in which analysis was completed. Laboratory results 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). Also, the Discharger should contact DDW for any required water quality data that cannot be transmitted electronically.

C. Advanced Treatment Criteria Monitoring and Reporting

1. The Discharger must monitor the oxidation treatment process, including AOP; hydrogen peroxide and ultraviolet (UV) light, to demonstrate greater than 0.5-log (69-percent) reduction of 1,4-dioxane, in accordance with title 22, section 60320.201(d).

2. The Discharger must submit a testing protocol for DDW's review and written approval at least 90 days prior to conducting the test. The testing must include challenge or spiking tests, using 1,4-dioxane, to demonstrate the proposed process will achieve the minimum reduction under normal full-scale operating conditions. The Discharger must start the testing within the first 30 days of the expanded Facility's operation. Results of the testing must be submitted to DDW within 90 days of completing the test.

3. The Discharger must submit a report to DDW and the Santa Ana Water Board within 60 days of completing the first 12-month full-scale operation and operational monitoring of the advanced treatment process. Pursuant to title 22, sections 60320.201(f) and (g), the report must include the following:

   a) The results of the monitoring performed,

   b) The removal differential of the indicator compounds,

   c) A description of the efficacy of the surrogate and/or operational parameters to reflect the removal differential of the indicator compounds, and

   d) A description of actions taken, or to be taken, if the indicator compound removal did not meet the associated design criteria; or fails to correspond to the differential indicator compound removal; or the surrogate and/or operational parameter is not met.

4. The Discharger must submit quarterly reports to DDW and the Santa Ana Water Board with the calculations documenting and supporting the proper on-going performance of the RO and AOP. The report must state the percent of quarterly monitoring results, conducted pursuant to title 22, sections 60320.201(b) and (e), that did not meet the surrogate or operational parameter limits. The Discharger must state in the report if the surrogate or operational parameter limits were exceeded by greater than 10%.

5. The Discharger operates a multi-barrier treatment process to comply with the requirements of title 22, article 5.2. The Discharger must monitor and report electronically to DDW monthly for the purposes of pathogen log reduction calculations and demonstration. Monthly reports are due by the 10th day of

the following month, except where primary and secondary credits from OC San are required to meet the total required pathogen log reduction (e.g., 12-log virus) in which case monthly reports are due by the 20th day of the following month.

6. At the respective UV system control points, the Discharger must provide continuous monitoring of calculated UV dose, UV electrical energy dose (EED), flowrate, train power, and UV transmittance at all times as surrogate and/or operational parameters to demonstrate whether the minimum chemical reduction criterion is being met. The Discharger must calibrate all instrumentation used to measure these parameters per the manufacturers' recommendations.

7. If directed by DDW, the Discharger must monitor or calculate the radical scavenging demand as specified in the OOP. If conducted, the Discharger must include the results of the monitoring in the quarterly reports. If directed by DDW, the Discharger must update the AOP system to incorporate radical scavenging demand to adjust operations as specified in the OOP.

8. The Discharger must monitor DDW-specified performance indicator constituents for RO and AOP. This monitoring is for the optimization of advanced treatment processes and to ensure that DDW's goal of the protection of public health is met. DDW specifies sucralose and NDMA as performance indicator constituents for RO and AOP, respectively. The Discharger must monitor for these constituents quarterly, both prior to and after the corresponding treatment processes. Annual reports must include all data, including percent reduction for each performance indicator. In the OOP, the Discharger must use sampling data to develop a baseline value, along with lower, and upper alarm limits using a statistical methodology to monitor performance of respective process.

9. To meet the requirement of title 22, section 60320.201(b), the Discharger must conduct online EC monitoring to ensure the integrity of the RO system. The Discharger must continuously monitor the EC in the effluent from each RO unit, including each stage. The Discharger must calculate and record continuously, based on readings taken at least every 15 minutes, minimum and average EC removal achieved by each RO unit.

D. Pathogenic Microorganism Control Monitoring and Reporting

1. The Discharger must evaluate historical tracer data for the Talbert Barrier to validate the existing time of travel and current boundary areas. A final report must be submitted to DDW by June 1, 2023.

2. The Discharger must report "Yes" or "No" for each day as to whether the total required pathogenic microorganism log reductions (12-logs virus, 10-logs Giardia cyst, and 10-logs Cryptosporidium oocyst) have been achieved based

on the overall treatment train LRV. The overall treatment train LRV for Cryptosporidium oocyst, Giardia cyst, and virus is the sum of LRV for each treatment process for each pathogen. An overall treatment train LRV must be provided daily unless the Facility is offline for a 24-hour period.

3. The Discharger proposes to follow a three-tiered monitoring approach for the RO system. Pathogen reduction through the RO system may be demonstrated via the tiered monitoring approach. The Discharger must report the calculated surrogate reduction values from all tiers and indicate which tier is used for reporting the RO LRV credit for a given day in monthly reports. In addition, the Discharger must include in the monthly reports, the daily average and maximum influent and effluent measurements for surrogates from all tiers. The Discharger must apply the logarithmic function as the last step in the calculation for the LRV.

    a) Tier 1: Continuous Strontium, Sulfate or Adenosine triphosphate (ATP) surrogate monitoring of the combined RO feed stream and the individual RO effluent stream from each unit, once approved by DDW. DDW's site-specific approval of the continuous strontium analyzer is currently pending. Daily grab sampling of Strontium, Sulfate or ATP of the combined RO feed stream and the individual RO effluent stream from each unit can be used in lieu of continuous monitoring. The RO LRV credit will be calculated based on the minimum calculated LRV of any online unit for a 24-hour period. If Tier 1 is unavailable (i.e. continuous monitoring or grab samples), the RO LRV credit must be determined by Tier 2.
    b) Tier 2: Continuous TOC monitoring of the combined RO feed stream and the combined RO effluent stream. The RO LRV credit will be calculated based on the average daily TOC reduction. If Tier 2 monitoring is unavailable, the RO LRV credit must be determined by Tier 3.

    c) Tier 3: Continuous EC monitoring of the combined RO feed stream and effluent stream of each RO unit. The RO LRV credit must be calculated based on the minimum daily EC reduction achieved of any online unit

E. Cross-Connection Control and Product Water Protection Inspection Reporting

    1. The Discharger must submit to DDW, Orange County Health Care Agency, and the Public Water System(s) managing the potable supply the results of the Facility's annual cross-connection testing results and all applicable corrective actions, in accordance with section V.C. of these WRRs, above.

F. The Discharger must submit an annual report to DDW and the Santa Ana Water Board no later than 6 months after the end of each calendar year. The annual report must include the information required in title 22, section 60320.228.

G. The Discharger must submit an updated Engineering Report to DDW and the Santa Ana Water Board at least every 5 years, addressing any changes at the

Facility. The 5-year updated Engineering Report must include the information required in title 22, section 60320.228.

VIII. OPERATION OPTIMIZATION PLANS

A. Draft Operation Optimization Plan.

1. The Discharger must ensure the draft OOP thoroughly identifies and describes the operation, maintenance, analytical methods, monitoring, and reporting necessary to meet the requirements of the Order and title 22, article 5.2. The Discharger's draft OOP must include, but is not limited to, the following elements:

   a) Operation plan, which includes any calculations needed to determine chemical dosage and the validation of each treatment process's pathogen LRV in accordance with title 22, section 60320.208(c), chemical dosage calculations, injection well back-flushing, and start-up/shutdown procedures.

   b) Preventative maintenance program, which addresses UV lamp fouling; equipment repair and replacement (e.g. membranes); and instrumentation maintenance and calibration.

   c) Cross connection control and product water protection (including prevention of bypass treatment and reversal of flow into the AWPF's product water lines; inspection and reporting procedures for any potential points of vulnerability between the on-site potable water, industrial water, wastewater, recycled water, chemical, or other waste or non-potable systems; procedures to close out construction activities potentially impacting the water or non-water piping systems).

   d) Water quality monitoring program, which includes analytical methods, associated instrumentation, monitoring location PS Codes, and procedures for reporting analytical results. The OOP must incorporate the requirements of the MRP and this WRRs.

   e) Comprehensive membrane integrity verification program, which includes the following:

      i. The pathogen LRV for Cryptosporidium oocysts must be calculated and the values recorded after the completion of each MIT. Giardia cysts LRV credit is the same value as the calculated LRV credit for Cryptosporidium oocysts. As described in the Discharger's Engineering Report, the virus LRV is zero for membrane filtration.
      ii. The MIT must have a resolution that is responsive to an integrity breach on the order of 3 microns (µm) or less.

iii. Daily calculations of the LRV must be based on a pressure decay rate value with an ending pressure that provides a resolution of 3 µm or less.
iv. The MIT must have a sensitivity to verify an LRV equal to or greater than 4.0.
v. If a membrane unit fails MIT, the membrane unit must be removed from service, repaired, and have acceptable MIT results prior to being placed back into service.

f) Description of the RO monitoring program, which includes on-going performance monitoring to demonstrate when the integrity of the RO process has been compromised. The RO monitoring program must include at least the following elements:

i. Determination of baseline integrity test values at least for each stage in each RO unit during the first 12 months of operations of the Facility and updated as needed.
ii. Determination of lower and upper alarm limits for each surrogate to be used for integrity testing using a statistical methodology.
iii. Associated responses (e.g. vessel probing, etc.) for alarm limits exceedance.

g) Contingency plans (including responses to OC San's and AWPF's process upsets, communication failure, power interruptions, off-specification water, water quality exceedances, and contact information for key personnel and agencies) and emergency response plan. Also, records (including records related to preventive maintenance program, contingency plan, sample templates for maintenance logs and monthly report) and reporting procedures.

h) Reliability features and a process control quick reference guide for operators and in the main treatment control center, which includes at a minimum, the following elements:

i. The alarms that trigger responses other than diversion, retreatment, or shutdown.
ii. The alarms that trigger reliability features: diversion, retreatment, or shutdown.
iii. For each alarm, the associated response and the associated instrumentation including the following: instrument tag, description, type (i.e. low, low-low, etc.), trigger value, effect, time delay, and if the trigger value is hardcoded.
iv. The required frequency of calibration of instrumentation, along with instrumentation tag and description (this item may not be included in the quick reference guide).

i) A staffing plan, for manned and unmanned operations (if any), which includes information on operator staffing hours, shifts, responsibilities, and

certification classes. Include a log for tracking expiration dates for operator certification. The Discharger must provide for an on-going training program to ensure that each operator has been trained in the following during manned and unmanned (if any) shifts:

i. The proper operation of all treatment processes utilized to achieve pathogen and chemical reduction.
ii. Maintenance, calibration, and verification of instrumentation and analyzers.
iii. Control systems, data trending, and the control strategy of plant systems.
iv. Incident response and investigation.
v. Critical Control Point systems approach.
vi. The California Safe Drinking Water Act, its implementing regulations, and all other relevant regulations.
vii. The potential adverse health effects associated with the consumption of drinking water that does not meet California drinking water standards.

2. The Discharger may amend and finalize the draft OOP after the completion of full-scale startup and commissioning testing.

3. Final Operation Optimization Plan. The Discharger must submit the final OOP to DDW for review, no later than 90 days after the completion of startup and commissioning testing of the Facility and incorporate any changes as directed by DDW. Pursuant to title 22, section 60320.222, the Discharger must operate the Facility in accordance with the final OOP and subsequent updates.

