CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN DIEGO REGION

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ORDER NO. R9-2020-0001 AS AMENDED BY ORDER NO. R9-2020-0183
NPDES NO. CA0109398

WASTE DISCHARGE REQUIREMENTS FOR THE CITY OF SAN DIEGO NORTH CITY WATER RECLAMATION PLANT AND PURE WATER FACILITY, INDIRECT POTABLE REUSE RESERVOIR WATER AUGMENTATION DISCHARGE TO MIRAMAR RESERVOIR SAN DIEGO COUNTY

The following Discharger is subject to waste discharge requirements (WDRs) set forth in this Order:

Table 1. Discharger Information

Discharger	City of San Diego
Name of Facility	North City Water Reclamation Plant and Pure Water Facility
Facility Address	4950 Eastgate Mall
	San Diego, CA 92121
	San Diego County

Table 2. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North)	Discharge Point Longitude (West)	Receiving Water
001	Advanced treated recycled water	32.9156º	117.0947º	Miramar Reservoir

Table 3. Administrative Information

This Order was adopted on:	**May 13, 2020**
This Order shall become effective on:	**July 1, 2020**
This Order as amended by Order No. R9-2020-0183 shall become effective on:	**August 12, 2020**
This Order shall expire on:	**June 30, 2025**
The Discharger shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than:	**180 days prior to the Order expiration date**
The U.S. Environmental Protection Agency (USEPA) and the California Regional Water Quality Control Board, San Diego Region have classified this discharge as follows:	**Major**

I, David W. Gibson, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, San Diego Region, on the date indicated above.

David W. Gibson, Executive Officer

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TABLES

ATTACHMENTS

I. FACILITY INFORMATION

The City of San Diego (City or Discharger) owns and operates the North City Water Reclamation Plant (NCWRP) and the North City Pure Water Facility (NCPWF) (separately and collectively referred to herein as Facility).

General information about the Facility is summarized in Table 1 of this Order. A more detailed description of the Facility can be found in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the permit application for the Facility.

II. FINDINGS

The California Regional Water Quality Control Board, San Diego Region (San Diego Water Board), finds:

A. Legal Authorities. This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code) (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the United States Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370). This Order shall serve as a National Pollution Discharge Elimination System (NPDES) permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDRs in this Order.

B. Background and Rationale for Requirements. The San Diego Water Board developed the requirements in this Order based on information submitted as part of the application and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E, G, and H are also incorporated into this Order.

C. Provisions and Requirements Implementing State Law. The provisions/requirements in subsections IV.B, IV.C, VI.A.2.a, and VI.C.4.a-d are included to implement State law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

D. California Environmental Quality Act (CEQA). Pursuant to Section 13389 of the Water Code, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of division 13 of the Public Resources Code. Under the San Diego Water Board's state law authority, this Order incorporates applicable portions of State Water Resources Control Board Water Quality Control Policy for Recycled Water and Article 5.3, Division 4, Title 22, of the California Code of Regulations. The state law only provisions of this Order are a discretionary approval subject to compliance with CEQA.

On April 10, 2018, the City, as the lead agency, and the United States Bureau of Reclamation certified the Final North City Project, Pure Water San Diego Program Environmental Impact Report/Environmental Impact Statement (State Clearinghouse No. 2016081016) (Final EIR/EIS) for the North City Pure Water Project. The Final EIR/EIS found that there were no significant impacts related to hydrology and water quality.

The San Diego Water Board, as a responsible agency, independently reviewed and concluded that the 2018 Final EIR/EIS adequately disclosed and evaluated the impacts to

hydrology and water quality. Details of CEQA compliance are set forth in section II.B of the Fact Sheet (Attachment F) of this Order.

E. Executive Officer Delegation of Authority. The San Diego Water Board by prior resolution has delegated all matters that may legally be delegated to its Executive Officer to act on its behalf pursuant to Water Code section 13223. Therefore, the Executive Officer is authorized to act on the San Diego Water Board's behalf on any matter within this Order unless such delegation is unlawful under Water Code section 13223 or this Order explicitly states otherwise.

F. Notification of Interested Parties. The San Diego Water Board notified the City of San Diego (City or Discharger) and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided them with an opportunity to submit their written comments and recommendations. The San Diego Water Board has also provided an opportunity for the Discharger and interested agencies and persons to submit oral comments and recommendations at a public hearing. Details of the notification are provided in the Fact Sheet.

G. Consideration of Public Comment. The San Diego Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet (Attachment F) of this Order.

THEREFORE, IT IS HEREBY ORDERED that, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order. The Discharger is hereby authorized to discharge advanced treated recycled water subject to WDRs in this Order at the discharge location described in Table 2 to Miramar Reservoir.

III. DISCHARGE PROHIBITIONS

A. The discharge of waste not treated by secondary, tertiary, and advanced treatment processes as described in the Report of Waste Discharge (ROWD), and not in compliance with the effluent limitations specified in section IV.A of this Order, and/or to a location other than Discharge Point No. 001, unless specifically regulated by this Order or separate waste discharge requirements, is prohibited.

B. The Discharger must comply with any applicable Discharge Prohibitions contained in chapter 4 of the *Water Quality Control Plan for the San Diego Basin* (Basin Plan), incorporated into this Order as if fully set forth herein and summarized in Attachment G, as a condition of this Order.

IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

A. Effluent Limitations, Notification Levels, and Performance Goals

1. Effluent Limitations

a. The Discharger shall maintain compliance with the following effluent limitations, with compliance measured at Monitoring Location INT-003 as described in the Monitoring and Reporting Program (MRP) (Attachment E):

Table 4. Effluent Limitations at Monitoring Location INT-003

Parameter	Units	Average Monthly[1]	Average Weekly[1]	Instantaneous Minimum	Instantaneous Maximum
TECHNOLOGY BASED EFFLUENT LIMITATIONS (40 CFR PART 133)					

Parameter	Units	Average Monthly[1]	Average Weekly[1]	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	milligrams per liter (mg/L)	30	45	---	---
	pounds per day (lbs/day)	14,000	21,000	---	---
	% Removal	≥85	--		
Total Suspended Solids	mg/L	30	45	---	---
	lbs/day	14,000	21,000	---	---
	% Removal	≥85	--		
BASED ON BASIN PLAN WATER QUALITY OBJECTIVES					
pH	standard units	---	---	6.5	8.5

1. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the average flow for the North City Water Reclamation Plant (56.7 MGD) and C is the concentration (mg/L).

b. The Discharger shall maintain compliance with the following effluent limitations, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program (MRP) (Attachment E):

Table 5. Effluent Limitations at Monitoring Location EFF-001[1]

Parameter	Units	Average Monthly[2]	Average Weekly[2]	Maximum Daily[2]
Flow	million gallons per day (MGD)	32.8	---	---
BASED ON BASIN PLAN WATER QUALITY OBJECTIVES				
Ammonia, Un-ionized (as N)	mg/L	---	---	0.025
	lbs/day	---	---	6.8
Nitrogen, Total (as N)	mg/L	2.0	---	---
	lbs/day	550	---	---
Phosphorus, Total (as P)	mg/L	0.025	---	---
	lbs/day	6.8	---	---
BASED ON BASIN PLAN AND MAXIMUM CONTAMINANT LEVELS (MCLS) FOR INORGANIC CHEMICALS (TABLE 64431-A OF TITLE 22 OF THE CCR)				
Aluminum	mg/L	1	---	---
	lbs/day	270	---	---
Antimony	mg/L	0.006	---	---
	lbs/day	1.6	---	---
Arsenic	mg/L	0.05	---	---
	lbs/day	14	---	---
Asbestos	million fibers per liter	7	---	---
Barium	mg/L	1	---	---
	lbs/day	270	---	---

Parameter	Units	Average Monthly[2]	Average Weekly[2]	Maximum Daily[2]
Beryllium	mg/L	0.004	---	---
	lbs/day	1.1	---	---
Cadmium	mg/L	0.005	---	---
	lbs/day	1.4	---	---
Chromium	mg/L	0.05	---	---
	lbs/day	14	---	---
Cyanide	mg/L	0.15	---	---
	lbs/day	41	---	---
Fluoride	mg/L	2.0	---	---
	lbs/day	550	---	---
Mercury	mg/L	0.002	---	---
	lbs/day	0.55	---	---
Nickel	mg/L	0.1	---	---
	lbs/day	27	---	---
Nitrate (as N)	mg/L	10	---	---
	lbs/day	2,700	---	---
Nitrite (as N)	mg/L	1	---	---
	lbs/day	270	---	---
Nitrate + Nitrite (as N)	mg/L	10	---	---
	lbs/day	2,700	---	---
Perchlorate	mg/L	0.006	---	---
	lbs/day	1.6	---	---
Selenium	mg/L	0.05	---	---
	lbs/day	14	---	---
Thallium	mg/L	0.002	---	---
	lbs/day	0.55	---	---
BASED ON BASIN PLAN AND MCLS FOR VOLATILE ORGANIC CHEMICALS (TABLE 64444-A OF TITLE 22 OF THE CCR)				
Benzene	mg/L	0.001	---	---
	lbs/day	0.27	---	---
Carbon Tetrachloride	mg/L	0.0005	---	---
	lbs/day	0.14	---	---
1,2-Dichlorobenzene	mg/L	0.6	---	---
	lbs/day	160	---	---
1,4-Dichlorobenzene	mg/L	0.005	---	---
	lbs/day	1.4	---	---
1,1-Dichloroethane	mg/L	0.005	---	---
	lbs/day	1.4	---	---
1,2-Dichloroethane	mg/L	0.0005	---	---
	lbs/day	0.14	---	---
1,1-Dichloroethylene	mg/L	0.006	---	---
	lbs/day	1.6	---	---

Parameter	Units	Average Monthly[2]	Average Weekly[2]	Maximum Daily[2]
cis-1,2-Dichloroethylene	mg/L	0.006	---	---
	lbs/day	1.6	---	---
trans-1,2-Dichloroethylene	mg/L	0.01	---	---
	lbs/day	2.7	---	---
Dichloromethane	mg/L	0.005	---	---
	lbs/day	1.4	---	---
1,2-Dichloropropane	mg/L	0.005	---	---
	lbs/day	1.4	---	---
1,3-Dichloropropene	mg/L	0.0005	---	---
	lbs/day	0.14	---	---
Ethylbenzene	mg/L	0.3	---	---
	lbs/day	82	---	---
Methyl-tert-butyl ether	mg/L	0.013	---	---
	lbs/day	3.6	---	---
Monochlorobenzene	mg/L	0.07	---	---
	lbs/day	19	---	---
Styrene	mg/L	0.1	---	---
	lbs/day	27	---	---
1,1,2,2-Tetrachloroethane	mg/L	0.001	---	---
	lbs/day	0.27	---	---
Tetrachloroethylene	mg/L	0.005	---	---
	lbs/day	41	---	---
Toluene	mg/L	0.15	---	---
	lbs/day	38	---	---
1,2,4-Tricholorobenezene	mg/L	0.005	---	---
	lbs/day	1.4	---	---
1,1,1-Tricholoroethane	mg/L	0.200	---	---
	lbs/day	55	---	---
1,1,2-Tricholoroethane	mg/L	0.005	---	---
	lbs/day	1.4	---	---
Trichloroethylene	mg/L	0.005	---	---
	lbs/day	1.4	---	---
Trichlorofluoromethane	mg/L	0.15	---	---
	lbs/day	41	---	---
1,1,2-Trichloro-1,2,2-Trifluroethane	mg/L	1.2	---	---
	lbs/day	330	---	---
Vinyl Chloride	mg/L	0.0005	---	---
	lbs/day	0.14	---	---
BASED ON BASIN PLAN AND MCLS FOR SYNTHETIC ORGANIC CHEMICALS (TABLE 64444-A OF TITLE 22 OF THE CCR)				
Xylenes	mg/L	1.750[3]	---	---

Parameter	Units	Average Monthly[2]	Average Weekly[2]	Maximum Daily[2]
	lbs/day	480	---	---
Alachlor	mg/L	0.002	---	---
	lbs/day	0.55	---	---
Atrazine	mg/L	0.001	---	---
	lbs/day	0.27	---	---
Bentazon	mg/L	0.018	---	---
	lbs/day	4.9	---	---
Benzo(a)pyrene	mg/L	0.0002	---	---
	lbs/day	0.050	---	---
Carbofuran	mg/L	0.018	---	---
	lbs/day	5.0	---	---
Chlordane	mg/L	0.0001	---	---
	lbs/day	0.027	---	---
2,4,D	mg/L	0.07	---	---
	lbs/day	19	---	---
Dalapon	mg/L	0.2	---	---
	lbs/day	55	---	---
Dibromochloropropane	mg/L	0.0002	---	---
	lbs/day	0.055	---	---
Di(2-ethylhexyl)adipate	mg/L	0.4	---	---
	lbs/day	110	---	---
Di(2-ethylhexyl)phthalate	mg/L	0.004	---	---
	lbs/day	1.1	---	---
Dinoseb	mg/L	0.007	---	---
	lbs/day	1.9	---	---
Diquat	mg/L	0.02	---	---
	lbs/day	5.5	---	---
Endothall	mg/L	0.1	---	---
	lbs/day	27	---	---
Endrin	mg/L	0.002	---	---
	lbs/day	0.55	---	---
Ethylene Dibromide	mg/L	0.00005	---	---
	lbs/day	0.014	---	---
Glyphosate	mg/L	0.7	---	---
	lbs/day	190	---	---
Heptachlor	mg/L	0.00001	---	---
	lbs/day	0.027	---	---
Heptachlor Epoxide	mg/L	0.00001	---	---
	lbs/day	0.0027	---	---
Hexachlorobenzene	mg/L	0.001	---	---
	lbs/day	0.27	---	---

Parameter	Units	Average Monthly[2]	Average Weekly[2]	Maximum Daily[2]
Hexachlorocyclopentadiene	mg/L	0.05	---	---
	lbs/day	14	---	---
Lindane	mg/L	0.0002	---	---
	lbs/day	0.055	---	---
Methyoxyclor	mg/L	0.03	---	---
	lbs/day	8.2	---	---
Molinate	mg/L	0.02	---	---
	lbs/day	5.5	---	---
Oxamyl	mg/L	0.05	---	---
	lbs/day	14	---	---
Pentachorophenol	mg/L	0.001	---	---
	lbs/day	0.27	---	---
Picloram	mg/L	0.5	---	---
	lbs/day	140	---	---
Polychlorinated Biphenyls	mg/L	0.0005	---	---
	lbs/day	0.14	---	---
Simazine	mg/L	0.004	---	---
	lbs/day	1.1	---	---
Thiobencrab	mg/L	0.07	---	---
	lbs/day	19	---	---
Toxaphene	mg/L	0.003	---	---
	lbs/day	082	---	---
1,2,3-Trichloropropane	mg/L	5E-06[4]	---	---
	lbs/day	0.0014	---	---
2,3,7,8-TCDD (Dioxin)	mg/L	3E-08[4]	---	---
	lbs/day	8.2E-06[4]	---	---
2,4,5-TP (Silvex)	mg/L	0.05	---	---
	lbs/day	14	---	---
BASED ON BASIN PLAN AND MCLS FOR RADIONUCLIDES (TABLE 64442 OF TITLE 22 OF THE CCR)				
Gross Alpha Particle Activity (Excluding Radon and Uranium)	picocuries per liter (pCi/L)	15	---	---
Combined Radium 226 and 228	pCi/L	5	---	---
Uranium	pCi/L	20	---	---
Strontium-90	pCi/L	8	---	---
Tritium	pCi/L	20,000	---	---

Parameter	Units	Average Monthly[2]	Average Weekly[2]	Maximum Daily[2]
Beta/photon emitters	pCi/L	4 millirem/year annual dose equivalent to the total body or any internal organ	---	---
BASED ON BASIN PLAN AND SECONDARY MCLS (TABLES 64449-A AND 64449-B OF TITLE 22 OF THE CCR)				
Aluminum	mg/L	0.2	---	---
	lbs/day	55	---	---
Color	Units	15	---	---
Copper	mg/L	1.0	---	---
	lbs/day	270	---	---
Foaming agents (Methylene Blue Activated Substances)	mg/L	0.5	---	---
	lbs/day	140	---	---
Iron	mg/L	0.3	---	---
	lbs/day	82	---	---
Manganese	mg/L	0.05	---	---
	lbs/day	14	---	---
Methyl-tert-butyl ether (MTBE)	mg/L	0.005	---	---
	lbs/day	1.4	---	---
Odor – Threshold	Units	3	---	---
Silver	mg/L	0.1	---	---
	lbs/day	27	---	---
Thiobencarb	mg/L	0.001	---	---
	lbs/day	0.27	---	---
Turbidity	Nephelometric Turbidity Units (NTU)	5	---	---
Zinc	mg/L	5.0	---	---
	lbs/day	1,400	---	---
Total Dissolved Solids	mg/L	500	---	1,000
	lbs/day	140,000	---	270,000
Chloride	mg/L	250	---	---
	lbs/day	68,000	---	---
Sulfate	mg/L	250	---	---
	lbs/day	68,000	---	---
BASED ON ACTION LEVEL (SECTION 64678 OF TITLE 22 OF THE CCR)				
Lead	mg/L	0.015	---	---
	lbs/day	4.1	---	---

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

2. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. MCL is for either a single isomer or the sum of the isomers.
4. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10E-02 or 0.061, 6.1E+02 represents 6.1 x 10E+02 or 610, and 6.1E+00 represents 6.1 x 1E+00 or 6.1.

c. **Escherichia Coli (E-Coli)**: The Discharger shall maintain compliance with the following effluent limitations for E-coli, with compliance measured at Monitoring Location EFF-001 as described in the MRP (Attachment E):

i. A six-week rolling geometric mean of 100 colony forming units per 100 milliliters (CFU/100 mL) calculated weekly; and

ii. A statistical threshold value (STV) of 320 CFU/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month calculated in a static manner.

d. The Discharger shall maintain compliance with the following effluent limitations, with compliance measured at Monitoring Location EFF-002 as described in the MRP (Attachment E):

Table 6. Effluent Limitations at Monitoring Location EFF-002[1]

Parameter	Units	Monthly Median	Average Monthly[2]	Maximum Daily[2]
Dichlorobromomethane	micrograms per liter (µg/L)	---	0.56	0.92
	lbs/day	---	0.15	0.25
Total Residual Chlorine	µg/L	---	8.9	18
	lbs/day	---	2.4	4.9
Chronic Toxicity[3]	Pass/Fail, % Effect	Pass[4]	---	Pass or % Effect ≤50[5]

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. As specified in section VII.N of this Order and section III.D of the MRP (Attachment E).
4. No more than one chronic toxicity test initiated in a calendar month may result in a "Fail" at the in-stream waste concentration (IWC) for any endpoint.
5. No chronic toxicity test shall result in a "Fail" at the IWC for any sub-lethal endpoint measured in the test and a percent effect for that sub-lethal endpoint greater than or equal to 50 percent.

e. The Discharger shall comply with the following effluent limitations, with compliance measured at Monitoring Location EFF-002 as described in the MRP (Attachment E).

Table 7. Effluent Limitations for Disinfection Byproducts at Monitoring Location EFF-002[1]

Parameter	Units	Average Monthly[2]
BASED ON MCLS FOR DISINFECTION BYPRODUCTS (TABLE 64533-A OF TITLE 22 OF THE CCR)		
Total Trihalomethanes	mg/L	0.080[3]
• Bromodichloromethane • Bromoform • Chloroform • Dibromochloromethane	lbs/day	22
Haloacetic Acids (HAA5) • Monochloroacetic acid • Dichloroacetic acid • Trichloroacetic acid • Monobromoacetic acid • Dibromoacetic acid	mg/L	0.060[4]
	lbs/day	16
Bromate	mg/L	0.010
	lbs/day	2.7
Chlorite	mg/L	1.0
	lbs/day	270

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. The average monthly effluent limitation applies to total trihalomethanes which represents the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane.
4. The average monthly effluent limitation applies to HAA5 which represents the sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.

2. Notification Levels (NLs)

a. NLs are health-based advisory levels established by the State Water Board Division of Drinking Water (DDW) for constituents in drinking water without MCLs. The Discharger shall monitor the following constituents with NLs at Monitoring Location EFF-001 as specified in the MRP section III.C.1 of the MRP (Attachment E). The Discharger shall conduct additional monitoring as described in section III.C.3.e of the MRP (Attachment E) when a NL is exceeded. NLs will not be used for compliance determination at this time, however, chemicals for which NLs are established may eventually be regulated by MCLs through a formal regulatory process.

Table 8. NLs at Monitoring Location EFF-001[1]

Parameter	Units	Instantaneous Maximum
Boron	mg/L	1
	lbs/day	270
n-Butylbenzene	mg/L	0.26
	lbs/day	71
sec-Butylbenzene	mg/L	0.26

Parameter	Units	Instantaneous Maximum
	lbs/day	71
tert-Butylbenzene	mg/L	0.26
	lbs/day	71
Carbon disulfide	mg/L	0.16
	lbs/day	44
Chlorate	mg/L	0.8
	lbs/day	220
2-Chlorotoluene	mg/L	0.14
	lbs/day	38
4- Chlorotoluene	mg/L	0.14
	lbs/day	38
Dichlorodifluoromethane (Freon 12)	mg/L	1
	lbs/day	270
Isopropylbenzene	mg/L	0.77
	lbs/day	210
Manganese	mg/L	0.5
	lbs/day	140
Methyl isobutyl ketone (MIBK)	mg/L	0.12
	lbs/day	33
Naphthalene	mg/L	0.017
	lbs/day	4.7
n-Propylbenzene	mg/L	0.26
	lbs/day	71
Tertiary butyl alcohol (TBA)	mg/L	0.012
	lbs/day	3.3
1,2,4-Trimethylbenzene	mg/L	0.33
	lbs/day	90
1,3,5-Trimethylbenzene	mg/L	0.33
	lbs/day	90
1,4-Dioxane	mg/L	0.001
	lbs/day	0.30
Ethylene Glycol	mg/L	14
	lbs/day	3800
Formaldehyde	mg/L	0.1
	lbs/day	27
Perfluorooctanoic Acid (PFOA)	mg/L	0.0000051
	lbs/day	0.0014
Perfluorooctanesulfonic Acid (PFOS)	mg/L	0.0000065
	lbs/day	0.0018
N-nitrosodiethylamine (NDEA)	mg/L	0.00001
	lbs/day	0.0027

Parameter	Units	Instantaneous Maximum
N-nitrosodimethylamine (NDMA)	mg/L	0.00001
	lbs/day	0.0027
N-nitrosodi-n-propylamine (NDPA)	mg/L	0.00001
	lbs/day	0.0027
Diazinon	mg/L	0.0012
	lbs/day	0.30
Propachlor	mg/L	0.09
	lbs/day	25
RDX	mg/L	0.0003
	lbs/day	0.08
2,4,6 Trinitrotoluene (TNT)	mg/L	0.001
	lbs/day	0.27
HMX (Octogen)	mg/L	0.35
	lbs/day	96
Vanadium	mg/L	0.05
	lbs/day	14

1. All MER limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).

3. Performance Goals

a. Constituents that do not have reasonable potential to cause or contribute to an exceedance of water quality objectives (WQOs), or for which reasonable potential to cause or contribute to an exceedance of WQOs cannot be determined, are referred to as performance goal constituents and are assigned the performance goals listed in the following table.

The Discharger shall monitor the following performance goal constituents at Monitoring Location EFF-001 as specified in the MRP (Attachment E). Monitoring results will be used for informational purposes only, not compliance determination.

Table 9. Performance Goals at Monitoring Location EFF-001[1]

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]	Instantaneous Maximum
BASED ON BASIN PLAN OBJECTIVES[4]				
Percent Sodium	%	---	---	60[5]
Chromium III, Total Recoverable[6]	µg/L	1.69E+02	3.39E+02	---
	lbs/day	4.63E+01	9.28E+01	---
BASED ON OBJECTIVES FOR THE PROTECTION OF AQUATIC LIFE				
alpha Endosulfan	µg/L	4.57E-02	9.18E-02	---
	lbs/day	1.25E-02	2.51E-02	---
beta Endosulfan	µg/L	4.57E-02	9.18E-02	---
	lbs/day	1.25E-02	2.51E-02	---
BASED ON OBJECTIVES FOR THE PROTECTION OF HUMAN HEALTH				
alpha-BHC	µg/L	3.90E-03	7.84E-03	---
	lbs/day	1.07E-03	2.14E-03	---
beta-BHC	µg/L	1.40E-02	2.81E-02	---

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]	Instantaneous Maximum
	lbs/day	3.83E-03	7.70E-03	---
gamma-BHC (Lindane)	µg/L	1.90E-02	3.82E-02	---
	lbs/day	5.20E-03	1.04E-02	---
Endosulfan Sulfate	µg/L	1.10E+02	2.21E+02	---
	lbs/day	3.01E+01	6.05E+01	---
Endrin Aldehyde	µg/L	7.60E-01	1.53E+00	---
	lbs/day	2.08E-01	4.18E-01	---
Acrolein	µg/L	3.20E+02	6.43E+02	---
	lbs/day	8.75E+01	1.76E+02	---
Acenaphthene	µg/L	1.20E+03	2.41E+03	---
	lbs/day	3.28E+02	6.60E+02	---
Anthracene	µg/L	9.60E+03	1.93E+04	---
	lbs/day	2.63E+03	5.28E+03	---
Bis(2-chloroisopropyl)ether	µg/L	1.40E+03	2.81E+03	---
	lbs/day	3.83E+02	7.70E+02	---
Bis(2-ethylhexyl)phthalate	µg/L	1.80E+00	3.62E+00	---
	lbs/day	4.92E-01	9.90E-01	---
Butylbenzyl Phthalate	µg/L	3.00E+03	6.03E+03	---
	lbs/day	8.21E+02	1.65E+03	---
2-Chloronaphthalene	µg/L	1.70E+03	3.42E+03	---
	lbs/day	4.65E+02	9.35E+02	---
Chrysene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Dibenzo(a,h)anthracene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Mercury, Total Recoverable	µg/L	5.00E-02	1.01E-01	---
	lbs/day	1.37E-02	2.75E-02	---
Di-n-butyl Phthalate	µg/L	2.70E+03	5.43E+03	---
	lbs/day	7.39E+02	1.48E+03	---
1,3-Dichlorobenzene	µg/L	4.00E+02	8.04E+02	---
	lbs/day	1.09E+02	2.20E+02	---
Diethyl Phthalate	µg/L	2.30E+04	4.62E+04	---
	lbs/day	6.29E+03	1.26E+04	---
Dimethyl Phthalate	µg/L	3.13E+05	6.29E+05	---
	lbs/day	8.56E+04	1.72E+05	---
4,6-Dinitro-2-Methylphenol	µg/L	1.34E+01	2.69E+01	---
	lbs/day	3.67E+00	7.37E+00	---
2,4-Dinitrophenol	µg/L	7.00E+01	1.41E+02	---
	lbs/day	2.54E+01	5.11E+01	---
Fluoranthene	µg/L	3.00E+02	6.03E+02	---
	lbs/day	8.21E+01	1.65E+02	---
Fluorene	µg/L	1.30E+03	2.61E+03	---
	lbs/day	3.56E+02	7.15E+02	---
Nitrobenzene	µg/L	1.70E+01	3.42E+01	---
	lbs/day	4.65E+00	9.35E+00	---
Acrylonitrile	µg/L	5.90E-02	1.19E-01	---
	lbs/day	1.61E-02	3.24E-02	---
Aldrin	µg/L	1.30E-04	2.61E-04	---
	lbs/day	3.56E-05	7.15E-05	---
Benzidine	µg/L	1.20E-04	2.41E-04	---
	lbs/day	3.28E-05	6.60E-05	---

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]	Instantaneous Maximum
Bis(2-chloroethyl) Ether	µg/L	3.10E-02	6.23E-02	---
	lbs/day	8.48E-03	1.70E-02	---
Carbon Tetrachloride	µg/L	2.50E-01	5.03E-01	---
	lbs/day	6.84E-02	1.37E-01	---
4,4'-DDT	µg/L	5.90E-04	1.19E-03	---
	lbs/day	1.61E-04	3.24E-04	---
4,4'-DDE	µg/L	5.90E-04	1.19E-03	---
	lbs/day	1.61E-04	3.24E-04	---
4,4'-DDD	µg/L	8.30E-04	1.67E-03	---
	lbs/day	2.27E-04	4.56E-04	---
3,3'-Dichlorobenzidine	µg/L	4.00E-02	8.04E-02	---
	lbs/day	1.09E-02	2.20E-02	---
Methylene Chloride (Dichloromethane)	µg/L	4.70E+00	9.45E+00	---
	lbs/day	1.29E+00	2.58E+00	---
1,2-Dichloropropane	µg/L	5.20E-01	1.05E+00	---
	lbs/day	1.42E-01	2.86E-01	---
Dieldrin	µg/L	1.40E-04	2.81E-04	---
	lbs/day	3.83E-05	7.70E-05	---
2,4-Dinitrotoluene	µg/L	1.10E-01	2.21E-01	---
	lbs/day	3.01E-02	6.05E-02	---
1,2-Diphenylhydrazine	µg/L	4.00E-02	8.04E-02	---
	lbs/day	1.09E-02	2.20E-02	---
Hexachlorobutadiene	µg/L	4.40E-01	8.84E-01	---
	lbs/day	1.20E-01	2.42E-01	---
Hexachloroethane	µg/L	1.90E+00	3.82E+00	---
	lbs/day	5.20E-01	1.04E+00	---
Methyl Bromide	µg/L	4.80E+01	9.65E+01	---
	lbs/day	1.31E+01	2.64E+01	---
Isophorone	µg/L	8.40E+00	1.69E+01	---
	lbs/day	2.30E+00	4.62E+00	---
Indeno(1,2,3-cd) Pyrene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
N-nitrosodi-N-propylamine	µg/L	5.00E-03	1.01E-02	---
	lbs/day	1.37E-03	2.75E-03	---
N-nitrosodiphenylamine	µg/L	5.00E+00	1.01E+01	---
	lbs/day	1.37E+00	2.75E+00	---
Pyrene	µg/L	9.60E+02	1.93E+03	---
	lbs/day	2.63E+02	5.28E+02	---
1,1,2,2-Tetrachloroethane	µg/L	1.70E-01	3.42E-01	---
	lbs/day	4.65E-02	9.35E-02	---
Tetrachloroethylene	µg/L	8.00E-01	1.61E+00	---
	lbs/day	2.19E-01	4.40E-01	---
Trichloroethylene	µg/L	2.70E+00	5.43E+00	---
	lbs/day	7.39E-01	1.48E+00	---
2-Chlorophenol	µg/L	1.20E+02	2.41E+02	---
	lbs/day	3.28E+01	6.60E+01	---
2,4-Dichlorophenol	µg/L	9.30E+01	1.87E+02	---
	lbs/day	2.54E+01	5.11E+01	---
2,4-Dimethylphenol	µg/L	5.40E+02	1.09E+03	---
	lbs/day	1.48E+02	2.97E+02	---
Phenol	µg/L	2.10E+04	4.22E+04	---

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]	Instantaneous Maximum
	lbs/day	5.74E+03	1.15E+04	---
1,1,2-Trichloroethane	µg/L	6.00E-01	1.21E+00	---
	lbs/day	1.64E-01	3.30E-01	---
2,4,6-Trichlorophenol	µg/L	2.10E+00	4.22E+00	---
	lbs/day	5.74E-01	1.15E+00	---
Benzo(a)Anthracene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Benzo(b)Fluoranthene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Benzo(k)Fluoranthene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. All MER limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10E-02 or 0.061, 6.1E+02 represents 6.1 x 10E+02 or 610, and 6.1E+00 represents 6.1 x 1E+00 or 6.1.
4. Basin Plan-based performance goals are based on Basin Plan criteria for Miramar Reservoir and Title 22 pollutant MCLs.
5. Not to be exceeded more than 10 percent of the time during any one-year period.
6. Dischargers may, at their option, meet this limitation (or apply this performance goal) as a total chromium limitation (or performance goal).

b. The Discharger shall monitor the following performance goal constituents at Monitoring Location EFF-002 as specified in the MRP (Attachment E). Monitoring results will be used for informational purposes only, not compliance determination.

Table 10. Performance Goals at Monitoring Location EFF-002[1]

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]
Chlorodibromomethane	µg/L	4.01E-01	8.06E-01
	lbs/day	1.10E-01	2.20E-01
N-nitrosodimethylamine	µg/L	6.90E-04	1.39E-03
	lbs/day	1.89E-04	3.79E-04
Bromoform	µg/L	4.30E+00	8.64E+00
	lbs/day	1.18E+00	2.36E+00

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. All MER limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10E-02 or 0.061, 6.1E+02 represents 6.1 x 10E+02 or 610, and 6.1E+00 represents 6.1 x 1E+00 or 6.1.

B. Land Discharge Specifications – Not Applicable

V. RECEIVING WATER LIMITATIONS

A. Surface Water Limitations

The receiving water limitations set forth below for the Miramar Reservoir are based on WQOs contained in water quality control plans and policies and federal regulations and are a required part of this Order. The discharge of waste shall not cause or contribute to violations of these limitations in Miramar Reservoir.

1. Bacterial Characteristics

E-coli concentrations shall not exceed the following:

a. A six-week rolling geometric mean of 100 CFU/100 mL calculated weekly and;

b. A STV of 320 CFU/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.

2. Chemical Characteristics

a. Changes in normal ambient pH levels shall not exceed 0.5 units. The pH shall not be depressed below 6.5 nor raised above 8.5.

b. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth.

c. The discharge of wastes shall not cause concentrations of un-ionized ammonia (NH_3) to exceed 0.025 mg/L as nitrogen.

3. Color

Water shall be free of coloration that causes nuisance or adversely affects beneficial uses. The natural color of fish, shellfish, or other resources shall not be impaired.

4. Floating Material

Waters shall not contain floating material, including solids, liquids, foams, and scum in concentrations which cause nuisance or adversely affect beneficial uses.

5. Oil and Grease

Waters shall not contain oils, greases, waxes, or other materials in concentrations which result in a visible film or coating on the surface of the water or on objects in the water, or which cause nuisance or otherwise adversely affect beneficial uses.

6. Radioactivity

Radionuclides shall not be present in concentrations that are harmful/deleterious to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

7. Suspended Sediments

The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

8. Suspended and Settleable Solids

Waters shall not contain suspended and settleable solids in concentrations of solids

that cause nuisance or adversely affect beneficial uses.

9. Taste and Odors

Waters shall not contain taste or odor producing substances at concentrations which cause a nuisance or adversely affect beneficial uses.

10. Temperature

The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the San Diego Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any waters with designated cold freshwater habitat be increased more than 5°F above the natural receiving water temperature.

11. Toxic Substances

All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance will be determined by use of indicator organisms, analysis of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods, as specified by the San Diego Water Board.

12. Turbidity

Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.