B. Operation Optimization Plan Updates. Within six months of optimizing treatment processes, pursuant to title 22, section 60320.222(b), and anytime when operations are optimized resulting in an operational change, the Discharger must update and submit the OOP to DDW for review.

IX. NOTIFICATIONS

A. The Discharger must notify DDW and the Santa Ana Water Board if any of the following actions are proposed for the project:

1. Increase the Facility's design flowrate above 130 MGD,

2. Install additional monitoring wells,

3. Install or remove injection wells, or

4. Install or remove surface spreading basins.

The Discharger must submit any documents requested by DDW and the Santa Ana Water Board. These documents may include, but are not limited to, an

updated Engineering Report or an updated OOP. In addition, DDW may require the Discharger to demonstrate compliance with this Order and title 22, article 5.2 by conducting an on-site study, which may include an underground retention time tracer study, and full-scale commissioning for Reverse Osmosis and AOP.

B. The Discharger, when considering the replacement of an injection well, must notify DDW and the Santa Ana Water Board and discuss any impacts to the well control zone boundaries, retention, and response times. If directed by DDW, the Discharger must update the well control zone boundaries, retention, and response times in accordance with title 22, sections 60320.200(e), 60320.208, and 60320.224.

C. The Discharger must notify DDW and the Santa Ana Water Board within 24-hours of becoming aware of the failure to meet the pathogen reduction criteria longer than 4 consecutive hours or more than a total of 8 hours in any 7-day period. Failures of shorter duration must be reported to DDW and the Santa Ana Water Board no later than 10 days after the end of the month in which the failure occurred.

D. The Discharger must report any undesired or unintended reversal of flow to DDW and the Santa Ana Water Board within 24 hours of becoming aware of the incident.

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

I. FINDINGS

A. This Monitoring and Reporting Program (MRP) is issued to the Orange County Water District (Discharger) pursuant to CWC section 13267, which authorizes the Santa Ana Water Board to require technical and monitoring reports. California CCR title 22, division 4 (title 22) also requires monitoring and reporting to confirm compliance with title 22 regulations.

B. The requirements of this MRP provide information to determine compliance with Order No. R8-2022-0050, Waste Discharge Requirements and Master Recycling Permit for the Orange County Water District's Groundwater Replenishment System (Order). The MRP requirements also provide information to the Santa Ana Water Board to assess the quality of groundwater and to protect beneficial uses. The Santa Ana Water Board Executive Officer can modify this MRP as appropriate.

C. This MRP establishes conditions for the Discharger to conduct routine or episodic self-monitoring of the discharges regulated under this Order at specified influent, internal operations, effluent, and receiving water monitoring locations. This MRP requires the Discharger to report the results to the Santa Ana Water Board with information necessary to evaluate discharge characteristics and compliance status.

II. GENERAL MONITORING PROVISIONS

A. The Discharger must ensure samples and measurements collected as required by the Order and this MRP are representative of the volume and nature of the monitored discharge. All samples must be collected at the monitoring points specified in this MRP and, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. The Discharger must not change monitoring locations prior to notifying and receiving approval from the Santa Ana Water Board for the proposed change.

B. The Discharger must select and use appropriate flowrate measurement devices and methods, consistent with accepted scientific practices to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The Discharger must install, calibrate, and maintain the devices according to manufacturer recommendations to ensure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices must be capable of measuring flowrates with a maximum deviation of 5 percent from true discharge rates throughout the range of expected discharge volumes.

C. In accordance with title 22 section 60320.204, the Discharger must ensure that all laboratories conduct analyses for contaminants having a primary or secondary

maximum contaminant level (MCL) using a drinking water method for the contaminant approved by State Water Resources Control Board's (State Water Board's) Division of Drinking Water (DDW). The Discharger must ensure that the laboratory is accredited by the State Water Board's Environmental Laboratory Accreditation Program (ELAP) for the analytical method used or as authorized by DDW in case there are no approved drinking water methods available for a contaminant and the method must be described in the Discharger's OOP.

D. The Discharger must ensure that monitoring for all constituents that do not have a primary or secondary MCL be conducted according to USEPA test procedures approved by ELAP for the analytical method used, or according to methods approved by in 40 CFR part 136, Guidelines Establishing Test Procedures for the Analysis of Pollutants, as amended, unless other test procedures have been specified in the Discharger's OOP. Analyses for constituents must be described in the Discharger's Operation Optimization Plan (OOP).

E. If the Discharger monitors any pollutants more frequently than required by this MRP, using approved test procedures, or as specified in this MRP, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharger's monitoring report. The Discharger must also report the increased frequency of monitoring.

F. The Discharger must retain records of all monitoring information, including all calibration and maintenance records including all original strip chart and/or electronic recordings for continuous monitoring instrumentation and copies of all reports required by this MRP, and records of all data used to complete the implementation for this MRP. The Discharger must maintain records for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during any unresolved litigation

regarding this discharge or as required by the Santa Ana Water Board. Records of monitoring information must include the following:

1. The date, exact place, and time of sampling or measurements,
2. The individual(s) who performed the sampling or measurements,
3. The date(s) analyses were performed,
4. The individual(s) who performed the analyses,
5. The analytical techniques or methods used, and
6. The results of such analyses.

G. The Discharger, per manufacturer guidelines, must properly and routinely maintain and calibrate all monitoring instruments and devices used to comply with this MRP.

H. The Discharger must sign and certify all applications, reports, or information submitted to the Santa Ana Water Board as detailed in section VII.O of the Order.

I. The Discharger must identify all missing or non-valid monitoring or sampling results in submitted monitoring reports. All instances of missing or non-valid results must include an explanation of their root cause and the steps the Discharger has or will take to prevent future instances. Missing or non-valid results may be considered violations of the MRP that could result in enforcement action depending on the frequency of such instances and efforts by the Discharger to prevent such failures.

J. Except as otherwise specified in this MRP, the Discharger may reduce sampling and reporting frequency for parameters in accordance with title 22 and the Water Recycling Requirements (WRRs), in Attachment D of the Order after receiving written approval from the Santa Ana Water Board for the reduction. The Santa Ana Water Board will consult with DDW on all title 22 related monitoring requirement changes.

III. MONITORING LOCATIONS

The Discharger must establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in the Order:

Table E- 1 Summary of Monitoring Locations

Monitoring Location Name	Latitude / Longitude	PS Code	Monitoring Location Description
M-INF1 (GWRS-Q1)	33° 41' 17.88" N 117° 56' 30.22" W	CA3090001_001_001	A location after secondary treatment and before the membrane filtration (MF/UF) system
GWRS-MFF	33° 41' 29.22" N 117° 56' 36.53" W	CA3090001_002_002	A location after sodium hypochlorite addition and before the membrane (MF/UF) filtration system
GWRS-MFE	33° 41' 30.79" N 117° 56' 37.38" W	CA3090001_003_003	A location after membrane filtration (MF/UF) and before reverse osmosis (RO)
GWRS-ROF	33° 41' 25.41" N 117° 56' 39.26" W	CA3090001_004_004	A location after membrane filtration (MF/UF) and before reverse osmosis (RO)
GWRS-ROP	33° 41' 23.39" N 117° 56' 39.77" W	CA3090001_005_005	A location after RO and before UV-AOP
GWRS-UVF	33° 41' 23.31" N 117° 56' 39.92" W	CA3090001_006_006	A location after RO and before UV-AOP
GWRS-UVP	33° 41' 23.20" N 117° 56' 38.63" W	CA3090001_007_007	A location after UV-AOP and before post-treatment stabilization
REC-001 (GWRS-FPW)	33° 41' 22.70" N 117° 56' 37.03" W	CA3090001_008_008	A location after water stabilization process, prior to groundwater recharge
OCWD-M10	33° 41' 51.44" N 117° 58' 16.68" W	CA3090001_101_101 CA3090001_102_102 CA3090001_103_103 CA3090001_104_104	Nested monitoring well site located down gradient of Talbert Barrier injection wells. Monitoring well site includes four casings screened from 80 to 305 ft bgs.
OCWD-M11	33° 41' 48.57" N 117° 57' 46.76" W	CA3090001_105_105 CA3090001_106_106 CA3090001_107_107 CA3090001_108_108	Nested monitoring well site located down gradient of Talbert Barrier injection wells. Monitoring well site includes four casings screened from 70 to 290 ft bgs.
OCWD-M45	33° 42' 7.25" N 117° 57' 50.93" W	CA3090001_109_109 CA3090001_110_110 CA3090001_111_111 CA3090001_112_112 CA3090001_113_113	Nested monitoring well site located down gradient of Talbert Barrier injection wells. Monitoring well site includes five casings screened from 195 to 790 ft bgs.

Monitoring Location Name	Latitude / Longitude	PS Code	Monitoring Location Description
OCWD-M46/M46A	FOUR CASINGS 33° 41' 47.29" N 117° 56' 4.45" W SINGLE-POINT 33° 41' 47.08" N 117° 56' 4.52" W	CA3090001_114_114 CA3090001_115_115 CA3090001_116_116 CA3090001_117_117 CA3090001_118_118	Nested + single-point monitoring well site located down gradient of Talbert Barrier injection wells. Nested well site includes four casings screened from 420 to 910 ft bgs and Single-point well screened from 350 to 370 ft bgs
OCWD-M47	33° 41' 59.19" N 117° 55' 57.41" W	CA3090001_119_119 CA3090001_120_120 CA3090001_121_121 CA3090001_122_122 CA3090001_123_123	Nested monitoring well site located down gradient of Talbert Barrier injection wells. Monitoring well site includes five casings screened from 355 to 960 ft bgs.
AM-7	33° 51' 41.46" N 117° 51' 49.95" W	CA3090001_201_201	Monitoring well site located down gradient of Anaheim Forebay spreading basins. Monitoring well is screened from 210 to 225 ft bgs.
AM-8	33° 51' 30.83" N 117° 52' 21.82" W	CA3090001_202_202	Monitoring well site located down gradient of Anaheim Forebay spreading basins. Monitoring well is screened from 268 to 285 ft bgs.
AM-10	33° 51' 10.86" N 117° 51' 54.44" W	CA3090001_208_208	Monitoring well site located down gradient of Anaheim Forebay spreading basins. Monitoring well is screened from 217 to 235 ft bgs.
AMD-12	33° 51' 38.99" N 117° 51' 54.75" W	CA3090001_203_203 CA3090001_204_204 CA3090001_205_205 CA3090001_206_206 CA3090001_207_207	Nested monitoring well site located down gradient of Anaheim Forebay spreading basins. Monitoring well site includes five casings screened from 330 to 960 ft bgs.
SAR-12	33° 43' 17.34" N 117° 54' 38.16" W	CA3090001_301_301 CA3090001_302_302 CA3090001_303_303 CA3090001_304_304	Nested monitoring well site located down gradient of Mid Basin Injection, injection well project. Monitoring well site includes four casings screened from 605 to 1,055 ft bgs.

Monitoring Location Name	Latitude / Longitude	PS Code	Monitoring Location Description
SAR-13	33° 43' 23.32" N 117° 54' 29.18" W	CA3090001_305_305 CA3090001_306_306 CA3090001_307_307 CA3090001_308_308	Nested monitoring well site located down gradient of Mid Basin Injection, injection well project. Monitoring well site includes four casings screened from 600 to 1,055 ft bgs.