13. Dissolved Oxygen

Dissolved oxygen levels shall not be less than 5.0 mg/L in inland surface waters with designated warm freshwater habitat beneficial uses. The annual mean dissolved oxygen concentration shall not be less than 7 mg/L more than 10 percent of the time.

14. Aquatic Communities

Aquatic communities and populations, including vertebrates, invertebrates, and non-target plant species are not to be degraded.

B. Groundwater Limitations – Not Applicable

VI. PROVISIONS

A. Standard Provisions

1. **Federal Standard Provisions.** The Discharger shall comply with all Standard Provisions included in Attachment D of this Order.
2. **San Diego Water Board Standard Provisions.** The Discharger shall comply with the following provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply.
   a. The Facility shall be supervised and operated by persons possessing certificates of appropriate grade pursuant to title 23, division 3, chapter 26 of the California Code of Regulations (CCR). The Facility shall be provided with a sufficient number of qualified personnel to operate the Facility effectively so as to achieve the required level of treatment at all times.
   b. The expiration date of this Order is contained in Table 3 of this Order. After the expiration date, the terms and conditions of this permit are automatically continued

pending issuance of a new permit, provided that all requirements of USEPA's NPDES regulations at 40 CFR section 122.6 and title 23, division 3, chapter 9, article 3, section 2235.4 of the CCR regarding the continuation of expired permits and WDRs are met.

c. A copy of this Order shall be posted at a prominent location at or near the treatment and disposal facilities and shall be available to site personnel, San Diego Water Board, State Water Board, and USEPA or their authorized representative at all times. The posted Order may be in hard copy or accessible electronic format.

B. Monitoring and Reporting Program (MRP) Requirements

1. The Discharger shall comply with the MRP, and future revisions thereto, in Attachment E of this Order.

2. Notifications required to be provided under this Order to the San Diego Water Board shall be made to:

E-mail – SanDiego@waterboards.ca.gov, or
Telephone – (619) 516-1990, or
Facsimile – (619) 516-1994.

3. Notifications required to be provided under this Order to DDW shall be made to:

- DDW San Diego:
  - E-mail – DDWSanDiego@Waterboards.ca.gov, or
  - Telephone – (619) 525-4159
  - Please contact DDW San Diego for guidelines on submission of electronic documents via email.
- DDW Recycled Water Unit:
  - Please contact DDW Recycled Water Unit staff for contact information.

C. Special Provisions

1. Reopener Provisions

a. This Order may be reopened and modified, or revoked and reissued, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order, including but not limited to fish tissue sampling, whole effluent toxicity (WET) tests, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. This Order may be modified to include additional requirements as a result of the special condition monitoring data. [State Implementation Policy section.4.5.1, Pollutant Minimization Program]

b. This Order may be reopened for modification to include an effluent limitation if monitoring establishes that the discharge causes, has the reasonable potential to cause, or contributes to an excursion above a performance goal(s) set forth in section IV.A.4 of this Order or above any applicable water quality standard

contained in the Basin Plan, or otherwise promulgated by USEPA through the National Toxics Rule (NTR) [1] or the California Toxics Rule (CTR).[2]

c. This Order may be reopened for modification of the monitoring and reporting requirements and/or special studies requirements, at the discretion of the San Diego Water Board. Such modification(s) may include, but is (are) not limited to, revision(s) to:

   i. Develop, refine, implement, and/or coordinate a regional monitoring program; and/or

   ii. Develop and implement improved monitoring and assessment programs in keeping with San Diego Water Board Resolution No. R9-2012-0069, *Resolution in Support of a Regional Monitoring Framework*; and/or

   iii. Add provisions requiring the Discharger to evaluate and provide information on cost and values of the MRP (Attachment E).

d. Add provisions requiring the Discharger to evaluate and provide information on cost and values of the MRP (Attachment E); This Order may be modified, revoked and reissued, or terminated for cause in accordance with the provisions of 40 CFR parts 122, 124, and 125 at any time prior to its expiration under any of the following circumstances:

   i. Violation of any terms or conditions of this Order. [Water Code section 13381(a)];

   ii. Obtaining this Order by misrepresentation or failure to disclose fully all relevant facts. [Water Code section 13381(b)]; and

   iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge. [Water Code section 13381(c)]

e. The filing of a request by the Discharger for modification, revocation and reissuance, or termination of this Order does not stay any condition of this Order. Notification by the Discharger of planned operational or facility changes, or anticipated noncompliance with this Order does not stay any condition of this Order. [40 CFR section 122.41(f)]

f. If any applicable toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under section 307(a) of the CWA for a toxic pollutant and that standard or prohibition is more stringent than any limitation on the pollutant in this Order, the San Diego Water Board may institute proceedings under these regulations to modify or revoke and reissue this Order to conform to the toxic effluent standard or prohibition. [40 CFR section 122.4(b)(1)]

g. This Order may be reopened and modified for consistency with any new water quality control plan, policy, law, or regulation. [40 CFR section 122.62(a)(3).]

h. This Order may be re-opened and modified to revise effluent limitations as a result of future Basin Plan and/or other Statewide water quality control plan amendments,

[1] The NTR was promulgated by USEPA on December 22, 1992 and amended on May 4, 1995 (See 40 CFR 131.36).

[2] See 65 Fed. Register 31682-31719 (May 18, 2000), adding Section 131.38 to 40 CFR.

or the adoption of a total maximum daily load allocation (TMDL) for the receiving water. [40 CFR section 122.62(a)(2)]

i. This Order may be reopened upon submission by the Discharger of new information, the adequacy of which shall be determined by the San Diego Water Board, to provide for dilution credits or a mixing zone, as may be appropriate. [40 CFR section 122.62(a)(2)]

j. This Order may also be re-opened and modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR sections 122.44,122.62 to 122.64, and 125.62. Causes for taking such actions include, but are not limited to, failure to comply with any condition of this Order, and endangerment to human health or the environment resulting from the permitted activity.

k. The performance goals, contained in section IV.A.3 of this Order, may be re-evaluated and modified during this Order term, or this Order may be modified to incorporate water quality-based effluent limitations (WQBELs), in accordance with the requirements set forth at 40 CFR sections 122.62 and 124.5.

2. Special Studies, Technical Reports, and Additional Monitoring Requirements

a. **Spill Prevention and Response Plans**

i. For purposes of this section of the Order, a spill is a discharge of treated or untreated wastewater that occurs at or downstream of the headworks of the Facility, in violation of Discharge Prohibition III.A of this Order. A spill may include a discharge of treated or untreated wastewater, or material other than treated or untreated wastewater that causes, may cause, or is caused by significant operational failure, and/or endangers or may endanger human health or the environment. The term “spill” as used in this section of the Order does not include sanitary sewer overflows from the sewage collection system that are covered under section VI.C.5.c of this Order or discharges to land from the NCWRP covered under Order No. R9-2015-0091, *Master Recycling Permit for the City of San Diego North City Water Reclamation Plant, San Diego County*.

ii. Within 120 days after the effective date of this Order, the Discharger shall develop and maintain a Spill Prevention Plan (SPP) and Spill Response Plan (SRP) for the Facility in an up-to-date condition and shall amend the SPP/SRP whenever there is a change (e.g., in the design, construction, operation, or maintenance of the Facility) which materially affects the potential for spills and the response required for each potential spill. The Discharger shall review and amend the SPP/SRP as appropriate after each spill from the Facility. The SPP/SRP and any amendments thereto shall be subject to the approval of the San Diego Water Board and shall be modified as directed by the San Diego Water Board. The Discharger shall submit the SPP/SRP and any amendments thereto to the San Diego Water Board upon request of the San Diego Water Board. The Discharger shall ensure that the up-to-date SPP/SRP is readily available for implementation by personnel operating the Facility at all times and that the Facility personnel are familiar with it.

b. **Spill Reporting Requirements**

The Discharger shall report spills, as defined in section VI.C.2.a.i above, in accordance with the following procedures:

i. If a spill results in a discharge of treated or untreated wastewater that is equal to or exceeds 1,000 gallons, and/or results in a discharge to a drainage channel and/or surface water; or results in a discharge to a storm drain that was not fully captured and returned to the sanitary sewer system, the Discharger shall:

(a) Report the spill to the San Diego Water Board by email at SanDiego@waterboards.ca.gov within 24 hours from the time the Discharger becomes aware of the spill. If email communication is not possible, report the spill by telephone (619-516-1990) within 24 hours from the time the Discharger becomes aware of the spill. The report shall include a description of the spill and its cause; the spill material; the duration of the spill including exact dates and times; the estimated spill volume and its destination; if the spill has not been terminated, the anticipated time it is expected to continue; and steps taken or planned to reduce and/or eliminate the spill.

(b) Submit a written report by email at SanDiego@waterboards.ca.gov, as well as any additional pertinent information, to the San Diego Water Board no later than five days from the time the Discharger becomes aware of the spill. The written report must be signed and certified as required by section V of the Standards Provisions (Attachment D) of this Order.

(c) The San Diego Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours.

ii. If a spill results in a discharge of treated or untreated wastewater less than 1,000 gallons and the discharge does not reach a drainage channel, surface waters, or storm drain, the Discharger is not required to notify the San Diego Water Board within 24 hours or provide a 5-day written report.

iii. For spills of material other than treated or untreated wastewater that cause, may cause, or are caused by significant operational failure, or endangers or may endanger human health or the environment, the Discharger shall:

(a) Notify the San Diego Water Board by email at SanDiego@waterboards.ca.gov within 24 hours from the time the Discharger becomes aware of the spill. If email communication is not possible, report the spill by telephone (619-516-1990) within 24 hours from the time the Discharger becomes aware of the spill. The report shall include a description of the spill and its cause; the spill material; the duration of the spill including exact dates and times; the estimated spill volume and its destination; if the spill has not been terminated, the anticipated time it is expected to continue; and steps taken or planned to reduce and/or eliminate the spill.

(b) Submit a written report by email at SanDiego@waterboards.ca.gov, as well as any additional pertinent information, to the San Diego Water Board no later than five days from the time the Discharger becomes aware of the spill. The written report must be signed and certified as required by section V of the Standards Provisions (Attachment D) of this Order.

(c) The San Diego Water Board may waive the above-required written report under this provision on a case-by-case basis if the email or oral report has been received within 24 hours.

iv. For all spills, the Discharger shall include a detailed summary of spills in the monthly self-monitoring report (SMR) for the month in which the spill occurred. If no spills occurred during the calendar month, the Discharger shall report no spills in the monthly SMR for that calendar month.

v. The spill reporting requirements contained in this Order do not relieve the Discharger of responsibilities to report to other agencies, such as the California Office of Emergency Services and the County of San Diego Department of Environmental Health Services.

c. **DDW Specifications and Requirements**

i. **Surface Water Augmentation.** The Discharger's Surface Water Source Augmentation Project (SWSAP) must comply with Chapter 3, Article 5.3 – *Indirect Potable Reuse: Surface Water Augmentation*[3] and Chapter 17, Article 9 – *Indirect Potable Reuse: Surface Water Augmentation*[4] of title 22, California Code of Regulations (CCR) and DDW conditions for acceptance of the City of San Diego Title 22 Engineering Report for North City Pure Water Project dated July 12, 2019.

ii. **SWSAP Operation Plan.** The Discharger must submit a draft SWSAP Operation Plan to DDW and the San Diego Water Board pursuant to section 60320.322 of title 22 of the CCR at least six months prior to startup. This draft SWSAP Operation Plan can be amended and finalized after completion of commissioning and startup testing. The Discharger must submit a final SWSAP Operation Plan to DDW for approval within 90 days of completion of startup and must also submit a copy of the final SWSAP Operation Plan to the San Diego Water Board. The Discharger must implement the Operation Plan and update the Operation Plan to ensure that the Operation Plan is, at all times, representative of the current operations, maintenance, and monitoring of the Facility.

iii. **SWSAP Operation Plan.** The Discharger must submit an updated SWSAP Operation Plan to DDW and San Diego Water Board within six months following the first year of optimizing treatment processes pursuant to sections 60320.322(c) and (d) of title 22 of the CCR and anytime thereafter operations are optimized that result in a change in operation.

iv. **Joint Plan.** Pursuant to section 60320.301(a) of title 22 of the CCR, the Discharger must submit a Joint Plan signed by City staff responsible for operation of the NCWRP, NCPWF, and Miramar Drinking Water Treatment Plant (Miramar DWTP) to DDW for review and written approval. A copy of the

[3] Available on the following Westlaw website: https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=ICD404B12D7474AF1A8B651EB0DAFF509&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)

[4] Available on the following Westlaw website: https://govt.westlaw.com/calregs/Browse/Home/California/CaliforniaCodeofRegulations?guid=IC2C22CE957364A9F86C352565567ADC3&originationContext=documenttoc&transitionType=Default&contextData=(sc.Default)

Joint Plan must also be submitted to the San Diego Water Board. The Discharger must implement the actions designated in the Joint Plan, must submit revisions to the Joint Plan to DDW and the San Diego Water Board in accordance with section 60320.301 of title 22 of the CCR not less than sixty (60) days prior to the effective date of the revised Joint Plan.

v. **Demonstration of Operational Readiness.** Pursuant to section 60320.301(c) of title 22 of the CCR and section VI.C.4.a of this Order, prior to augmenting Miramar Reservoir, the Discharger must demonstrate to DDW and the San Diego Water Board that all treatment processes are installed and can be operated, as designed, to achieve their intended function presented in the Engineering Report. Prior to augmenting Miramar Reservoir, the Discharger must demonstrate to DDW and the San Diego Water Board that the alarms and responses are functional and in conformance with the SWSAP Operation Plan.

vi. **Authorization to Resume Augmentation.** Pursuant to section 60320.301(f) of title 22 of the CCR, when the Discharger has been required by Article 5.3 of title 22 of the CCR or directed by DDW or the San Diego Water Board to suspend augmentation of Miramar Reservoir for any reason, augmentation must not resume until the Discharger has obtained written authorization to resume from DDW and the San Diego Water Board.

vii. **Alternative to Requirements.** If proposing an alternative to a requirement in Article 5.3 of title 22 of the CCR, the Discharger must follow the process described in section 60320.330 of title 22 of the CCR.

viii. **Filtration Rates.** The NCWRP may operate at filtration rates up to a daily average of 8.7 gallons per minute per square feet (gpm/sf), subject to meeting the following conditions:

(a) The Discharger must implement a Standard Operating Procedure (SOP) for operating the tertiary plant at filtration rates up to a daily average of 8.7 gpm/sf. The SOP must list the conditions in this letter and provide instructions to ensure the conditions are met during high loading rate filter operation. The SOP must be available in the control room at all times. In addition, operators must receive training on operating the tertiary filters using the high loading rate SOP by the Chief Plant Operator. The Discharger must obtain DDW approval of any updates or revisions to the SOP before implementation.

(b) The instantaneous filter rates must not exceed 9.3 gpm/sf.

(c) At loading rates above 5 gpm/sf, plant operation must be provided in the same manner (or optimized if this would produce better turbidity levels) as was practiced during the demonstration study to maintain the same range (or lower) of turbidity levels at the filter influent. This will require regular evaluation of secondary effluent water quality and filter influent turbidity.

(d) Combined filter effluent must not exceed any of the following:

i. An average of 2 NTU within a 24-hour period;

ii. 5 NTU for more than 5% of time during a 24-hour period; and

iii. 10 NTU at any time.

(e) The SOP must include an operational goal of achieving the following combined filter effluent turbidity limits or better with optimized treatment:

i. An average of 1.5 NTU within a 24- hour period;

ii. 2.5 NTU for more than 5% of time during a 24-hour period; and

iii. 5 NTU at any time.

(f) Continuous effluent turbidity monitoring of each individual filter must be conducted in accordance with an approved SOP.

(g) Turbidity performance compliance must be determined using the levels of recorded turbidity taken at intervals of no more than 1.2 hours over a 24-hour period.

ix. **Optimal Reduction of Chemicals and Contaminants.** Pursuant to section 60320.322 (c) of title 22 of the CCR, the Discharger must ensure that all treatment processes in the NCWRP and NCPWF are operated in a manner that provides optimal reduction of all chemicals and contaminants.

x. **Advanced Treatment Criteria.** Pursuant to section 60320.302 of title 22 of the CCR, the Discharger must ensure continuous treatment, with full advanced treatment meeting Article 5.3 and as detailed in its approved Engineering Report and SWSAP Operation Plan, of the entire recycled water stream prior to its delivery to Miramar Reservoir.

xi. **Alarms.** The Discharger must have alarms as stated in the Engineering Report. Commissioning must validate and confirm the operation setpoints for the RO process and advanced oxidation process (AOP) pursuant to section 60320.302 of title 22 of the CCR, and the alarm settings must be specified in the SWSAP Operation Plan required by section 60320.222 of title 22 of the CCR.

xii. **Pathogenic Microorganism Control.** The Discharger must operate the treatment processes such that the advanced treated recycled water delivered to Miramar Reservoir for use by the Miramar DWTP receives treatment that reliably achieves at least 10-log Cryptosporidium oocyst reduction, 9-log Giardia cyst reduction and 10-log enteric virus reduction.

xiii. **Pathogenic Microorganism Control.** Pursuant to section 60320.308(b), the Discharger must validate each of the treatment processes used to meet the required Cryptosporidium, Giardia and virus reduction. The Discharger must propose and include in its approved SWSAP Operation Plan, on-going monitoring that verifies the performance of each treatment process's ability to achieve its credited log reduction.

xiv. **Pathogenic Microorganism Control.** Pursuant to section 60320.308(c) of title 22 of the CCR, if the required Cryptosporidium, Giardia, and virus reductions are not met based on the required on-going monitoring detailed in the approved SWSAP Operation Plan, within 24 hours of knowledge of an occurrence, the Discharger must investigate the cause and initiate corrective actions. If there is a failure to meet the pathogen reduction criteria longer than 4 consecutive hours or more than a total of 8 hours in any 7-day period, the Discharger must within 24 hours of its knowledge of such a failure, notify DDW, the San Diego Water Board and the City's Miramar DWTP staff. Failures of

shorter duration must be reported to the San Diego Water Board and DDW no later than 10 days after the month in which the failure occurred.

xv. **Pathogenic Microorganism Control.** Pursuant to section 60320.308(d) of title 22 of the CCR, the Discharger must, within 24 hours of knowledge, notify DDW, San Diego Water Board, and the City's Miramar DWTP staff and discontinue delivery of recycled water to Miramar Reservoir if the effectiveness of the treatment train to reduce enteric virus is less than 8-log, or Giardia reduction is less than 7-log, or Cryptosporidium reduction is less than 8-log.

xvi. **SWSAP Operation Plan.** At least six months prior to operation, the Discharger must submit and receive written approval of a SWSAP Operation Plan from DDW and the San Diego Water Board as required by section 60320.322 of title 22 of the CCR. At a minimum, the SWSAP Operation Plan must identify and describe the operations, maintenance, analytical methods, and monitoring necessary to meet Article 5.3. The SWSAP Operation Plan must include the reporting frequency of monitoring results to DDW and the San Diego Water Board. The Discharger must implement the SWSAP Operation Plan and update it to ensure it is, at all times, representative of the current operations, maintenance, and monitoring of the project. The Discharger must receive written DDW approval for changes to the plan prior to implementation.

xvii. **SWSAP Operations Training.** Pursuant to section 60320.322(b) of title 22 of the CCR, prior to operation the Discharger must, at a minimum, demonstrate to DDW and the San Diego Water Board that the personnel operating and overseeing the operations have received training in the following:

(a) The proper operation of all treatment processes utilized to achieve pathogen and chemical reduction.

(b) Maintenance, calibration and verification of instrumentation and analyzers.

(c) Control systems, data trending and the control strategy of plant systems.

(d) Incident response and investigation.

(e) Hazard Analysis Critical Control Point systems approach.

(f) The California Safe Drinking Water Act, its implementing regulations and all other relevant regulations.

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

The SWSAP Operation Plan must identify an on-going training program to ensure that each operator has been trained in the above listed items, at a minimum.

xviii. **SWSAP Operations Staffing.** The SWSAP Operation Plan must include a staffing plan, which includes information on operator staffing hours, shifts, and certification classes in the Operation Plan. The Discharger must staff the NCPWF with operators that have obtained, or are working to obtain, an Advanced Water Treatment Operator Certification when available and in consultation with DDW and the San Diego Water Board.

xix. **SWSAP Operation Plan Update.** Pursuant to section 60320.322(d) of tile 22 of the CCR, within six months following the first year of optimizing treatment

processes and anytime thereafter when operations are optimized that result in a change in operation, the Discharger must update the SWSAP Operation Plan to include the changes in operational procedures and submit the plan to DDW and the San Diego Water Board for review and written approval.

xx. **Operational Ramp-up Plan.** The Discharger must submit to DDW for approval prior to commencement of augmenting Miramar Reservoir with recycled water, an operational ramp-up plan for the three stages presented in the Engineering Report. The average daily flowrate of recycled water to Miramar Reservoir must be no greater than: (1) 7.5 MGD in Stage 1, (2) 15 MGD in Stage 2, and (3) 30 MGD in Stage 3. The flowrate must be calculated as an average daily flow over a thirty-day period. The Discharger must also submit a copy of the operational ramp-up plan to the San Diego Water Board.

The operational ramp-up plan must include the North City Pure Water Pump Station control strategy and final pumping scheme to demonstrate satisfactory flowrate management to the Miramar Reservoir, an enhanced water quality monitoring program and a checklist of specific targets to be met in each stage based on enhanced water quality monitoring prior to advancing to the subsequent stage for DDW review and approval.

xxi. **Operational Ramp-up Plan Implementation and Reporting.** The Discharger must implement the actions designated in the ramp-up plan as approved by DDW. For the duration of each ramp-up stage, the Discharger must submit a monthly operational ramp-up status report to DDW and the San Diego Water Board, consisting at least the following information:

(a) The water quality monitoring results, including discussions of any observed exceedances.

(b) A completed project operations checklist with supporting operational performance data.

(c) A summary of operational performance including descriptions of, but not limited to, records of operational problems, diversions to emergency storage and disposal, corrective action taken, and process or equipment failures triggering an alarm.

xxii. **Operational Ramp-up Plan Implementation and Reporting.** Advancement from one ramp-up staging step to the next is contingent on:

(a) Successful demonstration of the ability to decouple Miramar Reservoir from the Miramar DWTP witnessed by DDW, and

(b) DDW written approval of final monthly ramp-up status report per stage.

xxiii. **Operational Ramp-up Plan Reporting.** A report summarizing the operation and monitoring results of all three stages of the operational ramp-up must be submitted to DDW and the San Diego Water Board no less than 90 days following the commencement of Stage 3 operation.

xxiv. **Reversal of Flow, Liquids, Gases, or other Substances.** The Discharger must have no undesired or unintended reversal of flow of water and/or other liquids, gases, or other substances into its potable water distribution system or the NCPWF product water lines. Any such undesired or unintended reversal of flow must be reported to DDW and the San Diego Water Board within 24 hours of the Discharger's knowledge of the incident.

xxv. **Cross-Connection Control Program.** Submit a comprehensive cross-connection control program for the NCPWF to DDW and the San Diego Water Board at least 3 months prior to commissioning. The cross-connection control program must be submitted as a standalone document, separate from and prior to the submittal of the Operation Plan. The Discharger must implement its cross-connection control program and update the program to ensure that the program is, at all times, representative of the current cross-connection control practices at the NCPWF. Revisions to the cross-connection control program for any reason, including changes resulting from inspections, must be done in consultation with an individual with a valid and current Cross-Connection Control Program Specialist certification issued by the California-Nevada section of the American Water Works Association.

xxvi. **Facility Piping Systems Inspections.** Prior to the initial operation of the NCPWF and once every year thereafter, the City must ensure that potable water, wastewater, recycled water, chemical, and other waste or non-potable piping systems are inspected for possible cross-connections. Piping systems must be inspected for possible cross-connections after any modification to the NCPWF plumbing system are made.

xxvii. **Cross-Connection Control Inspections.** The cross-connection control inspections must be performed by an individual with a valid and current Cross-Connection Control Program Specialist certification issued by the California-Nevada section of the American Water Works Association. A written report documenting the result of the initial inspection must be submitted to DDW and the San Diego Water Board. Submit subsequent inspection results with the annual report to DDW and the San Diego Water Board.

xxviii. **Engineering Report Update.** Based on the timing of flow ramp-up stages for purified water into Miramar Reservoir and anticipated full operational flow by the first quarter of 2024, the Discharger must update the engineering report to address any surface water augmentation project changes from the previous engineering report, and submit the report to DDW and the San Diego Water Board within fifteen months of operating at the final ramp-up stage (full operational flow) or no later than July 11, 2025 (six years from July 12, 2019, the date of DDW's conditional acceptance letter). Prior to the report update deadline, DDW may request changes to the surface water augmentation project operations be documented in a technical memorandum format.

xxix. **Flow Split Verification Report.** The Discharger must submit a Flow Split Verification Report to DDW and the San Diego Water Board no later than 6 months after NCWRP commissioning, documenting the effort to reset the individual filter weirs to confirm equal flow split at the filter influent. The report should include an accurate measurement of nap height over the weir of each filter and the accurate measurement of weir lengths for each filter. If there are differences, flow calculations using actual nap height and weir lengths should be provided to demonstrate an equal flow split. Document confirmation of the equal flow split at the filter influent prior to NCWRP startup.

xxx. **Reservoir Monitoring Methods and Procedures.** The Discharger must include augmented reservoir monitoring methods and procedures in the SWSAP Operation Plan and inform DDW and San Diego Water Board of any changes to sampling locations.

xxxi. **Advanced Treatment Criteria.** Pursuant to section 60320.302(a)(2) of title 22 of the CCR, the Discharger must continuously monitor the reverse (RO) permeate at least weekly for TOC (at Monitoring Location INT 008) during the first 20 weeks of operation. TOC concentrations must be no greater than 0.25 mg/L in at least ninety-five percent of the samples.

xxxii. **Advanced Treatment Criteria.** Pursuant to section 60320.302(c) of title 22 of the CCR, the Discharger must conduct testing demonstrating that the oxidation treatment process (free chlorine and ultraviolet (UV) light) will provide no less than 0.5-log (69-percent) reduction of 1,4-dioxane. The Discharger must submit a testing protocol, as well as the subsequent results, for DDW review and written approval prior to conducting the test, at least 90 days prior to commissioning. The Discharger must also submit a copy of the testing protocol and results to the San Diego Water Board. 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 continuously monitor flow, UV dose, UV transmittance, power, and free chlorine residual as surrogate and operational parameters to indicate whether the minimum reduction criterion is being met. During full scale operation of the process, the Discharger must continuously monitor these or other DDW approved surrogates and/or operational parameters based on the demonstration testing. The details of this monitoring program must be discussed in the Discharger's SWSAP Operation Plan.[5]

d. **Reservoir Nutrient Management Plan**

The Discharger shall prepare and submit a reservoir nutrient management plan to the San Diego Water Board within 180 days of the effective date of this Order. The reservoir nutrient management plan must include preventive and corrective actions that the Discharger will implement to ensure that the discharge of advanced treated recycled water containing nutrients to Miramar Reservoir will not stimulate algae and emergent plant growth to the extent that it causes nuisance conditions or adversely affects beneficial uses of the reservoir. The preventive and corrective actions must be demonstrated to be sufficient to ensure that the nutrients in the discharge will not adversely affect any of the beneficial uses of the reservoir. Preventive and corrective actions may include but are not limited to the following: additional treatment, aeration of the reservoir, additional monitoring, notification of the public and regulatory agencies, management of vegetation within the reservoir, and decoupling the reservoir from the Miramar DWTP.

3. Best Management Practices and Pollution Prevention

a. **Pollutant Minimization Program (PMP)**

Reporting protocols in the MRP (Attachment E) describe sample results that are to be reported as Detected, But Not Quantified (DNQ) or Not Detected (ND). Definitions for a reported Minimum Level (ML) and Method Detection Limit (MDL) are provided in the SIP and in Abbreviation and Definitions (Attachment A). These reporting protocols and definitions are used in determining the need to conduct a PMP, as follows:

[5] This Order requires the Discharger to submit its SWSAP Operation Plan to DDW for review and approval. This Order also requires the Discharger to submit a copy of its SWSAP Operation Plan to the San Diego Water Board.

i. The Discharger shall, as required by the San Diego Water Board, develop and conduct a PMP, as further described below, when there is evidence (e.g., sample results reported as detected, but not quantified (DNQ) when the effluent limitation is less than the method detection limit (MDL), sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity (WET), health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:

(a) The concentration of the pollutant is reported as DNQ and the effluent limitation is less than the reported minimum level (ML); and

(b) The concentration of the pollutant is reported as ND and the effluent limitation is less than the MDL.

The goal of the PMP shall be to reduce all potential sources of a pollutant through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The San Diego Water Board may consider cost-effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan (PPP), if required pursuant to Water Code section 13263.3(d), shall be considered as fulfilling the PMP requirements.

ii. The PMP shall include, but not be limited to, the following actions and submittals acceptable to the San Diego Water Board:

(a) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;

(b) Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;

(c) Submittal of a control strategy designed to proceed towards the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;

(d) Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

(e) An annual PMP status report that shall be by March 1st to the San Diego Water Board and shall include

i. All PMP monitoring results for the previous year;

ii. A list of potential sources of the reportable pollutant(s);

iii. A summary of all actions undertaken pursuant to the control strategy; and

iv. A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

a. All proposed new treatment facilities and expansions of existing treatment facilities shall be completely constructed and operable prior to initiation of the discharge from the new or expanded facilities. The Discharger shall submit a certification report for each new treatment facility, expansion of an existing treatment facility, and design capacity re-ratings. The certification report shall be prepared by the design engineer. For design capacity re-ratings, the certification report shall be prepared by the engineer who evaluated the treatment facility design capacity. The signature and engineering license number of the engineer preparing the certification report shall be affixed to the report. If reasonable, the certification report shall be submitted prior to beginning construction of new treatment facilities or expansions of existing treatment facilities.

   i. The certification report shall:

      (a) Identify the design capacity of the treatment facility, including the daily and 30-day design capacity;

      (b) Certify the adequacy of each component of the treatment facility; and

      (c) Contain a requirement-by-requirement analysis, based on acceptable engineering practices, of the process and physical design of the facility to ensure compliance with this Order.

   ii. The Discharger shall not initiate a discharge from an existing treatment facility at a daily flow rate in excess of its previously approved design capacity until:

      (a) The certification report is received by the San Diego Water Board;

      (b) The San Diego Water Board has received written notification of completion of construction (new treatment facilities and expansions only);

      (c) An inspection of the facility has been made by the San Diego Water Board or their designated representatives (applicable to new treatment facilities and expansions only); and

      (d) The San Diego Water Board has provided the Discharger with written authorization to discharge at a daily flow rate in excess of its previously approved design capacity.

b. All waste treatment, containment, and disposal facilities shall be protected against 100-year storm event as defined by the San Diego County Flood Control District (FCD).

c. All waste treatment, containment, and disposal facilities shall be protected against erosion, overland runoff, and other impacts resulting from a 100-year, 24-hour storm event as defined by the San Diego FCD.

d. All waste treatment, containment, and disposal facilities shall be protected against regional impacts due to climate change (e.g., sea level rise and floods).

e. The Discharger shall provide and maintain in good working order a sufficient alternate power source(s) to assure that, in the event of the loss, reduction, or failure of electrical power, the Facility is in compliance with the terms and conditions of this Order. In addition to a sufficient alternate power source(s), backup systems may also include auxiliary power generators, retention storage capacity, emergency operation procedures, and other contingencies to ensure continuous operation of all critical devices and systems used in the conveyance, storage, treatment, and recycling of municipal wastewater in the event of the loss, reduction, or failure of

electrical power. All equipment shall be located to minimize failure due to moisture, liquid spray, flooding, sea level rise, and other physical phenomena. The alternate power source(s) shall be designed to permit inspection and maintenance and shall provide for periodic testing.

f. The Discharger shall maintain an updated Operation and Maintenance (O&M) Manual for the operational components of the Facility. The Permittee shall update the O&M Manual, as necessary, to conform to changes in operation and maintenance of the Facility. The Permittee shall operate and maintain the Facility in accordance with the most recently updated O&M Manual. The O&M Manual shall be readily available to site personnel, San Diego Water Board, State Water Board, and USEPA or their authorized representative at all times. The O&M Manual shall include the following.

i. Description of the Facility organizational structure showing the number of employees, duties and qualifications and plant attendance schedules (daily, weekends and holidays, part-time, etc.). The description should include documentation that the personnel are knowledgeable and qualified to operate the Facility so as to achieve the required level of treatment at all times.

ii. Detailed description of safe and effective operation and maintenance of treatment processes, process control instrumentation and equipment.

iii. Description of laboratory and quality assurance procedures.

iv. Inspection and essential maintenance schedules for all processes and equipment.

v. Description of safeguards to assure that, should there be reduction, loss, or failure of electric power, the Permittee will be able to comply with requirements of this Order.

vi. Description of preventive (fail-safe) and contingency (response and cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. These plans shall identify the possible sources (such as loading and storage areas, power outage, waste treatment unit failure, process equipment failure, tank and piping failure) of accidental discharges, untreated or partially treated waste bypass, and polluted drainage.

5. Special Provisions for Publicly-Owned Treatment Works (POTWs)

a. **Sludge (Biosolids) Disposal Requirements**

i. General Requirements

(a) All biosolids generated by the Discharger during the treatment of wastewater shall be used or disposed of in compliance with applicable portions of: 40 CFR part 503-for biosolids that are land applied, placed on a surface disposal site (dedicated land disposal site, monofill, or sludge-only parcel at a municipal landfill), or incinerated; 40 CFR part 258-for biosolids disposed of in a municipal solid waste landfill (with other materials); and 40 CFR part 257-for all biosolids use and disposal practices not covered under 40 CFR parts 258 or 503. The preparer of the biosolids is required under 40 CFR 503.7 to ensure that the applicable requirements in 40 CFR 503 are met when the sewage sludge is applied to the land.

Requirements for biosolids that are applied for the purpose of enhancing plant growth or for land reclamation are set forth in 40 CFR part 503, subpart B (land application). Requirements for biosolids that are placed on land for the purpose of disposal are set forth in 40 CFR part 503, subpart C (surface disposal).

The Discharger shall take all reasonable steps to ensure that all biosolids produced at the NCWRP are used or disposed of in accordance with these rules, whether the Discharger uses or disposes of the biosolids itself, or transfers their biosolids to another party for further treatment, use, or disposal. The Discharger is responsible for informing subsequent preparers, appliers, and disposers of requirements they must meet under these rules.

(b) The Discharger shall take all reasonable steps to prevent or minimize any biosolids use or disposal which has a likelihood of adversely affecting human health or the environment.

(c) No biosolids shall be allowed to enter wetlands or other waters of the United States.

(d) Biosolids treatment, storage, use, or disposal shall not contaminate groundwater.

(e) Biosolids treatment, storage, use, or disposal shall not create a nuisance condition such as objectionable odors or flies.

(f) The Discharger shall take all reasonable steps to ensure that haulers transporting biosolids offsite for treatment, storage, use, or disposal are contractually required to take all necessary measures to keep the biosolids contained. Trucks hauling biosolids that are not classified Class A with respect to pathogens, as defined at 40 CFR section 503.32(a), shall be cleaned as necessary after loading and after unloading, so as to have no biosolids on the exterior of the truck, or wheels. Trucks hauling biosolids that are not Class A shall be tarped. All haulers must have and implement spill clean-up procedures. Trucks hauling biosolids that are not Class A shall not be used for hauling food or feed crops after unloading the biosolids unless the Discharger submits a hauling description, to be approved by USEPA, describing how trucks will be thoroughly cleaned prior to adding food or feed.

(g) If biosolids are stored for over two years from the time they are generated, the Discharger must ensure compliance with all requirements for surface disposal under 40 CFR part 503, subpart C, or must submit a written notification to USEPA, State Water Board, and San Diego Water Board with the information specified under 40 CFR section 503.20(b), demonstrating the need for longer temporary storage. During storage of any length for non-Class A biosolids, whether on the NCWRP site or offsite, adequate procedures must be taken to restrict access by the public and domestic animals.

(h) Any biosolids treatment, disposal, or storage site shall have facilities adequate to divert surface runoff from adjacent areas, to protect the site boundaries from erosion, and to prevent any conditions that would cause drainage from the materials to escape from the site. Adequate protection

is defined as protection from at least a 100-year storm event as defined by the San Diego County FCD and the highest tidal stage which may occur.

(i) There shall be adequate screening at the NCWRP headworks and/or at the biosolids treatment units to ensure that all pieces of metal, plastic, glass, and other inert objects with a diameter greater than 3/4 inches are removed.

ii. Inspection and Entry

The USEPA, San Diego Water Board, State Water Board, or an authorized representative thereof, upon the presentation of credentials, shall be allowed by the Discharger directly, or through contractual arrangements with their biosolids management contractors, to:

(a) Enter upon all premises where biosolids produced by the Discharger are treated, stored, used, or disposed of, by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal;

(a) Have access to and copy any records that must be kept by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal, under the conditions of this Order or 40 CFR part 503; and

(b) Inspect any facilities, equipment (including monitoring and control equipment), practices, or operations used in biosolids treatment, storage, use, or disposal by either the Discharger or another party to whom the Discharger transfers biosolids for further treatment, storage, use, or disposal.

iii. Monitoring

Biosolids shall be monitored for the following constituents, at the frequency stipulated in Table 1 of 40 CFR section 503.16:

- arsenic,
- cadmium,
- chromium,
- copper,
- lead,
- mercury,
- molybdenum,
- nickel,
- selenium,
- zinc, and
- total solids.

If biosolids are removed for use or disposal on a routine basis, sampling should be scheduled at regular intervals throughout the year. If biosolids are stored for an extended period prior to use or disposal, sampling may occur at regular intervals, or samples of the accumulated stockpile may be collected prior to use or disposal, corresponding to the tons accumulated in the stockpile over that period.

Monitoring shall be conducted using the methods in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods* (SW-846), or as otherwise

required under 40 CFR section 503.8(b). All results must be reported on a 100% dry weight basis and records of all analyses must state on each page of the analytical results whether the reported results are expressed on an "as-is" or a "100% dry weight" basis.

iv. Pathogen and Vector Control

(a) Prior to land application, the permittee shall demonstrate that biosolids meet Class A or Class B pathogen reduction levels by one of the methods listed under 40 CFR section 503.32.

(b) Prior to disposal on a surface disposal site, the Discharger shall demonstrate that biosolids meet Class B pathogen reduction levels, or ensure that the site is covered at the end of each operating day. If pathogen reduction is demonstrated using a "Process to Further Reduce Pathogens" or one of the "Processes to Significantly Reduce Pathogens," the Discharger shall maintain daily records of the operating parameters used to achieve this reduction. If pathogen reduction is demonstrated by testing for fecal coliform and/or pathogens, samples must be collected at the frequency specified in Table 1 of 40 CFR section 503.16. If Class B is demonstrated using fecal coliform, at least seven grab samples must be collected during each monitoring period and a geometric mean calculated from these samples. The following holding times between sample collection and analysis shall not be exceeded: fecal coliform-24 hours when cooled to four °C; *Salmonella spp.* bacteria-24 hours when cooled to four °C; enteric viruses-two weeks when frozen; and helminth ova-one month when cooled to four °C.

(c) For biosolids that are land applied or placed on a surface disposal site, the Discharger shall track and keep records of the operational parameters used to achieve the Vector Attraction Reduction requirements under 40 CFR section 503.33(b).

v. Surface Disposal

If biosolids are placed on a surface disposal site (dedicated land disposal site or monofill), a qualified groundwater scientist shall develop a groundwater monitoring program for the site, or shall certify that the placement of biosolids on the site will not contaminate an aquifer.

vi. Landfill Disposal

Biosolids placed in a municipal landfill shall be tested by the Paint Filter Test (Method 9095) at the frequency specified in Table 1 of 40 CFR section 503.16, or more often if necessary, to demonstrate that there are no free liquids.

vii. Notifications

The Discharger, either directly or through contractual arrangements with their biosolids management contractors, shall comply with the following notification requirements.

(a) Notification of Noncompliance

The Discharger shall notify USEPA, State Water Board, and San Diego Water Board (for both Discharger and use or disposal site) of any noncompliance with the biosolids within 24 hours, if the noncompliance

may endanger human health or the environment. For other instances of noncompliance with the biosolids, the Discharger shall notify USEPA, State Water Board, and San Diego Water Board of the noncompliance in writing within five working days of becoming aware of the noncompliance. The Discharger shall require their biosolids management contractors to notify USEPA, State Water Board, and San Diego Water Board of any noncompliance within these same time frames.

(b) Interstate Notification

If biosolids are shipped to another State or tribal land, the Discharger shall send 60 days prior notice of the shipment to the permitting authorities in the receiving State or tribal land, and the USEPA.

(c) Land Application Notification

Prior to using any biosolids from the NCWRP (other than composted biosolids) at a new or previously unreported site, the Discharger shall notify USEPA, State Water Board, and San Diego Water Board. This notification shall include a description and topographic map of the proposed site(s), names and addresses of the applier and site owner, and a listing of any State or local permits which must be obtained. It shall also include a description of the crops or vegetation to be grown, proposed loading rates, and a determination of agronomic rates.

Within a given monitoring period, if any biosolids do not meet the applicable metals concentration limits specified under 40 CFR section 503.13, then the Discharger (or its contractor) must pre-notify USEPA, State Water Board, and San Diego Water Board, and determine the cumulative metals loading at that site to date, as required by 40 CFR section 503.12.

The Discharger shall notify the applier of all subject requirements under 40 CFR part 503, including the requirement for the applier to certify that management practices, site restrictions, and applicable vector attraction reduction requirements have been met. The Discharger shall require the applier to certify at the end of 38 months, following application of Class B biosolids, that harvesting restrictions in effect for up to 38 months have been met.

(d) Surface Disposal Notification

Prior to disposal at a new or previously unreported site, the Discharger shall notify USEPA, State Water Board, and San Diego Water Board. The notice shall include a description and topographic map of the proposed site, depth to groundwater, whether the site is lined or unlined, site operator and site owner, and any State or local permits. It shall also describe procedures for ensuring grazing and public access restrictions for three years following site closure. The notice shall include a groundwater monitoring plan or description of why groundwater monitoring is not required.

viii. Reporting

The Discharger shall submit an annual biosolids report to the State Water Board's CIWQS program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/), to the USEPA Biosolids Coordinator (CDX NeT electronic reporting system), and, if applicable, to the Arizona Department of Environmental Quality Biosolids Program Coordinator by February 19 of each year for the period covering the previous calendar year. The report shall include:

(a) The amount of biosolids generated that year, in dry metric tons, and the amount accumulated from previous years.

(b) Results of all pollutant monitoring required under section VI.C.5.d.iii of this Order. Results must be reported on a 100% dry weight basis.

(c) Demonstrations of pathogen and vector attraction reduction methods, as required under 40 CFR sections 503.17 and 503.27, and certifications.

(d) Names, mailing addresses, and street addresses of persons who received biosolids for storage, further treatment, disposal in a municipal landfill, or other use or disposal method not covered above, and volumes delivered to each.

(e) The following information must be submitted by the Discharger as an attachment to the CDX NeT electronic reporting system, unless the Discharger requires its biosolids management contractors to report this information directly to the USEPA Biosolids Coordinator:

(1) For land application sites:

- Locations of land application sites (with field names and numbers) used that calendar year, size of each field applied to, applier, and site owner;
- Volumes applied to each field (in wet tons and dry metric tons), nitrogen applied, and calculated plant available nitrogen;
- Crops planted, dates of planting and harvesting;
- For biosolids exceeding 40 CFR section 503.13 Table 3 metals concentrations, the locations of sites where the biosolids were applied and cumulative metals loading at the sites to date;
- Certifications of management practices at 40 CFR section 503.14; and
- Certifications of site restrictions at 40 CFR section 503.32(b)(5).

(2) For surface disposal sites:

- Locations of sites, site operator and site owner, size of parcel on which biosolids were disposed;
- Results of any required groundwater monitoring;
- Certifications of management practices at 40 CFR section 503.24; and
- For closed sites, the date of site closure and certifications of management practices for three years following site closure.

ix. All reports shall be submitted to:

State Water Board's CIWQS program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/)

Regional Biosolids Coordinator
U.S. Environmental Protection Agency
EPA's CDX NeT electronic reporting system

If applicable,
Biosolids Program Coordinator
Arizona Department of Environmental Quality
Mail Code: 5415B-1
1110 West Washington Street
Phoenix, AZ 85007

c. **Sewage Collection System**

The Discharger is subject to the requirements of, and must comply with, State Water Board Order 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems* as amended by State Water Board Order WQ 2013-0058-EXEC and any subsequent amendment/reissuance order. The Discharger is also subject to the requirements of, and must comply with, the San Diego Water Board Order No. R9-2007-0005, *Waste Discharge Requirements for Sewage Collection Agencies in the San Diego Region*, and any subsequent amendment/reissuance order.

Regardless of the coverage obtained under Order No. 2006-0003-DWQ or Order No. R9-2007-0005, the Discharger's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Discharger must report any noncompliance [40 CFR sections 122.44(1)(6) and (7)], properly operate and maintain its collection system [40 CFR section 122.41(e)], and mitigate or prevent any discharge from the collection system in violation of this Order [40 CFR section 122.41(d)].

d. **Pretreatment**

i. The Discharger shall be responsible for the performance of all pretreatment requirements contained in 40 CFR part 403, including any subsequent revisions in 40 CFR part 403. Where 40 CFR part 403 or subsequent revisions place mandatory actions upon the Discharger but do not specify a timetable for completion, the Discharger shall complete the mandatory actions within six months of the issuance date of this Order, or the effective date of the revisions to 40 CFR part 403, whichever comes later. For violations of pretreatment requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies imposed by the USEPA and/or the San Diego Water Board, as provided in the CWA and/or the Water Code.

ii. The Discharger shall comply with the urban area pretreatment program requirements under CWA section 301(h) and the implementation requirements at 40 CFR part 125. The Discharger's actions to comply shall include the following:

(a) During each calendar year, maintaining a rate of significant noncompliance (SNC), as defined at 40 CFR section 403.8(f)(2)(vii), for Significant Industrial Users (SIUs) of no more than 15 percent of the total number of SIUs. The 15 percent noncompliance criteria includes only SIUs that are in SNC and which have not received at least a second level formal enforcement action from the Discharger, in accordance with the

Enforcement Response Plan.[6] The second level of enforcement is an Administrative Notice and Order.

(b) By July 1 of each year, the Discharger shall submit the annual analysis regarding local limits required under 40 CFR section 125.65(c)(1)(iii) to the State Water Board's CIWQS program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). As a consequence of any new local limits, some SIUs may need time to come into compliance with those limits. In any such cases, the Discharger shall issue a Compliance Findings of Violation and Order which is the first level of formal enforcement in its Enforcement Response Plan. The Order shall contain a schedule for achieving compliance with the new local limits. SIUs receiving such orders will not be included in the 15 percent noncompliance criteria.

iii. The Discharger shall implement and enforce its approved pretreatment program, and all subsequent revisions, which are hereby made enforceable conditions of this Order. The Discharger shall enforce the requirements promulgated pursuant to sections 307(b), 307 (c), 307 (d), and 402 (b) of the CWA with timely, appropriate, and effective enforcement actions. The Discharger shall cause industrial users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements, or in the case of a new industrial user, upon commencement of the discharge.

iv. The Discharger shall perform the pretreatment functions required by 40 CFR part 403, including, but not limited to:

(a) Implement the necessary legal authorities as required by 40 CFR section 403.8(f)(1);

(b) Enforce the pretreatment requirements under 40 CFR sections 403.5 and 403.6;

(c) Implement the programmatic functions as required by 40 CFR section 403.8 (f)(2); and

(d) Provide the requisite funding and personnel to implement the pretreatment program, as required by 40 CFR section 403.8(f)(3).

v. By March 1 of each year, the Discharger shall submit an annual pretreatment report to the USEPA by email (R9Pretreatment@epa.gov), to the San Diego Water Board via the State Water Board's CIWQS program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/) and the San Diego County Department of Environmental Health Services, Hazardous Materials Division, describing its pretreatment activities over the previous calendar year. In the event the Discharger is not in compliance with any condition or requirement of this Order, or any pretreatment compliance inspection/audit requirements, the Discharger shall include the reasons for noncompliance and state how and when it will comply with such conditions and

[6] The Discharger's Enforcement Response Plan was originally submitted to USEPA, Region IX in August 1993. It was subsequently revised on December 15, 1993 and December 1, 1999 and can be found at https://www.sandiego.gov/sites/default/files/legacy/mwwd/environment/iwcp/pdf/enf_resp_plan.pdf

requirements. The annual pretreatment report shall contain, but not be limited to, the following information.

(a) A summary of analytical results from representative flow-proportioned 24-hour composite sampling of the Discharger's influent and effluent for those pollutants known or suspected to be discharged by industrial users that the USEPA has identified under section 307(d) of the CWA. This will include an annual full priority pollutant scan. Wastewater sampling and analysis shall be performed in accordance with the minimum frequency of analysis required by the MRP of this Order (Attachment E). The Discharger shall also provide influent and effluent monitoring data for nonpriority pollutants, which the Discharger believes may be causing or contributing to interference or pass through. The Discharger is not required to sample and analyze for asbestos. Sludge sampling and analysis is addressed in the MRP of this Order (Attachment E). wastewater sampling and analysis shall be performed in accordance with 40 CFR part 136.

(b) A discussion of upset, interference, or pass through, if any, at the Facility, which the Discharger knows or suspects were caused by nondomestic users of the POTW system. The discussion shall include the reasons why the incidents occurred, any corrective actions taken, and, if known, the name and address of the responsible nondomestic user(s). The discussion shall also include a review of the applicable local pollutant limitations to determine whether any additional limitations or changes to existing limitations are necessary to prevent pass-through, interference, or noncompliance with sludge disposal requirements.

(c) An updated list of the Discharger's SIUs including their names and addresses, and a list of deletions, additions, and SIU name changes keyed to the previously submitted list. The Discharger shall provide a brief explanation for each change. The list shall identify the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall also indicate which SIUs are subject to local limits.

(d) The Discharger shall characterize the compliance status of each SIU by providing a list or table for the following:

(1) Name of SIU;

(2) Category, if subject to categorical standards;

(3) Type of wastewater treatment or control processes in place;

(4) Number of samples taken by SIU during the year;

(5) Number of samples and inspections by Discharger during the year;

(6) For a SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;

(7) A list of pretreatment standards (categorical or local) violated during the year, or any other violations;

(8) SIUs in SNC as defined at 40 CFR section 403.8(f)(2)(viii), at any time during the year;

(9) A summary of enforcement actions or any other actions taken against SIUs during the year. Describe the type of action, final compliance date, and the amount of fines and/or penalties collected, if any. Describe any proposed actions for bringing SIUs into compliance;

(10) The names of any SIUs required to prepare and/or implement a pollution prevention plan pursuant to CA SB 709 and SB 2165.

(e) A brief description of any programs the Discharger implements to reduce pollutants from nondomestic users not classified as SIUs.

(f) A brief description of any significant changes in operating the pretreatment program which differ from the previous year, including, but not limited to, changes in the program's administrative structure, local limits, monitoring program, legal authority, enforcement policy, funding, and staffing levels.

(g) A summary of the annual pretreatment program budget, including the cost of pretreatment program functions and equipment purchases.

(h) A summary of activities to involve and inform the public of the pretreatment program, including a copy of the newspaper notice, if any, required by 40 CFR section 403.8(f)(2)(vii).

(i) A description of any changes in sludge disposal methods.

(j) A description of the program to quantify, characterize, regulate, and treat flow from low-flow urban runoff diversion systems and "first flush" industrial storm water diversion systems that are routed to the sanitary sewer collection system.

(k) A discussion of any concerns not described elsewhere in the annual pretreatment report.

vi. In accordance with CWA section 301(h)(7) and 40 CFR section 125.66(d), the Discharger shall continue to develop and implement its non-industrial source control program and public education program. The purpose of these programs is to eliminate the entrance of non-industrial toxic pollutants and pesticides into the POTW. These programs shall be periodically reviewed and addressed in the annual pretreatment report.

vii. Pursuant to section 60320.306 of title 22 of the CCR, the Discharger must administer an industrial pretreatment and pollutant source control program and implement an enhanced source control program that includes, at a minimum:

(a) An assessment of the fate of DDW-specified and San Diego Water Board -specified chemicals and contaminants through the North City sewershed, Morena Pump Station sewershed, NCWRP, and NCPWF.

(b) Chemical and contaminant source investigations and monitoring that focuses on DDW-specified and San Diego Water Board -specified chemicals and contaminants.

(c) An outreach program to industrial, commercial and residential communities within the North City sewershed for the purpose of managing and minimizing the discharge of chemicals and contaminants at the source.

(d) A current inventory of chemicals and contaminants identified and evaluated including new chemicals and contaminants resulting from new

sources or changes to existing sources that may be discharged into the sewershed.

viii. The Discharger must submit an enhanced local limit study to DDW and the San Diego Water Board prior to the start of the diversion of flow via the Morena Pump Station. The enhanced local limits study must include the current sewershed plus the area tributary to the Morena Pump Station. The study must include a sampling program that will be used to assess the need for modified local limits based on the sampling results. The study must include appropriate pollutants with drinking water criteria based on MCLs and Notification Levels and unregulated contaminants of emerging concern (CECs) from the EPA Drinking Water Contaminant Candidate List to be determined in consultation with DDW. The study must also be updated annually.

6. Other Special Provisions

a. Statewide General Drinking Water Permit Coverage

Unplanned discharges and planned discharges to the City's municipal separate storm sewer system (MS4) or directly to surface waters may occur during cleaning and maintenance of the North City Pure Water Pipeline. The Discharger shall obtain permit coverage for such discharges under, and comply with the terms of Order WQ 2014-0194-DWQ, *Statewide NPDES Permit for Drinking Water System Discharges to the Waters of the United States* and any reissuance (Statewide General Drinking Water Permit).

7. Compliance Schedules – Not Applicable

VII. COMPLIANCE DETERMINATION

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below:

A. Compliance with Average Monthly Effluent Limitation (AMEL)

If the average of daily discharges over a calendar month exceeds the AMEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of noncompliance in a 31-day month). The average of daily discharges over the calendar month that exceeds the AMEL for a parameter will be considered out of compliance for the month only. If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Discharger will be considered out of compliance for that calendar month. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

B. Compliance with Average Weekly Effluent Limitation (AWEL)

If the average of daily discharges over a calendar week (Sunday through Saturday) exceeds the AWEL for a given parameter, an alleged violation will be flagged and the Discharger will be considered out of compliance for each day of that week for that parameter, resulting in seven days of noncompliance. The average of daily discharges over the calendar week that exceeds the AWEL for a parameter will be considered out of compliance for that week only. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Discharger will be considered out of compliance for that

calendar week. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

C. Compliance with Maximum Daily Effluent Limitation (MDEL)

The MDEL shall apply to flow weighted 24-hour composite samples, or grab, as specified in the MRP (Attachment E). If a daily discharge exceeds the MDEL for a given parameter, an alleged violation will be flagged, and the Discharger will be considered out of compliance for that parameter for that one day only within the reporting period. For any one day during which no sample is taken, no compliance determination can be made for that day.

D. Compliance with Instantaneous Minimum Effluent Limitation

The instantaneous minimum effluent concentration limitation shall apply to grab sample determinations. If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, an alleged violation will be flagged, and the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of noncompliance with the instantaneous minimum effluent limitation).

E. Compliance with Instantaneous Maximum Effluent Limitation

The instantaneous maximum effluent concentration limitation shall apply to grab sample determinations. If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, an alleged violation will be flagged, and the Discharger will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of noncompliance with the instantaneous maximum effluent limitation).

F. Mass and Concentration Limitations

Compliance with mass and concentration effluent limitations for the same parameter shall be determined separately with their respective limitations. When the concentration of a constituent in an effluent sample is determined to be ND or DNQ, the corresponding MER determined from that sample concentration shall also be reported as “ND” or “DNQ”.

G. Mass Emission Rate (MER)

The MER, in pounds per day, shall be obtained from the following calculation for any calendar day:

MER (lbs/day) = 8.34 x Q (MGD) x C (mg/L)

In which Q and C are the flow rate in MGD and the constituent concentration in mg/L, respectively, and 8.34 is a conversion factor (lbs/gallon of water). If a composite sample is taken, then C is the concentration measured in the composite sample and Q is the average flow rate occurring during the period over which the samples are composited.

H. Compliance with Single-Constituent Effluent Limitations

The Discharger shall be deemed out of compliance with an effluent limitation or discharge specification if the concentration of the constituent in the monitoring sample is greater than the effluent limitation or discharge specification and greater than or equal to the Minimum Level (ML).

I. Compliance with Effluent Limitations Expressed as a Sum of Several Constituents

The Discharger is out of compliance with an effluent limitation that applies to the sum of a group of chemicals (e.g., PCBs) if the sum of the individual pollutant concentrations is greater than the effluent limitation. For compliance determination purposes, individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

J. Multiple Sample Data

When determining compliance with an AMEL or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND.

In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

K. Percent Removal

The Facility percent removal for each day shall be calculated according to the following equation:

$$\textit{Daily discharge percent removal} = \frac{\textit{Influent concentration} - \textit{Effluent concentration}}{\textit{Influent concentration}} \times 100\%$$

Influent concentrations from the NCWRP and final effluent concentrations from the NCPWF shall be used in the equation above in determining the Facility percent removal.

The monthly average percent removal is the average of the calculated daily discharge percent removals only for days on which the constituent concentration is monitored in both the influent and effluent of the Facility at the locations specified in the MRP (Attachment E) within a calendar month.

L. Bacterial Standards and Analysis

1. The geometric mean used for determining compliance with bacterial standards is calculated with the following equation:

   $\textit{Geometric Mean} = (C_1 \times C_2 \times \ldots \times C_n)^{1/n}$

   Where n is the number of days samples were collected during the period and C is the concentration of bacteria (CFU/100 mL) found on each day of sampling.

2. For all bacterial analyses, sample dilutions should be performed so the range of values extends from 2 to 16,000 CFU. The detection methods used for each analysis shall be reported with the results of the analysis. Detection methods used for coliforms (total and fecal) shall be those listed in 40 CFR part 136 or any improved method determined by the San Diego Water Board (and approved by USEPA) to be appropriate. Detection methods

used for enterococcus shall be those presented in USEPA publication USEPA 600/4-85/076, *Test Methods for Escherichia coli and Enterococci in Water by Membrane Filter Procedure*, listed under 40 CFR part 136, and any other method approved by the San Diego Water Board.

M. Single Operational Upset (SOU)

A single operational upset (SOU) that leads to simultaneous violations or more than one pollutant parameter shall be treated as a single violation and limits the Discharger's liability in accordance with the following conditions:

1. A SOU is broadly defined as a single unusual event that temporarily disrupts the usually satisfactory operation of a system in such a way that it results in violation of multiple pollutant parameters.
2. A Discharger may assert SOU to limit liability only for those violations which the Discharger submitted notice of the upset as required in section I.H of Attachment D.
3. For purposes outside of Water Code sections 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of SOU), the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations, shall be in accordance with the USEPA Memorandum, *Issuance of Guidance Interpreting Single Operational Upset* (September 27, 1989).
4. For purposes of Water Code sections 13385(h) and (i), determination of compliance and civil liability (including any more specific definition of SOU), the requirements for Dischargers to assert the SOU limitation of liability, and the manner of counting violations shall be in accordance with Water Code section 13385(f)(2).

N. Chronic Toxicity

The discharge is subject to determination of "Pass" or "Fail" and "Percent Effect" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-004, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is:

Mean discharge "in-stream" waste concentration (IWC) response ≤0.75 × Mean control response.

A test result that rejects this null hypothesis is reported as "Pass." A test result that does not reject this null hypothesis is reported as "Fail." The relative "Percent Effect" at the discharge IWC is defined and reported as: ((Mean control response - Mean discharge IWC response) ÷ Mean control response)) × 100. This is a t-test (formally Student's t-test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (i.e., a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control (the test result is "Pass" or "Fail"). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

The MDEL for chronic toxicity is exceeded when a chronic toxicity test, analyzed using the TST statistical approach, results in "Fail" and the "Percent Effect" is ≥0.50. The MMEL for chronic toxicity is exceeded and a violation will be flagged when two or more toxicity tests in a calendar month result in a "Fail" in accordance with the TST approach.

The MDEL and MMEL for chronic toxicity are set at the IWC for the discharge (100% effluent) and expressed in units of the TST statistical approach ("Pass" or "Fail," "Percent Effect"). All NPDES effluent monitoring for the chronic toxicity effluent limitations shall be reported using the 100% effluent concentration and negative control, expressed in units of the TST. The TST hypothesis (Ho) (see above) is statistically analyzed using the IWC and a negative control. Effluent toxicity tests shall be run using a multi-concentration test design when required by *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002). The San Diego Water Board's review of reported toxicity test results will include review of concentration-response patterns as appropriate (see section IV.C.7 of the Fact Sheet (Attachment F)). As described in the laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 07, 2014, and from USEPA dated December 24, 2013, the Percent Minimum Significant Difference (PMSD) criteria only apply to reporting for the no-observed-effect-concentration (NOEC) and the sublethal statistical endpoints of the NOEC, and therefore are not used to interpret TST results. SOPs used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent (and receiving water) toxicity test measurement results from the TST statistical approach, including those that incorporate a consideration of concentration-response patterns, must be submitted to the San Diego Water Board (40 CFR section 122.41(h)). The San Diego Water Board will make a final determination as to whether a toxicity test result is valid, and may consult with the Discharger, the State Water Board's Quality Assurance Officer, or the State Water Board, Division of Drinking Water (DDW) Environmental Laboratory Accreditation Program (ELAP) as needed.

ATTACHMENT A – DEFINITIONS

Part 1. – Abbreviations

Abbreviation	Definition
40 CFR	Title 40 of the Code of Federal Regulations
AhR	Aryl hydrocarbon receptor
AMEL[1]	Average Monthly Effluent Limitation
AQUA	Aquaculture
ASBS[1]	Areas of Special Biological Significance
ATP	Alternative Test Procedure
AUV	Autonomous Underwater Vehicle
AWEL[1]	Average Weekly Effluent Limitation
BAC	Biological Activated Carbon
Basin Plan	Water Quality Control Plan for the San Diego Basin
BIOL	Preservation of Biological Habitats of Special Significance
BOD_5	Biochemical Oxygen Demand (5-Day @ 20°C)
°C	Degrees Celsius
$CBOD_5$	Carbonaceous Biochemical Oxygen Demand (5-Day @ 20°C)
CCR	California Code of Regulations
CEC	Constituents of Emerging Concern
CEDEN	California Environmental Data Exchange Network
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CFU	Colony Forming Units
CIWQS	California Integrated Water Quality System
COMM	Commercial and Sport Fishing
CPUE	Catch Per Unit Effort
CT	Contact Time
CTR	California Toxics Rule
CV	Coefficient of Variation
CWA	Clean Water Act
DDT[1]	Dichlorodiphenyltrichloroethane
DDW	State Water Board, Division of Drinking Water
Discharger	City of San Diego
DMR	Discharge Monitoring Report
DNQ[1]	Detected, But Not Quantified
DWTP	Drinking Water Treatment Plant
EC25	Effects Concentration at 25 Percent
ECA	Effluent Concentration Allowance
ELAP	Environmental Laboratory Accreditation Program
E-Coli	*Escherichia coli*
ER-α	Estrogen receptor-α
eSMR	Electronic Self-Monitoring Reports
Facility	North City Water Reclamation Plant and Pure Water Facility, including the North City Pure Water Pipeline and the North City Dechlorination Facility
FCD	Flood Control District
Final EIR/EIS	Final Environmental Impact Report/Environmental Impact Statement
GPS	Global Positioning System

Abbreviation	Definition
HA	Hydrologic Area
HAA5	Haloacetic Acids
HCH[1]	Hexachlorocyclohexane
Ho	Hypothesis
IND	Industrial Service Supply
ISWEBE Plan	*Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California*
IU	Industrial User
IWC[1]	"In-Stream" Waste Concentration
IWS	Industrial Waste Survey
lbs/day	Pounds per Day
LC	Lethal Concentration
LC 50	Percent Waste Giving 50 Percent Survival of Test Organisms
LRV	Log Reduction Value
MCL	Maximum Contaminant Level
MH	Marine Habitat
MCRT	Mean Cell Residence Time
MDEL[1]	Maximum Daily Effluent Limitation
MDL[1]	Method Detection Limit
MEC	Maximum Effluent Concentration
MER	Mass Emission Rate
Metro System	San Diego Metropolitan Sewerage System
MF	Microfiltration
mg/kg	Milligram per Kilogram
mg/L	Milligrams per Liter
MGD	Million Gallons per Day
Miramar DWTP	Miramar Drinking Water Treatment Plant
MIT	Membrane Integrity Testing
ML[1]	Minimum Level
ml	Milliliter
ml/L	Milliliter per Liter
MMEL	Median Monthly Effluent Limitation
MRP	Monitoring and Reporting Program
NCPWF	North City Pure Water Facility
NCWRP	North City Water Reclamation Plant
ND	Not Detected
NDMA	N-Nitrosodimethylamine
NOAA's	National Oceanic and Atmospheric Administration's
NOEC	No-Observed-Effect-Concentration
NOEL	No Observed Effect Level
NL	Notification Level
NMOR	N-Nitrosomorpholine
NPDES	National Pollutant Discharge Elimination System
NTR	National Toxics Rule
NTU	Nephelometric Turbidity Unit
Ocean Plan	*California Ocean Plan, Water Quality Control Plan Ocean Waters of California*
O&M Manual	Operation and Maintenance Manual

Abbreviation	Definition
PAHs[1]	Polynuclear Aromatic Hydrocarbons
PCBs[1]	Polychlorinated Biphenyls
pCi/L	Picocuries per Liter
PDT	Pressure Decay Test
PFOA	Perfluorooctanoic acid
PFOS	Perfluorooctanesulfonic acid
PMP[1]	Pollutant Minimization Program
PMSD	Percent Minimum Significant Difference
POTWs	Publicly-Owned Treatment Works
PPP	Pollution Prevention Plan
ppt	Parts per Thousand
Q	Flow
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
RARE	Rare, Threatened, or Endangered Species
REC-1	Contact Water Recreation
REC-2	Non-Contact Water Recreation
RCRA	Resource Conservation and Recovery Act
Regional General SSO Order	California Regional Water Quality Control Board Region 9, San Diego Region Order No. R9-2007-0005, *Waste Discharge Requirements for Sewage Collection Agencies in the San Diego Region*
RL	Reporting Level
ROWD	Report of Waste Discharge
RO	Reverse Osmosis
RPA	Reasonable Potential Analysis
RWQCB	Regional Water Quality Control Board
San Diego Water Board	California Regional Water Quality Control Board, San Diego Region
SCCWRP	Southern California Coastal Waters Research Project
SIP	Policy for Implementation of Toxics Standards for Inland Surface Waters, and Enclosed Bays, and Estuaries
SIUs	Significant Industrial Users
SMR	Self-Monitoring Report
SOPs	Standard Operating Procedures
SOU	Single Operational Upset
SPP	Spill Prevention Plan
SRP	Spill Response Plan
SRT	Solids Retention Time
SSMPs	Sanitary Sewer Management Plans
SSO[1]	Sanitary Sewer Overflow
State Water Board	State Water Resources Control Board
Statewide General Drinking Water Permit	Order WQ 2014-0194-DWQ, *Statewide General NPDES Permit for Drinking Water System Discharges to Waters of the United States*
Statewide General SSO Order	State Water Board Order No. 2006-0003-DWQ, *Statewide General Waste Discharge Requirements for Sanitary Sewer Systems*
STV	Statistical Threshold Value
SWSAP	Surface Water Source Augmentation Project
SWSAP Operation Plan	Surface Water Source Augmentation Project Operation Plan

Abbreviation	Definition
SWSAP PWS	Surface Water Source Augmentation Project Public Water System
SWSAP WRA	Surface Water Augmentation Project Water Recycling Agency
SWTR	Surface Water Treatment Rule
TAC	Test Acceptability Criteria
TBELs	Technology-Based Effluent Limitations
TCDD[1]	Tetrachlorodibenzodioxin
TIE[1]	Toxicity Identification Evaluation
TMDL	Total Maximum Daily Load
TOC	Total Organic Carbon
TRE[1]	Toxicity Reduction Evaluation
TSD	Technical Support Document
TSS	Total Suspended Solids
TST	Test of Significant Toxicity
TUa	Acute Toxicity Units
TUc[1]	Chronic Toxicity Units
U.S.C.	United States Code
µg	Microgram
µg/kg	Microgram per Kilogram
µg/L	Micrograms per Liter
UM3	USEPA Modeling Application Visual Plumes
USEPA	United States Environmental Protection Agency
U.S.	United States
Water Code	California Water Code
WDRs	Waste Discharge Requirements
WET	Whole Effluent Toxicity
WILD	Wildlife Habitat
WLA	Waste Load Allocation
WQBELs	Water Quality-Based Effluent Limitations
WPDF	Water Purification Demonstration Facility

[1] See Part 2 of Attachment A (Glossary of Common Terms) for further definition.

Part 2. – Glossary of Common Terms

Acute Toxicity

a. Acute Toxicity (TUa)
Expressed in Toxic Units Acute (TUa)

TUa = 100 / (96-hr LC 50%)

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Ocean Plan Appendix III. If specific identifiable substances in wastewater can be demonstrated by the discharger as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

TUa = (log (100-S)) / 1.7

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

Advanced treated recycled water
Advanced treated recycled water refers to final effluent produced from the NCPWF which is discharged to Miramar Reservoir.