IV. MONITORING REQUIREMENTS

A. The Discharger must monitor the influent to the Facility for the parameters listed in Table E-2 below. Sampling stations shall be established and located upstream of any in-plant return flows and where a representative sample of the influent to the treatment facility can be obtained. The date and time of sampling (as appropriate) shall be reported with the analytical values determined.

Table E- 2 Influent Monitoring

Parameter	Sample Location	Units	Sample Type	Minimum Sample Frequency
Flowrate	M-INF1 or GWRS-MFF	MGD	Flow meter / totalizer	Continuous
pH	GWRS-MFF	pH units	Recorder	Continuous
Specific Conductance	GWRS-MFF	µmhos/cm	Recorder	Continuous
Specific Conductance	GWRS-MFE	µmhos/cm	Grab	Quarterly
Biochemical Oxygen Demand (5-day)	M-INF1	mg/L	Composite	Quarterly
Total Suspended Solids	M-INF1	mg/L	Composite	Quarterly
Total Dissolved Solids	M-INF1	mg/L	Composite	Quarterly

B. The Discharger must monitor the effluent leaving the Facility for the parameters listed in Table E-3 below. Sampling station(s) shall be established where representative samples of recycled water can be obtained. Representative

samples shall be collected and analyzed for the following parameters at frequencies specified herein.

Table E- 3 Effluent Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW (except as noted)

Parameter	Units	Sample Type	Minimum Sample Frequency
Flowrate	MGD	Flow Meter / Totalizer	Continuous
Ultraviolet Transmittance (UV%T) at 254 nm	Percent	Recorder (GWRS-UVF)	"
Turbidity[1]	Nephelometric turbidity units (NTU)	Recorder (GWRS-ROP)	"
pH	pH units	Recorder	"
Total Coliform	Most Probable Number (MPN / 100 mL	Grab	Daily[4]
Electrical Conductivity	µm/cm	Recorder	Continuous or daily
Total Dissolved Solids (TDS)	mg/L	Grab	Monthly
Biochemical Oxygen Demand, 5-day (BOD_5)	"	24-hr composite	Quarterly
Total Suspended Solids (TSS)	"	24-hr composite	Quarterly
Chloride[1]	"	"	Annually
Sulfate[1]	"	"	Quarterly
Total Nitrogen[2]	"	"	Weekly
Nitrate + Nitrite (as Nitrogen)[3]	"	Calculate	Quarterly
Nitrate (as Nitrogen)[3,5]	"	Grab	Monthly
Nitrite (as Nitrogen)[3,5]	"	"	Monthly
Ammonia (as Nitrogen)[6]	"	"	Monthly
Total Inorganic Nitrogen	"	Calculate	Monthly

Parameter	Units	Sample Type	Minimum Sample Frequency
Iron	"	Grab	Annually
Manganese	"	"	"
Methylene Blue-Activated Substances (MBAS)[1]	"	"	Annually
Odor[1]	Threshold Odor Number (TON)	"	"
Color Units[1]	Apparent Color Unit (ACU)	"	"
Lead[3]	µg/L	"	Quarterly
Copper[1,3]	"	"	"
Total Organic Carbon (TOC)	mg/L	Recorder (online) or 24-hr composite or Grab	Weekly
Silver[1]	"	Grab	Annually
Zinc[1]	"	"	"

[1] Parameters with secondary maximum containment levels (MCLs) established in title 22, section 64449, Table 64449-A.
[2] See section IV.C through IV.E of this MRP for details on monitoring.
[3] Parameters with primary MCLs established in title 22, section 64431 Table 64431 or with Notification Levels.
[4] The minimum sampling frequency shall be five days per week.
[5] These constituents are used to compute Total Inorganic Nitrogen (TIN) and verify compliance with the TIN effluent limitation.

C. The Discharger must perform additional monitoring, as described below, for parameters with secondary MCLs in Table E-3 in the event of an exceedance of a corresponding effluent limitation listed in the Order (title 22, section 60320.212(e)).

1. If the annual average of the results of the monitoring performed exceeds a parameter's secondary MCL in title 22 Table 64449-A or upper limit in title 22 Table 64449-B, the Discharger shall initiate quarterly monitoring for the parameter and if the running annual average of quarterly-averaged results exceeds a parameter's secondary MCL or upper limit, describe the reason(s) for the exceedance and any corrective action taken in a report

that must be submitted to the Santa Ana Water Board and DDW no later than 45 days following the quarter in which the exceedance occurred. The annual monitoring frequency may resume if the running annual average of quarterly results does not exceed a parameter's secondary MCL or upper limit.

D. The Discharger must demonstrate control of nitrogen compounds. The Discharger has been approved by DDW, with concurrence from the Santa Ana Water Board, for a reduced monitoring schedule according to title 22, section 60320.210(b). The Discharger must in each calendar week as specified in the Facility's OOP, collect at least one effluent water quality sample at Monitoring Location REC-001/GWRS-FPW and have the sample analyzed for total nitrogen.[6] The Discharger must ensure that the laboratory or person conducting the analysis provides the monitoring results within 72 hours, if the result of any single sample exceeds 10 mg/L. If the average of the results of two consecutive samples exceeds 10 mg/L total nitrogen, the Discharger must also take the following measures:

1. Take a confirmation sample and notify the Santa Ana Water Board and DDW within 48 hours of the laboratory notifying the Discharger of the results.

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.

3. Initiate additional monitoring for nitrogen compounds as described in the Facility's OOP, including locations in the groundwater basin, to identify elevated concentrations and determine whether such elevated concentrations exceed or may lead to an exceedance of a nitrogen based MCL.

4. If the average of all results within the most recent 24-month period exceeds a concentration of 5 mg/L total nitrogen or if the average of a total nitrogen result and its confirmation result exceeds 10 mg/L total nitrogen, the Discharger must increase total nitrogen monitoring frequency to twice weekly, at least three days apart as specified in title 22 section 60320.210(a).

E. If the average of the results of four consecutive samples exceeds a concentration of 10 mg/L of total nitrogen, suspend the subsurface discharge of advanced treated recycled water. The Discharger must not resume subsurface discharge until the Discharger takes corrective actions and at least two consecutive sampling results have a concentration of total nitrogen less than 10 mg/L.

F. The Discharger must perform additional monitoring, as described below, for parameters with MCLs in Table E-3, and all parameters in Tables E-4 through E-

[6] Title 22 section 60301.860, "Total Nitrogen" means the sum of concentrations of ammonia, nitrite, nitrate, and organic nitrogen-containing compounds, expressed as nitrogen.

8, in the event of an exceedance of a corresponding effluent limitation listed in the Order (title 22, section 60320.212(d)).

1. For a parameter whose compliance with its MCL or Action Level (for lead and copper) that is not based on a running annual average (i.e., currently these are nitrate, nitrite, nitrate plus nitrite, perchlorate, chlorite, asbestos, lead, and copper):

    a) Within 72 hours of being notified of a result exceeding an MCL or Action Level (AL) the Discharger must collect another sample, and have it analyzed for the parameter as confirmation.

    b) If the average of the initial and confirmation sample exceeds the parameter's MCL or AL, or a confirmation sample is not collected and analyzed, the Discharger must initiate weekly monitoring for the parameter until four consecutive weekly results are below the parameter's MCL or AL. The Discharger must notify the Santa Ana Water Board and DDW within 24 hours if the average of the initial and confirmation samples exceeds an MCL or AL, or if a confirmation sample is not collected.

    c) If the running four-week average exceeds the parameter's MCL or AL, the Discharger must notify the Santa Ana Water Board and DDW within 24 hours of knowledge of the exceedance and, if directed by the Santa Ana Water Board or DDW, conduct corrective actions up to and potentially including suspending the discharge of the recycled municipal wastewater.

2. For a parameter whose compliance with its MCL is based on a running annual average (title 22, section 60320.212(d)):

    a) Within 72 hours of being notified of a result exceeding an MCL, the Discharger must collect another sample, and have it analyzed for the parameter as confirmation.

    b) If the average of the initial and confirmation sample exceeds the parameter's MCL, or a confirmation sample is not collected and analyzed, the Discharger must initiate weekly monitoring for the parameter until the running four-week average no longer exceeds the MCL.

    c) If the running four-week average exceeds the parameter's MCL, the Discharger must describe the reason(s) for the exceedance and provide a workplan with a schedule for completion of corrective actions in a report submitted to the Santa Ana Water Board and DDW no later than 45 days following the quarter in which the exceedance occurred.

    d) If the running four-week average exceeds the parameter's MCL for sixteen (16) consecutive weeks, the Discharger must notify the Santa Ana Water Board and DDW within 48 hours of knowledge of the exceedance and, if

directed by the Santa Ana Water Board or DDW, conduct corrective actions up to and potentially including suspending the discharge of the recycled municipal wastewater.

G. The Discharger must monitor the effluent at REC-001/GWRS-FPW, as described in Table E-1, for the parameters listed in Tables E-4 through E-10 below:

Table E- 4 Effluent Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW: Inorganics with Primary MCLs

Parameter[1]	Units	Sample Type	Minimum Sample Frequency
Aluminum	mg/L	Grab	Quarterly
Antimony	"	"	"
Arsenic	"	"	"
Asbestos (for fibers exceeding 10 µm in length)[2]	Million fibers per liter (MFL)	"	Once every 3 years
Barium	mg/L	"	Quarterly
Beryllium	"	"	"
Cadmium	"	"	"
Total Chromium	"	"	"
Cyanide	"	"	"
Fluoride	"	"	"
Mercury	"	"	"
Nickel	"	"	"
Perchlorate	"	"	"
Selenium	"	"	"
Thallium	"	"	"

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

2 If the results from the asbestos monitoring detects asbestos at the detection limit in title 22, section 64432, Table 64432-A, monitoring for asbestos must increase to quarterly.

Table E- 5 Effluent Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW: Volatile Organic Chemicals (VOCs) with Primary MCLs

Parameter[1]	Units	Sample Type	Minimum Sample Frequency
Benzene	mg/L	Grab	Quarterly
Carbon Tetrachloride	"	"	"
1,2-Dichlorobenzene	"	"	"
1,4-Dichlorobenzene	"	"	"
1,1-Dichloroethane	"	"	"
1,2-Dichloroethane	"	"	"
1,1-Dichloroethylene	"	"	"
cis-1,2-Dichloroethylene	"	"	"
trans-1,2-Dichloroethylene	"	"	"
Dichloromethane	"	"	"
1,2-Dichloropropane	"	"	"
1,3-Dichloropropene	"	"	"
Ethylbenzene	"	"	"
Methyl-tert-butyl-ether (MTBE)	"	"	"
Monochlorobenzene	"	"	"
Styrene	"	"	"
1,1,2,2-Tetrachloroethane	"	"	"
Tetrachloroethylene	"	"	"
Toluene	"	"	"
1,2,4-Trichlorobenzene	"	"	"
1,1,1-Trichloroethane	"	"	"
1,1,2-Trichloroethane	"	"	"
Trichloroethylene	"	"	"
Trichlorofluoromethane	"	"	"
1,1,2-Trichloro-1,2,2- Trifluoroethane	"	"	"
Vinyl Chloride	"	"	"
Xylenes	"	"	"

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

Table E- 6 Effluent Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW: Synthetic Organic Chemicals (SOCs) with Primary MCLs

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

Parameter[1]	Units	Sample Type	Minimum Sample Frequency
Polychlorinated Biphenyls (PCBs)	"	"	"
Simazine	"	"	"
Thiobencarb	"	"	"
Toxaphene	"	"	"
1,2,3-Trichloropropane	"	"	"
2,3,7,8-tetrachlorodibenzodioxin (Dioxin)	"	"	"
2-(2,4,5-trichlorophenoxy) propionic acid (Silvex)	"	"	"

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

Table E- 7 Effluent Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW: Disinfection Byproducts with Primary MCLs

Parameter[1]	Units	Sample Type	Minimum Sample Frequency
Bromodichloromethane	mg/L	Grab	Quarterly
Bromoform	"	"	"
Chloroform	"	"	"
Dibromochloromethane	"	"	"
Monochloroacetic acid	"	"	"
Dichloroacetic acid	"	"	"
Trichloroacetic acid	"	"	"
Monobromoacetic acid	"	"	"
Dibromoacetic acid	"	"	"
Bromate	"	"	"
Chlorite	"	"	"

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

Table E- 8 Effluent Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW: Radionuclides with Primary MCLs

Parameter[1]	Units	Sample Type	Minimum Sample Frequency

Combined Radium-226 and Radium-228	Picocuries per liter (pCi/L)	Grab	Quarterly
Gross Alpha particle activity (excluding radon and uranium)	"	"	"
Uranium	"	"	"
Beta/Photon emitters	Millirem per year	"	"
Strontium-90	pCi/L	"	"
Tritium	"	"	"

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

Table E- 9 Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW: Notification and Response Levels

Parameter	Units	Sample Type	Minimum Sample Frequency
Boron	mg/L	Grab	Quarterly
n-Butylbenzene	"	"	"
sec-Butylbenzene	"	"	"
tert-Butylbenzene	"	"	"
Carbon disulfide	"	"	"
Chlorate	"	"	"
2-Chlorotoluene	"	"	"
4-Chlorotoluene	"	"	"
Diazinon	"	"	"
Dichlorodifluoromethane	"	"	"
1,4-Dioxane	"	"	"
Ethylene Glycol	"	"	"
Formaldehyde	"	"	"
HMX (Octogen)	"	"	"
Isopropylbenzene	"	"	"
Manganese	"	"	"
Methyl isobutyl ketone	"	"	"

Parameter	Units	Sample Type	Minimum Sample Frequency
Naphthalene	"	"	"
N-Nitrosodiethylamine (NDEA)	"	"	"
N-Nitrosodimethylamine (NDMA)	"	"	"
N-Nitrosodi-n-propylamine (NDPA)	"	"	"
Perfluorobutanesulfonic acid (PFBS)	"	"	"
Perfluorooctanesulfonic acid (PFOS)	"	"	"
Perfluorohexanesulfonic acid (PFHxS)	"	"	"
Perfluorooctanoic acid (PFOA)	"	"	"
Propachlor	"	"	"
n-Propylbenzene	"	"	"
1,3,5-Trinitroperhydro-1,3,5-triazine	"	"	"
Tertiary butyl alcohol	"	"	"
1,2,4-Trimethylbenzene	"	"	"
1,3,5-Trimethylbenzene	"	"	"
2,4,6-Trinitrotoluene	"	"	"
Vanadium	"	"	"

Table E- 10 Monitoring for Recycled Water (Title 22) at REC-001/GWRS-FPW: Remaining Priority Pollutants

Parameter[1]	Units	Sample Type	Minimum Sample Frequency
Aldrin	µg/L	Grab	Annually
Dieldrin	"	"	"
4,4'-DDT	"	"	"
4,4'-DDE	"	"	"
4,4'-DDD	"	"	"
Alpha-endosulfan	"	"	"
Beta-endosulfan	"	"	"
Endosulfan sulfate	"	"	"
Endrin aldehyde	"	"	"

Parameter[1]	Units	Sample Type	Minimum Sample Frequency
Alpha-BHC	"	"	"
Beta-BHC	"	"	"
Delta-BHC	"	"	"
Acrolein	"	"	"
Acrylonitrile	"	"	"
Chlorobenzene	"	"	"
Chloroethane	"	"	"
1,1-dichloroethylene	"	"	"
Methyl chloride	"	"	"
Methyl bromide	"	"	"
2-chloroethyl vinyl ether	"	"	"
2,4,6-trichlorophenol	"	"	"
3-methyl-4-chlorophenol(P-chloro-m-cresol)	"	"	"
2-chlorophenol	"	"	"
2,4-dichlorophenol	"	"	"
2,4-dimethylphenol	"	"	"
2-nitrophenol	"	"	"
4-nitrophenol	"	"	"
2,4-dinitrophenol	"	"	"
2-methyl-4,6-dinitrophenol	"	"	"
Phenol	"	"	"
Chromium (III) trivalent	"	"	"
Acenaphthene	"	"	"
Benzidine	"	"	"
Hexachloroethane	"	"	"
Bis (2-chloroethyl) ether	"	"	"
2-chloronaphthalene	"	"	"
1,3-dichlorobenzene	"	"	"
3,3'-dichlorobenzidine	"	"	"

Parameter[1]	Units	Sample Type	Minimum Sample Frequency
2,4-dinitrotoluene	"	"	"
2,6-dinitrotoluene	"	"	"
1,2-diphenylhydrazine	"	"	"
Fluoranthene	"	"	"
4-chlorophenyl phenyl ether	"	"	"
4-bromophenyl phenyl ether	"	"	"
Bis(2-chloroisopropyl) ether	"	"	"
Bis(2-chloroethoxyl) methane	"	"	"
Hexachlorobutadiene	"	"	"
Isophorone	"	"	"
Nitrobenzene	"	"	"
N-nitrosodiphenylamine	"	"	"
Bis(2-ethylhexyl) phthalate	"	"	"
Butyl benzyl phthalate	"	"	"
Di-n-butyl phthalate	"	"	"
Di-n-octyl phthalate	"	"	"
Diethyl phthalate	"	"	"
Dimethyl phthalate	"	"	"
Benzo(a)anthracene	"	"	"
Benzo(b)fluoranthene	"	"	"
Benzo(k)fluoranthene	"	"	"
Chrysene	"	"	"
Acenaphthylene	"	"	"
Anthracene	"	"	"
1,12-benzoperylene	"	"	"
Fluorene	"	"	"
Phenanthrene	"	"	"
1,2,5,6-dibenzanthracene	"	"	"
Indeno(1,2,3-cd) pyrene	"	"	"
Pyrene	"	"	"

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

H. The Discharger must perform additional monitoring, as described below, for all parameters listed in Table E-9 of the MRP, above, in the event of an exceedance.

1. If a monitoring result exceeds a Notification Level (NL), within 72 hours of notification of the result the Discharger must collect another sample, and have it analyzed for the parameter as confirmation. If the average of the initial and confirmation sample exceeds the parameter's NL, or a confirmation sample is not collected and analyzed pursuant to this section, the Discharger must initiate weekly monitoring for the parameter until the running four-week average no longer exceeds the NL. The Discharger must notify the Santa Ana Water Board and DDW within 24 hours if any sample exceeds a NL.
2. If the running four-week average of monitoring results exceeds the parameter's NL, the Discharger must describe the reason(s) for the exceedance and provide a workplan and schedule for completion of corrective actions in a report submitted to the Santa Ana Water Board and DDW no later than 45 days following the quarter in which the exceedance occurred.
3. If the running four-week average of monitoring results exceeds the parameter's NL for sixteen consecutive weeks, the Discharger must notify the Santa Ana Water Board and DDW within 48 hours of knowledge of the exceedance.
4. The Discharger must not reduce the monitoring frequency for the parameters having NLs, including any parameters that overlap with constituents of emerging concern in the Recycled Water Policy, without the approval of the Santa Ana Water Board and DDW. The Discharger must use the analytical methods described in the approved OOP, and any changes must be approved by the Santa Ana Water Board and DDW.

I. The Discharger must monitor the groundwater monitoring wells at monitoring locations OCWD-M10, OCWD-M11, OCWD-M45, OCWD-M46A, OCWD-M46, OCWD-M47, AM-7, AM-8, AMD-12, AM-10, SAR-12, and SAR-13, as described in Table E-1 for the parameters listed in Table E-11 below:

Table E- 11 Groundwater Monitoring at OCWD-M10, OCWD-M11, OCWD-M45, OCWD-M46A, OCWD-M46, OCWD-M47, AM-7, AM-8, AMD-12, AM-10, SAR-12, and SAR-13

Parameter	Units	Minimum Sample Frequency
Total Dissolved Solids (TDS)	mg/L	Quarterly
Chloride	"	"

Parameter	Units	Minimum Sample Frequency
Sulfate	"	"
Sodium	"	"
Total Nitrogen	"	Annually
Nitrate (as nitrogen)	"	Quarterly
Nitrite (as nitrogen)	"	Annually
Iron	"	Quarterly
Manganese	"	"
Odor	Threshold Odor Number (TON)	Annually
Color	Apparent Color Unit (ACU)	"
Corrosivity	Units	Quarterly
Turbidity	NTU	"
Total Hardness (as $CaCO_3$)	mg/L	"
Lead	µg/L	"
Copper	"	"
Zinc	mg/L	"
Aluminum	"	"
Arsenic	"	"
Beryllium	"	"
Cadmium	"	"
Chromium (III)	"	"
Chromium (VI)	"	Annually
Nickel	"	Quarterly
Selenium	"	"
Thallium	"	"
Dichloromethane	"	"
MTBE	"	"
Bromodichloromethane	"	"
Chloroform	"	"

Parameter	Units	Minimum Sample Frequency
Acrolein	µg/L	[1]
Acrylonitrile	"	[1]
N-Nitrosodimethylamine (NDMA)	ng/L	Quarterly/Annually[2]

[1] The Discharger must continue quarterly monitoring at wells SAR-12 and SAR-13 through Q3 2023. If results continue to be non-detect at these wells through Q3 2023, Discharger may eliminate monitoring at this location. Monitoring for these parameters is not required at the remainder of the compliance monitoring wells.

[2] Quarterly monitoring is required at wells OCWD-M10, OCWD-M11, OCWD-M45, OCWD-M46A, OCWD-M46, OCWD-M47, SAR-12, and SAR-13. Annual monitoring is required at wells AM-7, AM-8, AMD-12, and AM-10.

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

V. CONSTITUENTS OF EMERGING CONCERN MONITORING REQUIREMENTS

A. The Discharger has developed and must maintain a Quality Assurance Project Plan (QAPP) for monitoring Constituents of Emerging Concern (CEC) to ensure the Facility's monitoring data are of known, consistent, and documented quality and that the monitoring is consistent with the State Water Board's *Water Quality Control Policy for Recycled Water* (Recycled Water Policy). The Discharger has developed the QAPP using the *Guidance for Quality Assurance Project Plans*, *EPA QA/G-5* (EPA/240/R-2/009, 2002). The Discharger has submitted the QAPP to the Santa Ana Water Board and State Water Board. The State Water Board has reviewed and approved the QAPP. The QAPP must be updated and re-submitted to the Santa Ana Water Board and State Water Board for approval when significant changes are made that would affect the overall data quality and use (e.g., using a new analytical chemistry laboratory) or at least annually if any

changes are made. Details on QAPP requirements are in Attachment A of the Recycled Water Policy.