Antidegradation
Policies which ensure protection of water quality for a particular body where the water quality exceeds levels necessary to protect fish and wildlife propagation and recreation on and in the water. This also includes special protection of waters designated as outstanding natural resource waters.

Arithmetic Mean (μ)
Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean = $\mu = \Sigma x / n$ where: Σx is the sum of the measured ambient water concentrations, and n is the number of samples.

Average Monthly Effluent Limitation (AMEL)
The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

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

Average Annual Effluent Limitation
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.

Bioaccumulative Pollutants
Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

Bioassay
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)
A measurement of the amount of oxygen utilized by the decomposition of organic material, over a specified time period (usually 5 days, BOD_5) in a wastewater sample; it is used as a measurement of the readily decomposable organic content of a wastewater.

Biosolids
Sewage sludge that is used or disposed through land application, surface disposal, incineration, or disposal in a municipal solid waste landfill. Sewage sludge is defined as solid, semi-solid, or liquid untreated residue generated during the treatment of domestic sewage in a treatment facility.

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

Carcinogenic
Pollutants are substances that are known to cause cancer in living organisms.

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

Chronic Toxicity
The capacity of a substance to cause long-term poisonous health effects in humans, animals, fish, and other organisms. This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc) (effluent limitations/performance goals expressed in TUc in the previous Orders)
   Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

   The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Ocean Plan Appendix II.

c. Pass" or "Fail" and "Percent Effect" (effluent limitations/performance goals for this Order)

   The discharge is subject to determination of "Pass" or "Fail" and "Percent Effect" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-004, 2010), Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is:

   Mean discharge "in-stream" waste concentration (IWC) response ≤0.75 × Mean control response.

Clean Water Act (CWA)
An act passed by the U.S. Congress to control water pollution. It was 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)
The codification (arrangement of) the general and permanent rules published in the Federal Register by the executive departments and agencies of the Federal Government. Title 40 of the CFR contains the environmental regulations.

Coefficient of Variation (CV)
CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

Compliance Findings of Violation and Order
The first level of enforcement action initiated by the Discharger against industrial users in violation of its pretreatment program which includes a statement detailing the pretreatment standards violated and the circumstances surrounding the violation.

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

Conventional Pollutants
Pollutants typical of municipal sewage, and for which municipal secondary treatment plants are typically designed; defined at 40 CFR 401.16 as BOD, Total Suspended Solids (TSS), fecal coliform bacteria, oil and grease, and pH.

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

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

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

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

Degrade
Degradation shall be determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

Detected, but Not Quantified (DNQ)
Sample results that are less than the reported Minimum Level, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
The amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

Discharge
When used without qualification means the discharge of a pollutant. Discharge of a pollutant means:

1. Any addition of any pollutant or combination of pollutants to waters of the United States from any point source, or
2. Any addition of any pollutant or combination of pollutants to the waters of the contiguous zone or the ocean from any point source other than a vessel or other floating craft that is being used as a means of transportation.

This definition includes additions of pollutants into waters of the United States from: surface runoff which is collected or channeled by man; discharges through pipes, sewers, or other conveyances owned by a state, municipality, or other person which do not lead to a treatment works; and discharges through pipes, sewers, or other conveyances, leading into privately owned treatment works. This term does not include an addition of pollutants by any indirect Discharger.

Discharge Monitoring Report (DMR)
Means the USEPA uniform form, including any subsequent additions, revisions, or modifications for the reporting of self-monitoring results by permittees. DMRs must be used by approved states as well as by USEPA. The USEPA will supply DMRs to any approved state upon request. The USEPA national forms may be modified to substitute the state agency name, address, logo, and other similar information, as appropriate, in place of USEPA's.

Dredged Material
Any material excavated or dredged from the navigable waters of the United States, including material otherwise referred to as “spoil.”

Effluent Concentration Allowance (ECA)
ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (*Technical Support Document for Water Quality-based Toxics Control*, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
Indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. This definition includes but is not limited to: Humboldt Bay, Bodega Harbor, Tomales Bay, Drakes Estero, San Francisco Bay, Morro Bay, Los Angeles Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay.

Enforcement Response Plan
A plan maintained by the Discharger pursuant to 40 CFR section 403.8 (f) (5) that outlines in a step-by-step fashion procedures its staff will follow to identify, document, and respond to pretreatment violations.

Estuaries and Coastal Lagoons
Are waters at the mouths of streams that serve as mixing zones for fresh and ocean waters during a major portion of the year. Mouths of streams that are temporarily separated from the ocean by sandbars shall be considered as estuaries. Estuarine waters will generally be considered to extend from a bay or the open ocean to the upstream limit of tidal action but may be considered to extend seaward if significant mixing of fresh and salt water occurs in the open coastal waters. The waters described by this definition include but are not limited to the Sacramento-San Joaquin Delta as defined by Section 12220 of the California Water Code, Suisun Bay, Carquinez Strait downstream to Carquinez Bridge, and appropriate areas of the Smith, Klamath, Mad, Eel, Noyo, and Russian Rivers.

Geometric Mean
The geometric mean is a type of mean or average that indicates the central tendency or typical value of a set of numbers by using the product of their values (as opposed to the arithmetic mean which uses their sum). The geometric mean is defined as the *n*th root of the product of *n* numbers. The formula is expressed as: Geometric Mean = $[(x1)(x2)(x3)\ldots(xn)n]^{1/n}$, where *x* is the sample value and *n* is the number of samples taken.

Grab Sample
An individual sample of at least 100 milliliters collected at a randomly selected time over a period not exceeding 15 minutes. The sample is taken from a waste stream on a one-time basis without consideration of the flow rate of the waste stream and without consideration of time of day.

Facility
The North City Water Reclamation Plant and Pure Water Facility, including the North City Pure Water Pipeline and the North City Dechlorination Facility.

Haloacetic Acids
The sum of monochloroacetic acid, dichloracetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.

HCH
The mean the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

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

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

Interference
A discharge which, alone or in conjunction with a discharge or discharges from other sources, both:

(1) Inhibits or disrupts the facility, its treatment processes or operations, or its sludge processes, use or disposal; and

(2) Therefore is a cause of a violation of any requirement of the facility's NPDES permit (including an increase in the magnitude or duration of a violation) or of the prevention of sewage sludge use or

disposal in compliance with the following statutory provisions and regulations or permits issued thereunder (or more stringent State or local regulations): Section 405 of the CWA, the Solid Waste Disposal Act (SWDA) (including title II, more commonly referred to as the Resource Conservation and Recovery Act (RCRA), and including State regulations contained in any State sludge management plan prepared pursuant to subtitle D of the SWDA), the Clean Air Act, the Toxic Substances Control Act, and the Marine Protection, Research and Sanctuaries Act.

Maximum Daily Effluent Limitation (MDEL)
The highest allowable daily discharge of a pollutant.

Median Monthly Effluent Limitation (MMEL)
The highest allowable median discharge of a pollutant during a calendar month.

Method Detection Limit (MDL)
The minimum concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in 40 CFR part 136, Attachment B.

Million Gallons Per Day (MGD)
A unit of flow commonly used for wastewater discharges. One MGD is equivalent to 1.547 cubic feet per second.

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

Mixing Zone
Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

Not Detected (ND)
Those sample results less than the laboratory’s MDL.

Off-Specification Water
This refers to effluent from the NCPWF that does not meet effluent limitations specified in this Order or treatment criteria specified in title 22 of the CCR.

PAHs (polynuclear aromatic hydrocarbons)
The sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

Pass Through
A discharge which exits the POTW into waters of the United States in quantities or concentrations which, alone or in conjunction with a discharge or discharges from other sources, is a cause of a violation of any requirement of the POTW's NPDES permit (including an increase in the magnitude or duration of a violation).

PCBs (polychlorinated biphenyls)

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

Percent Removal
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.

Phenolic Compounds (non-chlorinated)
The sum of 2,4-dimethylphenol, 4,6-Dinitro-2-methylphenol, 2,4-dinitrophenol, 2-methylphenol, 4-methylphenol, 2-nitropheneol, 4-nitrophenol, and phenol.

Pollutant
Pollutant means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials (except those regulated under the Atomic Energy Act of 1954, as amended (42 U.S.C. 2011 et seq.)), heat, wrecked or discarded equipment, rock, sand, cellar dirt and industrial, municipal, and agricultural waste discharged into water. It does not mean: (a) Sewage from vessels; or (b) Water, gas, or other material which is injected into a well to facilitate production of oil or gas, or water derived in association with oil and gas production and disposed of in a well, if the well is used either to facilitate production or for disposal purposes is approved by authority of the State in which the well is located, and if the State determines that the injection or disposal will not result in the degradation of ground or surface water resources.

Pollutant Minimization Program (PMP)
PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The San Diego Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

Publicly Owned Treatment Works (POTW)
A treatment works, as defined by Section 212 of the CWA that is owned by the State or 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. It also includes sewers, pipes, and other conveyances only if they convey wastewater to a POTW treatment plant (40 CFR Section 403.3).

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

Reported Minimum Level
The RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if

applicable as discussed herein. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the San Diego Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

Sanitary Sewer Overflow (SSO)
An SSO is any overflow, spill, release, discharge or diversion of untreated or partially treated wastewater from a sanitary sewer system. SSOs include: (i) Overflows or releases of untreated or partially treated wastewater that reach waters of the United States; (ii) Overflows or releases of untreated or partially treated wastewater that do not reach waters of the United States; and (iii) Wastewater backups into buildings and on private property that are caused by blockages or flow conditions within the publicly owned portion of a sanitary sewer system.

Sanitary Sewer System
Any system of pipes, pump stations, sewer lines, or other conveyances, upstream of a wastewater treatment plant headworks used to collect and convey wastewater to the publicly owned treatment facility. Temporary storage and conveyance facilities (such as vaults, temporary piping, construction trenches, wet wells, impoundments, tanks, etc.) are considered to be part of the sanitary sewer system, and discharges into these temporary storage facilities are not considered to be SSOs.

Secondary Treatment Standards
Technology-based requirements for direct discharging municipal sewage treatment facilities. Standards are based on a combination of physical and biological processes typical for the treatment of pollutants in municipal sewage. Standards are expressed as a minimum level of effluent quality in terms of: BOD_5, TSS, and pH (except as provided for special considerations and treatment equivalent to secondary treatment).

Significant Difference
Defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

Sludge
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
Any water designated as municipal or domestic supply (MUN) in a San Diego Water Board Basin Plan.

Standard Deviation (σ)
Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:
x is the observed value;
μ is the arithmetic mean of the observed values; and
n is the number of samples.

Statistical Threshold Value (STV)
The STV for the bacteria water quality objectives is a set value that approximates the 90th percentile of the water quality distribution of a bacterial population. For the bacteria water quality objectives, the STV for E-coli is 320 CFU/100 mL.

Surface Water Source Augmentation Project (SWSAP)
A SWSAP is defined in section 60301.851 of title 22 of the CCR as a project involving the planned placement of recycled municipal wastewater into a surface water reservoir that is used as a source of domestic drinking water supply, for the purpose of supplementing the source of domestic drinking water supply.

Surface Water Source Augmentation Project Public Water System (SWSAP PWS)
A SWSAP PWS is defined in section 60301.852 as a public water system that plans to utilize or is utilizing an augmented reservoir as a source of drinking water and is responsible for complying with the requirements of Chapter 17 of title 22 of the CCR and the applicable requirements of Chapter 3 of title 22 of the CCR.

Surface Water Source Augmentation Project Operation Plan (SWSAP Operation Plan)
An operation plan that is representative of a current operation, maintenance, and monitoring of the SWSAP. Requirements for the preparation of and the minimum content of the SWSAP Operation Plan is described in section 60320.322 of title 22 of the CCR.

Surface Water Augmentation Project Water Recycling Agency (SWSAP WRA)
A SWSAP WRA is defined in section 60301.853 of title 22 of the CCR as an agency that is subject to a Regional Board's water recycling requirements applicable to a SWSAP and is, in whole or part, responsible for applying to the Regional Board for a permit, obtaining a permit, the operation of the SWSAP, and complying with the terms and conditions of the Regional Board permit and the requirements of Chapter 3 of title 22 of the CCR.

Technology-Based Effluent Limitation (TBELs)
A permit limitation for a pollutant that is based on the capability of a treatment method to reduce the pollutant to a certain concentration.

TCDD Equivalents
The sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001
2,3,7,8 tetra CDF	0.1
1,2,3,7,8 penta CDF	0.05
2,3,4,7,8 penta CDF	0.5
2,3,7,8 hexa CDFs	0.1
2,3,7,8 hepta CDFs	0.01
octa CDF	0.001

Total Trihalomethanes
The sum of bromoform, chloroform, bromodichloromethane, and dibromochloromethane.

Toxicity Reduction Evaluation (TRE)
A study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation, using aquatic organism toxicity tests.)

Water Quality-Based Effluent Limitation (WQBEL)
A value determined by selecting the most stringent of the effluent limitations calculated using all applicable water quality criteria (e.g., aquatic life, human health, and wildlife) for a specific point source to a specific receiving water for a given pollutant.

Water Quality Control Plans
There are two types of water quality control plans - Basin Plans and Statewide Plans. Regional Boards adopt Basin Plans for each region based upon surface water hydrologic basin boundaries. The Regional Basin Plans designates or describes (1) existing and potential beneficial uses of ground and surface water; (2) water quality objectives to protect the beneficial uses; (3) implementation programs to achieve these objectives; and (4) surveillance and monitoring activities to evaluate the effectiveness of the water quality control plan. The Statewide Plans address water quality concerns for surface waters that overlap Regional Board boundaries, are statewide in scope, or are otherwise considered significant and contain the same four elements. Statewide Water Quality Control Plans include the Ocean Plan, the Enclosed Bays and Estuaries Plan, the Inland Surface Waters Plan, and the Thermal Plan. A water quality control plan consists of a designation or establishment for the waters within a specified area of (1) beneficial uses to be protected, (2) water quality objectives, and (3) a program of implementation needed for achieving water quality objectives [California Water Code section 13050(j)].

Water Quality Objectives
Means 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 Quality Standards
Provisions of State or federal law which consist of a designated use or uses for waters of the United States and water quality criteria for such waters based upon such uses. Water quality standards are to protect the public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act [40 CFR section 131.3(i)]. Under State law, the Water Boards establish beneficial uses and water quality objectives in their water quality control plans or basin plans. Together with an antidegradation policy, these beneficial uses and water quality objectives serve as water quality standards under the Clean Water Act. In Clean Water Act parlance, state beneficial uses are called "designated uses" and state water quality objectives are called "criteria." Throughout this Order, the relevant term is used depending on the statutory scheme.

Water Recycling

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.

WDRs
Waste Discharge Requirements.

Whole Effluent Toxicity (WET)
The aggregate toxic effect of an effluent measured directly with a toxicity test.

ATTACHMENT B – MAPS

Figure B-1: Schematic of North City Pure Water Project

Figure B-2: North City Water Reclamation Plant Sewershed

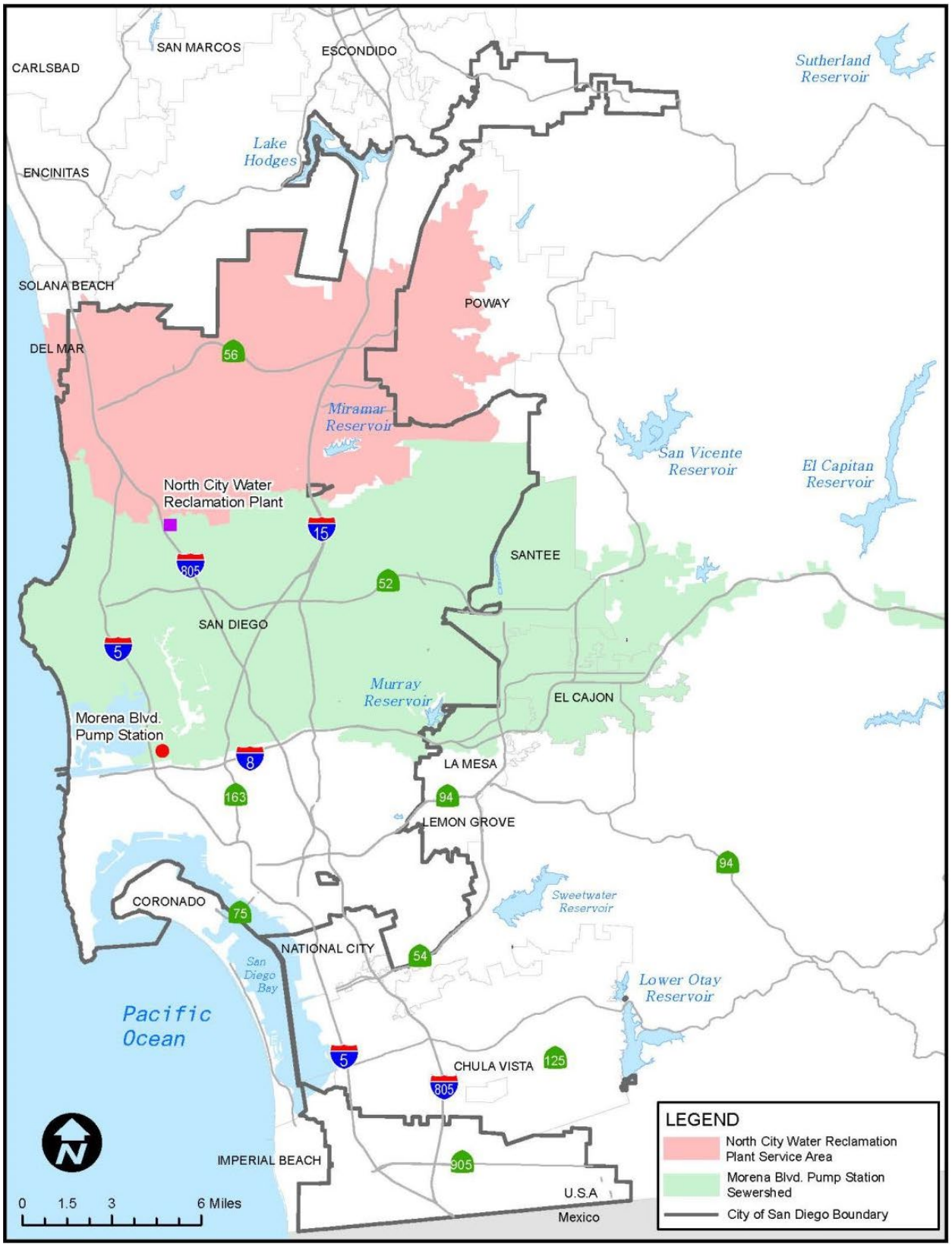


Figure B-3: Location of Facility

Figure B-4: Location of the North City Pure Water Dechlorination Facility at Miramar Reservoir

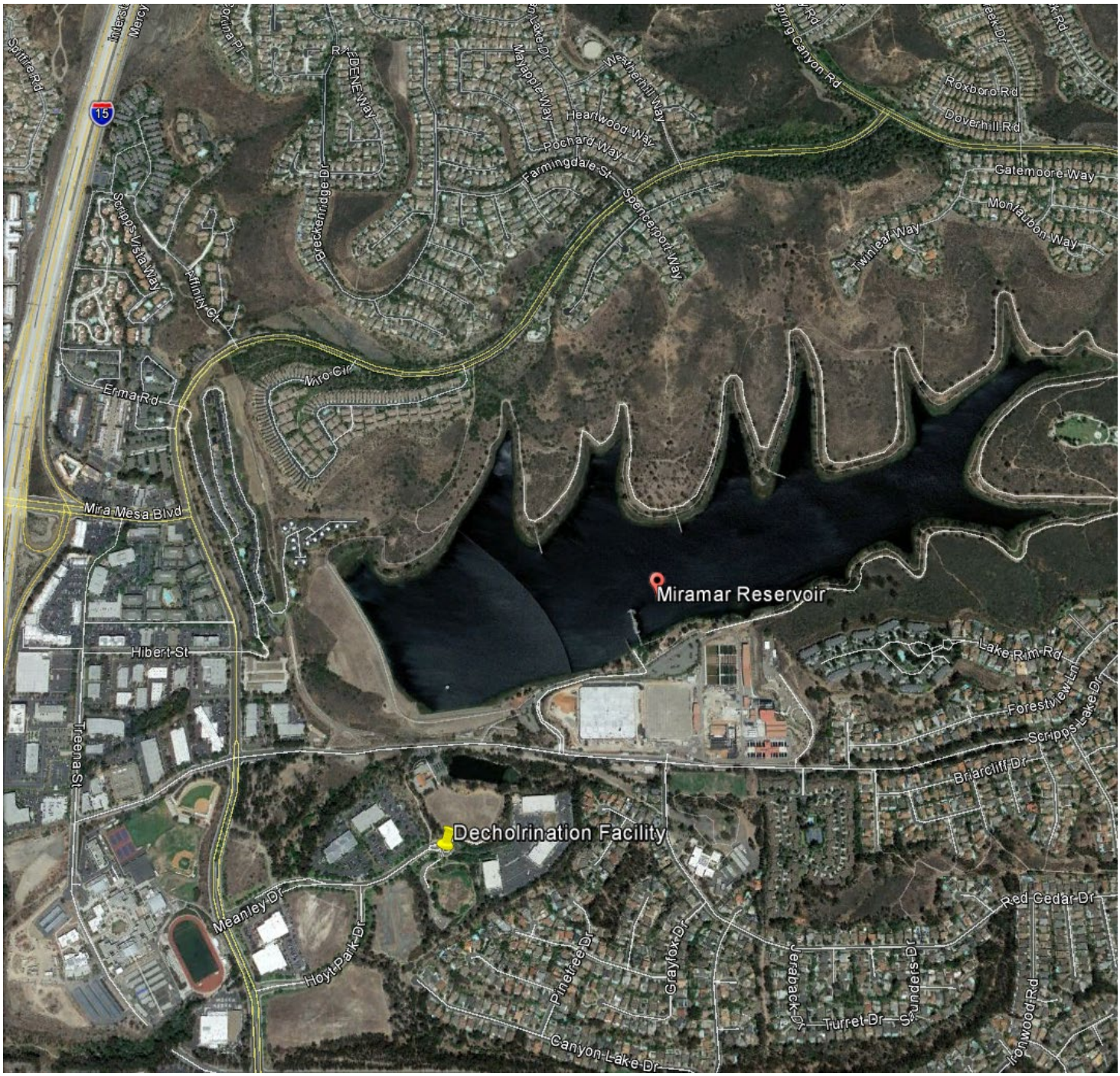
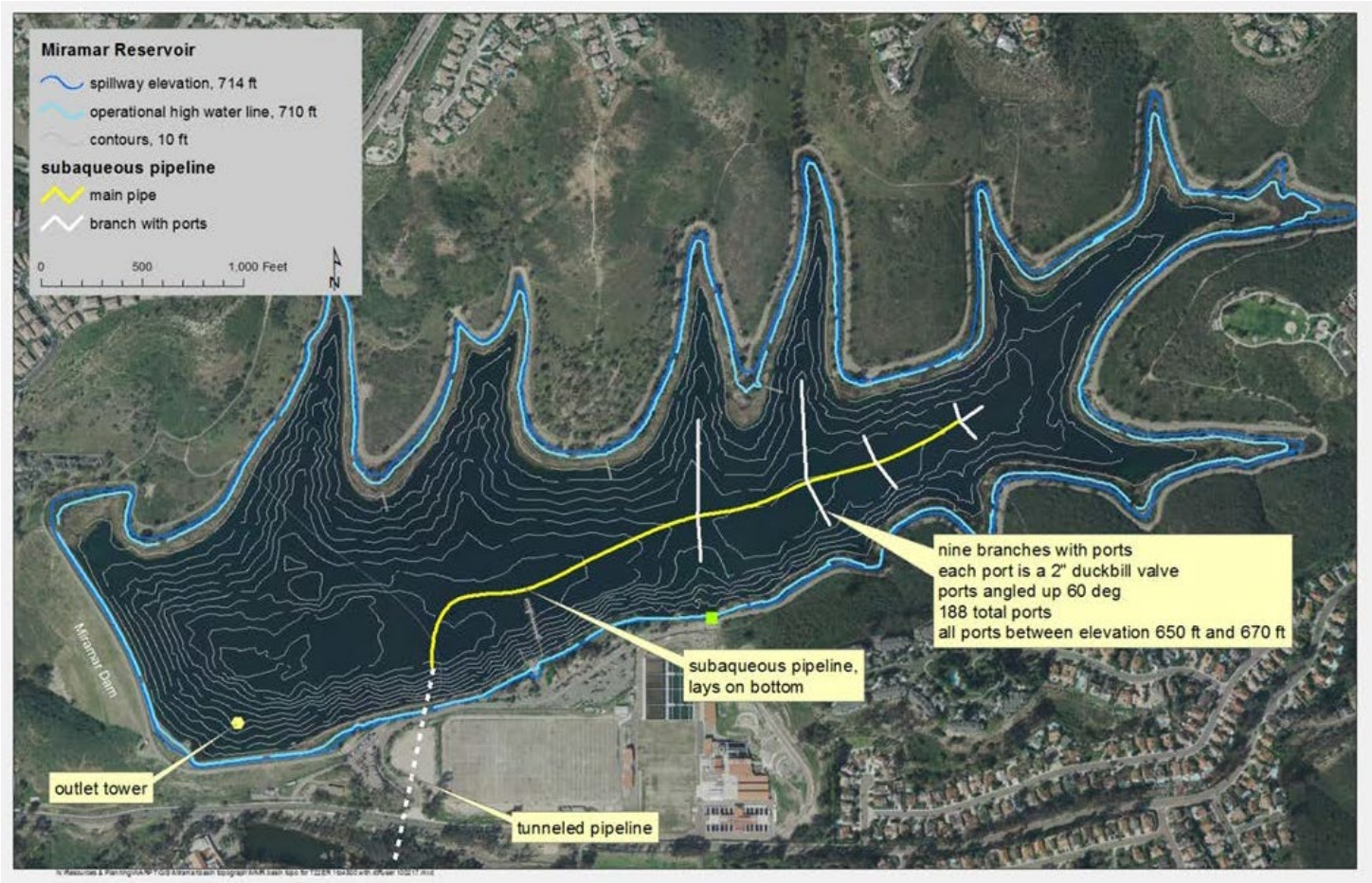
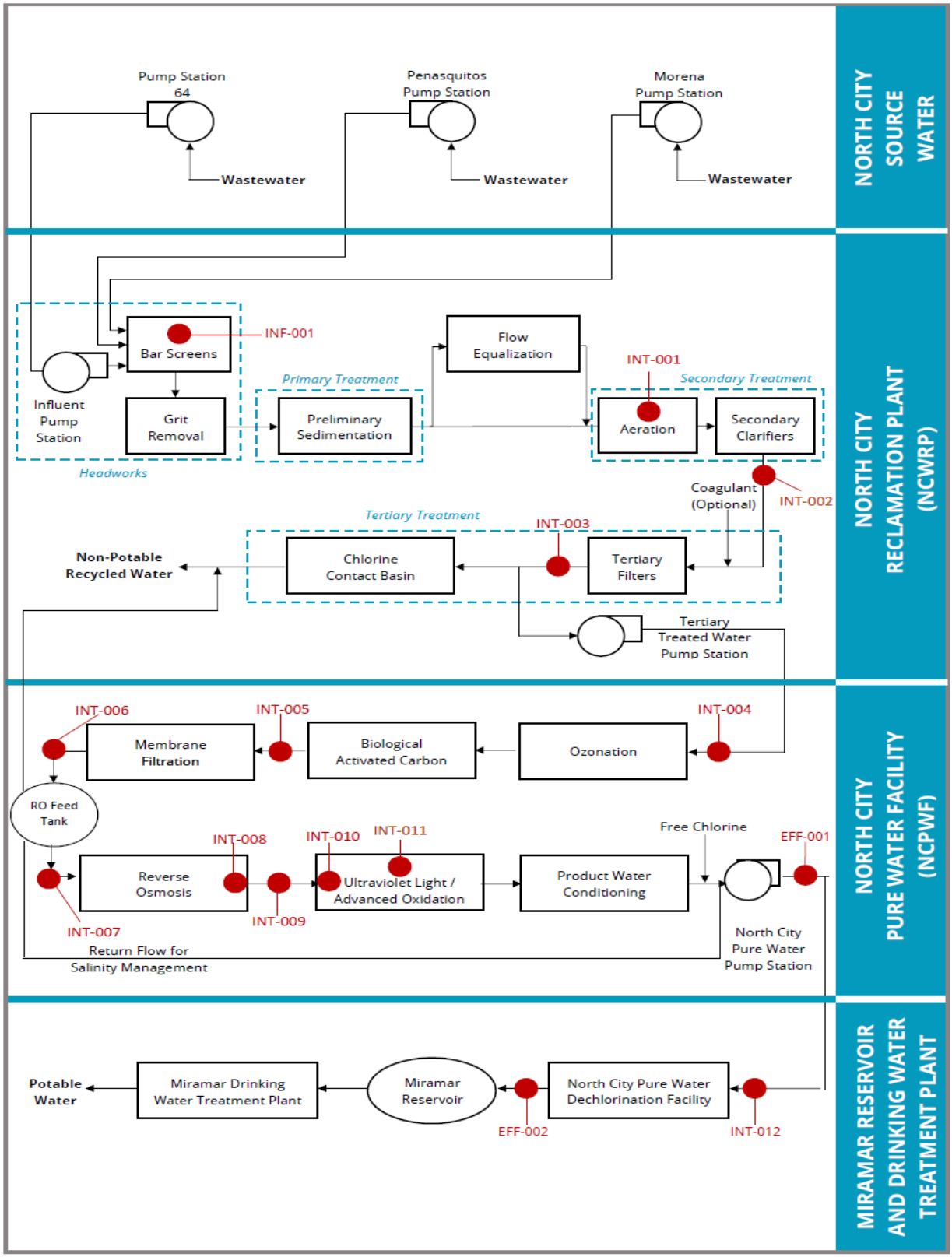


Figure B-5: Miramar Pipeline and Diffuser Locations



ATTACHMENT C – FLOW SCHEMATIC

North City Pure Water Project Process Schematic with Monitoring Locations



ATTACHMENT D – STANDARD PROVISIONS

I. STANDARD PROVISIONS – PERMIT COMPLIANCE

A. Duty to Comply

1. The Discharger must comply with all of the terms, requirements, and conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 CFR § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

2. The Discharger shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR § 122.41(a)(1).)

B. Need to Halt or Reduce Activity Not a Defense

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR § 122.41(c).)

C. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR § 122.41(d).)

D. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR § 122.41(g).)

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR § 122.5(c).)

F. Inspection and Entry

The Discharger shall allow the San Diego Water Board, State Water Board, USEPA, and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (33 U.S.C. § 1318(a)(4)(B); 40 CFR § 122.41(i); Wat. Code, §§ 13267, 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(i); 40 CFR § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 CFR § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 CFR § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and

4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (33 U.S.C. § 1318(a)(4)(B); 40 CFR § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

G. Bypass

1. Definitions

a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR § 122.41(m)(1)(i).)

b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR § 122.41(m)(1)(ii).)

2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR § 122.41(m)(2).)

3. Prohibition of bypass. Bypass is prohibited, and the San Diego Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR § 122.41(m)(4)(i)):

a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR § 122.41(m)(4)(i)(A));

b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR § 122.41(m)(4)(i)(B)); and

c. The Discharger submitted notice to the San Diego Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR § 122.41(m)(4)(i)(C).)

4. The San Diego Water Board may approve an anticipated bypass, after considering its adverse effects, if the San Diego Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR § 122.41(m)(4)(ii).)

5. Notice

a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date of the bypass. (40 CFR § 122.41(m)(3)(i).)

b. Unanticipated bypass. The Discharger shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR § 122.41(m)(3)(ii).)

H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR § 122.41(n)(1).)

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR § 122.41(n)(2).)

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR § 122.41(n)(3)):

a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR § 122.41(n)(3)(i));

b. The permitted facility was, at the time, being properly operated (40 CFR § 122.41(n)(3)(ii));

c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR § 122.41(n)(3)(iii)); and

d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR § 122.41(n)(3)(iv).)

3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR § 122.41(n)(4).)

II. STANDARD PROVISIONS – PERMIT ACTION

A. General

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR § 122.41(f).)

B. Duty to Reapply

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR § 122.41(b).)

C. Transfers

This Order is not transferable to any person except after notice to the San Diego Water Board. The San Diego Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR §§ 122.41(l)(3), 122.61.)

III. STANDARD PROVISIONS – MONITORING

A. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR § 122.41(j)(1).)

B. Monitoring must be conducted according to test procedures approved under 40 CFR part 136 for the analyses of pollutants unless another method is required under 40 CFR chapter 1, subchapter N. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 CFR part 136 for the analysis of pollutants or pollutant parameters or as required under 40 CFR chapter 1, subchapter N. For the purposes of this paragraph, a method is sufficiently sensitive when:

1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter or the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or
2. The method has the lowest ML of the analytical methods approved under 40 CFR part 136 or required under 40 CFR chapter 1, subchapter N for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 CFR part 136 or otherwise required under 40 CFR chapter 1, subchapter N, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 CFR §§ 122.21(e)(3), 122.41(j)(4), 122.44(i)(1)(iv).)

IV. STANDARD PROVISIONS – RECORDS

A. The Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the San Diego Water Board Executive Officer at any time. (40 CFR § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 CFR § 122.41(j)(3)(i));

2. The individual(s) who performed the sampling or measurements (40 CFR § 122.41(j)(3)(ii));

3. The date(s) analyses were performed (40 CFR § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 CFR § 122.41(j)(3)(iv));

5. The analytical techniques or methods used (40 CFR § 122.41(j)(3)(v)); and

6. The results of such analyses. (40 CFR § 122.41(j)(3)(vi).)

C. Claims of confidentiality for the following information will be denied (40 CFR § 122.7(b)):

1. The name and address of any permit applicant or Discharger (40 CFR § 122.7(b)(1)); and

2. Permit applications and attachments, permits and effluent data. (40 CFR § 122.7(b)(2).)

V. STANDARD PROVISIONS – REPORTING

A. Duty to Provide Information

The Discharger shall furnish to the San Diego Water Board, State Water Board, or USEPA within a reasonable time, any information which the San Diego Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the San Diego Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR § 122.41(h); Wat. Code, §§ 13267, 13383.)

B. Signatory and Certification Requirements

1. All applications, reports, or information submitted to the San Diego Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, V.B.5, and V.B.6 below. (40 CFR § 122.41(k).)

2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR § 122.22(a)(3).).

3. All reports required by this Order and other information requested by the San Diego Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR § 122.22(b)(1));

b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR § 122.22(b)(2)); and

c. The written authorization is submitted to the San Diego Water Board and State Water Board. (40 CFR § 122.22(b)(3).)