B. The Discharger must monitor CECs using the following phased approach.

1. Health-based and performance CECs and surrogates for CECs.

a) The Discharger shall conduct an initial assessment monitoring phase for one year with quarterly sampling; however, sampling performed pursuant to this requirement under Order No. R8-2004-0002 may be applied;

b) The Discharger shall conduct a baseline monitoring phase for three years, with semi-annual sampling, except where more frequent monitoring is necessary to respond to a concern as stated in Attachment A section 4.2 of the Recycled Water Policy; however, sampling performed pursuant to this requirement under Order No. R8-2004-0002 may be applied; and

c) The Discharger shall conduct a standard operation monitoring phase, with semi-annual or annual sampling, except where more frequent monitoring is necessary to respond to a concern as stated in Attachment A section 4.3 of the Recycled Water Policy.

After each sampling event for health-based CECs, the Discharger shall conduct the evaluations in Table E-15 and implement appropriate response actions.

If a health-based CEC also has a notification level or maximum contaminant level pursuant to title 22, sections 60320.212, 60320.220, and 60320.201, the more frequent monitoring requirements shall govern the sampling, regardless of the phase.

2. Bioanalytical Screening Tools.

a) The Discharger shall conduct an initial assessment phase for three years with quarterly sampling for Estrogen receptor-α (ER-α) and Aryl hydrocarbon receptor (AhR) bioanalytical screening tools and determine the range of responses for the bioassays; however, sampling performed pursuant to this requirement under Order No. R8-2004-0002 may be applied;

b) The Discharger shall conduct a baseline monitoring phase for one year and sample quarterly. After each sampling event, the Discharger shall conduct the evaluations in Table E-17 and implement appropriate response actions; and

c) The Discharger shall conduct a standard operation monitoring phase, with semi-annual or annual sampling, except where more frequent monitoring

is necessary to respond to a concern as stated in Attachment A section 4.3 of the Recycled Water Policy. After each sampling event, the Discharger shall conduct the evaluations in Table E-17 and implement appropriate response actions.

Table E- 12 CEC Monitoring: Health, Performance, and Surrogates

Parameter	Units	Relevance	Sample Type	Reporting Limit[1]	Monitoring Locations(s)
1,4-Dioxane	µg/L	Health	Grab	0.1	GWRS-FPW
NDMA	"	Health/ Performance	"	0.002	GWRS-ROF and GWRS-FPW
N-Nitrosomorpholine (NMOR)	"	Health	"	0.002	GWRS-FPW
PFOS	"	"	"	0.0065	"
PFOA	"	"	"	0.007	"
Sucralose	"	Performance	"	0.1	GWRS-ROF and GWRS-FPW
Sulfamethoxazole	"	"	"	0.01	"
Electrical Conductivity	µS/cm	Surrogate	Grab or Online	-	GWRS-ROF and GWRS-ROP or GWRS-FPW
Total Organic Carbon	mg/L	"	"	-	"

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

Table E- 13 CEC Monitoring: Bioanalytical Screening Tools

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

		polycyclic aromatic hydrocarbons, pesticides			

C. The Discharger must use the monitoring results for CECs, surrogates, and bioanalytical screenings to evaluate the overall operational performance of the treatment process and the effectiveness of the treatment process in removing CECs. Monitoring reports submitted to the Santa Ana Water Board must include an evaluation of monitoring results.

1. The Discharger must evaluate health-based CEC monitoring results from monitoring location REC-001/GWRS-FPW. To determine the appropriate response actions, the Discharger must compare measured environmental concentrations (MECs) to their respective monitoring trigger levels (MTLs) listed in Table E-14 to determine MEC/MTL ratios. The Discharger must compare the calculated MEC/MTL ratios to the thresholds specified in Table E-15 and implement the response actions corresponding to the threshold.

Table E- 14 Monitoring Trigger Levels: Health, Performance, and Surrogates

Parameter	Relevance	Monitoring Trigger Level (µg/L)
1-4, Dioxane	Health	1
NDMA	Health/Performance	0.010
NMOR	Health	0.012
PFOS	"	0.013
PFOA	"	0.014
Sucralose	Performance	N/A
Sulfamethoxazole	"	N/A
Electrical Conductivity	Surrogate	N/A
Total Organic Carbon	"	N/A

Table E- 15 MEC/MTL Thresholds and Response Actions

MEC/MTL Threshold	Response Action
If greater than 75 percent of the MEC/MTL ratio results for a CEC are less than or equal to 0.1 during the baseline monitoring phase and/or subsequent monitoring	After completion of the baseline monitoring phase, consider requesting removal of the CEC from the monitoring program.

If MEC/MTL ratio is greater than 0.1 and less than or equal to 1	Continue to monitor.
If MEC/MTL ratio is greater than 1 and less than or equal to 10	Check the data for accuracy. Continue to monitor.
If MEC/MTL ratio is greater than 10 and less than or equal to 100	Check the data for accuracy, resample within 72 hours of notification of the result and analyze to confirm CEC result. Continue to monitor.
If MEC/MTL ratio is greater than 100	Check the data for accuracy, resample within 72 hours of notification of the result and analyze to confirm CEC result. Continue to monitor. Contact the Santa Ana Water Board and the State Water Board to discuss additional actions. (Additional actions may include, but are not limited to, additional monitoring, toxicological studies, engineering removal studies, modification of facility operation, implementation of a source identification program, and monitoring at additional locations.)

D. The Discharger must evaluate the bioanalytical assay monitoring results during the baseline monitoring phase and standard operation monitoring phase and the Discharger must determine the appropriate response actions. The Discharger must compare Bioanalytical Equivalent Concentrations (BEQs) to their respective MTLs listed in Table E-16 to determine BEQ/MTL ratios. The Discharger must compare the calculated BEQ/MTL ratios to the thresholds presented in Table E-17 and implement the response actions corresponding to the threshold.

Table E- 16 Required Equivalency Agonists and Monitoring Trigger Levels for Bioanalytical Screening Tools

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

Table E- 17 BEQ/MTL Thresholds and Response Actions for Bioanalytical Screening

BEQ/MTL Threshold	Response Action

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

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

Removal Percentage = $([X_{in} – X_{out}]/X_{in})$ (100)

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

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

F. During the initial assessment, the Discharger must monitor performance of the treatment process to determine removal percentages for performance indicator CECs and surrogates. The Discharger must confirm removal percentages during the baseline monitoring phase. The established removal percentages for each project must be used to evaluate treatment effectiveness and operational performance.

G. The list of parameters and monitoring frequencies may be adjusted by the Executive Officer, of the Santa Ana Water Board, if the Discharger makes a request and the Executive Officer determines that the modification is adequately supported by monitoring data submitted.

VI. DILUENT WATER MONITORING

A. Sampling station(s) shall be established where representative samples of diluent water can be obtained. Representative samples shall be collected and analyzed for the following parameters at frequencies specified herein:

Table E- 18 Monitoring Program for Diluent Water

Constituent	Sample Station	Units	Type of Sample	Minimum Frequency of Analysis
Diluent water flow	Before Blending	MGD	Flow Meter/totalizer	Continuous
Nitrate and Nitrite	"	mg/L	Grab	See VI.B below

B. A non-DDW approved drinking water source diluent water, as defined in title 22, section 60320.190, shall be monitored quarterly for nitrate and nitrite. Within 72 hours of being informed by the laboratory of a nitrate and/or nitrite result greater than a MCL, a confirmation sample shall be collected. If the average of the initial and confirmation samples exceeds a MCL, the provisions of title 22, section 60320.214, Diluent Water Requirements shall apply.

VII. SELF-MONITORING REPORTS

A. The Discharger must submit to DDW a monthly report as required by the WRRs and this MRP. These monthly reports must be submitted to DDW by the 10th day of the following month, except where primary and secondary credits from OC

San are required to meet the total required pathogen log reduction (e.g., 12-logs virus) then monthly reports are due by the 20th day of the following month.

B. The Discharger must submit the results of all other monitoring required by this MRP in Self-Monitoring Reports (SMRs) to the Santa Ana Water Board via the State Water Board's GeoTracker system at http://geotracker.waterboards.ca.gov/ (GeoTracker). The Discharger must upload SMRs on or prior to the SMR due dates set forth in Table E-23.

   1. The Discharger must divide documents larger than 400 megabytes (MB) into separate files at logical places in the report to keep the file sizes under 400 MB.

   2. The Discharger must submit Laboratory Analytical Data for all samples in Electronic Deliverable Format (EDF).

   3. The Discharger must report the latitude and longitude of all sampling locations for which data are reported.

C. If requested by the Santa Ana Water Board, the Discharger must also provide any or all of the following to the Santa Ana Water Board: a hard copy of the complete SMR, a hard copy of the cover/transmittal letter, a hard copy of oversized drawings or maps, and an electronic copy (see section VII.R of the Order – Standard Provisions) of the complete SMR.

D. If requested by the Santa Ana Water Board, the Discharger must also provide a complete copy (in a text-searchable PDF file) of all documents including signed transmittal letters, professional certifications, and all data presented in the SMR. Upon receipt of the documents, the Santa Ana Water Board must use the email date and time to determine compliance with the regulatory due dates specified in this Order.

E. The Discharger must summarize all reported data in a tabular format. The reports must present data to clearly illustrate whether the Facility is operating in compliance with discharge specifications and effluent limitations.

F. The Discharger must attach a cover letter to the SMR. The information contained in the cover letter must clearly identify violations of the Order; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions.

For identified violations, the letter must include a description of the requirement in the Order that was violated and a description of the violation.

G. The monitoring results in each SMR must be based on the sampling frequency, monitoring period, and due dates specified in Table E-19:

Table E- 19 Monitoring Periods and Reporting Schedule

Sampling Frequency	Start of Monitoring Periods	Monitoring Period	SMR Due Date
Continuous	January 1, 2023	All	Submit with Quarterly SMR
Daily	"	Midnight through 11:59 p.m. or any 24-hour period that reasonably represents a calendar day for the purpose of sampling	"
Weekly	"	Sunday through Saturday	"
Monthly (Pathogen Credit)	"	"	On the 10th or 20th of the month following the monitoring period
Monthly (All other monthly data)	"	First day of calendar month through last day of calendar month	Submit with quarterly SMR.
Quarterly	"	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 15 August 15 November 15 February 15 (following year)
Once per 6 months	"	January 1 through June 30 July 1 through December 31	August 15 February 15 (following year)
Annually	"	January 1 through December 31	June 30

VIII. ONE TIME REPORTING DUE DATES

This section, and Table E-20 below, summarizes all one time reports due to the Santa Ana Water Board and DDW after adoption of the Order and accompanying attachments.