4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the San Diego Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR § 122.22(c).)

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly

responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." (40 CFR § 122.22(d).)

6. Any person providing the electronic signature for documents described in Standard Provisions – V.B.1, V.B.2, or V.B.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting V.B, and shall ensure that all relevant requirements of 40 CFR part 3 (Cross-Media Electronic Reporting) and 40 CFR part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e).)

C. Monitoring Reports

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) to this Order. (40 CFR § 122.41(l)(4).)

2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the San Diego Water Board or State Water Board. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J and comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. (40 CFR § 122.41(l)(4)(i).)

3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR part 136, or another method required for an industry-specific waste stream under 40 CFR chapter 1, subchapter N, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the San Diego Water Board or State Water Board. (40 CFR § 122.41(l)(4)(ii).)

4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR § 122.41(l)(4)(iii).)

D. Compliance Schedules

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR § 122.41(l)(5).)

E. Twenty-Four Hour Reporting

1. The Discharger shall report any noncompliance which may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Discharger becomes aware of the circumstances. A report shall also be provided within five (5) days of the time the Discharger becomes aware of the circumstances. The report shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2020, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting V.J. The reports shall comply with 40 CFR part 3, 40 CFR section 122.22, and 40 CFR part 127. The San Diego Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 CFR § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours:

a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR § 122.41(l)(6)(ii)(A).)

b. Any upset that exceeds any effluent limitation in this Order. (40 CFR § 122.41(l)(6)(ii)(B).)

3. The San Diego Water Board may waive the above required written report on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR § 122.41(l)(6)(ii)(B).)

F. Planned Changes

The Discharger shall give notice to the San Diego Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 CFR § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Discharger shall give advance notice to the San Diego Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with this Order's requirements. (40 CFR § 122.41(l)(2).)

H. Other Noncompliance

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting V.E and the applicable required data in appendix A to 40 CFR part 127. The San Diego Water Board may also require the Discharger to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 CFR § 122.41(l)(7).)

I. Other Information

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application or submitted incorrect information in a permit application or in any report to the San Diego Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR § 122.41(l)(8).)

J. Initial Recipient for Electronic Reporting Data

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 CFR part 127 to the initial recipient defined in 40 CFR section 127.2(b). USEPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 CFR section 127.2(c)]. USEPA will update and maintain this listing.
(40 CFR § 122.41(l)(9).)

VI. STANDARD PROVISIONS – ENFORCEMENT

The San Diego Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13268, 13385, 13386, and 13387.

VII. STANDARD PROVISIONS – NOTIFICATION LEVELS

Publicly-Owned Treatment Works (POTWs)-All POTWs shall provide adequate notice to the San Diego Water Board of the following (40 CFR § 122.42(b)):

A. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR § 122.42(b)(1)); and

B. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 CFR § 122.42(b)(2).)

C. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 CFR § 122.42(b)(3).

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

CONTENTS

TABLES

ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Section 308 of the federal Clean Water Act (CWA) and sections 122.41(h), (j)-(l), 122.44(i), and 122.48 of title 40 of the Code of Federal Regulations (40 CFR) require that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the California Regional Water Quality Control Board, San Diego Region (San Diego Water Board) to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. Pursuant to this authority, this MRP establishes conditions for the City of San Diego (City or 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 San Diego Water Board with information necessary to evaluate discharge characteristics and compliance status.

The purpose of this MRP is to determine and ensure compliance with effluent limitations and other requirements established in this Order, assess treatment efficiency, characterize effluents, and characterize the receiving water and the effects of the discharge on the receiving water. This MRP also specifies requirements concerning the proper use, maintenance, and installation of monitoring equipment and methods, and the monitoring type intervals and frequency necessary to yield data that are representative of the activities and discharges regulated under this Order.

Each monitoring section contains an introductory paragraph summarizing why the monitoring is needed and the key management questions the monitoring is designed to answer. In developing the list of key management questions, the San Diego Water Board considered four basic types of information for each question:

(1) Management Information Need – Why does the San Diego Water Board need to know the answer?

(2) Monitoring Criteria – What monitoring will be conducted for deriving an answer to the question?

(3) Expected Product – How should the answer be expressed and reported?

(4) Possible Management Actions – What actions will be potentially influenced by the answer?

The framework for this monitoring program has three components that comprise a range of spatial and temporal scales, namely: core monitoring, regional monitoring, and special studies.

1. Core monitoring consists of the basic site-specific monitoring necessary to measure compliance with individual effluent limits and/or impacts to receiving water quality. Core monitoring is typically conducted in the immediate vicinity of the discharge by examining local scale spatial effects.
2. Regional monitoring provides information necessary to make assessments over large areas and serves to evaluate cumulative effects of all anthropogenic inputs. Regional monitoring data also assists in the interpretation of core monitoring studies. In the event that a regional monitoring effort takes place during the permit cycle in which this MRP does not specifically address regional monitoring, the San Diego Water Board may allow relief from aspects of core monitoring components in order to encourage participation pursuant to section V of this MRP.
3. Special studies are directed monitoring efforts designed in response to specific management or research questions identified through either core or regional monitoring programs. Often, they are used to help understand core or regional monitoring results, where a specific environmental process is not well understood, or to address unique issues of local importance.

I. GENERAL MONITORING PROVISIONS

A. Samples and measurements taken as required herein shall be representative of the volume and nature of the monitoring discharge. All samples shall be taken at the monitoring points

specified in section II, Table E-1 of this MRP and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring points shall not be changed without notification to and the approval of the San Diego Water Board.

B. Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices shall be installed, calibrated, and maintained to ensure that the accuracy of the measurement is consistent with the accepted capability of that type of device. Devices selected shall be capable of measuring flows with a maximum deviation of less than ±5 percent from true discharge rates throughout the range of expected discharge volumes.

C. Monitoring must be conducted according to U.S. Environmental Protection Agency (USEPA) test procedures approved at 40 CFR part 136, *Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act,* as amended, unless other analytical methods are specified in this Order and attachments thereof or otherwise specified by the San Diego Water Board. This Order allows for the use of test procedures approved at 40 CFR part 141 in lieu of test procedures approved at 40 CFR part 136 only for specific constituents as noted in Tables E-2, E-3, E-4, and E-6 of this MRP and only when the test procedures approved at 40 CFR part 141 are more sensitive than the test procedures approved at 40 CFR part 136, in accordance with 40 CFR 122.44(i)(1)(iv)(B).

D. Pursuant to section 60320.304 of title 22 of the California Code of Regulations (CCR), all laboratory analyses for contaminants having a primary or secondary maximum contaminant level (MCL) must be conducted using a drinking water method approved by the State Water Board's Division of Drinking Water (DDW) for the contaminant and by a laboratory accredited by the State Board Environmental Laboratory Accreditation Program for the analytical method used. Analyses for chemicals other than those having primary or secondary MCLs must be described in the City's approved Surface Water Source Augmentation Project Operation Plan (SWSAP Operation Plan).

E. The Discharger must complete compliance monitoring as required by DDW and the San Diego Water Board. If there are duplications, the Discharger must comply with the frequency and limits of whichever requirement is more stringent. The monitoring and reporting requirements of this permit must be incorporated into the SWSAP Operation Plan. Pursuant to section 60320.301(g) of title 22 of the CCR, all reports submitted to DDW or the San Diego Water Board must be in accessible electronic format or hard copy.

F. All analyses shall be performed in a laboratory certified to perform such analyses by the DDW or by a laboratory approved by the San Diego Water Board. The laboratory must be accredited under the DDW Environmental Laboratory Accreditation Program (ELAP) to ensure the quality of analytical data used for regulatory purposes to meet the requirements of this Order. Additional information on ELAP can be accessed at http://www.waterboards.ca.gov/drinking_water/certlic/labs/index.shtml.

G. Records of monitoring information shall include information required under Standard Provision, Attachment D, section IV.

H. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year, or more frequently, to ensure continued accuracy of the devices (i.e., no more than 12 months between calibrations for the flow measurement devises).

I. The Discharger shall have, and implement, an acceptable written quality assurance (QA) plan for laboratory analyses. Duplicate chemical analyses must be conducted on a minimum of 10 percent of the samples or at least one sample per month, whichever is greater. A similar frequency shall be maintained for analyzing spiked samples. The Discharger should have a success rate equal or greater than 80 percent.

When requested by USEPA or the San Diego Water Board, the Discharger shall participate in the NPDES Discharge Monitoring Report QA (DMR-QA) performance study. If the DMR-QA is not requested, the Discharger shall submit the most recent Water Pollution Performance Evaluation Study. The Discharger shall ensure that the results of the DMR-QA Study or the most recent Water Pollution Performance Evaluation Study are submitted annually by December 31 to the State Water Resources Control Board at the following address:

State Water Resources Control Board Quality Assurance Program Officer
Office of Information Management and Analysis
State Water Resources Control Board
1001 I Street, Sacramento, CA 95814

J. Analysis for toxic pollutants, including chronic toxicity, with effluent limitations or performance goals based on water quality objectives (WQOs) and criteria of the of the *Water Quality Control Plan for the San Diego Basin* (Basin Plan) and California Toxics Rule (CTR) shall be conducted in accordance with procedures described in the Basin Plan and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP).

K. The Discharger shall ensure that analytical procedures used to evaluate compliance with effluent limitations or performance goals established in this Order use minimum levels (ML) no greater than the applicable effluent limitations or performance goals and are consistent with the requirements of 40 CFR part 136 (or 40 CFR part 141), or otherwise approved by USEPA and authorized by the San Diego Water Board. If no authorized ML value is below the effluent limitation, then the method must achieve an ML no greater than the lowest ML value provided in 40 CFR part 136 (or 40 CFR part 141).

II. MONITORING LOCATIONS

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

Table E-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
---	INF-001	A location where all influent flow to the North City Water Reclamation Plant (NCWRP) are accounted for in monitoring events; upstream of any in-plant return flows, and where a representative sample of the influent can be obtained. Latitude: 32.8766° Longitude: -117.1973°
---	INT-001	Aeration process
---	INT-002	A point in the facility from which effluent from the secondary clarifiers at the NCWRP can be monitored prior to tertiary treatment.
---	INT-003	A point where the combined filter effluent of the tertiary filters at the NCWRP can be monitored prior to chlorine disinfection.
---	INT-004	Ozone contactors

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
---	INT-005-A INT-005-B INT-005-C INT-005-D INT-005-E INT-005-F INT-005-G INT-005-H INT-005-I INT-005-J INT-005-K INT-005-L	Microfiltration (MF) feed (at each of the 12 MF units) - A point where effluent from membrane effluent strainers to each membrane filtration unit can be monitored prior to the reverse osmosis (RO) treatment process.
---	INT-006-A INT-006-B INT-006-C INT-006-D INT-006-E INT-006-F INT-006-G INT-006-H INT-006-I INT-006-J INT-006-K INT-006-L	MF permeate (at each of the 12 MF units) - A point where effluent from each membrane filtration unit can be monitored prior to the RO feed tank.
---	INT-007	RO feed (combined) - A point where effluent from RO feed tank can be monitored prior to the RO system.
---	INT-008-A INT-008-B INT-008-C INT-008-D INT-008-E INT-008-F INT-008-G INT-008-H	RO permeate (at each of the 8 RO trains) - A point where effluent from each RO train can be monitored prior to the advanced oxidation processes.
---	INT-009	RO permeate (combined) - A point where effluent from the RO system (combined) can be monitored prior to the advanced oxidation processes.
---	INT-010-A INT-010-B INT-010-C	UV reactor influent (at each of the 3 reactors) - A point where effluent from the reverse osmosis system after RO air gap structure can be monitored prior to each UV reactor.
---	INT-011-A INT-011-B INT-011-C	UV reactor chamber (each of the 3 UV reactors)
---	INT-012	A point in the NCPW pipeline downstream of EFF-001 and upstream of EFF-002 for free chlorine contact time compliance.
---	EFF-001	Downstream of any in-plant return flow at the North City Pure Water Facility (NCPWF) where represented samples of effluent treated at the NCPWF can be collected, after chlorine disinfection, but prior to dechlorination. Latitude: 32.8818° Longitude: -117.1990°

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
001	EFF-002	A point in the Facility after dechlorination, but prior to discharge to Miramar Reservoir. Latitude: 32.9095° Longitude: -117.1045°
---	RSW-001[1]	Miramar Reservoir, at location near the west end of the reservoir near the dam and outlet tower. Latitude: 32.9133° Longitude: -117.1042°
---	RSW-002[1]	Miramar Reservoir, at location near the middle of the reservoir. Latitude: 32.9158° Longitude: -117.0975°
---	RSW-003[1]	Miramar Reservoir, at location near the east end of the reservoir. Latitude: 32.9172° Longitude: -117.0928°

1. The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.

III. CORE MONITORING REQUIREMENTS

A. Influent Monitoring Requirements

Influent monitoring is the collection and analysis of samples or measurements of wastewater prior to the treatment processes. Influent monitoring of a wastewater stream prior to entering the treatment plant is necessary to address the following questions:

- Is the pretreatment program effectively controlling pollutant loads from industrial facilities?
- What is the frequency of unexpected industrial discharges or pollutants loads which can cause or contribute to an upset in the wastewater process?
- Is the influent inhibiting or disrupting the Facility, its treatment processes, or its operations?
- Is the Facility complying with permit conditions, including but not limited to the biochemical oxygen demand 5-day @ 20 °C (BOD_5) and total suspended solids (TSS) percent removal limitations?

The Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring at Monitoring Location INF-001[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	million gallons per day (MGD)	Recorder/Totalizer	Continuous	---
Biochemical Oxygen Demand (5-day @ 20°C) (BOD_5)	milligrams per liter (mg/L)	24-hour composite	1/Week	[2]
Total Suspended Solids (TSS)	mg/L	24-hour composite	1/Week	[2]
Nitrogen, Total	mg/L	24-hour composite	1/Month	[2]

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. As required under 40 CFR part 136.

B. Treatment Reliability and Process Control Monitoring Requirements

Treatment reliability and process control internal monitoring is the collection and analysis of samples or measurements of effluents from specific treatment processes to determine compliance with internal effluent limitations that apply to effluent from specific treatment processes, determine compliance with treatment requirements, and measure performance of individual treatment processes.

Internal monitoring is necessary to address the following questions:

- Is the Discharger's multi-barrier treatment facility effectively demonstrating the proper operation of the advanced treatment processes, pathogen microorganism control, and chemical and contaminant control?
- Is the North City Water Reclamation Plant complying with secondary treatment standards for BOD_5, TSS, and pH?

The Discharger shall conduct internal monitoring as follows:

Table E-3. Internal Monitoring Requirements[1]

Parameter	Units	Monitoring Location/Station[2]	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Ammonia (as N)	mg/L	INT-002	24-hour composite	1/Day	---
BOD_5	mg/L	INT-003	24-hour composite	1/Week[3]	[4]
	% Removal	Calculate	Calculate	1/Week	---
TSS	mg/L	INT-003	24-hour composite	1/Week[3]	[4]
	% Removal	Calculate	Calculate	1/Week	---
Turbidity	nephelometric turbidity units (NTU)	INT-003	Recorder	Continuous	---
Total Organic Carbon (TOC)	mg/L	INT-003 and INT-009	Recorder	Continuous	---
Dissolved Ozone Residual	mg/L	INT-004	Recorder	Continuous	---
Temperature	Degrees Celsius (°C)	INT-004	Recorder	Continuous	---
Pressure	psi	INT-005-A through L INT-006-A through L	Recorder	Continuous	---
Turbidity	nephelometric turbidity units (NTU)	INT-006-A through L	Recorder	Continuous	---
Strontium	mg/L	INT-007	Grab	1/Day	[5]
Electrical Conductivity	mmho/cm or dS/m	INT-007	Recorder	Continuous	---
TOC	mg/L	INT-007	Recorder	Continuous	---
Strontium	mg/L	INT-008-A through H	Grab	1/Day	[5]
Electrical Conductivity	mmho/cm or dS/m	INT-008-A through H	Recorder	Continuous	---

Parameter	Units	Monitoring Location/Station[2]	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
TOC	mg/L	INT-009	24-hour composite	1/Week[6]	[5]
UV Transmittance	%	INT-010-A through C	Recorder	Continuous	---
UV Intensity	mW/cm^2	INT-011-A through C	Recorder	Continuous	---
UV Dose	mJ/cm^2	INT-011-A through C	Calculated	Continuous	---
Temperature	Degrees Fahrenheit (°F)	INT-011-A through C	Recorder	Continuous	---
Solids Retention Time	Days	INT-001	Calculated	1/Day	---
Flowrate	MGD	INT-004, INT-010A through C, and INT-012	Recorder/Totalizer	Continuous	---
pH	Standard Units	INT-003	Recorder	Continuous	[4]
pH	Standard Units	INT-010-A through C and INT-012	Recorder	Continuous	---
Free Chlorine Residual	mg/L	INT-010-A through C and INT-012	Recorder	Continuous	---

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. See Table E-1 of this MRP for description of the monitoring locations.
3. The Discharger shall calculate and report the MER of the constituent for each sample taken. The MER shall be calculated in accordance with section VII.G of this Order.
4. As required under 40 CFR Part 136.
5. Samples shall be analyzed on the same day using both Clean Water Act methods specified in Code of Federal Regulations, title 40 (40 CFR), part 136 and drinking water methods specified in 40 CFR part 141, and results of both analyses shall be included in monitoring reports required by this MRP. Analyses using the Clean Water Act methods are not required if the equivalent drinking water methods are more sensitive. Samples can be analyzed using Alternative Test Procedures (ATPs) upon approval of ATPs by the State Water Board.
6. The Discharger shall monitor TOC concentrations weekly for the duration of each ramp-up stage until 20 weeks of operation at the final ramp up stage. Pursuant to section 60320.302(a)(2), no more than five (5) percent of the sample results can exceed TOC concentrations of 0.25 mg/L.

C. Effluent Monitoring Requirements

Effluent monitoring is the collection and analysis of samples or measurements of effluents, after all treatment processes, to determine and quantify contaminants and to demonstrate compliance with applicable effluent limitations, standards, and other requirements of this Order.

Effluent monitoring is necessary to address the following questions:

- Does the effluent comply with permit effluent limitations, performance goals, and other requirements of this Order, thereby ensuring that water quality standards are achieved in the receiving water?
- What is the mass of constituents that are discharged daily, monthly, or

annually?

- Is the effluent concentration or mass changing over time?
- Is the Facility being properly operated and maintained to ensure compliance with the conditions of this Order?

1. The Discharger shall monitor effluent at Monitoring Location EFF-001 as follows:

Table E-4. Effluent Monitoring at Monitoring Location EFF-001[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow Rate	MGD	Recorder/Totalizer	Continuous	--
Chemical Oxygen Demand	mg/L	24-hour composite	1/Month	2
Temperature	Degrees Fahrenheit(°F)	Grab	1/Month	2
BOD_5	mg/L	24-hour composite	1/Month	2
TSS	mg/L	24-hour composite	1/Month	2
TOC	mg/L	24-hour composite	1/Month	2
Turbidity	NTU	24-hour composite	1/Month[4,5]	6
Turbidity	NTU	Continuous	Continuous	--
Settleable Solids	milliliter per liter (ml/L)	24-hour composite	1/Month	2
Total Hardness (as $CaCO_3$)	mg/L	24-hour composite	1/Month	2
Oil and Grease	mg/L	24-hour composite	1/Month	2
Dissolved Oxygen	mg/L	Grab	1/Month	2
Escherichia coli (*E. coli*)	colony forming units per 100 milliliters (CFU/100 mL)	Grab	1/Week	2
Phosphorous, Total (as P)	mg/L	24-hour composite	1/Month[3]	2
Nitrogen, Total	mg/L	24-hour composite	1/Month[3]	2
Nitrate (as N)	mg/L	24-hour composite	1/Month[3,4]	6
Nitrite (as N)	mg/L	24-hour composite	1/Month[3,4]	6
Nitrate+Nitrite (sum as N)	mg/L	24-hour composite	1/Month[3,4]	6
Ammonia, un-ionized (as N)	mg/L	24-hour composite	1/Month[3]	6
BASIN PLAN PARAMETERS				
Radioactivity, Gross Alpha (excluding radon and uranium)	picocuries per liter (pCi/L)	24-hour composite	1/Month[4]	6
Radioactivity, Gross Beta	pCi/L	24-hour composite	1/Month[4]	6
Radium 226	pCi/L	24-hour composite	1/Month[4,7]	6
Radium 228	pCi/L	24-hour composite	1/Month[4,7]	6
Uranium	pCi/L	24-hour composite	1/Month[4]	6
Strontium-90	pCi/L	24-hour composite	1/Month[4]	6
Tritium	pCi/L	24-hour composite	1/Month[4]	6
Percent Sodium	%	24-hour composite	1/Month[4]	6
Color	AMDI Color Units	24-hour composite	1/Month[5]	6
Odor	Units	24-hour composite	1/Month[5]	6

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Methylene Blue Active Substances (MBAS)	mg/L	24-hour composite	1/Month[3,5]	6
Sulfate	mg/L	24-hour composite	1/Month[3,4,5]	6
Total Dissolved Solids (TDS)	mg/L	24-hour composite	1/Month[3,4,5]	6
Methyl-tert-butyl ether (MTBE)	micrograms per liter (µg/L)	Grab	1/Month[3,4,5]	6
Chloride	µg/L	24-hour composite	1/Month[3,4,5]	6
Fluoride	µg/L	24-hour composite	1/Month[3,4]	6
Perchlorate	µg/L	24-hour composite	1/Month[3,4]	6
Aluminum	µg/L	24-hour composite	1/Month[3,4,5]	6
Antimony, Total	µg/L	24-hour composite	1/Month[3,4]	6
Arsenic, Total	µg/L	24-hour composite	1/Month[3,4]	6
Asbestos	MFL	24-hour composite	1/Month[3,8]	6
Barium	µg/L	24-hour composite	1/Month[3,4]	6
Beryllium	µg/L	24-hour composite	1/Month[3,4]	6
Benzene	µg/L	Grab	1/Month[3,4]	6
Chromium III, Total Recoverable	µg/L	24-hour composite	1/Month[3,4]	6
Chromium, Total	µg/L	24-hour composite	1/Month[3,4]	6
Iron, Total	µg/L	24-hour composite	1/Month[3,4]	6
Thallium, Total	µg/L	24-hour composite	1/Month[3,4]	6
Thiobencarb	µg/L	24-hour composite	1/Month[3,4,5]	6
1,2-Dichlorobenzene	µg/L	Grab	1/Month[3,4]	6
1,4-Dichlorobenzene	µg/L	Grab	1/Month[3,4]	6
1,1-Dichloroethane	µg/L	Grab	1/Month[3,4]	6
cis-1,2-Dichloroethylene	µg/L	Grab	1/Month[3,4]	6
trans-1,2-Dichloroethylene	µg/L	Grab	1/Month[3,4]	6
1,3-Dichloropropene	µg/L	Grab	1/Month[3,4]	6
Ethylbenzene	µg/L	Grab	1/Month[3,4]	6
Monochlorobenzene	µg/L	Grab	1/Month[3,4]	6
Styrene	µg/L	Grab	1/Month[3,4]	6
Toluene	µg/L	Grab	1/Month[3,4]	6
Trihalomethanes, Total	µg/L	Grab	1/Month[3,4]	6
Vinyl Chloride	µg/L	Grab	1/Month[3,4]	6
Xylenes	µg/L	Grab	1/Month[3,4.9]	6
1,1,1-Trichloroethane	µg/L	Grab	1/Month[3,4]	6
Trichlorofluoromethane	µg/L	Grab	1/Month[3,4]	6
1,1,2-Trichloro-1,2,2-Trifluroethane	µg/L	Grab	1/Month[3,4]	6
Hexachlorocyclopentadiene	µg/L	24-hour composite	1/Month[3,4]	6
Atrazine	µg/L	24-hour composite	1/Month[3,4]	6
Alachlor	µg/L	24-hour composite	1/Month[3,4]	6
1,2,4-Trichlorobenzene	µg/L	24-hour composite	1/Month[3,4]	6
Bentazon	µg/L	24-hour composite	1/Month[3,4]	6
Carbofuran	µg/L	24-hour composite	1/Month[3,4]	6
2,4-D	µg/L	24-hour composite	1/Month[3,4]	6
Dalapon	µg/L	24-hour composite	1/Month[3,4]	6
Dibromochloropropane	µg/L	Grab	1/Month[3,4]	6
Bis(2-ethylhexyl) adipate (Di(2-ethylhexyl)adipate)	µg/L	Grab	1/Month[3,4]	6
Dinoseb	µg/L	24-hour composite	1/Month[3,4]	6
Diquat	µg/L	24-hour composite	1/Month[3,4]	6

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Endothall	µg/L	24-hour composite	1/Month[3,4]	[6]
Ethylene Dibromide	µg/L	Grab	1/Month[3,4]	[6]
Glyphosate	µg/L	24-hour composite	1/Month[3,4]	[6]
Methoxychlor	µg/L	24-hour composite	1/Month[3,4]	[6]
Molinate	µg/L	24-hour composite	1/Month[3,4]	[6]
Oxamyl	µg/L	24-hour composite	1/Month[3,4]	[6]
Picloram	µg/L	24-hour composite	1/Month[3,4]	[6]
Simazine	µg/L	24-hour composite	1/Month[3,4]	[6]
2,3,5-TP (Silvex)	µg/L	24-hour composite	1/Month[3,4]	[6]
PARAMETERS FOR THE PROTECTION OF AQUATIC LIFE				
Cadmium, Total	µg/L	Grab	1/Month[3,4]	[6]
Chromium VI, Total Recoverable	µg/L	24-hour composite	1/Month[3,4]	[6]
Copper, Total	µg/L	Grab	1/Month[3,4,5]	[6]
Cyanide, Total	µg/L	24-hour composite	1/Month[3,4]	[4,6]
Lead, Total	µg/L	24-hour composite	1/Month[3,4]	[6]
Nickel, Total	µg/L	Grab	1/Month[3,4]	[6]
Selenium, Total	µg/L	Grab	1/Month[3,4]	[6]
Silver, Total	µg/L	Grab	1/Month[3,4,5]	[6]
Zinc, Total	µg/L	Grab	1/Month[3,4,5]	[6]
alpha Endosulfan	µg/L	24-hour composite	1/Quarter[3]	[6]
beta Endosulfan	µg/L	24-hour composite	1/Quarter[3]	[6]
Endrin	µg/L	24-hour composite	1/Month[3,4]	[6]
Toxaphene	µg/L	24-hour composite	1/Month[3,4]	[6]
PARAMETERS FOR THE PROTECTION OF HUMAN HEALTH				
alpha-BHC	µg/L	24-hour composite	1/Quarter[3]	[6]
beta-BHC	µg/L	24-hour composite	1/Quarter[3]	[6]
delta-BHC	µg/L	24-hour composite	1/Quarter[3]	[6]
gamma-BHC (Lindane)	µg/L	24-hour composite	1/Month[3,4]	[6]
Endosulfan Sulfate	µg/L	24-hour composite	1/Quarter[3]	[6]
Endrin Aldehyde	µg/L	24-hour composite	1/Quarter[3]	[6]
Acrolein	µg/L	Grab	1/Quarter[3]	[6]
Acenaphthene	µg/L	24-hour composite	1/Quarter[3]	[6]
Acenaphthylene	µg/L	24-hour composite	1/Quarter[3]	[6]
Anthracene	µg/L	24-hour composite	1/Quarter[3]	[6]
Bis(2-chloroisopropyl)ether	µg/L	24-hour composite	1/Quarter[3]	[6]
Bis(2-ethylhexyl)phthalate (Di(2-ethylhexyl)phthalate)	µg/L	Grab	1/Month[3,4]	[6]
Butyl benzyl phthalate	µg/L	24-hour composite	1/Quarter[3]	[6]
2-Chloronaphthalene	µg/L	24-hour composite	1/Quarter[3]	[6]
Chrysene	µg/L	24-hour composite	1/Quarter[3]	[6]
4-chlorophenyl phenyl ether	µg/L	24-hour composite	1/Quarter[3]	[6]
Dibenzo(a,h)anthracene	µg/L	24-hour composite	1/Quarter[3]	[6]
Chlorobenzene	µg/L	Grab	1/Quarter[3]	[6]
Mercury, Total	µg/L	Grab	1/Month[3,4,5]	[6]
Di-n-butyl Phthalate	µg/L	24-hour composite	1/Quarter[3]	[6]
Di-n-octyl Phthalate	µg/L	24-hour composite	1/Quarter[3]	[6]
1,3-Dichlorobenzene	µg/L	24-hour composite	1/Quarter[3]	[6]
Diethyl Phthalate	µg/L	24-hour composite	1/Quarter[3]	[6]
Dimethyl Phthalate	µg/L	24-hour composite	1/Quarter[3]	[6]
4,6-Dinitro-2-Methylphenol	µg/L	24-hour composite	1/Quarter[3]	[6]
2,4-Dinitrophenol	µg/L	24-hour composite	1/Quarter[3]	[6]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
2-Nitrophenol	µg/L	24-hour composite	1/Quarter[3]	[6]
4-Nitrophenol	µg/L	24-hour composite	1/Quarter[3]	[6]
Fluoranthene	µg/L	24-hour composite	1/Quarter[3]	[6]
Fluorene	µg/L	24-hour composite	1/Quarter[3]	[6]
Nitrobenzene	µg/L	24-hour composite	1/Quarter[3]	[6]
Acrylonitrile	µg/L	Grab	1/Quarter[3]	[6]
Aldrin	µg/L	24-hour composite	1/Quarter[3]	[6]
Benzidine	µg/L	24-hour composite	1/Quarter[3]	[6]
Benzo(ghi) Perylene	µg/L	24-hour composite	1/Quarter[3]	[6]
Bis(2-chloroethoxy) Methane	µg/L	24-hour composite	1/Quarter[3]	[6]
Bis(2-chloroethyl) Ether	µg/L	24-hour composite	1/Quarter[3]	[6]
4-Bromophenyl Phenyl Ether	µg/L	24-hour composite	1/Quarter[3]	[6]
2-Chloroethyl Vinyl Ether	µg/L	Grab	1/Quarter[3]	[6]
Carbon Tetrachloride	µg/L	Grab	1/Month[3,4]	[6]
Chlordane	µg/L	24-hour composite	1/Month[3,4]	[6]
4,4'-DDT	µg/L	24-hour composite	1/Quarter[3]	[6]
4,4'-DDE	µg/L	24-hour composite	1/Quarter[3]	[6]
4,4'-DDD	µg/L	24-hour composite	1/Quarter[3]	[6]
3,3'-Dichlorobenzidine	µg/L	24-hour composite	1/Quarter[3]	[6]
1,2-Dichloroethane	µg/L	Grab	1/Month[3,4]	[6]
1,1-Dichloroethylene	µg/L	Grab	1/Month[3,4]	[6]
Chloroethane	µg/L	Grab	1/Quarter[3]	[6]
Methylene Chloride (Dichloromethane)	µg/L	Grab	1/Quarter[3]	[6]
1,2-Dichloropropane	µg/L	Grab	1/Month[3,4]	[6]
Dichloromethane	µg/L	Grab	1/Month[3,4]	[6]
Dieldrin	µg/L	24-hour composite	1/Quarter[3]	[6]
2,4-Dinitrotoluene	µg/L	24-hour composite	1/Quarter[3]	[6]
2,6-Dinitrotoluene	µg/L	24-hour composite	1/Quarter[3]	[6]
1,2-Diphenylhydrazine	µg/L	24-hour composite	1/Quarter[3]	[6]
Heptachlor	µg/L	24-hour composite	1/Month[3]	[6]
Heptachlor Epoxide	µg/L	24-hour composite	1/Month[3]	[6]
Hexachlorobenzene	µg/L	24-hour composite	1/Month[3]	[6]
Hexachlorobutadiene	µg/L	24-hour composite	1/Quarter[3]	[6]
Hexachlorocyclopentadiene	µg/L	24-hour composite	1/Month[3]	[6]
Hexachloroethane	µg/L	24-hour composite	1/Quarter[3]	[6]
Methyl bromide	µg/L	Grab	1/Quarter[3]	[6]
Methyl chloride	µg/L	Grab	1/Quarter[3]	[6]
Isophorone	µg/L	24-hour composite	1/Quarter[3]	[6]
Indeno(1,2,3-cd) Pyrene	µg/L	24-hour composite	1/Quarter[3]	[6]
N-nitrosodi-n-propylamine	µg/L	24-hour composite	1/Quarter[3]	[6]
Phenanthrene	µg/L	24-hour composite	1/Quarter[3]	[6]
N-nitrosodiphenylamine	µg/L	24-hour composite	1/Quarter[3]	[6]
Pyrene	µg/L	24-hour composite	1/Quarter[3]	[6]
PCBs	µg/L	24-hour composite	1/Month[3,4]	[6]
2,3,7,8-TCDD	µg/L	24-hour composite	1/Month[3,4]	[6]
1,1,2,2-Tetrachloroethane	µg/L	Grab	1/Month[3,4]	[6]
Tetrachloroethylene	µg/L	Grab	1/Month[3,4]	[6]
Trichloroethylene	µg/L	Grab	1/Month[3,4]	[6]
2-Chlorophenol	µg/L	24-hour composite	1/Quarter[3]	[6]
4-Chloro 3-methylphenol	µg/L	24-hour composite	1/Quarter[3]	[6]
2,4-Dichlorophenol	µg/L	24-hour composite	1/Quarter[3]	[6]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
2,4-Dimethylphenol	µg/L	24-hour composite	1/Quarter[3]	6
Pentachlorophenol	µg/L	24-hour composite	1/Month[3,4]	6
Phenol	µg/L	24-hour composite	1/Quarter[3]	6
1,1,2-Trichloroethane	µg/L	Grab	1/Month[3,4]	6
1,2,3-Trichloropropane	µg/L	Grab	1/Month[3,4]	6
2,4,6-Trichlorophenol	µg/L	24-hour composite	1/Quarter[3]	6
Benzo(a)Anthracene	µg/L	24-hour composite	1/Quarter[3]	6
Benzo(a)Pyrene	µg/L	24-hour composite	1/Month[3,4]	6
Benzo(b)Fluoranthene	µg/L	24-hour composite	1/Quarter[3]	6
Benzo(k)Fluoranthene	µg/L	24-hour composite	1/Quarter[3]	6
DISINFECTION BYPRODUCTS				
Trihalomethanes, Total[1]	µg/L	Grab	1/Month[3,4,10]	6
Haloacetic Acids[1]	µg/L	Grab	1/Month[3,4,10]	6
Bromate	µg/L	Grab	1/Month[3,4,10]	6
Chlorite	µg/L	Grab	1/Month[3,4,10]	6
Bromoform	µg/L	Grab	1/Quarter[3,10]	6
Chloroform	µg/L	Grab	1/Quarter[3,10]	6
Dichlorobromomethane	µg/L	Grab	1/Month[3,10]	6
Chlorodibromomethane	µg/L	Grab	1/Quarter[3,10]	6
DIVISION OF DRINKING WATER NOTIFICATION LEVEL PARAMETERS				
Boron	mg/L	Grab	1/Month[11]	6
n-Butylbenzene	mg/L	Grab	1/Month[11]	6
sec-Butylbenzene	mg/L	Grab	1/Month[11]	6
tert-Butylbenzene	mg/L	Grab	1/Month[11]	6
Carbon disulfide	mg/L	Grab	1/Month[11]	6
Chlorate	mg/L	Grab	1/Month[11]	6
2-Chlorotoluene	mg/L	Grab	1/Month[11]	6
4- Chlorotoluene	mg/L	Grab	1/Month[11]	6
Dichlorodifluoromethane (Freon 12)	mg/L	Grab	1/Month[11]	6
Isopropylbenzene	mg/L	Grab	1/Month[11]	6
Manganese	mg/L	Grab	1/Month[4,11]	6
Methyl isobutyl ketone (MIBK)	mg/L	Grab	1/Month[11]	6
Naphthalene	mg/L	Grab	1/Month[11]	6
n-Propylbenzene	mg/L	Grab	1/Month[11]	6
Tertiary butyl alcohol (TBA)	mg/L	Grab	1/Month[11]	6
1,2,4-Trimethylbenzene	mg/L	Grab	1/Month[11]	6
1,3,5-Trimethylbenzene	mg/L	Grab	1/Month[11]	6
Ethylene Glycol	mg/L	Grab	1/Month[11]	6
Formaldehyde	mg/L	Grab	1/Month[11]	6
N-nitrosodiethylamine (NDEA)	mg/L	24-hour composite	1/Month[11]	6
N-nitrosodi-n-propulamine (NDPA)	mg/L	Grab	1/Month[11]	6
Diazinon	mg/L	24-hour composite	1/Month[11]	6
Propachlor	mg/L	24-hour composite	1/Month[11]	6