Table E- 20 One Time Reporting Schedule

Report Type	Reference Section	Reviewing/ Approving Agency	Report Due Date

Noncompliance Report	Order section VII.C	Santa Ana Water Board	5 days after noncompliance
Report of Waste Discharge	Order section VII.L	Santa Ana Water Board	120 days prior to proposed major change
Transfer of Ownership	Order section VII.M	Santa Ana Water Board	120 days prior to proposed change
Talbert Barrier Tracer Data Evaluation	Attachment D section V.C	DDW	June 1, 2023
AOP testing protocols	Attachment D section VII.C.2	DDW	90 days prior to commissioning
RO and AOP Optimization	Attachment D section VII.C.3	DDW	Within 60 days of completing the first 12-months full-scale operation and operational monitoring of the advanced treatment process (can be submitted as a part of required Annual Report)
Operation Optimization Plan (OOP)	Attachment D section VIII	DDW	Draft due prior to GWRSFE commissioning. Final due within 90 days following completion of GWRSFE startup and commissioning, within six months of optimizing treatment processes and anytime thereafter operations are optimized that result in a change in operation

IX. VOLUMETRIC REPORTING REQUIREMENTS

A. The Discharger must submit an annual volumetric report to the State Water Board by April 30 of each year. The Discharger must submit this annual volumetric report containing monthly data in electronic format via GeoTracker.

The Discharger must report in accordance with each of the items in section 3 of the Recycled Water Policy as described below:

1. Influent. Monthly total volume of wastewater collected and treated by the Facility.

2. Production. Monthly volume of wastewater treated, specifying level of treatment.

3. Discharge. Monthly volume of treated wastewater discharged to ocean waters and specifying level of treatment.

4. Reuse. Monthly volume of recycled water distributed.

5. Reuse Categories. Annual volume of treated wastewater distributed for beneficial use in compliance with title 22 in each of the reuse categories listed below:

    a) Agricultural irrigation: pasture or crop irrigation.

    b) Landscape irrigation: irrigation of parks, greenbelts, and playgrounds; school yards; athletic fields; cemeteries; residential landscaping, common areas; commercial landscaping; industrial landscaping; and freeway, highway, and street landscaping.

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

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

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

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

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

ATTACHMENT F – FACT SHEET

ORDER NO. R8-2022-0050

This Fact Sheet includes background information, legal requirements, technical rationale; and serves as the basis for the requirements of Order No. R8-2022-0050, Waste Discharge Requirements and Master Recycling Permit for The Orange County Water District Groundwater Replenishment System (Order), the directives in Monitoring and Reporting Program (MRP) in Attachment E and the Water Recycling Requirements in Attachment D. This Fact Sheet is incorporated into and constitutes findings for the Order, Attachment D, and MRP.

I. ORDER INFORMATION

A. Table F-1 below, summarizes the administrative information related to the Orange County Water District's Groundwater Replenishment System (Facility).

Table F- 1 Facility Information

WDID	8 300112001
Discharger	Orange County Water District
Name of Facility	Groundwater Replenishment System – Advanced Water Purification Facility
Facility Address	18700 Ward St., Fountain Valley, CA 92708-6930
Facility Contact, Title and Phone	Jason Dadakis, Executive Director of Water Quality & Technical Resources, (714) 378-3364
Authorized Person to Sign and Submit Reports	Jason Dadakis, Executive Director of Water Quality & Technical Resources
Mailing Address	P.O. Box 8300, Fountain Valley, CA 92728-8300
Billing Address	P.O. Box 8300, Fountain Valley, CA 92728-8300
Type of Facility	Publicly Owned Treatment Works
Threat to Water Quality	2
Complexity	A
Pretreatment Program	Yes
Permitted Discharge Flowrate	130 Million Gallons per Day (MGD)
Design Flowrate	130 MGD
Watershed	Orange Groundwater Management Zone (GMZ)
Receiving Water Type	Groundwater

B. Orange County Water District (Discharger) owns and operates the Groundwater Replenishment System (Facility) located at 18700 Ward St., Fountain Valley, CA, 92708. The GWRS is a joint project by OCWD and the Orange County Sanitation District (OC San). The GWRS consists of four major components: Advanced Water Purification Facility (AWPF), Talbert Gap Seawater Intrusion Barrier (Talbert Barrier), Mid-Basin Injection Project (MBI), and

Kraemer/Miller/Miraloma/La Palma (K-M-M-L) Spreading Basins. Non-potable use of treated water from the AWPF is an additional minor component.

C. The GWRS is a water supply project that supplements existing water supplies by providing a reliable, high-quality source of water to recharge the Orange Groundwater Management Zone (GMZ) and protect the Orange GMZ from further degradation due to seawater intrusion. In addition, OC San relies upon the GWRS to provide peak wet weather flow relief for its Pacific Ocean outfall. The GWRS is in north-central Orange County and extends from Fountain Valley and Huntington Beach near the coast to Santa Ana, Orange, and Anaheim, generally near the Santa Ana River. Secondary treated effluent from OC San Plant No. 1 and Plant No. 2 is sent to the AWPF, where it is advance treated to produce full advanced treated (FAT) recycled water that meets the California Code of Regulations (CCR) Title 22 requirements for groundwater recharge (indirect potable reuse). A small amount (up to 8 MGD) of seasonally available tertiary treated municipal wastewater from the Irvine Ranch Water District (IRWD) Michelson Water Recycling Plan (MWRP) may also be used as influent to the GWRS AWPF. FAT recycled water is produced at the GWRS AWPF for use as a source of groundwater recharge via (1) injection at the Talbert Barrier and Mid-Basin Injection (MBI); and (2) surface spreading at K-M-M-L Basins. Injection at the Talbert Barrier also protects the Orange County Groundwater Basin (Basin) from seawater intrusion. A small volume of the Project water is also used for non-potable purposes at three use sites, with additional use sites planned. The water quality of the FAT recycled water produced at the AWPF meets and exceeds CCR Title 22 requirement for recycled water produced for non-potable reuse.

   The GWRS began operation in 2008, operating under Order No. R8-2004-0002 (later amended by Order Nos. R8-2008-0058, R8-2014-0054, R8-2016-0051, and R8-2019-0007). The GWRS AWPF replaced Water Factory 21 (WF21) and Interim WF 21, located at the same site in Fountain Valley. Implementation of the GWRS was intended to be phased, with the first phase (2008) producing up to 70 MGD of recycled water. The second phase, which began operation in 2015, increased production to 100 MGD of recycled water. The Final Expansion will increase the production up to the ultimate design production capacity of 130 MGD recycled water. This Order supersedes Order No. R8-2004-0002.

   In a letter entitled, "Request for Letter of Approval for the Proposed Anaheim Adventure Aquapark at the Orange County Water District's Miraloma Basin," dated April 17, 2020, the Discharger made a request to the State Water Resources Control Board's Division of Drinking Water (DDW) for the approval of their proposed Anaheim Adventure Aquapark to be build and operated at the Discharger's Miraloma Spreading Basin. In a letter dated June 19, 2020, DDW gave their conditional acceptance of the proposed use of the FAT recycled water, as a non-restricted recreational impoundment, for the

operation of the Anaheim Adventure Aquapark at the Discharger's Miraloma Spreading Basin. The conditions included in DDW's June 19, 2020 letter were incorporated into a new Order allowing non-potable discharge of GWRS water (Order No. R8-2021-0003 Waste Discharge Requirements and Master Recycling Permit for Orange County Water District Advanced Water Purification Facility). Order No. R8-2021-0003 has been superseded by this Order.

D. The Discharger submitted a Report of Waste Discharge, dated June 18, 2020, applying for waste discharge requirements and a master recycling permit for the production and distribution of FAT recycled water for non-potable reuse at present and future use sites such as the proposed Anaheim Adventure Aquapark use site in the City of Anaheim. This Report of Waste Discharge formed the basis for issuance of Order No. R8-2021-0003 by the Santa Ana Water Board. This Order supersedes Order No. R8-2021-0003.

The Discharger subsequently submitted a Report of Waste Discharge, dated October 1, 2021, applying for waste discharge requirements and a master recycling permit for the use of the 130 MGD of FAT recycled water for groundwater replenishment and reuse by subsurface application (seawater intrusion barrier and MBI) and surface application at the spreading basins. The Discharger also submitted to DDW the Title 22 Engineering Report Update for the Groundwater Replenishment System and Final Expansion (Engineering Report) dated April 2022 to demonstrate compliance with California Code of Regulations (CCR) Title 22, division 4 (title 22), chapter 3, article 5.2 Indirect Potable Reuse: Groundwater Replenishment – Subsurface Applications. Upon DDW's review of the Engineering Report, DDW issued a letter entitled, "*Conditional Acceptance Letter for the Orange County Water District Groundwater Recharge System Final Expansion Engineering Report (3090001-755),"* date June 3, 2022. The Santa Ana Water Board has reviewed DDW's recommendations included in their June 3, 2022 conditional acceptance letter and has incorporated the recommendations as requirements in this Order and its pertinent attachments.

II. FACILITY DESCRIPTION

The GWRS AWPF is located at 18700 Ward Street, Fountain Valley in Orange County. It includes both treatment processes and pumping stations. The AWPF receives secondary treated effluent from the neighboring OC San's Reclamation Plant No. 1 (RP-1) and OC San's Treatment Plant No. 2 (TP-2) in Huntington Beach, and OCWD applies state-of-the-art advanced treatment to the secondary treated wastewater effluent to produce FAT recycled water for mostly indirect potable reuse and for non-potable reuse, at a lower volumetric scale. OCWD may also accept a small volume (up to 8 MGD) of disinfected tertiary treated wastewater effluent from Irvine Ranch Water District's (IRWD's) Michelson Water

Reclamation Plant (MWRP) as influent to the AWPF. The treatment processes comprise fine-screening, microfiltration (MF), reverse osmosis (RO), advanced oxidation/disinfection consisting of hydrogen peroxide addition and ultraviolet light exposure (UV/AOP), followed by partial decarbonation and lime stabilization. With completion of the GWRS Final Expansion in December 2022, the AWPF treatment design capacity is 130 million gallons per day (MGD) for FAT recycled water production.

A. Wastewater Treatment

1. Orange County Sanitation District (OC San)

The GWRSFE will require a total of approximately 173 MGD of source water, or feedwater for the AWPF, in order to produce 130 MGD of purified recycled water. The primary source water for the GWRS Project is secondary treated municipal wastewater from the OC San Reclamation Plant 1 and Treatment Plant 2. OC San RP-1 has supplied source water to the project since 2008. OC San TP-2 will provide source water to the project upon the completion of the GWRSFE in late 2022 or early 2023. The contribution of each treatment plant to the overall influent feedwater flow is approximately 71% from OC San Plant 1, 29% from OC San Plant 2. At OC San RP-1, up to 30 MGD of wastewater receives primary treatment followed by secondary treatment by trickling filters. The remainder of the flow at OC San RP-1 receives primary treatment followed by secondary treatment at one of two Activated Sludge (AS) facilities. The AS facilities operate in biological nitrification/denitrification (NdN) mode achieving partial denitrification. To support the GWRSFE, OC San has segregated the non-reclaimable wastewater and side streams at TP-2 from reclaimable flows. Non-reclaimable flows are treated through a pure oxygen activated sludge (POAS) facility then discharged to the Ocean under OC San's Order No. R8-2021-0010, issued by the Santa Ana Water Board. The reclaimable flows at OC San TP-2 are treated to secondary treatment standards using a trickling filter/solids contact process then conveyed to the GWRS AWPF.