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
RDX	mg/L	24-hour composite	1/Month[11]	[6]
2,4,6-Trinitrotoluene (TNT)	mg/L	24-hour composite	1/Month[11]	[6]
HMX (Octogen)	mg/L	Grab	1/Month[11]	[6]
Vanadium	mg/L	Grab	1/Month[11]	[6]
1,4-Dioxane	mg/L	Grab	1/Month[11]	[6]
PFOS	mg/L	Grab	1/Month[11]	[6]
PFOA	mg/L	Grab	1/Month[11]	[6]
N-Nitrosodimethylamine (NDMA)	mg/L	Grab	1/Month[11]	[6]
INDICATOR COMPOUNDS[12]				
Acetone	µg/L	Grab	1/Year	[6]
Acesulfame potassium (Ace-K)	µg/L	Grab	1/Year	[6]
Iohexol	µg/L	Grab	1/Year	[6]
Nitrosomorpholine (NMOR)	µg/L	Grab	1/Year	[6]

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. As required under 40 CFR part 136.
3. The Discharger shall calculate and report the MER of the constituent for each sample taken. The MER shall be calculated in accordance with section VII.G of this Order.
4. Pursuant to section 60302.302 (h) of title 22 of the CCR, the Discharger must collect samples representative of the effluent of the advanced treatment process under normal operating conditions and have the samples analyzed monthly for constituents having Maximum Contaminant Levels (MCLs) for the duration of each ramp up stage. After 12 months of operation at the final ramp-up stage (full design flow) with no results exceeding the MCL, the Discharger may apply to DDW and the San Diego Water Board for a reduced monitoring frequency. The reduced monitoring frequency for contaminants with MCLs must be no less than quarterly. If an MCL (listed in Tables 6 and 7 of this Order) is exceeded, the Discharger must take the follow-up actions for MCL exceedances described in section III.C.3.a of this MRP and required pursuant to section 60320.312 of title 22 of the CCR.
5. If the secondary MCL is exceeded, the Discharger must take follow-up actions for MCL exceedances described in section III.C.3.c of this MRP and required pursuant to section 60320.312 of title 22 of the CCR.
6. Samples shall be analyzed on the same day using both Clean Water Act methods specified in 40 CFR part 136 and drinking water methods specified in 40 CFR part 141, and results of both analyses shall be included in monitoring reports required by this MRP. Analyses using the Clean Water Act methods are not required if the equivalent drinking water methods are more sensitive. Samples can be analyzed using ATPs upon approval of ATPs by the State Water Board.
7. The Discharger shall monitor for each radionuclide parameter (Radium-226 and Radium 228) and report the results as a combined value for compliance with MCL.
8. If four consecutive quarterly results for asbestos are below the detection limit in Table 64432-A of title 22 of the CCR for asbestos, monitoring for asbestos may be reduced to one sample every three years. Quarterly monitoring shall resume if asbestos is detected.
9. MCL is for either a single isomer or the sum of the isomers.
10. The Discharger must collect paired disinfection byproduct samples quarterly from the NCPWF effluent (EFF-001) and from the North City Dechlorination Facility effluent (EFF-002) until at least 12 months of operation at the final ramp-up stage with no results exceeding the disinfection byproduct MCLs. Paired sample collection time must be adjusted for the hydraulic retention time between the two sample sites, such that sampling at EFF-001 and EFF-002 are representative of the same element of water moving through the treatment process.

11. Pursuant to section 60302.302 (h) of title 22 of the CCR, the Discharger must collect samples representative of the effluent of the advanced treatment process under normal operating conditions and have the samples analyzed for constituents having Notification Levels (NLs) monthly for the duration of each ramp up stage. The Discharger may request reduction of constituents with NLs to quarterly after operating for 12 months of operation at the final ramp-up stage. If the monitoring is used to meet requirements for recycled municipal wastewater delivered to the augmented reservoir per section 60320.320(b), the City may not further reduce the quarterly monitoring frequency. If a NL (listed in Table 9 of this Order) is exceeded, the Discharger must take the follow-up actions for NL exceedances described in section III.C.3.b of this MRP and required pursuant to section 60320.320(b) of title 22 of the CCR.

12. DDW may specify future additional indicator compounds based on the following:

- A review of the Discharger's engineering report;
- The inventory developed pursuant to the Discharger's local limits study or source control evaluations;
- An indicator-compound's ability to characterize the performance of the treatment processes for removal of chemicals; and
- The availability of a test method for a chemical.

2. The Discharger shall monitor the effluent at Monitoring Location EFF-002 as follows:

Table E-5. Effluent Monitoring at Monitoring Location EFF-002[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Recorder/Totalizer	Continuous	---
Total Residual Chlorine	mg/L	Recorder	Continuous	2
	lbs/day	Calculate	1/Day	
Chronic Toxicity	Pass/Fail; % Effect	24-hour composite	1/Month[3]	4
Trihalomethanes, Total[1]	µg/L	Grab	1/Quarter[5,6,7]	2
Haloacetic Acids[1]	µg/L	Grab	1/Quarter[5,6,7]	2
Bromate	µg/L	24-hour composite	1/Quarter[5,6,7]	2
Chlorite	µg/L	24-hour composite	1/Quarter[5,6,7]	2
Bromoform	µg/L	Grab	1/Quarter[5,6]	2
Chloroform	µg/L	Grab	1/Quarter[5,7]	2
Dichlorobromomethane	µg/L	Grab	1/Month[5,7]	2
Chlorodibromomethane	µg/L	Grab	1/Quarter[5,7]	2
Constituents of Emerging Concern (CECs) and Surrogates	See section III.E of this MRP			

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. Samples shall be analyzed on the same day using both Clean Water Act methods specified in 40 CFR part 136 and drinking water methods specified in 40 CFR part 141, and results of both analyses shall be included in monitoring reports required by this MRP. Analyses using the Clean Water Act methods are not required if the equivalent drinking water methods are more sensitive. Samples can be analyzed using ATPs upon approval of ATPs by the State Water Board.
3. The Discharger may request to reduce the monitoring frequency from 1/month to 1/quarter if all of the following conditions are met: 1) the toxicity requirements in this Order have been followed; 2) a minimum of ten chronic toxicity tests have been conducted at the in-stream waste concentration (IWC); and 3) no chronic toxicity tests have resulted in a "Fail" at the instream waste concentration. If a chronic toxicity test results in a "Fail" during reduced monitoring, the frequency is automatically increased to 1/month for a period of one year.
4. As specified in section III.D of this MRP.

5. The Discharger shall calculate and report the MER of the constituent for each sample taken. The MER shall be calculated in accordance with section VII.I of this Order.

6. Pursuant to section 60302.302 (h) of title 22 of the CCR, the Discharger must collect samples representative of the advanced treatment process under normal operating conditions and have the samples analyzed monthly for constituents having MCLs for the duration of each ramp up stage. After 12 months of operation at the final ramp-up stage (full design flow) with no results exceeding the MCL, the Discharger may apply to DDW and the San Diego Water Board for a reduced monitoring frequency. The reduced monitoring frequency for contaminants with MCLs must be no less than quarterly. If an MCL is exceeded, the Discharger must take the follow-up actions for MCL exceedances described in section III.C.3.a of this MRP and required pursuant to section 60320.312 of title 22 of the CCR.

7. The Discharger must collect paired disinfection byproduct samples quarterly from the NCPWF effluent (EFF-001) and from the North City Dechlorination Facility effluent (EFF-002). Paired sample collection time must be adjusted for the hydraulic retention time between the two sample sites, such that sampling at EFF-001 and EFF-002 are representative of the same element of water moving through the treatment process.

3. The Discharger shall perform additional monitoring as described below for constituents listed in Tables E-4 and E-5 of this MRP in the event of an exceedance of the following:

a. If a constituent's MCL or action level (see Attachment I) is exceeded, the Discharger shall collect another sample within 72 hours of notification of the result and have it analyzed for the constituents as confirmation. For a constituent whose compliance with its MCL or action level is not based on a running annual average (see Attachment I), if the average of the initial and confirmation sample exceeds the constituent's MCL or action level, or the confirmation sample is not collected and analyzed pursuant to this subsection, the Discharger shall notify the DDW and San Diego Water Board within 24 hours and initiate weekly monitoring until four consecutive weekly results are below the constituent's MCL or action level. If at any time a result causes, or would cause, a running four-week average of weekly results to exceed the constituent's MCL or action level, the Discharger shall notify the DDW, each Surface Water Source Augmentation Project Public Water System (SWSAP PWS) utilizing the augmented reservoir, and San Diego Water Board within 24 hours and immediately suspend delivery of the recycled municipal wastewater to the augmented reservoir.

b. For a constituent whose compliance with its MCL is based on a running annual average (see Attachment I), if the average of the initial and confirmation sample exceeds the constituent's MCL, or a confirmation sample is not collected and analyzed pursuant to this subsection, the Discharger shall initiate weekly monitoring for the contaminant until the running four-week average of results no longer exceeds the constituent's MCL.

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

ii. If the running four-week average exceeds the constituent's MCL for sixteen consecutive weeks, the Discharger shall notify the DDW, San Diego Water Board, and each SWSAP PWS utilizing the augmented reservoir within 48 hours of knowledge of the exceedance and, if directed by the DDW or San Diego Water Board, suspend delivery of the advanced treated recycled water to the augmented reservoir.

c. If the annual average concentration exceeds a constituent's secondary MCL in Table 64449-A of title 22 of the CCR (see table I-5 of Attachment I), or the upper limit in Table 64449-B of title 22 of the CCR, the Discharger shall initiate quarterly monitoring of the recycled municipal wastewater for the constituent and, if the running annual average of quarterly-averaged results exceeds a contaminant's secondary MCL or upper limit, describe the reason(s) for the exceedance and any corrective actions taken a report submitted to the San Diego Water Board no later than 45 days following the quarter in which the exceedance occurred, with a copy concurrently provided to the DDW. Annual monitoring may resume if the running annual average of quarterly results does not exceed a constituent's secondary MCL or upper limit.

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

e. If a result exceeds a NL (see Table 8 of Order), within 72 hours of notification of the result the Discharger shall collect another sample and have it analyzed for the constituent as confirmation. If the average of the initial and confirmation sample exceeds the contaminant's NL, or a confirmation sample is not collected and analyzed pursuant to this subsection, the Discharger shall initiate weekly monitoring for the contaminant until the running four-week average of results does not exceed the NL and the DDW and San Diego Water Board determine weekly monitoring may cease.

   i. If a running four-week average exceeds the constituent's NL, the Discharger shall describe the reason(s) for the exceedance and provide a schedule for completion of corrective actions in a report submitted to the San Diego Water Board no later than 45 days following the quarter in which the exceedance occurred, with a copy concurrently provided to the State Board.

   ii. If a running four-week average exceeds the constituent's NL for sixteen consecutive weeks, the Discharger shall notify the DDW, San Diego Water Board, and each SWSAP PWS utilizing the augmented reservoir within 48 hours of knowledge of the exceedance.

D. Whole Effluent Toxicity (WET) Testing Requirements

WET refers to the overall aggregate toxic effect of an effluent measured directly by an aquatic toxicity test(s). The control of WET is one approach this Order uses to control the discharge of toxic pollutants. WET tests evaluate the following:

- Aggregate toxic effects of all chemicals in the effluent including additive, synergistic, or antagonistic toxicity effects;
- Toxicity effects of unmeasured chemicals in the effluent; and
- Variability in bioavailability of the chemicals in the effluent.

Monitoring to assess the overall toxicity of the effluent is required to answer the following questions:

- Does the effluent comply with effluent limitations for chronic toxicity thereby ensuring that water quality standards are achieved in the receiving water?
- If the effluent does not comply with effluent limitations for chronic toxicity, are

unmeasured pollutants causing risk to aquatic life?

- If the effluent does not comply with effluent limitations for chronic toxicity, are pollutants in combinations causing risk to aquatic life?

1. Discharge In-stream Waste Concentration (IWC) for Chronic Toxicity

The "in-stream" waste concentration (IWC) for this discharge is 100 percent effluent.

2. Routine Chronic Toxicity Monitoring Frequency

For routine chronic toxicity monitoring, the Discharger shall conduct at least one chronic toxicity test every calendar month. The Discharger may request to reduce the monitoring frequency from once per month to once per quarter if all of the following conditions are met: 1) the toxicity requirements in this Order have been followed; 2) a minimum of ten chronic toxicity tests have been conducted at the IWC; and 3) no chronic toxicity tests have resulted in a "Fail" at the IWC. If a chronic toxicity test results in a "Fail" at the IWC during reduced monitoring, the frequency is automatically increased back to once per month for a period of one year.

Samples for chronic toxicity shall be collected at a time that would allow corresponding Median Monthly Effluent Limitation (MMEL) compliance tests to be initiated within the same calendar month.

3. Median Monthly Effluent Limitation Compliance Monitoring

If a chronic toxicity test conducted during routine monitoring results in a "Fail" at the IWC, the Discharger shall conduct a maximum of two chronic toxicity MMEL compliance tests. The MMEL compliance tests shall be initiated within the same calendar month that the first routine chronic toxicity test was initiated that resulted in a "Fail" at the IWC. If the first chronic toxicity MMEL compliance test results in a "Fail" at the IWC, then the second chronic toxicity MMEL compliance test is not required.

4. Sample Volume and Holding Time

The total sample volume shall be determined by the specific toxicity test method used. Sufficient sample volume shall be collected to perform the required toxicity test. For the receiving water, sufficient sample volume shall also be collected during accelerated monitoring for subsequent Toxicity Identification Evaluation (TIE) studies, if necessary, at each sampling event. All toxicity tests shall be conducted as soon as possible following sample collection. No more than 36 hours shall elapse before the conclusion of sample collection and test initiation.

5. Chronic Freshwater Species and Test Methods

If effluent samples are collected from outfalls discharging to receiving waters with salinity less than 1 part per thousand (ppt), the Discharger shall conduct the following chronic toxicity tests on effluent samples at the IWC in accordance with the species and test methods in *Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002; Table IA, 40 CFR part 136). Control and dilution water should be receiving water or lab water as appropriate. Approved tests methods for chronic toxicity are listed in Table E-6 below. In no case shall these species be substituted with another test species unless written authorization from the San Diego Water Board is received.

Table E-6. Approved Tests for Chronic Toxicity

Species & USEPA Test Method Number	Test Acceptability Criteria (TAC)
Fathead Minnow, *Pimephales promelas*, Larval Survival and Growth Test Method 1000.0.	80% or greater survival in controls; average dry weight per surviving organism in control chambers equals or exceeds 0.25 mg (Table 1 of the test method).
Daphnid, *Ceriodaphnia dubia*, Survival and Reproduction Test Method 1002.0.	80% or greater survival of all control organisms and an average of 15 or more young per surviving female in the control solutions. 60% of surviving control females must produce three broods (Table 3 of the test method).
Green Alga, *Selenastrum capricornutum*, Growth Toxicity Test Method 1003.0.	Mean cell density of at least 1 X 106 cells/mL in the controls; and variability (CV%) among control replicates less than or equal to 20% (Table 3 of the test method).

6. Species Sensitivity Screening

The Discharger shall conduct four sets of species sensitivity screening during the first year of operation, with one set of screenings conducted in each quarter of the year. The first set of species sensitivity screening shall be conducted during this Order's first required sample collection. For each set of testing, the Discharger shall collect a single effluent sample to initiate and concurrently conduct three toxicity tests using the fish, invertebrate, and alga species referenced in Table E-6. This sample shall also be analyzed for the parameter(s) required on a monthly frequency for the discharge in Table E-5, during that given month. As allowed under the test method for the *Ceriodaphnia dubia* and the *Pimephales promelas*, a second and third sample shall be collected for use as test solution renewal water as the seven-day toxicity test progresses. Samples for the species sensitivity screening shall be analyzed using the Test of Significant Toxicity (TST) approach.

After the first, second, and third set of species sensitivity screening, the Discharger shall consult with the San Diego Water Board to determine the species used for routine chronic toxicity monitoring until the next set of species sensitivity screening. After the fourth set of species sensitivity screening, the most sensitive species for routine chronic toxicity monitoring will be determined using the following hierarchal order:

a. The species exhibiting the most 'Fails'.

b. If all species result in a "Pass", the species exhibiting the highest percent effect.

c. If all species result in a "Pass" and there is no difference in percent effect, the species will be determined by San Diego Water Board.

The four sets of species sensitivity screening are required during the first year of operation and in year 4 of the permit term.

During the calendar month, toxicity tests used to determine the most sensitive test species shall be reported as effluent compliance monitoring results for the Maximum Daily Effluent Limitation (MDEL) and MMEL for chronic toxicity.

7. Quality Assurance (QA) and Additional Requirements

QA measures, instructions, and other recommendations and requirements are found in the test methods manual previously referenced. Additional requirements are specified below.

The discharge is subject to determination of "Pass" or "Fail" from a chronic toxicity test using the Test of Significant Toxicity (TST) statistical t-test approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833- R-10-003, 2010), Appendix A, Figure A-1 and Table A-1 and Appendix B, Table B-1. The null hypothesis (Ho) for the TST statistical approach is: Mean discharge IWC response ≤0.75 × Mean control response. A test result that rejects this null hypothesis is reported as "Pass." A test result that does not reject this null hypothesis is reported as "Fail." The relative "Percent Effect" at the discharge IWC is defined and reported as: ((Mean control response - Mean discharge IWC response) ÷ Mean control response) × 100. This is a t-test (formally Student's t-test), a statistical analysis comparing two sets of replicate observations—in the case of WET, only two test concentrations (i.e., a control and IWC). The purpose of this statistical test is to determine if the means of the two sets of observations are different (i.e., if the IWC or receiving water concentration differs from the control (the test result is "Pass" or "Fail"). The Welch's t-test employed by the TST statistical approach is an adaptation of Student's t-test and is used with two samples having unequal variances.

a. The MDEL for chronic toxicity is exceeded and a violation will be flagged when a toxicity test during routine monitoring results in "Fail" in accordance with the TST approach and the "Percent Effect" is greater than or equal to 50 percent.

b. The MMEL for chronic toxicity is exceeded and a violation will be flagged when two or more toxicity tests in a calendar month result in a "Fail" in accordance with the TST approach.

c. If the effluent toxicity test does not meet all test acceptability criteria (TAC) specified in the referenced test method, *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (USEPA 2002, EPA-821-R-02-013), the test should be declared invalid, then the Discharger must resample and re-test within 14 days of test termination.

d. Dilution water and control water, including brine controls, shall be laboratory water prepared and used as specified in the test methods manual. If dilution water and control water is different from test organism culture water, then a second control using culture water shall also be used.

e. Monthly reference toxicant testing is sufficient if in accordance with *Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002; Table IA, 40 CFR part 136). All reference toxicant test results should be reviewed and reported using the effects concentration at 25 percent (EC25).

f. The Discharger shall perform toxicity tests on final effluent samples collected at Monitoring Location, EFF-002 (after dechlorination). Ammonia shall not be removed from the effluent sample prior to toxicity testing, unless explicitly authorized under this section of this MRP and the rationale is explained in the Fact Sheet (Attachment F).

8. Preparation of an Initial Investigation Toxicity Reduction Evaluation (TRE) Work Plan

The Discharger shall prepare and submit a copy of the Discharger's Initial Investigation TRE Work Plan to the San Diego Water Board for approval within 90 days after initial

discharge. If the San Diego Water Board does not disapprove the work plan within 60 days, the work plan shall become effective. The Discharger shall use USEPA manual EPA/833B-99/002 (municipal), or most current version, as guidance. The TRE Work Plan shall describe the steps that the Discharger intends to follow if toxicity is detected, and shall include, at a minimum:

a. A description of the investigation and evaluation techniques that will be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency;

b. A description of the Facility's methods of maximizing in-house treatment efficiency and good housekeeping practices, and a list of all chemicals used in the operation of the Facility; and,

c. If a TIE is necessary, an indication of the person who would conduct the TIEs (i.e., an inhouse expert or an outside contractor).

9. TRE Trigger

A Toxicity Reduction Evaluation (TRE) is required when the Discharger has any combination of two or more MDEL or MMEL violations within a single calendar month or within two successive calendar months. In addition, if other information indicated toxicity (e.g., results of additional monitoring, fish kills, intermittent recurring toxicity, etc.), then the San Diego Water Board may require a TRE. Routine monthly chronic toxicity monitoring shall resume during a TRE.

10. TRE Process

During the TRE Process, minimum effluent monitoring shall resume and TST results ("Pass" or "Fail" and "Percent Effect") for chronic toxicity tests shall be reported as effluent monitoring results for the chronic toxicity MDEL and MMEL.

a. Preparation and Implementation of Detailed TRE Work Plan. The Discharger shall immediately initiate a TRE using, according to the type of treatment facility, USEPA manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/833/B-99/002, 1999) and, within 15 days of receiving validated results, submit to the San Diego Water Board a Detailed TRE Work Plan, which shall follow the Initial Investigation TRE Work Plan revised as appropriate for this toxicity event. It shall include the following information, and comply with additional conditions set by the San Diego Water Board:

   i. Further actions by the Discharger to investigate, identify, and correct the causes of toxicity;

   ii. Actions the Discharger will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and

   iii. A schedule for these actions, progress reports, and the final report.

b. TIE Implementation. The Discharger may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, USEPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Toxicity Identification Evaluation: Characterization of*

Chronically Toxic Effluents, Phase I (EPA/600/6-91/005, 1991). The TIE should be conducted on the species demonstrating the most sensitive toxicity response.

c. Many recommended TRE elements parallel required or recommended efforts for source control, pollution prevention, and storm water control programs. Whenever possible, TRE efforts should be coordinated with such efforts. As toxic substances are identified or characterized, the Discharger shall continue the TRE by determining the sources and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with toxicity evaluation parameters.

d. The Discharger shall continue to conduct the minimum effluent monitoring while the TRE and/or TIE process is taking place. Additional accelerated monitoring and TRE Work Plans are not required once a TRE is begun.

e. The San Diego Water Board recognizes that toxicity may be episodic and identification of causes and reduction of sources of toxicity may not be successful in all cases. The TRE may be ended at any stage if routine monitoring finds there is no longer toxicity.

f. The San Diego Water Board may consider the results of any TRE/TIE studies in an enforcement action.

11. Reporting

The Self-Monitoring Report (SMR) shall include a full laboratory report for each toxicity test. This report shall be prepared using the format and content of the test methods manual chapter called Report Preparation, and shall include:

a. The valid toxicity test results for the TST statistical approach, reported as “Pass” or “Fail” and “Percent Effect” at the chronic toxicity IWC for the discharge. All toxicity test results (whether identified as valid or otherwise) conducted during the calendar month shall be reported on the SMR due date specified in Table E-6.

b. Summary water quality measurements for each toxicity test (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, chlorine, ammonia).

c. The statistical analysis used in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010) Appendix A, Figure A-1 and Table A-1, and Appendix B, Table B-1.

d. TRE/TIE results. The San Diego Water Board shall be notified no later than 30 days from completion of each aspect of TRE/TIE analyses. Prior to the completion of the final TRE/TIE report, the Discharger shall provide status updates in the monthly monitoring reports, indicating which TRE/TIE steps are underway and which steps have been completed.

e. Statistical program (e.g., TST calculator, CETIS, etc.) output results, including graphical plots, for each toxicity test.

f. Graphical plots clearly showing the laboratory’s performance for the reference toxicant for the previous 20 tests and the laboratory’s performance for the control mean, control standard deviation, and control coefficient of variation for the previous 12-month period.

g. Any additional quality assurance/quality control (QA/QC) documentation or any additional chronic toxicity-related information, upon written request from the San Diego Water Board.

E. Constituents of Emerging Concern (CEC) Monitoring Requirements

The monitoring requirements for constituents of emerging concern (CECs), surrogates, and bioanalytical screening tools are separated into three phases: 1) initial assessment monitoring phase, 2) baseline monitoring phase, 3) standard operation monitoring phase. The purpose of phased monitoring is to allow monitoring requirements for health-based CECs, performance indicator CECs, surrogates, and bioanalytical screening tools to be refined based on the monitoring results and findings of the previous phase.

1. Initial Assessment Monitoring Phase

The purpose of the initial assessment phase is to: (1) identify the occurrence of health-based CECs, performance indicator CECs, and surrogates in recycled water for groundwater recharge or reservoir water augmentation; (2) determine treatment effectiveness; (3) define the project-specific performance indicator CECs and surrogates to monitor during the baseline monitoring phase; (4) specify the expected removal percentages for performance indicator CECs and surrogates; and (5) gather bioactivity data for Estrogen receptor-α (ER-α) and Aryl hydrocarbon receptor (AhR) bioanalytical screening tools to determine the range of responses for the bioassays for standardized water quality monitoring. After each sampling event, the Discharger shall evaluate the monitoring data as described in section III.E.4 of this MRP. The Discharger shall implement the appropriate response actions described in Table E-13 for health-based CECs. The Discharger may elect to follow the response actions for bioanalytical screening tools described in Table E-15, but implementation of the response actions during the initial assessment monitoring phase is not required, unless directed by the San Diego Water Board.

a. Health-Based CEC, Performance Indicator CEC, and Surrogate Monitoring Requirements

The Discharger shall conduct health-based CEC, performance indicator CEC, surrogate monitoring at monitoring location INF-007, INT-009 and/or EFF-002 for a period of one year, as described in Table E-7.

Table E-7. Initial Assessment Phase Monitoring Requirements for CECs and Surrogates[1]

Parameter	Unit	Relevance/ Indicator Type/ Surrogate	Sample Type	Minimum Test Frequency	Required Reporting Limit (µg/L)[2]	Monitoring Location	Required Analytical Test Method
1,4-Dioxane	µg/L	Health	24-Hour Composite	1/Quarter[3,4]	0.1	EFF-002	[5]
NDMA	µg/L	Health and Performance	Grab	1/Quarter[3,4]	0.002	INT-007, INT-009, and EFF-002	[5]
NMOR	µg/L	Health	24-Hour Composite	1/Quarter[3,4]	0.002	EFF-002	[5]
PFOS	µg/L	Health	24-Hour Composite	1/Quarter[3,4]	0.0065	EFF-002	[5]
PFOA	µg/L	Health	24-Hour Composite	1/Quarter[3,4]	0.007	EFF-002	[5]
Sucralose	µg/L	Performance	24-Hour Composite	1/Quarter	0.1	INT-007,INT-009, and EFF-002	[5]

Parameter	Unit	Relevance/ Indicator Type/ Surrogate	Sample Type	Minimum Test Frequency	Required Reporting Limit (µg/L)[2]	Monitoring Location	Required Analytical Test Method
Sulfamethoxazole	µg/L	Performance	24-Hour Composite	1/Quarter	0.01	INT-007, INT-009, and EFF-002	5
Electrical Conductivity	µmhos/ cm	Surrogate	Grab	1/Quarter	--	INT-007 and EFF-002	5
Dissolved Organic Carbon (DOC)	µg/L	Surrogate	24-Hour Composite	1/Quarter	--	INT-007 and EFF-002	5
Ultraviolet Light Absorbance	%	Surrogate	Grab	1/Quarter	--	INT-007 and EFF-002	5

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. The San Diego Water Board may approve higher reporting limits if the San Diego Water Board determines these reporting limits cannot be practicably met in recycled water matrices, as long as the ratio between the reporting limit and the monitoring trigger limit is no less than 2.0 µg/L.
3. More frequent monitoring may be required by the San Diego Water Board or to respond to concerns stated in section III.E.4 of this MRP.
4. If at any time during the first year the results to Health Based CEC show detections, the monitoring frequency automatically increases to once per month.
5. Analytical chemistry methods for laboratory analysis of CECs shall be selected in the following hierarchical order: 1) U.S. EPA-approved methods, 2) Standard Methods, 3) methods required by the State Water Board for state-only drinking water standards or for identifying chemicals having notification levels, 4) methods from scientific literature. The proposed method shall be approved by the San Diego Water Board prior to monitoring.

b. Bioanalytical Screening Monitoring Requirements

The Discharger shall conduct bioanalytical monitoring on 24-hour composite samples for a period of three years at the monitoring location EFF-002, as described in Table E-8.

Table E-8. Initial Assessment and Baseline Monitoring Phase Monitoring Requirements for Bioanalytical Screening Tools[1]

End Point Activity	Relevant CECs	Adverse Effect	Sample Type	Minimum Test Frequency[2]	Required Reporting Limit (ng/L)	Required Analytical Test Method
Estrogen receptor-α (ER-α)	Estradiol, Bisphenol A, Nonylphenol	Cancer, Feminization, Impaired Reproduction	24-Hour Composite	1/Quarter	0.5	3
Aryl hydrocarbon receptor (AhR)	Dioxin-like chemicals, polycyclic aromatic hydrocarbons, pesticides	Cancer, Impaired Reproduction	24-Hour Composite	1/Quarter	0.5	3

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. The San Diego Water Board may require additional monitoring to respond to a concern as described in section III.E.4 of this MRP.
3. Bioanalytical screening tool methods shall be selected in the following hierarchical order 1) standard operating procedures developed by the State Board bioanalytical implementation advisory group, 2) U.S. EPA methods, or 3) consult with the San Diego Water Board and State Water Board to determine an appropriate method.

2. Baseline Monitoring Phase

The Discharger shall initiate the baseline monitoring phase upon completion of the initial assessment phase. The purpose of the baseline monitoring phase is to: (1) gather occurrence data for health-based CECs; (2) evaluate performance indicator CECs and surrogates and determine treatment effectiveness; (3) gather bioactivity data for ER-α and AhR bioanalytical screening tools and pilot test the framework for response actions; and (4) assess the list of health-based CECs, performance indicator CECs, surrogates, and bioanalytical screening tools and identify an appropriate list of constituents to monitor the removal of CECs and treatment system performance in the standard operation monitoring phase of the Facility. If a performance indicator CEC listed in Table E-9 is not a good indicator of CEC removal, the Discharger shall propose an alternative performance indicator CEC to monitoring that is representative of the constituent group. Following each sampling event, the Discharger shall evaluate monitoring results and implement corrective actions consistent with section III.E.4 of this MRP.

a. Health-Based CEC, Performance Indicator CEC, and Surrogate Monitoring Requirements

The Discharger shall conduct the baseline monitoring phase for a period of three years for health-based CECs, performance-based CECs and surrogates, as described in Table E-9.

Table E-9. Baseline Monitoring Phase Requirements for CECs and Surrogates[1]

Parameter[2]	Unit	Relevance/ Indicator Type/ Surrogate	Sample Type	Minimum Test Frequency	Required Reporting Limit (µg/L)	Monitoring Location	Required Analytical Test Method
1,4-Dioxane	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.1	EFF-002	[4]
NDMA	µg/L	Health and Performance	Grab	1/6-Months[3]	0.002	INT-007, INT-009, and EFF-002	[4]
NMOR	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.002	EFF-002	[4]
PFOS	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.0065	EFF-002	[4]
PFOA	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.007	EFF-002	[4]
Sucralose	µg/L	Performance	24-Hour Composite	1/6-Months	0.1	INT-007, INT-009, and EFF-002	[4]

Parameter[2]	Unit	Relevance/ Indicator Type/ Surrogate	Sample Type	Minimum Test Frequency	Required Reporting Limit (µg/L)	Monitoring Location	Required Analytical Test Method
Sulfamethoxazole	µg/L	Performance	24-Hour Composite	1/6-Months	0.01	INT-007, INT-009, and EFF-002	4
Electrical Conductivity	µmhos/cm	Surrogate	Grab	5	--	INT-007 and EFF-002	4
Dissolved Organic Carbon (DOC)	µg/L	Surrogate	24-Hour Composite	5	--	INT-007 and EFF-002	4
Ultraviolet Light Absorbance	%	Surrogate	Grab	5	--	INT-007 and EFF-002	4

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. The San Diego Water Board may remove or add parameters based on the findings of the initial assessment phase.
3. More frequent monitoring may be required if a threshold described in Table E-13 of this MRP is exceeded.
4. Analytical chemistry methods for laboratory analysis of CECs shall be selected in the following hierarchical order: 1) U.S. EPA-approved methods, 2) Standard Methods, 3) methods required by the State Water Board for state-only drinking water standards or for identifying chemicals having notification levels, 4) methods from scientific literature.
5. Based off the findings of the initial assessment phase.

b. Bioanalytical Screening Monitoring Requirements

The Discharger shall conduct the baseline monitoring phase for bioanalytical screening tools on 24-hour composite samples at monitoring location EFF-002 for a period of one year as described in Table E-8.

3. Standard Operation Monitoring Phase

The Discharger shall initiate the standard operation monitoring phase upon completion of the baseline monitoring phase or upon receiving approval from the San Diego Water Board to proceed with this phase given the existing data for the water recycling treatment plant. The purpose of the standard operation monitoring phase is to monitor CECs under standard operating conditions at a water recycling treatment plant. In this phase, the San Diego Water Board in consultation with the State Water Board will identify a list of health-based CECs, performance-based CECs, surrogates, and bioanalytical screening tools to monitor based on the Facility's data from the first two monitoring phases. Performance indicator CECs and surrogates that exhibited reduction by a unit process and/or provided an indication or operational performance shall be selected for monitoring during the standard operation monitoring phase. Following each sampling event, the Discharger shall evaluate monitoring results and implement corrective actions consistent with section III.E.4 of this MRP.

a. Health-Based CEC, Performance Indicator CEC, and Surrogate Monitoring Requirements

The Discharger shall conduct the standard operation monitoring for health-based CECs, performance indicator CECs, and surrogates, as described in Table E-10.

Table E-10. Standard Operation Monitoring Phase Requirements for CECs and Surrogates[1]

Parameter[2]	Unit	Relevance/ Indicator Type/ Surrogate	Sample Type	Minimum Test Frequency	Required Reporting Limit (µg/L)	Monitoring Location	Required Analytical Test Method
1,4-Dioxane	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.1	EFF-002	[4]
NDMA	µg/L	Health and Performance	Grab	1/6-Months[3]	0.002	INT-007, INT-009, and EFF-002	[4]
NMOR	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.002	EFF-002	[4]
PFOS	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.0065	EFF-002	[4]
PFOA	µg/L	Health	24-Hour Composite	1/6-Months[3]	0.007	EFF-002	[4]
Sucralose	µg/L	Performance	24-Hour Composite	1/6-Months	0.1	INT-007, INT-009, and EFF-002	[4]
Sulfamethoxazole	µg/L	Performance	24-Hour Composite	1/6-Months	0.01	INT-007, INT-009, and EFF-002	[4]
Electrical Conductivity	µmhos/cm	Surrogate	Grab	[5]	--	INT-007 and EFF-002	[4]
Dissolved Organic Carbon (DOC)	µg/L	Surrogate	24-Hour Composite	[5]	--	INT-007 and EFF-002	[4]
Ultraviolet Light Absorbance	%	Surrogate	Grab	[5]	--	INT-007 and EFF-002	[4]

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. The San Diego Water Board may remove or add parameters based on the findings of the baseline monitoring phase.
3. More frequent monitoring may be required if a threshold described in Table E-13 of this MRP is exceeded.
4. Analytical chemistry methods for laboratory analysis of CECs shall be selected in the following hierarchical order: 1) U.S. EPA-approved methods, 2) Standard Methods, 3) methods required by the State Water Board for state-only drinking water standards or for identifying chemicals having notification levels, 4) methods from scientific literature.
5. Based off the findings of the baseline monitoring phase.

b. Bioanalytical Screening Monitoring Requirements

The Discharger shall conduct standard operation monitoring for bioanalytical screening tools on 24-hour composite samples at monitoring location EFF-002, as described in Table E-11.

Table E-11. Standard Operation Monitoring Phase Requirements for Bioanalytical Screening Tools[1]

End Point Activity[2]	Relevant CECs	Adverse Effect	Sample Type	Minimum Test Frequency	Required Reporting Limit (ng/L)	Required Analytical Test Method
Estrogen receptor-α (ER-α)	Estradiol, Bisphenol A, Nonylphenol	Cancer, Feminization, Impaired Reproduction	24-Hour Composite	1/6-Months[3,4]	0.5	[5]
Aryl hydrocarbon receptor (AhR)	Dioxin-like chemicals, polycyclic aromatic hydrocarbons, pesticides	Cancer, Impaired Reproduction	24-Hour Composite	1/6-Months[3,4]	0.5	[5]

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. The San Diego Water Board may remove a bioanalytical screening tools based on the findings of the baseline monitoring phase.
3. More frequent monitoring may be required if a threshold described in Table E-13 of this MRP is exceeded.
4. If the Discharger can demonstrate consistency in treatment effectiveness in removal of CECs, treatment operational performance, and appropriate recycled water quality, the monitoring frequency for bioanalytical screening tools may be reduced to once per year, upon approval of the San Diego Water Board.
5. Bioanalytical screening tool methods shall be selected in the following hierarchical order 1) standard operating procedures developed by the State Board bioanalytical implementation advisory group, 2) U.S. EPA methods, or 3) consult with the San Diego Water Board and State Water Board to determine an appropriate method.

4. Evaluation of Monitoring Results

Following each sampling event, monitoring results health-based CECs, performance indicator CECs, surrogates, and bioanalytical screening tools shall be used to evaluate the operational performance of a treatment process and the effectiveness of a treatment process in removing CECs. The Discharger shall conduct the following evaluations:

a. Performance Indicator CECs and Surrogates

i. The Discharger shall determine the percent removal of performance indicator CECs and surrogates using the following equation:

Percent Removal = ([Xin – Xout] / Xin)(100)

Where Xin is the concentration of Performance Indicators and/or Surrogates at monitoring INT-006; and

Xout is the concentration of the Performance Indicators and/or Surrogates at monitoring location EFF-002.

ii. After the initial assessment and baseline monitoring phase, the Discharger shall evaluate data from performance indicator CECs and surrogates and prepare an updated Table E-12 with the expected (rather than example) removal percentages for the Facility and submit to the San Diego Water Board with the initial assessment and baseline monitoring phase monitoring data.

iii. If the results from the initial assessment and baseline monitoring phase suggest a performance indicator CEC is not a good indicator, the Discharger shall propose an alternative performance indicator CEC representative of the constituent group to monitor. This performance indicator CEC shall be subject to approval by the San Diego Water Board.

b. Health-Based CECs

The Discharger shall compare measured environmental concentrations (MECs) to their respective monitoring trigger levels (MTLs) listed in Table E-12 to determine MEC/MTL ratios. The MEC/MTL ratios shall be compared to the thresholds specified in Table E-13 and implement the response action corresponding to the threshold.

Table E-12. CEC and Surrogate Monitoring Trigger Levels and Example Removal Percentages[1]

Parameter	Relevance/Indicator Type/ Surrogate	Units	Monitoring Trigger Level (MTL)[2]	Example Removal Percentages[3]
1,4-Dioxane	Health	µg/L	1	--
NDMA	Heath and Performance	µg/L	0.010	>80%
NMOR	Health	µg/L	0.012	--
PFOS	Health	µg/L	0.013	--
PFOA	Health	µg/L	0.014	--
Sucralose	Performance	µg/L	--	>90%
Sulfamethoxazole	Performance	µg/L	--	>90%
Electrical Conductivity	Surrogate	mmhos/cm	--	>90%
Dissolved Organic Carbon (DOC)	Surrogate	µg/L	--	>90%
Ultraviolet Light Absorbance	Surrogate	%	--	>90%

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. Recommended monitoring trigger levels for groundwater recharge and reservoir water augmentation applications were established in Monitoring Strategies for Constituents of Emerging Concern (CECs) in Recycled Water – Recommendations of a Science Advisory Panel, dated April 2018.
3. The removal percentages are from Drewes et al. (2008) and provide an example of performance for that specific research. Project-specific removal percentages will be developed for each project during the initial and baseline monitoring phases.

Table E-13. MEC/MTL Thresholds and Response Actions for Health-based CECs[1]

MEC/MTL Threshold	Response Action[2]
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 data and continue to monitor
If MEC/MTL ratio is greater than 10 and less than or equal to 100	Check the data, resample within 72 hours of notification of the result and analyze to confirm CEC result. Continue to monitor.

MEC/MTL Threshold	Response Action[2]
If MEC/MTL ratio is greater than 100	Check the data, resample within 72 hours of notification of the result and analyze to confirm CEC result. Continue to monitor. Contact the San Diego 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).

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. If a CEC also has a notification level, additional follow-up monitoring may be required by the State Water Board or the San Diego Water Board per requirements in California Code of Regulations, title 22.

c. Bioanalytical Screening Tools

During the baseline and standard operation monitoring phase, the Discharger shall compare bioanalytical equivalent concentrations (BEQs) to their respective MTLs listed in Table E-14 to determine BEQ/MTL ratios. The Discharger shall compare the calculated BEQ/MTL ratios to the thresholds present in Table E-15 and shall implement the response actions corresponding to the threshold.

Table E-14. Required Equivalency Agonists and Monitoring Trigger Levels for Bioanalytical Screening Tools[1]

Parameter	Equivalency Agonist	Monitoring Trigger Level (ng/L)[2]
Estrogen receptor-α (ER-α)	17-beta-estradiol	3.5
Aryl hydrocarbon receptor (AhR)	2,3,7,8-tetrachlorodibenzo-pdioxin (TCDD)	0.5

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. The MTL for ER-α represents a health-based MTL. The MTL for AhR represents a level which may or may not be indicative of a health-based effect due to the wide variation in health-based predicted no effect concentrations of agonists.

Table E-15. BEQ/MTL Thresholds and Response Actions for Bioanalytical Screening Tools[1]

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, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor. Contact the San Diego Water Board and the 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.

BEQ/MTL Threshold	Response Action
If BEQ/MTL ratio is greater than 1000	Check the data, resample within 72 hours of notification of the result and analyze to confirm bioassay result. Continue to monitor. Contact the San Diego 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.

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

5. Quality Assurance Project Plan

The Discharger shall develop and maintain a quality assurance project plan (QAPP) for monitoring CECs to ensure the project data are of known, consistent, and documented quality and that the monitoring is consistent with the requirements of this Order and the *Water Quality Control Policy for Recycled Water,* as amended on December 11, 2018. The QAPP shall be developed using the *Guidance for Quality Assurance Project Plans*, EPA QA/G-5 (EPA/240/R2/009, 2002). The QAPP shall be submitted for approval to the San Diego Water Board no later than 90 days after the effective date of this Order. The QAPP shall be updated and re-submitted to the San Diego 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.

a. Selection of Analytical Methods

Laboratories shall use analytical methods that have been validated and approved for the analytes in the applicable matrix and can achieve the reporting limits in Table E-7 and Table E-8. This includes methods that have been approved by U.S. EPA, the Standards Methods Committee, the American Society for Testing and Materials International, or other methods that have been validated and approved by the regional water boards or State Water Board for the analytes in the applicable matrix. The QAPP shall include minimum method validation requirements developed by the San Diego Water Board in consultation with the State Water Board if proposing to (1) use a method that has not been validated and approved, (2) use a validated and approved method that has been modified, or (3) use a method for an application that is outside the intended use of the method (e.g., different matrix, new analyte). The method shall be approved by the San Diego Water Board prior to use.

b. Laboratory Selection and Demonstrations of Competency

The laboratory providing analyses of CECs and bioanalytical screening shall hold a valid certificate of accreditation from the State of California ELAP for the analytical test methods or analytes selected, if such methods or analytes are accredited by ELAP at the time monitoring is required to begin. If ELAP accreditation for analytical test methods or an analyte becomes available after monitoring is initiated, then the laboratory providing analysis of CECs shall be accredited by ELAP for those methods or analytes within one year of such accreditation becoming available. If ELAP accreditation is unavailable for a method or an analyte, the Discharger shall use a laboratory that has been accredited for a similar analytical method,

instrumentation, or analyte until ELAP accreditation becomes available, unless otherwise approved by the San Diego Water Board for bioanalytical screening tools.

c. Data Submission

CEC monitoring results shall be electronically reported to CIWQS and GeoTracker. The Discharger shall submit the quality assurance data specified in the QAPP, including percent recoveries and acceptable recover ranges for each analyte, to the San Diego Water Board with each dataset. The San Diego Water Board may require additional actions if the data quality objectives are not met.

F. Land Discharge Monitoring Requirements – Not Applicable

G. Recycling Monitoring Requirements – Not Applicable

IV. RESERVOIR WATER MONITORING REQUIREMENTS

The reservoir water monitoring requirements set forth below are designed to measure the effects of the discharge on the receiving waters. The overall receiving water monitoring program is intended to answer the following questions:

- Does the receiving water comply with receiving water quality standards?
- Are the receiving water conditions getting better or worse over time?
- What is the relative contribution of the Facility discharge to pollution in the receiving water?
- What are the effects of the discharge on the receiving waters?

Station location, sampling, sample preservation and analyses, when not specified, shall be by methods approved by the San Diego Water Board. The monitoring program may be modified by the San Diego Water Board at any time. The Discharger may also submit a list of and rationale for any reductions in or other changes to these monitoring requirements that it considers to be appropriate to the San Diego Water Board for approval.

In the event that the Discharger is unable to obtain a sample from a monitoring station(s) due to safety, legal, or other reasons, collection of samples at such station(s) can be omitted. In the event that a monitoring location is omitted, the Discharger shall submit a statement to the San Diego Water Board containing, at a minimum, the following information:

- The monitoring station(s) that was omitted;
- The date the monitoring station was omitted; and
- A description of the circumstances for omitting the collection of data at the monitoring station.

A. Water Quality Monitoring

Water quality monitoring is designed to answer the following questions:

- Does the receiving water comply with receiving water quality standards?
- Does the discharge cause or contribute to changes in biological productivity or reservoir aesthetics?
- Are the water quality results consistent with the Limnology Study of Miramar Reservoir?[1]

[1] The Limnology Study of Miramar Reservoir is available at: https://www.sandiego.gov/public-utilities/sustainability/pure-water-sd/reports

- What are the impacts of the SWSAP on Miramar Reservoir?
- How has the frequency, extent, and magnitude of freshwater harmful algal blooms and associated toxins changed after introduction of advanced treated recycled water relative to a pre-advanced treated recycled water baseline?
- To what extent do any changes in biomass, composition, or toxins resulting after introduction of advanced treated recycled water impact raw source water quality (for drinking water treatment)?

1. The Discharger shall monitor Miramar Reservoir at monitoring station(s) RSW-001, RSW-002, and/or RSW-003 as described in Table E-16.

2. The Discharger shall submit an Annual Receiving Water Monitoring Report to the San Diego Water Board by February 1 each year. The Report must be in a California Environmental Data Exchange Network (CEDEN) compatible electronic format and must include all the reservoir monitoring data collected in the previous calendar year. A Report on the effects of the NCPWF operations and reservoir management on water quality and biological condition of Miramar Reservoir shall be also submitted to the San Diego Water Board at least 180 days before expiration of the Order.

Table E-16. Reservoir Water Monitoring Requirements[1]

Parameter	Units	Sample Type	Minimum Sampling Frequency[2]	Required Analytical Test Method	Monitoring Location
Visual Observations	---	Visual	[3]	---	[3]
Reservoir inflow	MGD	Recorder/ Totalizer	Continuous	---	---
Reservoir outflow	MGD	Recorder/ Totalizer	Continuous	---	---
Reservoir storage volume	MG (million gallons)	Calculation	1/Day	---	---
Total Coliform	CFU/100 mL	Grab	1/Month	[5]	RSW-001[4,6], RSW-003[4,7,8]
E. coli	CFU/100 mL	Grab	1/Week[9,10]	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Color	ADMI Color Units	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Odor	Units	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Temperature[11]	°F	Continuous profile[12]	[13]	[5]	RSW-001, RSW-002, RSW-003
Temperature[11]	°F	Recorder	Continuous[14]	[5]	RSW-001[4]
Dissolved Oxygen[11]	mg/L	Continuous profile[12]	[13]	[5]	RSW-001, RSW-002, RSW-003
Dissolved Oxygen[11]	mg/L	Recorder	Continuous[14]	[5]	RSW-001[4]
pH[11]	standard units	Continuous profile[12]	[13]	[5]	RSW-001, RSW-002, RSW-003
pH[11]	standard units	Recorder	Continuous[14]	[5]	RSW-001[4]
Turbidity[11]	NTU	Continuous profile[12]	[13]	[5]	RSW-001, RSW-002, RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency[2]	Required Analytical Test Method	Monitoring Location
Nitrate Nitrogen[11]	mg/L	Grab	[13]	[9]	RSW-001[4,7,8], RSW-002[4,7,8], RSW-003[4,7,8]
Nitrite Nitrogen[11]	mg/L	Grab	[13]	[9]	RSW-001[4,7,8], RSW-002[4,7,8], RSW-003[4,7,8]
Nitrogen, Total (as N)[11]	mg/L	Grab	[13]	[9]	RSW-001[4,6,7,8], RSW-002[4,7,8], RSW-003[4,7,8]
Dissolved Phosphorus[11]	mg/L	Grab	[13]	[5]	RSW-001[4,6,7,8], RSW-002[4,7,8], RSW-003[4,7,8]
Phosphorous, Total (as P)[11]	mg/L	Grab	[13]	[5]	RSW-001[4,6,7,8], RSW-002[4,7,8], RSW-003[4,7,8]
Ammonia, un-ionized (as N)[11]	mg/L	Grab	[13]	[5]	RSW-001[4,6,7,8], RSW-002[4,7,8], RSW-003[4,7,8]
Chlorophyll-*a* biomass (ash free dry weight)[11]	mg/m^3	Grab	[13]	[5]	RSW-001[4], RSW-002[4]RSW-003[4,]
Total Toxins (measured separately): Microcystin, Cylindrospermopsin, Anatoxin[11]	µg/L	Grab	[13]	[14]	RSW-001[4], RSW-002[4], RSW-003[4,]
Total Organic Carbon[11]	mg/L	Grab	[13]	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Total Dissolved Solids[11]	mg/L	Continuous profile[12]	[13]	[5]	RSW-001, RSW-002, RSW-003
Electrical Conductivity[11]	mmho/cm or dS/m	Recorder	Continuous[14]	[5]	RSW-001[4]
Chloride	mg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Iron	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Sulfate	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Manganese	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Total Hardness (as $CaCO_3$)	mg/L	Grab	1/Month	[9]	RSW-001[4,6,7,8], RSW-003[4,7,8]
MBAS (surfactants)	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Thiobencarb	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Methyl-*tert*-butyl ether (MTBE)	mg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
PARAMETERS FOR THE PROTECTION OF AQUATIC LIFE					

Parameter	Units	Sample Type	Minimum Sampling Frequency[2]	Required Analytical Test Method	Monitoring Location
Aluminum	µg/L	Grab	1/Month	[5]	RSW-001[4,6], RSW-003[4]
Arsenic, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Cadmium, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Chromium (VI), Total Recoverable[5]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Copper, Total	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Lead, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Mercury, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Nickel, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Selenium, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Silver, Total	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Zinc, Total	µg/L	Grab	1/Month	[5]	RSW-001[4,6,7,8], RSW-003[4,7,8]
Cyanide, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/6-Months	[9]	RSW-002[16]
Phenolic Compounds (nonchlorinated)[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Phenolic Compounds (chlorinated)[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Endosulfan[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Endrin	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
HCH[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Radioactivity	pCi/L	Grab	1/6-Months	[9]	RSW-002[16]
PARAMETERS FOR PROTECTION OF HUMAN HEALTH – NONCARCINOGENS					
Acrolein	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Antimony, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Bis (2-chloroethoxy) Methane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Bis (2-chloroisopropyl) Ether	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Chlorobenzene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Chromium (III), Total Recoverable	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Di-n-butyl Phthalate	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Dichlorobenzenes[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Diethyl Phthalate	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Dimethyl Phthalate	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
4,6-dinitro-2-methylphenol	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
2,4-dinitrophenol	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Ethylbenzene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Fluoranthene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Hexachlorocyclopentadiene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]

Parameter	Units	Sample Type	Minimum Sampling Frequency[2]	Required Analytical Test Method	Monitoring Location
Nitrobenzene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Thallium, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Toluene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Tributyltin	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
1,1,1-trichloroethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
PARAMETERS FOR PROTECTION OF HUMAN HEALTH – CARCINOGENS					
Acrylonitrile	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Aldrin	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Benzene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Benzidine	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Beryllium, Total	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Bis (2-chloroethyl) Ether	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Bis (2-ethlyhexyl) Phthalate	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Carbon Tetrachloride	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Chlordane[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Chlorodibromomethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Chloroform	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Dichlorodiphenyltrichloroethane (DDT)[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
1,4-dichlorobenzene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
3,3'-dichlorobenzidine	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
1,2-dichloroethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
1,1-dichloroethylene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Dichlorobromomethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Dichloromethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
1,3-dichloropropene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Dieldrin	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
2,4-dinitrotoluene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
1,2-diphenylhydrazine	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Total Trihalomethanes[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Heptachlor	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Heptachlor Epoxide	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Hexachlorobenzene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Hexachlorobutadiene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Hexachloroethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Isophorone	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
N-nitrosodimethylamine	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
N-nitrosodi-N-propylamine	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
N-nitrosodiphenylamine	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Polynuclear Aromatic Hydrocarbons (PAHs)[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Polychlorinated Biphenyls (PCBs)[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
TCDD equivalents[1]	µg/L	Grab	1/6-Months	[9]	RSW-002[16]

Parameter	Units	Sample Type	Minimum Sampling Frequency[2]	Required Analytical Test Method	Monitoring Location
1,1,2,2-tetrachloroethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Tetrachloroethylene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Toxaphene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Trichloroethylene	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
1,1,2-trichloroethane	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
2,4,6-trichlorophenol	µg/L	Grab	1/6-Months	[9]	RSW-002[16]
Vinyl Chloride	µg/L	Grab	1/6-Months	[9]	RSW-002[16]

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. Pursuant to section 60320.326 of title 22 of the CCR, prior to augmentation of Miramar Reservoir with advanced treated recycled water, each month the Discharger must collect samples, for no less than 24 consecutive months, from the identified monitoring locations. The samples must be analyzed for the secondary MCLs, TOC, total nitrogen, E.coli, total coliform, temperature, dissolved oxygen, chlorophyll a, total and dissolved phosphorus, and other DDW-specified chemicals and contaminants. The Discharger must continue to conduct monthly monitoring for no less than the initial 24 months of operating at the final ramp-up stage. After the completion of the initial 24 months of operating at the final ramp-up stage, the Discharger may request to the San Diego Board and DDW for reduced on-going monitoring.
3. Visual observations of the surface water conditions at the designated receiving water stations shall be conducted in such a manner as to enable the observer to describe and report the presence, if any, of floatables of sewage origin. Observations of wind (direction and speed), weather (cloudy, sunny, or rainy), direction of current, water color, discoloration, oil and grease, turbidity, odor, presence of algal blooms, and status of Miramar Reservoir at the point of discharge shall be recorded. These observations shall be taken whenever a sample is collected. Visual observations shall also be conducted for repeat sampling.
4. At the surface (0.5 m below surface).
5. Samples shall be analyzed on the same day using both Clean Water Act methods specified in 40 CFR part 136 and drinking water methods specified in 40 CFR part 141, and results of both analyses shall be included in monitoring reports required by this MRP. Analyses using the Clean Water Act methods are not required if the equivalent drinking water methods are more sensitive. Samples can be analyzed using ATPs upon approval of ATPs by the State Water Board.
6. At depth of Outlet Ports 1, 2a, 2b, 3a, 3b, 4a, and 4b.
7. At mid-depth; in the epilimnion approximately 2 m above the thermocline.
8. At approximately 1 m above solid bottom of the reservoir.
9. Sample shall be analyzed as specified in 40 CFR 136.
10. If exceedances of applicable receiving water limitations for *E. coli* specified in section V.B of the Order are observed at Monitoring Location EFF-002 and Discharge Point No. 001 (at Monitoring Location RSW-003), the Discharger shall increase the receiving water monitoring frequency at Monitoring Location RSW-003 for that parameter(s) to three times per week until the receiving water has demonstrated compliance at Monitoring Location RSW-003 with applicable receiving water limitations for that parameter(s) specified in section V.B of the Order for a minimum of one week or the Discharger demonstrates to the San Diego Water Board that Facility effluent is not a contributing source of that parameter(s) to the downstream receiving water exceedances at Monitoring Location RSW-003.
11. Monitoring shall occur at least one year before the North City Pure Water Facility (NCPWF) becomes operational and begins to discharge to Miramar Reservoir, and will continue after the discharge commences.
12. Parameters shall be measured throughout the entire water column from the surface to as close to the bottom as practicable and reported in one-meter intervals.
13. The Discharger shall monitor twice per month from April to October and once per month from November to March. If there are visual signs of an algal bloom, the discharger shall monitor 1/week until the algal bloom is no longer visible.

14. The Discharger shall install a moored sensor string that will measure dissolved oxygen, temperature, pH, and electrical conductivity at the surface (0.2 m deep) of the reservoir and at fixed elevations corresponding to the level of reservoir outlets.
15. Use approved EPA methods for detection of cyanotoxins in water or Solid Phase Adsorption Tracking Technology.
16. At mid-depth; 2 m below the thermocline.

B. Fish Monitoring

Many pollutants discharged into receiving waters have the potential to bioaccumulate and persist in tissues of aquatic organisms, including fish. Chemical pollutants that bioaccumulate tend to biomagnify as they pass through the aquatic food chain. Therefore, fish monitoring data is required to assess the human health risks for individuals who may consume fish and to assess trends of contaminants levels in fish tissue over time.

Additionally, Miramar Reservoir is designated for contact and non-contact recreation (REC-1 and REC-2) and supports a productive recreational fishery. The low concentrations of nutrients in the effluent has the potential to alter the biological productivity in Miramar Reservoir, which could reduce the available food for sportfish. Recreational fish catch statistics can be used as a surrogate for fishery health.

Fish monitoring is necessary to answer the following questions:

- Do the concentrations of pollutants in fish used for human consumption bioaccumulate to levels that are harmful to human health or degrade aquatic communities?
- Are the concentrations of pollutants in fish changing over time?
- Is the health of fish changing over time?
- Are the populations of selected fish species changing over time?
- Does Miramar Reservoir support the designated contact and non-contact recreation beneficial uses?

1. Recreational Fish Catch Survey

The Discharger shall conduct a Creel Census once per week at Miramar Reservoir. The information collected for the Creel Census shall include the total number of anglers surveyed, and the number and species of fish caught and released or retained. The Discharger shall calculate catch-per-unit-effort (CPUE) for each fish species using the following equation:

CPUE = (number of fish caught) / (number of anglers surveyed)

2. Fish Tissue Monitoring

The Discharger shall monitor fish liver tissue once per permit term at any location in Miramar Reservoir to determine if pollutants are bioaccumulating in fish. Fish species targeted for fish liver tissue analyses shall be species commonly targeted and consumed by recreational fishers, excluding species routinely stocked/planted (e.g., trout). Fish liver tissue samples shall be a composite sample consisting of a minimum of three individual fish. Fish liver tissue shall be chemically analyzed for the constituents specified in Table E-17 below. The presence of any physical abnormalities or disease symptoms (e.g., fin erosion, external lesions, and tumors) or external parasites shall also be recorded.

Table E-17. Fish Tissue Monitoring Requirements[1]

Parameter	Units	Type of Sample	Minimum Frequency
Total Lipids	µg/kg	Composite	1/Permit Term
Aluminum	mg/kg	Composite	1/Permit Term
Antimony	mg/kg	Composite	1/Permit Term
Arsenic	mg/kg	Composite	1/Permit Term
Cadmium	mg/kg	Composite	1/Permit Term
Chromium	mg/kg	Composite	1/Permit Term
Copper	mg/kg	Composite	1/Permit Term
Iron	mg/kg	Composite	1/Permit Term
Lead	mg/kg	Composite	1/Permit Term
Manganese	mg/kg	Composite	1/Permit Term
Mercury	mg/kg	Composite	1/Permit Term
Nickel	mg/kg	Composite	1/Permit Term
Selenium	mg/kg	Composite	1/Permit Term
Silver	mg/kg	Composite	1/Permit Term
Tin	mg/kg	Composite	1/Permit Term
Zinc	mg/kg	Composite	1/Permit Term
PCBs	µg/kg	Composite	1/Permit Term
2,4-DDD	µg/kg	Composite	1/Permit Term
4,4-DDD	µg/kg	Composite	1/Permit Term
2,4-DDE	µg/kg	Composite	1/Permit Term
4,4-DDE	µg/kg	Composite	1/Permit Term
2,4-DDT	µg/kg	Composite	1/Permit Term
4,4-DDT	µg/kg	Composite	1/Permit Term
Aldrin	µg/kg	Composite	1/Permit Term
Alpha-Chlordane	µg/kg	Composite	1/Permit Term
Dieldrin	µg/kg	Composite	1/Permit Term
Endosulfan	µg/kg	Composite	1/Permit Term
Endrin	µg/kg	Composite	1/Permit Term
Gamma-BHC	µg/kg	Composite	1/Permit Term
Heptachlor	µg/kg	Composite	1/Permit Term
Heptachlor Epoxide	µg/kg	Composite	1/Permit Term
Hexachlorobenzene	µg/kg	Composite	1/Permit Term
Mirex	µg/kg	Composite	1/Permit Term
Trans-Nonachlor	µg/kg	Composite	1/Permit Term
Acenapthene	µg/kg	Composite	1/Permit Term
Acenaphthylene	µg/kg	Composite	1/Permit Term
Anthracene	µg/kg	Composite	1/Permit Term
Benzo(a)anthracene	µg/kg	Composite	1/Permit Term
Benzo(o)fluoranthene	µg/kg	Composite	1/Permit Term
Benzo(k)fluoranthene	µg/kg	Composite	1/Permit Term
Benzo(ghi)pyrelene	µg/kg	Composite	1/Permit Term
Benzo(a)pyrene	µg/kg	Composite	1/Permit Term
Benzo(e)pyrene	µg/kg	Composite	1/Permit Term
Biphenyl	µg/kg	Composite	1/Permit Term
Chrysene	µg/kg	Composite	1/Permit Term
Dibenz(ah)anthraces	µg/kg	Composite	1/Permit Term
Fluoranthene	µg/kg	Composite	1/Permit Term
Fluorene	µg/kg	Composite	1/Permit Term
Ideno(123cd)pyrene	µg/kg	Composite	1/Permit Term
Naphthalene	µg/kg	Composite	1/Permit Term
1-Methylnaphthalene	µg/kg	Composite	1/Permit Term

Parameter	Units	Type of Sample	Minimum Frequency
2-Methylnaphthalene	µg/kg	Composite	1/Permit Term
2,6-Dimethylnaphthalene	µg/kg	Composite	1/Permit Term
2,3,5-Trimethylnaphthale	µg/kg	Composite	1/Permit Term
Perylene	µg/kg	Composite	1/Permit Term
Phenanthrene	µg/kg	Composite	1/Permit Term
1-Methylphenanthene	µg/kg	Composite	1/Permit Term
Pyrene	µg/kg	Composite	1/Permit Term

[1.] See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order/Permit.

C. California Environmental Data Exchange Network

In addition to submitting self-monitoring reports (SMRs), the Discharger shall also ensure that receiving water monitoring results from section IV.A and IV.B.2 of this MRP are submitted to the California Environmental Data Exchange Network (CEDEN) no later than 90 days after the completion of monitoring. A statement certifying that all monitoring results have been timely uploaded into CEDEN shall be submitted annually by March 1 of each year.

D. Receiving Water Status and Trends

1. **Algal Bloom Report.** The Discharger shall submit the following information quarterly to the San Diego Water Board regarding any algal blooms that occurred in Miramar Reservoir during the previous quarter:

   a. The dates the algal bloom was observed.

   b. A description of the location of the algal bloom (including GPS coordinates), and an estimate of the distance of the algal bloom from the drinking water intakes for the Miramar DWTP. Provide photos of the algal bloom if available.

   c. Indicate if signs were posted as a result of the algal bloom and provide a description of where the signs were posted.

   d. A description of the color and texture of the algal bloom, and whether there were any odors associated with the algal bloom.

   e. An estimate of the size, shape, and extent of the algal bloom.

   If a harmful algal bloom is detected, the Discharger shall submit a California Freshwater and Estuarine Harmful Algal Bloom Report within 15 days to the California Water Quality Monitoring Council database at: https://mywaterquality.ca.gov/habs/do/bloomreport.html. The Discharger shall include a statement certifying that all harmful algal blooms have been timely reported to the California Water Quality Monitoring Council database with the Algal Bloom Report.

2. **Receiving Water Monitoring Report.** The Discharger shall submit a Receiving Water Monitoring Report annually on March 1. The Receiving Water Monitoring Report shall cover the receiving water monitoring requirements of sections IV.A and B of this MRP and include, as a minimum, the following information:

   a. A description of climatic and receiving water characteristics at the time of sampling (e.g., observations of wind (direction and speed); weather (e.g. cloudy, sunny, rainy, etc; observations of water color or discoloration (percent algal cover at surface and bottom); oil and grease; turbidity; odor, and materials of sewage origin in the water or on the river banks; time of sampling; air temperature (°F); water temperature (°F); etc.).

b. A description of sampling stations including, if such information is available, a description of characteristics unique to each station (e.g., GPS coordinates for station location, photo documentation, sediment characteristics, etc).

c. A description of the sample collection and preservation procedures used in the survey.

d. A description of the specific method used for laboratory analysis.

e. An in-depth discussion, evaluation (e.g., detailed statistical analyses), interpretation and tabulation of the data including interpretations and conclusions as to whether applicable receiving water limitations in this Order have been attained at each station. The discussion shall compare receiving water data with historical data and answer the monitoring questions proposed in each section of the MRP.

f. A discussion on whether the receiving water monitoring results are consistent with the predictions of the *Limnology Study of Miramar Reservoir*.

g. A discussion of the effects of the discharge and reservoir management on the water quality and biological condition of Miramar Reservoir.

3. **State of Miramar Reservoir Report.** The Discharger shall present an oral report to the San Diego Water Board summarizing the conclusions of the receiving water monitoring report. The State of the Miramar Reservoir Report shall be given once no later than 180 days prior to the permit expiration date. If an oral report cannot be scheduled for a San Diego Water Board meeting, the San Diego Water Board may approve submission of a written State of Miramar Reservoir Report. The State of the Miramar Reservoir Report shall include, at minimum, the following elements:

   a. A description of the monitoring effort completed;

   b. The status and trends of receiving water conditions; and

   c. A discussion of the effects of the discharge and reservoir management on the water quality and biological condition of Miramar Reservoir; and

   d. A discussion on whether or not the receiving water monitoring results are consistent with the predictions of the *Limnology Study of Miramar Reservoir*.

V. REGIONAL MONITORING

The Discharger is encouraged to participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved regional or watershed monitoring and assessment programs for surface waters in the San Diego Region and discharges to those waters. The intent of regional monitoring activities is to maximize efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled resources of the region.