Secondary effluent flow equalization (SEFE) facilities located adjacent to the GWRS AWPF store secondary effluent from OC San RP-1 during the day when wastewater flows are higher and release it during the night when flows are lower, thereby enabling the AWPF to operate at a more constant flow rate. As part of the GWRSFE, two new flow equalization tanks have been constructed adjacent to OC San TP-2. Similar to the existing SEFE facilities adjacent to RP-1, the new flow equalization tanks will capture peak wastewater flows from TP-2 during the day and drain these flows at night to maintain a study TP-2 flow rate to the AWPF.

OC San administers and enforces a source control program for the sewershed, including an industrial pretreatment program. In addition, the District and OC San maintain a notification plan with coordination protocols for each agency to follow if a water quality issue is discovered and requires investigation.

2. Michelson Water Recycling Plant

   A small amount of seasonally available tertiary treated municipal wastewater from the Irvine Ranch Water District (IRWD) Michelson Water Recycling Plan (MWRP) can be utilized as source water for the Project. This use was authorized by the California Department of Public Health (CDPH, later DDW) in 2012 via a letter titled System No. 3090001 – Groundwater Replenishment System Title 22 Engineering Report Update, with this authorization reaffirmed via DDW's Conditional Acceptance Letter for the Orange County Water District Groundwater Recharge System Final Expansion Engineering Report dated June 3, 2022.

3. Advanced Water Purification Facility

   The GWRS AWPF treats feedwater to better than drinking water standards using membrane filtration (MF) comprised of microfiltration or ultrafiltration, reverse osmosis (RO), advanced oxidation/disinfection consisting of hydrogen peroxide addition and ultraviolet light exposure (UV/AOP), followed by decarbonation and lime stabilization. After full advanced treatment and post-treatment, pumping stations and pipelines convey the purified recycled water to the injection, spreading, and reuse sites.

   The GWRSFE will expand the capacity of these AWPF processes. The existing AWPF has a purified recycled water production design capacity of 100 MGD. Located on property owned by OCWD and OC San in Fountain Valley, the AWPF has been in operation since 2008. Pumping stations at the AWPF currently deliver purified recycled water to the (1) Talbert Barrier, (2) K-M-M-L Basins, (3) MBI Project, and (4) GWRS non-potable water customers. Purified recycled water may also be used to augment the non-potable water service for the OCWD Green Acres Project (GAP).

   The GWRSFE increases the AWPF purified recycled water production design capacity up to 130 MGD. The GWRSFE adds reclaimable secondary effluent flow equalization and pumping at OC San Plant 2 to supply more source water for the AWPF. The AWPF expansion adds MF, RO, UV/AOP, and decarbonation capacity. While the existing lime stabilization facilities are already sized for the GWRSFE, its polymer system has been modified.

   In the future, a new dechlorination facility and turnout may be installed at the GWRS Pipeline near Burris Basin. These facilities are not included in the current Order.

4. Conveyance Piping

   Following full advanced treatment, the Facility pumps the advanced treated recycled water to the Talbert Barrier injection wells via the Barrier Pump Station (BPS) and Barrier Pipeline, and to the K-M-M-L Basins, MBI Project, and non-potable users via the Product Water Pump Station (PWPS) and GWRS Pipeline. The existing BPS features four pumps that discharge to the Barrier Pipeline, which ranges in size from 54 to 20 inches in diameter. No new BPS pumps have been added as part of the GWRSFE. The PWPS features four existing pumps, with a fifth pump added as part of the GWRSFE. The GWRS Pipeline varies in diameter from 78 inches near the AWPF to 60 inches at the K-M-M-L Basins. The alignment of the GWRS Pipeline generally follows the west side of the Santa Ana River channel and Carbon Creek Diversion channel to the K-M-M-L Basins. Turnouts from the GWRS Pipeline convey purified recycled water to the MBI project and non-potable customers.

B. Discharge Locations

1. Talbert Barrier Injection Wells

   The Discharger will utilize 36 existing injection wells to discharge the advanced treated recycled water into the Basin at the Talbert Barrier. The Order regulates the discharge of advanced treated recycled water, through the injection wells, to the groundwater basin. Without the Barrier, seawater would migrate inland via hydraulically connected potable aquifers and degrade the fresh water supply. By forming an underground hydraulic mound near the coast, the Talbert Barrier helps prevent seawater intrusion and contamination of the groundwater supply. Of the 36 Talbert Barrier wells, 23 were installed between 1968 and 1972 as part of Water Factory 21. Five additional wells were installed between 1999 and 2004. Eight more wells were installed as part of the original GWRS between 2004 and 2007. The original GWRS design called for an annual average of 30 to 32 MGD of injection water at the Talbert Barrier. The actual flow varies seasonally and with operational factors. OCWD maintains two potable water connections to the Talbert Barrier, the Metropolitan Water District (MWD) OC-44 turnout and a connection with the City of Fountain Valley potable water system. These sources can provide up to 10 to 15 MGD of injection supply in the event of an extended AWPF shutdown, though typically much lower volumes of potable water are used, if any.

2. K-M-M-L Basins

   The Discharger will utilize the existing K-M-M-L Basins to percolate purified recycled water and other waters (Santa Ana River and imported water) to

recharge the Orange County Groundwater Basin. Nearby spreading basins that do not receive purified recycled water are Anaheim Lake, Mini-Anaheim Lake, and La Jolla Basin, which percolate other waters.

OCWD began spreading purified recycled water at Kraemer and Miller Basins in 2008 as part of the original GWRS. Miraloma Basin and La Palma Basin became available for spreading purified recycled water in 2012 and 2016, respectively. Prior to the GWRSFE, an average of approximately 65 MGD of recycled water was discharged at K-M-M-L Basins, MBI, and to non-potable users. More purified recycled water will now be available for these recharge sites and non-potable user sites with the GWRSFE. Residual water in K-M-M-L Basins may be discharged to Carbon Creek Diversion for basin maintenance purposes.

3. Mid-Basin Injection (MBI) Wells

   The MBI Project consists of five existing injection wells (MBI-1 through MBI-5) that replenish the heavily pumped central region of the Orange County Groundwater Basin to address the local groundwater depression resulting from extractions from drinking water wells. The MBI Project built upon the success of the Demonstration MBI (DMBI) Project (MBI-1) by installing four additional injection wells at Centennial Park (MBI-2 through MBI-5). The five existing injection wells in the MBI Area recharge a total of approximately 7.5 MGD (1.5 MGD per well) of GWRS purified recycled water into the Principal Aquifer of the Orange County Groundwater Basin. Each well is designed to inject approximately 1.5 to 2.5 MGD. Following the DMBI project, the MBI project became operational in 2020.

4. Non-Potable Recycled Water Reuse

   The Discharger produces and distributes FAT recycled water for non-potable reuse at present and future use sites such as the Anaheim Adventure Aquapark use site in the City of Anaheim. Also, recycled water from the GWRS AWPF may also be used to augment the non-potable water service for the OCWD Green Acres Project (GAP). Currently, the production and distribution of recycled water from the GAP facility is regulated under Order No. R8-2002-0077, issued by the Santa Ana Water Board to OCWD.

5. OC San Ocean Outfall

   Discharge of secondary treated effluent from OC San RP-1 and TP-2 to the Pacific Ocean is regulated under Order No. R8-2021-0010. Discharge of RO concentrate and other waste streams, including partially or completely FAT-treated recycled water generated during startup, commissioning, and/or other testing activities from the GWRS AWPF to the OC San Ocean Outfall is regulated under the same order.

C. Monitoring wells: The Discharger will monitor the groundwater quality downgradient from the groundwater recharge locations using 12 existing monitoring well sites comprising 39 unique monitoring locations (many wells are nested). Monitoring wells OCWD-M10, OCWD-M11, OCWD-M45, OCWD-M46A, OCWD-M46, and OCWD-M47 will be used to assess compliance with discharge of purified recycled water at the Talbert Barrier Injection Wells. Monitoring wells AM-7, AM-8, AMD-12, and M-10 will be used to assess compliance with discharge of purified recycled water at the K-M-M-L Basins. Monitoring wells SAR-12 and SAR-13 will be used to assess compliance with discharge of purified recycled water at the Mid-Basin Injection Wells. The monitoring wells will allow groundwater elevations to be measured and water quality samples to be collected from each aquifer initially receiving recycled water as a source of drinking water supply. Section IV.H of the MRP requires groundwater monitoring to assess any potential impacts to receiving waters from the discharge. In accordance with CWC section 13750.5 (Division 7, Chapter 10, Article 3); construction, alteration, and destruction of monitoring wells shall be performed by contractors licensed in accordance with the California Contractors' License Law (Division 3, Chapter 9, California Business and Professions Code), except where exempted by law

D. Production Wells: The Orange County Groundwater Basin meets approximately 75 percent of the water supply demand in the OCWD service area. Nineteen large groundwater producers and limited small system producers and private wells pump from the Basin. This Order does not regulate the extraction or discharge of groundwater from the production wells. The Discharger has established primary and secondary boundaries representing zones of controlled drinking water well construction in accordance with title 22, section 60320.200 (e).

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

A. **Legal Authorities**. The Order is issued pursuant to California Water Code (CWC sections 13263, 13267, and 13523.1. The Order serves as Waste Discharge Requirements (WDRs) issued pursuant to CWC article 4, chapter 4, division 7.

B. **California Environmental Quality Act (CEQA)**. The GWRS' Environmental Impact Report/Tier1 Environmental Impact Statement (EIR/EIS) was completed and certified by the OCWD Board of Directors in March 1999 for compliance with the California Environmental Quality Act (CEQA). The Final EIS and Record of Decision were completed in August 2000 for compliance with the National Environmental Protection Act (NEPA). Since then, six addenda have been completed. In March 2001, Addendum No. 1 addressed the peak wet weather discharge to the Santa Ana River and minor changes in the project design. In January 2002, Addendum No. 2 addressed modifications as more detailed information became available during the facilities design. In December 2003, Addendum No. 3 addressed design refinements associated with the AWPF, river discharge, and the potential for two additional on-site injection wells. In February

2005, Addendum No. 4 addressed the construction of a 41,000 square foot laboratory facility on the OCWD water treatment facility site. In February 2011, Addendum No. 5 evaluated the construction of the GWRSIE, increased the AWPF production capacity by 30 MGD (from 70 to 100 MGD), and installed secondary effluent flow equalization (SEFE) facilities at the OC San's Reclamation Plant 1 site.

OCWD prepared and certified an Environmental Impact Report for Miraloma Basin in 2011. Environmental documentation for La Palma Basin was completed in February 2013 as part of Addendum No. 2 to OCWD's Program EIR for application to appropriate water from the Santa Ana River. In 2009, OCWD certified a Mitigated Negative Declaration for the Demonstration MBI Project. An Environmental Impact Report/Environmental Assessment was completed in 2016 for the MBI Centennial Park Project.

In 2016, OCWD prepared Addendum No. 6 to the GWRS EIR/EIS addressing environmental compliance for all elements of the GWRSFE, including the AWPF expansion and effluent flow equalization storage, pumping and conveyance pipeline, and modification of the headworks and piping to segregate reclaimable flows at OC San's Plant 2. A Mitigated Negative Declaration followed in 2018 to address design changes for the OC San's Plant 2 effluent flow equalization and pump station, referred to as the GWRS Water Conveyance Facilities Project.

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

D. **Water Quality Control Plan**. The Santa Ana *Water Board's Water Quality Control Plan for the Santa Ana River Basin* (Basin Plan) designates beneficial uses, establishes water quality objectives (WQOs), and contains implementation programs and policies to achieve those objectives for all waters addressed through the Basin Plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. The Order implements the Basin Plan by prescribing requirements for the production, reuse, and disposal of recycled water that will not adversely impact water quality, beneficial uses, human health, or the environment. The beneficial uses of groundwaters listed in the Basin Plan for the Orange Groundwater Management Zone are municipal and domestic

supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PROC).

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

F. **Antidegradation Policy**. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California* (Resolution No. 68-16). Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Santa Ana Water Board's Basin Plan implements and incorporates by reference the State antidegradation policy. Requirements specified in this Order should prevent any degradation of the receiving waters. Therefore, the permitted discharge is consistent with the antidegradation provisions of the State Water Board Resolution No. 68-16.

G. **Indirect Potable Reuse Regulations**. Groundwater Replenishment – Subsurface Application. Title 22, chapter 3 establishes specific requirements for indirect potable reuse groundwater recharge projects. This Order incorporates discharge specifications, effluent limitations, and monitoring and reporting requirements from title 22 sections 60320.200 through 60320.230.

H. **Other Plans, Policies, and Regulations**. Pursuant to CWA section 402(p) and Title 40 of the Code of Federal Regulations (CFR) Part 122, 123, and 124, the State Water Resources Control Board adopted a general NPDES permit to regulate storm water discharges associated with industrial activities (State Water Board Industrial General Permit Order No. 2014-0057-DWQ, NPDES No. CAS000001) on April 1, 2014 and became effective on July 1, 2015. Storm water discharges from the Facility are regulated under the State Water Board Industrial

General Permit Order No. 2014-0057-DWQ (as amended by Orders 2015-0122-DWQ and the 2018 Amendment documents).

Also, discharges of up to 100 MGD of microfiltered, disinfected, and dechlorinated tertiary effluent from the GWRS AWPF to Reach 1 of the Santa Ana River under emergency conditions, including peak wastewater flow events at OC San that approach the maximum capacity of OC San's Pacific Ocean outfall, is regulated under Order No. R8-2022-0002 issued by the Santa Ana Water Board to the OCWD.

IV. RATIONALE FOR DISCHARGE PROHIBITIONS, DISCHARGE SPECIFICATIONS, AND EFFLUENT LIMITATIONS

This Order establishes requirements based on the Basin Plan, Recycled Water Policy, and title 22 for the indirect potable reuse of FAT recycled water discharged to groundwater from the Facility and for non-potable reuse.

A. **Discharge Prohibitions.** This Order establishes discharge prohibitions for the Facility as listed insSection III of this Order. The discharge prohibitions are based on the Basin Plan and State Water Resources Control Board's plans and policies. These prohibitions are consistent with the requirements set for other discharges regulated by waste discharge requirements adopted by the Santa Ana Water Board.

B. **Secondary Effluent Limitations.** Title 22, section 60320.201 requires that the secondary effluent supplied to the Facility must be oxidized wastewater, as defined in title 22, section 60301.650. The secondary effluent limitations in section IV.B of this Order ensure proper oxidation and stabilization of secondary effluent prior to advanced treatment at the Facility.

C. **Discharge Specifications and Effluent Limitations.** The discharge specifications and effluent limitations are derived from the basin-specific WQOs for the Orange Groundwater Management Zone, as listed in Table 4-1 of the Basin Plan, and from non-basin specific WQOs included in the Basin Plan for the protection of groundwater quality in general. Constituents with both WQOs and maximum contaminant levels (MCLs) have effluent limitations set at the lower concentration of the two objectives.

D. **Primary and Secondary Maximum Contaminant Levels.** Title 22 section, 60320.201(i) requires the Discharger to not exceed the concentration of any MCLs in the effluent and title 22, section 60320.212 requires the Discharger to notify the Santa Ana Water Board and DDW if the MCLs are exceeded. Tables 5 through 9 of this Order lists the effluent limitations for the constituents with primary MCLs. For constituents with both a secondary MCL and WQO established in the Basin Plan the effluent limitation was set at the more protective

of the two values. The MCLs and corresponding effluent limitations are based on the following:

1. Inorganic parameters are established in title 22, section 64431, Table 64431-A.

2. Volatile organic compounds parameters are established in title 22, section 64444, Table 64444-A.

3. Synthetic organic compounds parameters are established in title 22, section 64444, Table 64444-A.

4. Disinfection byproducts parameters are established in title 22, section 64533, Table 64533-A.

5. Radionuclides are established in title 22, sections 64442 and 64443, Tables 64442 and 64443.

6. Constituents with secondary MCLs are established in title 22, section 64449, Tables 64449-A and 64449-B.

7. Actions Levels for copper and lead per title22, section 64678.

E. **Notification Levels.** Title 22, section 60320.201 requires the Discharger to monitor for all constituents with notification levels. The notification levels and response levels are listed in Table 10 of this Order.

F. **Water Reclamation Requirements.** CWC section 13520 requires DDW to make recommendations to the Santa Ana Water Board based on the Engineering Report for the Facility. The Santa Ana Water Board has reviewed those recommendations made in DDW's *Conditional Acceptance Letter for the Orange County Water District Groundwater Recharge System Final Expansion Engineering Report* issued on June 3, 2022 and has incorporated the recommendations as requirements in Attachment D and the MRP (Attachment E) of this Order.

V. RATIONALE FOR PROVISIONS

A. **Standard Provisions.** The standard provisions contain requirements that allow the Santa Ana Water Board to enforce this Order. Provisions include need for inspection, spill and emergency reporting, records maintenance, and reporting of

changes. Standard provisions apply to all WDRs and are consistent with Santa Ana Water Board findings.

B. **Special Provisions.** These requirements ensure the Facility operates properly, within design parameters, and is protected from storm events to not cause or contribute to a condition of pollution or nuisance and to protect beneficial uses.

C. **Notices.** Notices are included in this Order to inform the Discharger of administrative issues regarding this Order.

VI. RATIONALE FOR MONITORING AND REPORTING PROVISIONS

A. The purpose of the MRP is to determine and ensure compliance with discharge specifications, effluent limitations, and other requirements established in this Order. The MRP also helps the Santa Ana Water Board and the Discharger to assess treatment efficiency, characterize effluents, ensure water quality objectives and beneficial uses of the groundwater basin are protected, and minimize the effects of the discharge on the receiving water quality. The MRP also specifies requirements concerning the proper use, maintenance, methods, and the monitoring type intervals and frequency necessary to provide data that are representative of the activities and discharges regulated under this Order.

B. The MRP is issued pursuant to CWC section 13267, which authorizes the Santa Ana Water Board to require dischargers to submit technical and monitoring reports. The Santa Ana Water Board and DDW need the technical and monitoring reports submitted by the Discharger to determine compliance with the Order and to protect water quality and beneficial uses. The Santa Ana Water Board has assessed this MRP to reduce and eliminate unnecessary or overlapping monitoring and reporting requirements where appropriate. Based on the nature and possible consequences of the discharge, the burden of providing the required reports, including the costs, bears a reasonable relationship for the need for the reports and the benefits to be obtained from the reports.

C. Title 22 requires monitoring and reporting for groundwater replenishment projects through subsurface discharge, including for indirect potable reuse through groundwater recharge. Title 22, division 4, chapter 3 establishes specific requirements for indirect potable reuse groundwater replenishment – subsurface discharge projects. The MRP and WDRs incorporate the monitoring and reporting requirements from title 22, sections 60320.200 through 60320.230.

D. The Recycled Water Policy requires monitoring and reporting of volumetric data and CECs, as detailed in the MRP. The State Water Board uses the volumetric data to track and report the percentage of wastewater recycled throughout the State of California. The CEC monitoring tracks the Facility's ability to remove CECs and requires the Discharger to conduct additional sampling and commence response actions as needed.

VII. PUBLIC PARTICIPATION

The Santa Ana Water Board has considered the issuance of waste discharge requirements (WDRs) and a Master Recycling Permit for the Orange County Water District's Groundwater Replenishment System, Orange County. As a step in the WDR adoption process, the Santa Ana Water Board staff has developed tentative WDRs and has encouraged public participation in the WDR adoption process.

A. **Title 22 Hearing.** The Discharger held a public hearing regarding the Facility on December 2, 2021, which satisfied the requirements of title 22, section 60320.202. The public submitted no written comments. All oral comments were in support of the Project.

B. **Notification of Interested Parties.** The Santa Ana Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs and a Master Recycling Permit for the discharge and has provided an opportunity to submit written comments and recommendations. Notification was provided through posting of a Notice of Public Hearing on the Santa Ana Water Board's website.

   The public had access to the agenda and any changes in dates and locations through the Santa Ana Water Board's website at http://www.waterboards.ca.gov/santaana.

C. **Written Comments.** Interested persons were invited to submit written comments concerning tentative WDRs as provided through the notification process. Comments were due either in person or by mail to the Executive Officer at the Santa Ana Water Board at the address on the cover page of this Order, by fax to (951) 320-6362, or by email to Ryan Harris at Ryan.Harris@waterboards.ca.gov.

   To be fully responded to by staff and considered by the Santa Ana Water Board, the written comments were due at the Santa Ana Water Board offices by 5:00 p.m. on November 30, 2022.

   Ryan Harris
   California Regional Water Quality Control Board
   Santa Ana Region
   3737 Main Street, Suite 500
   Riverside, CA 92501-3348

D. **Public Hearing.** The Santa Ana Water Board held a public hearing on the tentative Order during its regular meeting on the following date and time and at the following location:

Date:	December 2, 2022
Time:	9:00 a.m.
Location:	City of Anaheim

200 S. Anaheim Blvd.
Anaheim, California 92805

Interested persons were invited to attend. At the public hearing, which was a video, teleconference and physical meeting, the Santa Ana Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, extensive testimony was requested in writing.

E. **Reconsideration of Waste Discharge Requirements.** Any aggrieved person may petition the State Water Board to review the decision of the Santa Ana Water Board regarding the final WDRs. The petition must be received by the State Water Board at the following address by 5:00 p.m. within 30 calendar days of the Santa Ana Water Board's adoption of this Order, except that if the thirtieth day following the adoption date of this Order falls on a Saturday, Sunday, or a state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

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

For instructions on how to file a petition for review, see: http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

F. **Information and Copying.** The Report of Waste Discharge (ROWD), other supporting documents, and comments received are on file and may be inspected by appointment, at the address above on the cover page of this Order at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Santa Ana Water Board by calling (951) 782-4130 or Ryan.Harris@waterboards.ca.gov.

G. **Register of Interested Persons.** Any person interested in being placed on the mailing list for information regarding the WDRs and master recycling permit should contact the Santa Ana Water Board, reference this Facility, and provide a name, address, and phone number.

H. **Additional Information.** Requests for additional information or questions regarding this Order should be directed to Ryan Harris at (951) 320-2008 or Ryan.Harris@waterboards.ca.gov.