VI. SPECIAL STUDY REQUIREMENTS

A. Climate Change Action Plan

The Discharger shall prepare and submit a Climate Change Action Plan (CCAP) within three years of the effective date of this Order. The Discharger may make use of existing climate-change-related plans to comply with this requirement. Changing climate conditions may fundamentally alter the way publicly-owned treatment works are designed and operated. Climate change research indicates the overarching driver of change is increased atmospheric carbon dioxide (CO_2) from human activity. The increased CO_2 emissions trigger changes to climatic patterns, which could lead to more erratic rainfall and local weather patterns (Δ Weather Patterns), increased flooding, pollutant transportation, and sediment erosion, trigger

a gradual warming of freshwater temperatures (Δ Water Temperature) and may result in stronger water column stratification, reduced mixing, changes to water chemistry., and increased incidence of harmful algal blooms. The CCAP shall identify projected regional impacts on the Facilities and operations due to climate change if current trends continue. The CCAP shall also identify steps being taken or planned to address greenhouse gas emissions attributable to wastewater treatment plants, solids handling, and effluent discharge processes. The CCAP shall also identify steps being taken or planned to address development of operational strategies to manage future conditions; consider modelling the effects of climate change on plume movement and dispersion in Miramar Reservoir; address flooding risk; volatile rain period impacts (both dry and wet weather); address challenges in accommodating high and low wastewater flows; address impacts on process design parameters due to higher BOD_5, ammonia (as N), and TSS influent concentrations; impacts on wastewater treatment operations and quality, including potential increases in energy requirements to assure reservoir mixing; address the potential need to adjust NPDES permit conditions and the Discharger's pollution control program; address the financing needed to pay for planned actions; address schedules to update the CCAP as more information on climate change and its effect become more available; and any other factors as appropriate.

B. Outfall and Diffuser Inspection

Discharge Point No. 001 shall be inspected externally a minimum of once per year. Inspections shall include general observations and photographic/videographic records of the outfall pipes and adjacent ballast material. The inspections may be conducted by remotely operated vehicle, diver, or manned submarine. A summary report of the inspection findings shall be provided annually on July 1. This written report will provide a description of the observed condition of the outfall structures from shallow water to their respective termini. Photographic/videographic records shall be retained by the Discharger and submitted to the San Diego Water Board upon request.

C. DDW Monitoring and Reporting

1. **Advanced Treatment Criteria.** Within 60 days of completing the first 12-months full-scale operation and operational monitoring of the advanced treatment process, the Discharger must submit a report to DDW and the San Diego Water Board that includes components described in section 60320.302(e) and (f) of title 22 of the CCR.

2. **Advanced Treatment Criteria.** Pursuant to section 60320.302(g) of title 22 of the CCR, the Discharger must perform calculations to document proper on-going performance of the RO and advanced oxidation processes and report to DDW and the San Diego Water Board quarterly. The quarterly report must state the percent of results of the quarter's monitoring, conducted pursuant to sections 60320.302(b) and (d) of title 22 of the CCR that did not meet the surrogate and/or operational parameter limits. The report must also state if the limits were exceeded by greater than 10 percent.

3. **Compliance Status and Trends.** Pursuant to section 60320.328 of title 22 of the CCR, the Discharger must provide a report to DDW, the San Diego Water Board and the Miramar DWTP by July 1 each year. The report must include the following:

    a. A summary of the Discharger's compliance status with the monitoring requirements and criteria of Article 5.3 during the previous calendar year;

    b. For any violations of Article 5.3 during the previous calendar year;

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

        ii. A summary of any corrective actions and/or suspensions of delivery of recycled water to Miramar Reservoir resulting from a violation, and

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

c. Any detections of monitored chemicals or contaminants, and any observed trends in the monitoring results of Miramar Reservoir;

d. A description of any changes in the operation of any unit processes or facilities;

e. A description of any anticipated changes, along with an evaluation of the expected impact of the changes on subsequent unit processes;

f. The estimated quantity and quality of recycled water to be delivered for the next calendar year, as well as the quantity delivered during the previous three years; and

g. A summary of the measures taken to comply with sections 60320.306 and 60320.301(e), and the effectiveness of the implementation of those measures.

4. **Pathogenic Microorganism Control.** Pursuant to section 60320.308(b) of the CCR, each treatment process of the treatment train must be validated for its log reduction by on-going monitoring conducted pursuant to the approved SWSAP Operation Plan to verify the performance of each treatment process to achieve its credited log reduction on a daily basis, with the results reported monthly to DDW and the San Diego Water Board. These reports must be submitted along with the surface water treatment monthly report for the Miramar DWTP that is required by section 64664 and is due by the 10th day of the following month to DDW.

5. **SWSAP Operation Plan and Pathogenic Microorganism Control.** The Discharger operates a multi-barrier treatment facility in order to comply with the Surface Water Augmentation Regulations. Monitoring and reporting requirements must be described in the SWSAP Operation Plan required by section 60320.322 of title 22 of the CCR. Monitoring for the purpose of pathogen log reduction calculation and demonstration must be reported to DDW and the San Diego Water Board monthly. Pathogen log reduction credits must be demonstrated as follows:

a. To demonstrate the pathogen log reduction credits given to the NCWRP treatment train (up to the influent of the NCPWF), monitoring must be conducted as listed below. Pathogen reduction credits for the secondary/tertiary treatment process will be awarded on a pass/fail basis. The Discharger must report monthly to DDW and the San Diego Water Board the results of the monitoring and the percentage of time the NCWRP fails to meet the following criteria:

i. Continuously monitor for combined filter effluent turbidity (at monitoring location INT-003). In order to meet the pathogen reduction credits in the Engineering Report, the combined filter effluent turbidity must not exceed any of the following:

(a) An average of 1.5 NTU within a 24-hour period.

(b) 2.5 NTU more than 5 percent of the time within a 24-hour period.

(c) 5 NTU at any time.

ii. Continuously monitor the secondary effluent ammonia concentration (at monitoring location INT-002). In order to meet the pathogen reduction credits in the Engineering Report, the daily average ammonia must not exceed 1 mg/L as nitrogen.

iii. Continuously monitor the combined filter effluent Total Organic Carbon (TOC) concentration (at monitoring location INT-003). In order to meet the pathogen

reduction credits in the Engineering Report, the daily average combined filter effluent TOC must not exceed 11 mg/L.

iv. Daily calculate the solids retention time (SRT) in the aeration process. In order to meet the pathogen reduction credits in the Engineering Report, the running 30-day average of SRT must be at least nine days.

b. The ozonation/biological activated carbon (BAC) process at the NCPWF must be monitored at monitoring location INT-004 as listed below to demonstrate the pathogen log reduction credits achieved using the product of continuously calculated ozone contact time and ozone residual (CT) based on the temperature corrected Truncated Extended Integration CT Method from the EPA's Surface Water Treatment Rule (SWTR) Guidance Manual and Long Term 2 Enhanced SWTR Toolbox Guidance Manual (LT2ESWTR) as presented in the Engineering Report. The Discharger must report monthly to DDW and the San Diego Water Board the results of the monitoring, calculated ozone CT, and associated pathogen log reduction credits. In addition, the Discharger must continuously monitor the following:

i. Continuously monitor the ozone residual at three locations designated in the Engineering Report: C1, C2, and C3.

ii. Continuously monitor temperature.

iii. Continuously monitor flowrate.

c. The Discharger proposes to calculate pathogen log reduction calculations using rolling averages of individual dissolved ozone analyzer readings consistent with EPA guidance documents. The Discharger must define the monitoring frequency, rolling average duration, and describe the details of the quality control protocol for all three on-line ozone residual monitors in the SWSAP Operation Plan for DDW approval before the start of full-scale operation.

d. For pathogen log reduction calculations, the Discharger must use an ozone contactor baffle factor (T_{10}/HRT) of 0.42 (average baffling condition). A higher ozone contactor baffle factor may be approved by DDW once confirmed with a tracer study after operation begins. The Discharger must obtain DDW approval of the tracer study protocol prior to conducting the tracer study.

e. The NCPWF microfiltration (MF) membrane effluent at each MF rack must be continuously monitored for turbidity as an indirect integrity test at monitoring locations INT-006 A through L. The turbidity must be measured continuously (at least every 15 minutes), and if two consecutive readings are greater than 0.15 NTU for a period exceeding 15 minutes, a pressure decay test (PDT) must be initiated on the rack with the potential integrity breach.

f. Membrane integrity testing (MIT) (aka PDT) must be performed on each of the MF membrane racks at the NCPWF a minimum of once every 24 hours of operation. A MIT verification program must be submitted to DDW for review and approval. A copy of the MIT verification program must also be submitted to the San Diego Water Board. The following apply to the MIT:

i. The pathogen log reduction values (LRV) for Giardia cysts and Cryptosporidium oocysts must be calculated and the values recorded after the completion of each MIT.

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 (PDR) 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.

g. The Discharger proposes to follow a 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 calculated surrogate reduction values from all tiers and indicate which tier is used for reporting pathogen log reduction.

i. Tier 1: Daily samples of the combined RO feed stream (at monitoring location INT-007) and effluent stream of each RO train (at monitoring locations INT-008 A through H) must be analyzed at least every 24 hours for strontium. The RO LRV credit will be calculated daily by the reduction in strontium concentration demonstrated by the lowest LRV from the RO trains (i.e. using the highest RO effluent strontium concentration). As of the date of adoption of the Order, there is no drinking water analytical method for elemental strontium in the California ELAP field of testing. The City will not be credited with RO LRV credit demonstrated by strontium reduction until DDW's written acceptance for the analytical method is provided. The results of strontium analysis must be available within 24 hours. If strontium data are unavailable, the RO LRV credit must be determined by the second tier.

ii. Tier 2: Continuous TOC monitoring (at least once every 15-minutes) of the combined RO feed stream (at monitoring location INT-007) and the combined RO effluent stream (at monitoring location INT-009). The RO LRV credit will be calculated based on the average daily reduction in TOC. If first tier (strontium) and second tier (TOC) data are unavailable, the RO LRV credit must be determined by the third tier.

iii. Tier 3: Continuous electrical conductivity (EC) monitoring (at least once every 15-minutes) of the combined RO feed stream (at monitoring location INT-006) and effluent stream of each RO train (at monitoring locations INT-007A through H). The RO LRV credit must be calculated based on the minimum daily EC reduction, if first tier (strontium) and second tier (TOC) data are unavailable.

h. To meet the requirement of section 60320.302(b), online electrical conductivity (EC) monitoring must be conducted to ensure the integrity of the RO system at the NCPWF. The effluent of each RO train (including each stage, monitoring locations INT-008 A through H) must be monitored continuously for EC. The minimum and average EC removal achieved by each train at the NCPWF must be calculated and recorded continuously (based on readings taken at least every 15 minutes). The Discharger must describe the NCPWF RO monitoring program and how on-going performance monitoring will be conducted to indicate when the integrity of the RO process has been compromised in the SWSAP Operation Plan.

i. The NCPWF RO monitoring program must include at least the following elements:

i. Determination of baseline integrity test values for intact membranes during commissioning of the NCPWF.

ii. Determination of lower and upper control limits for each surrogate to be used for integrity testing. Perform surrogate mass balance calculations for the RO treatment system to provide the basis for lower and upper control limit values. Provide a response plan for exceedances of lower and upper control limits.

iii. A scheduled vessel EC probing (i.e. vessel integrity). Each vessel must have conductivity measured at a minimum on a quarterly basis and kept in an electronic logbook to establish a historical dataset and profile on vessel conductivity. Include the vessel sampling plan and breach response proposal.

iv. Incorporate the elements above into the SWSAP Operation Plan.

j. The UV system must be operated with online monitoring (at monitoring location INT-010, except for part iv below). Alarms must be triggered when the following critical setpoints are reached:

i. UV dose less than 850 millijoules per square centimeter (mJ/cm^2).

ii. UV transmittance less than 95%.

iii. Complete UV reactor failure.

iv. Free chlorine residual less than 2.0 mg/L entering the UV system, or another setpoint approved by DDW after the AOP commissioning (at monitoring location INT-009).

k. At the respective UV system critical control points, online monitoring of calculated UV dose, UV intensity, UV electrical energy dose, free chlorine residual, pH, flowrate, and UV transmittance must be provided at all times. All instrumentation used to measure these parameters must be calibrated per the manufacturers' recommendations.

l. At least monthly, all duty UV intensity sensors must be checked for calibration against a reference UV intensity sensor. Tolerance and response actions must be described in the approved SWSAP Operation Plan.

m. The UV transmittance meter must be inspected and checked against a reference bench-top unit weekly to document accuracy. Tolerance and response actions must be described in the approved SWSAP Operation Plan.

n. At the respective pipeline critical control points, continuous monitoring of the free chlorine residual, flowrate, temperature and pH of the recycled water in the conveyance pipeline from the NCPWF to the dechlorination station influent (upstream of Miramar Reservoir) (at monitoring location EFF-001 and EFF-002) must be provided at all times. LRV values must be determined using free chlorine CT as explained in the Engineering Report. Online flow meters and instrumentation must be properly calibrated. LRV credit must be determined based on minimum daily calculated free chlorine CT. Virus LRV credit of 6-log will be achieved if the minimum daily calculated free chlorine CT is greater than 10 mg-min/L. If the minimum daily free chlorine calculated CT is less than 10 mg-min/L, a maximum of 4 log inactivation of virus can be claimed.

o. The Discharger must submit reports to DDW providing a summary of monthly operational parameters for UV dose and free chlorine for the NCPWF.

p. The monitoring and reliability features, including automatic diversion to waste or re-treatment at the NCWRP, and shutdown capability, must be demonstrated to DDW prior to releasing treated water into the Miramar Reservoir and at any time requested by DDW or the San Diego Water Board.

q. Based on the calculations of log reductions achieved daily by the entire treatment facility from the NCWRP to Miramar Reservoir, the City must report the total log reductions achieved per pathogen and whether the necessary log reductions (10- log enteric virus, 9-log Giardia cyst, and 10-log Cryptosporidium oocyst) have been achieved. The format of the monthly reporting form must be approved by DDW.

r. Pursuant to section 60320.312 of title 22 of the CCR, the recycled water delivered to Miramar Reservoir must be sampled quarterly for primary drinking water MCLs (Tables 66431-A, 64442, 64443, 64444-A and 64533-A of Chapter 15 of Title 22) and lead and copper. The results must be reported to DDW, the San Diego Water Board, and the Miramar DWTP. Samples may be grab or 24-hour composite. Monitoring for contaminants with secondary MCLs (Tables 64449-A and B of Chapter 15 of Title 22) must be conducted annually on the same quarter as specified by DDW. Monthly monitoring of the effluent of the advanced treatment process conducted per section 60320.302(h) can be used to satisfy monitoring requirements per section 60320.312(a) and (b), with the exception of monitoring for disinfection byproducts per Table 64533-A. The City must collect paired disinfection byproduct samples quarterly from NCPWF effluent at NCPW Pump Station and from NCPW dechlorination facility effluent until at least 12 months of operation at the final ramp-up stage with no results exceeding the disinfection byproduct MCLs. Paired sample collection times must be adjusted for the hydraulic retention time between the two sample sites, such that sampling at NCPW Pump Station and NCPW dechlorination facility are representative of the same element of water moving through the treatment process. The City is subject to subsequent sampling and notification requirements for exceedances, which can result in suspension of delivery of the recycled water to Miramar Reservoir.

VII. REPORTING REQUIREMENTS

A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

2. The Discharger shall report all instances of noncompliance not reported under sections V.E, V.G, and V.H of the Standard Provisions (Attachment D) at the time monitoring reports are submitted.

3. The Discharger shall submit an annual summary report to the San Diego Water Board by February 1 of each year that contains tabular and graphical summaries of the monitoring data obtained during the previous year. The Discharger shall discuss the compliance record and corrective actions taken, or which may be taken, or which may be needed to bring the discharge into full compliance with the requirements of this Order and this MRP.

B. Self-Monitoring Reports (SMRs)

1. The Discharger shall electronically submit SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website <http://www.waterboards.ca.gov/water_issues/programs/ciwqs/>. The CIWQS website will provide additional information for SMR submittal in the event there will be a planned service interruption for electronic submittal. SMRs must be signed and certified as required by section V of the Standards Provisions (Attachment D). The Discharger shall maintain sufficient staffing and resources to ensure it submits SMRs that are complete and timely. This includes provision for training and supervision of individuals on how to prepare and submit SMRs.

2. The Discharger must use DDW-provided Primary Station Codes (PS Codes) to electronically submit monitoring results from the NCPWF effluent and Miramar Reservoir. Data produced and reports submitted for analysis required by title 22 of the CCR, division 4, article 5.3 must be generated by a laboratory accredited by ELAP. The laboratory must hold a valid certificate of accreditation for the analytical test methods validated for intended use and approved by DDW. 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. Bacteriological data cannot at this time be transmitted electronically to DDW. A summary of bacteriological results must be included in the Miramar DWTP's monthly surface water treatment rule reporting to DDW.

3. The Discharger shall report in the SMR the results for all monitoring specified in this MRP under sections III through VIII. The Discharger shall submit SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. If the Discharger monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.

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

Table E-18. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	First Sunday of the calendar month following the permit effective date or on permit effective date if on a Sunday.	Sunday through Saturday	Submit with monthly SMR
1/Month	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month	First day of second calendar month following month of sampling.
1/Quarter	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	May 1 August 1 November 1 February 1
1/6-Months	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	September 1 March 1
1/Year	January 1 following (or on) permit effective date	January 1 through December 31	February 1

5. **Reporting Protocols**. The Discharger shall report with each sample result the applicable reported Minimum Level (reported ML, also known as the Reporting Level, or RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR part

136. The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).

b. Sample results less than the ML, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ. The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (± a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

c. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

d. Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

6. Compliance Determination. Compliance with effluent limitations for reportable pollutants shall be determined using sample reporting protocols defined above and in Attachment A. For purposes of reporting and administrative enforcement by the San Diego Water Board and State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the reportable pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the ML.

7. Multiple Sample Data. When determining compliance with a measure of central tendency (arithmetic mean, geometric mean, median, etc.) of multiple sample analyses and the data set contains one or more reported determinations of DNQ or ND, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:

a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.

b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

8. The Discharger shall submit SMRs in accordance with the following requirements:

a. The Discharger shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the Facility is operating in compliance with interim and/or final effluent limitations. The Discharger is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular

format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment.

b. The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the waste discharge requirements (WDRs); discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.

c. The Discharger shall add violations of the WDRs in CIWQS under the 'Violations' tab.

C. Discharge Monitoring Reports (DMRs)

1. DMRs are USEPA reporting requirements. The Discharger shall electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website at: <https://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring/>.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D).

D. Other Reports

The following reports are required under section VI.C (Special Provisions) of this Order, sections III, IV, VI, and VII of this MRP, and the CCR. The reports shall be submitted to the San Diego Water Board using the State Water Board's CIWQS program website and to DDW staff by e-mail, unless otherwise noted. The reports must be signed and certified as required by section V of the Standards Provisions (Attachment D). The CIWQS website will provide additional information for SMR submittal in the event of a planned or unplanned service interruption for electronic submittal.

Table E-19. Other Reports

Report	Location of Requirement	Due Date
Monthly Summary of Spills	Section VI.C.2.b.iv	Each calendar month, submit as attachment with Monthly SMR
Initial Toxicity Reduction Evaluation (TRE) Workplan	Section III.C.6 of this MRP	Within 90 days of the initial discharge
Pollutant Minimization Program (PMP)	Section VI.C.3.a	As specified in section VI.C.3 of the Order
Annual Pretreatment Report	Section VI.C.5.d.v	Annually on March 1
Annual Outfall and Diffuser Inspection Report	Section VI.B of this MRP	Annually on July 1
Report of Waste Discharge (ROWD) (for reissuance)	Title 23, CCR	180 days before the Order expiration date
Joint Plan	Section VI.C.2.c.iv	Prior to discharging to Miramar Reservoir

Report	Location of Requirement	Due Date
Revisions to Joint Plan	Section VI.C.2.c.iv	60 days prior to the effective date of the revised Joint Plan
Draft SWSAP Operation Plan	Section VI.C.2.c.ii	6 months prior to startup
Final SWSAP Operation Plan	Section VI.C.2.c.ii	90 days after completion of startup and if needed, 90 days after operating at full plant capacity
Updated SWSAP Operation Plan	Section VI.C.2.c.iii	Six months following the first year of optimizing treatment processes
Annual Biosolids Report	Section VI.C.5.a.viii	Annually on February 1
AOP Commissioning and Testing Protocol	Section VI.C.2.c.xxxii	90 days prior to commissioning
Local Limits Study for the expanded NCWRP Sewershed	Section VI.C.5.d.viii	Prior to diversion of flow via Morena Pump Station and annual updates thereafter
Flow Split Verification Report	Section VI.C.2.c.xxix	6 months after NCWRP commissioning
Tracer Study Protocol for Ozone Contactor	Section VI.C.5.d of this MRP	Prior to conducting tracer study
Results of Tracer Study for Ozone Contactor	Section VI.C.5.d of this MRP	Prior to implementing a baffling factor value other than the value specified in DDW conditional acceptance letter
Advanced Treatment Performance Report	Section VI.C.1 of this MRP	60 days after completing the initial 12 months of full scale operational monitoring
Annual Report (pursuant to 60320.328 of title 22 of the CCR)	Section VI.C.3 of this MRP	Annually on July 1
Tracer Study Protocol for Miramar Reservoir	Section VI.C.5.d of this MRP	Prior to conducting the tracer study and whenever requested to do so by DDW
Membrane Comprehensive Integrity Verification Program	Section VI.C.5.f of this MRP	6 months prior to startup
Flow Ramp-Up Plan	Section VI.C.2.c.xx	Prior to commencement of augmenting Miramar Reservoir with recycled water
Cross-Connection Control Program	Section VI.C.2.c.xxv	3 months prior to commissioning
Updated Engineering Report	Section VI.C.2.c.xxviii	The next updated Engineering Report is due within fifteen (15) months of operating at the final ramp-up stage (full operational flow) or no more than six years from the date of DDW's conditional acceptance letter for the Discharger's Title 22 Engineering Report. Subsequent reports must be updated at a minimum of every five years.
Reservoir Nutrient Management Plan	Section VI.C.2.d	180 days after the Order effective date
CEDEN Certification	Section IV.C of this MRP	Annually on March 1
Algal Bloom Report	Section IV.D.1 of this MRP	Submit as attachment with quarterly SMR

Report	Location of Requirement	Due Date
Annual Receiving Water Monitoring Report	Section IV.D.2 of this MRP	Annually on March 1
State of Miramar Reservoir Report	Section IV.D.3 of this MRP	180 days before the Order expiration date
Climate Change Action Plan	Section VI.A of this MRP	3 years after the Order effective date
Annual Summary Report	Section VII.A.3 of this MRP	Annually on February 1

ATTACHMENT F – FACT SHEET

CONTENTS

TABLES

ATTACHMENT F – FACT SHEET

As described in section II.B of this Order, the San Diego Water Board incorporates this Fact Sheet as findings of the San Diego Water Board supporting the issuance of this Order. This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as "not applicable" have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as "not applicable" are fully applicable to this Discharger.

I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

Table F-1. Facility Information

WDID	9 000003344
Discharger	City of San Diego
Names of Facility	North City Water Reclamation Plant and Pure Water Facility
Facility Address	4950 Eastgate Mall
	San Diego, CA 92121
	San Diego County
Facility Contact, Title and Phone	Shauna Lorance, P.E, Public Utilities Director, (619) 533-7555
Authorized Person to Sign and Submit Reports	Shauna Lorance,P.E, Public Utilities Director, (619) 533-7555
Mailing Address	9192 Topaz Way San Diego, CA 92123
Billing Address	Same as Mailing Address
Type of Facility	Publicly-Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Recycling Requirements	Producer
North City Pure Water Facility (NCPWF) Permitted Flow	30.0 million gallons per day (MGD)
NCPWF Design Flow	34.0 MGD
Watershed	Miramar Reservoir Watershed (Hydrologic Area 906.10)
Receiving Water	Miramar Reservoir
Receiving Water Type	Inland surface water

A. The City of San Diego (City or Discharger) is the owner and operator of the North City Water Reclamation Plant (NCWRP) and the North City Pure Water Facility (NCPWF), including the North City Pure Water Pipeline and the North City Dechlorination Facility (all collectively referred to as the Facility). The Facility is a POTW. The City is the Surface Water Source

Augmentation Project Water Recycling Agency (SWSAP WRA)[1] as defined in section 60301.853 of title 22 of the CCR and the Surface Water Source Augmentation Project Public Water System (SWSAP PWS) under section 60301.852.[2]

For the purposes of this Order, references to the "discharger" or "permittee" in applicable federal and State laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

B. Once completed, the Facility will discharge advanced treated recycled water to Miramar Reservoir, a water of the United States. Attachment B, Figure B-1 provides a map showing the location of the Facility. Attachment C provides a flow schematic of the Facility.

C. The Discharger filed a report of waste discharge (ROWD) and submitted an application for issuance of waste discharge requirements (WDRs) and a National Pollutant Discharge Elimination System (NPDES) permit on May 30, 2018. A letter acknowledging receipt of the ROWD was sent to the Discharger on June 28, 2018. Supplemental information was received on July 5, 2018.

D. Regulations at title 40 of the Code of Federal Regulations (40 CFR) section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. Accordingly, Table 3 of this Order limits the duration of the discharge authorization. However, pursuant to California Code of Regulations (CCR), title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Discharger complies with all federal NPDES requirements for continuation of expired permits.

II. FACILITY DESCRIPTION

The Discharger owns and operates the Facility, which is located at 4950 Eastgate Mall, San Diego, CA 92121. The Facility provides wastewater treatment to approximately 350,300 residents within the boundaries of Sorrento Valley/Torrey Pines, Miramar, Mira Mesa, Scripps Ranch, the City of Del Mar, and the City of Poway within the NCWRP sewershed. With implementation of the North City Project, the first phase of the Pure Water San Diego Program (Pure Water Program) the service area will be expanded to include the Morena Pump Station sewershed which encompasses the communities of Mission Beach, Pacific Beach, La Jolla, Clairemont, Kearny Mesa, Mission Valley/Mission Gorge, East San Diego in the City of San Diego, service areas of the Padre Dam Municipal Water District, Alpine Sanitation District and Winter Gardens Sanitation District; and portions of the Cities of La Mesa and El Cajon.

A. Description of Wastewater and Biosolids Treatment and Control

Construction and operation of the Facility is known as the North City Pure Water Project, and it is the first phase of the City's Pure Water Program, a multi-year program projected to produce up to 83 MGD of advanced treated recycled water and provide one-third of San Diego's water supply demand by the year 2035. The North City Pure Water Project includes an expansion of the NCWRP from 32 to 56.7 MGD, and construction of the NCPWF. Annual average advanced treated recycled water discharges to Miramar Reservoir are projected to

[1] A SWSAP WRA is defined in section 60301.853 of title 22 of the CCR as an agency that is subject to a Regional Board's water-recycling requirements applicable to a Surface Water Source Augmentation Project (SWSAP), and is, in whole or part, responsible for applying to the Regional Water Board for a permit, obtaining a permit, the operation of a SWSAP, and complying with the terms and conditions of the Regional Water Board permit and the requirements of Chapter 3 of title 22 of the CCR.

[2] A SWSAP PWS is defined in section 60301.853 of title 22 of the CCR is defined as a public water system that plans to utilize or is utilizing an augmented reservoir as a source of drinking water and is responsible for complying with the requirements of Chapter 17 and the applicable requirements of Chapter 3 of title 22 of the CCR.

be 30 MGD, and peak discharges to Miramar Reservoir are projected to be 32.8 MGD. The North City Pure Water Project is considered a Surface Water Source Augmentation Project (SWSAP)[3] because it involves the planned placement of recycled municipal wastewater into a surface water reservoir that is used as a source of domestic drinking water supply, for the purpose of supplementing the source of domestic drinking water supply to Miramar Reservoir.

North City Water Reclamation Plant (NCWRP)

Wastewater treatment unit operations and processes at the NCWRP consist of bar screens, grit removal, chemically enhanced primary sedimentation, flow equalization, aeration/secondary clarification using a 4-stage Bardenpho process for enhanced nutrient removal, coagulation followed by deep-bed anthracite filtration, and chlorination for flows directed to non-potable use (primarily irrigation).

The NCWRP produces tertiary recycled water that complies with the requirements of title 22, division 4, chapter 3 of the California Code of Regulations (CCR, Title 22 Regulations). The existing NCWRP has a design capacity of 32 MGD, and the upgraded NCWRP will have a design capacity of 56.7 MGD.

Up to 42.5 MGD of undisinfected tertiary recycled water will be conveyed from the NCWRP to the NCPWF. The remaining tertiary recycled water will be used for non-potable purposes (primarily landscape irrigation) in accordance with Order No. R9-2015-0091, *Master Recycling Permit for the City of San Diego North City Water Reclamation Plant, San Diego County* and any update.

Biosolids and waste sludge generated from the NCWRP is sent to the City's Metro Biosolids Center for treatment prior to disposal. The Metro Biosolids Center is regulated separately under Order No. R9-2017-0007, NPDES No. CA 0107409, *Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit for the City of San Diego E.W. Blom Point Loma Wastewater Treatment Plant Discharge to the Pacific Ocean Through the Point Loma Ocean Outfall*.

North City Pure Water Facility (NCPWF)

Wastewater treatment unit operations and processes at the NCPWF will consist of ozone disinfection, biological activated carbon, membrane filtration using Toray ultrafiltration membranes, 3-stage reverse osmosis (RO) treatment, ultraviolet light/advanced oxidation (UV/AOP) using sodium hypochlorite as an oxidant, product-water conditioning using lime and carbon dioxide injection, and chlorination to maintain a free chlorine residual in the Miramar Reservoir conveyance pipeline. Advanced treated recycled water from the NCPWF will be conveyed via the North City Pure Water Pipeline to the North City Pure Water Dechlorination Facility (shown in Attachment B, Figure B-4) for dechlorination prior to discharge into Miramar Reservoir.

Approximately 5.91 MGD of RO brine from the NCPWF will be discharged to a brine line which will convey the brine to the City's sanitary sewer system. Once in the sanitary sewer system, RO brine will be transported to the E.W. Blom Point Loma Wastewater Treatment Plant (Point Loma WWTP) for treatment and discharge to the Pacific Ocean through the Point Loma Ocean Outfall. The Point Loma WWTP is regulated separately under Order No. R9-2017-0007, NPDES No. CA 0107409, *Waste Discharge Requirements and National Pollutant Discharge Elimination System Permit for the City of San Diego E.W. Blom Point Loma*

[3] A SWSAP is defined in section 60301.851 of title 22 of the CCR as a project involving the planned placement of recycled municipal wastewater into a surface water reservoir that is used as a source of domestic drinking water supply, for the purpose of supplementing the source of domestic drinking water supply.

Wastewater Treatment Plant Discharge to the Pacific Ocean Through the Point Loma Ocean Outfall and any reissuance.

Additionally, approximately 2.07 MGD of backwash waste from the various NCPWF processes, and other water not meeting the requirements of the Order will be returned to NCWRP for additional treatment.

North City Pure Water Pipeline

Advanced treated recycled water will be conveyed from the NCPWF site to Miramar Reservoir by a 48-inch diameter, 8-mile long pipeline. The pipeline will be designed to handle the projected peak 32.8 MGD flow rate. At the maximum flow rate, travel time between the NCPWF and Miramar Reservoir will be approximately two hours. As discussed in section VI.C.6 of the Order and section VI.B.6 of the Fact Sheet, discharges from the North City Pure Water Pipeline to the City's municipal separate storm sewer system (MS4) during maintenance and cleaning of the North City Pure Water Pipeline will be regulated under Order WQ 2014-0194-DWQ, *Statewide NPDES Permit for Drinking Water System Discharges to the Waters of the United States* and any reissuance.

North City Pure Water Dechlorination Facility

The conveyance pipeline will deliver advanced treated recycled water to the North City Pure Water Dechlorination Facility located immediately south of the Miramar Reservoir dam, at the north end of Meanley Drive near the entrance of the Miramar DWTP. The North City Pure Water Dechlorination Facility will achieve dechlorination by injecting sodium bisulfite into the conveyance pipeline. The rate of sodium bisulfite injection will be controlled to reduce chlorine residual to non-detectable concentrations.

Miramar Drinking Water Treatment Plant (Miramar DWTP)

Operations at the Facility will be ramped up in stages to ensure that the treatment processes and reliability features operate as designed and comply with applicable requirements established by the State Water Resources Control Board (State Water Board) Division of Drinking Water (DDW).

Miramar Reservoir is a drinking water storage reservoir with a capacity of 6,682 acre-feet. The water in the reservoir is withdrawn, blended with imported water, and treated at the Miramar Drinking Water Treatment Plant (Miramar DWTP) prior to customer distribution. Once the NCPWF is operating at full capacity, advanced treated recycled water will comprise 100 percent of the Miramar Reservoir supply and will replace imported water as the primary source of supply water to the Reservoir. The Miramar DWTP has a treatment capacity of 144 MGD, and serves approximately 0.5 million customers within the northern section of the City of San Diego and the City of Del Mar. The Miramar DWTP is regulated separately under a water supply permit issued by the DDW.

Water Purification Demonstration Facility (WPDF)

The Discharger constructed a 1 MGD Water Purification Demonstration Facility (WPDF) at the Facility site to test treatment processes utilized at the full scale NCPWF. Treatment processes utilized at the WPDF include ozone disinfection, biological activated carbon, microfiltration, RO, ultraviolet disinfection/advanced oxidation processes. Analyses results from effluent samples collected from the WPDF from 2011 to 2012 and 2016 to 2017 were included in the Discharger's ROWD.

B. Discharge Points and Receiving Waters

The NCPWF will discharge advanced treated recycled water to Miramar Reservoir at Discharge Point No. 001 (Latitude 32.9156°: Longitude -117.0947°). Advanced treated

recycled water will be discharged to the receiving water in the Reservoir through a diffuser system that consists of approximately 1,470 feet of lateral diffusers and 94 diffuser ports. Diffuser ports will be equipped with duckbill valves that can adjust the valve opening in response to flow to maintain high discharge velocities and ensure instantaneous dilution.

C. Summary of Existing Requirements and Self-Monitoring Report Data – Not Applicable

D. Compliance Summary – Not Applicable

E. Planned Changes – Not Applicable

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

A. Legal Authorities

This Order serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (Water Code) (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit authorizing the Discharger to discharge into waters of the United States at the discharge location described in Table 2 subject to the WDRs in this Order.

B. California Environmental Quality Act (CEQA)

Pursuant to Section 13389 of the Water Code, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of division 13 of the Public Resources Code. However, compliance with CEQA is required for those provisions in this Order that are based on State law only. Under the San Diego Water Board's state law authority, this Order incorporates applicable portions of State Water Resources Control Board Water Quality Control Policy for Recycled Water and Article 5.3, Division 4, Title 22, of the California Code of Regulations. The state law only provisions of this Order are a discretionary approval subject to compliance with CEQA.

The City, as the lead agency, and the United States Bureau of Reclamation certified a Final Environmental Report/Environmental Impact Statement (Final EIR/EIS) [4] for the North City Pure Water Project, the first phase of the Pure Water San Diego Program (Pure Water Program). On April 10, 2018, a Notice of Determination was adopted by the City to certify the Final North City Project, Pure Water San Diego Program EIR/EIS (State Clearinghouse No. 2016081016) in compliance with the provisions of CEQA. The Final EIR/EIS concluded that there were no significant impacts to hydrology and water quality.

The San Diego Water Board, as a responsible agency, is responsible for mitigating and avoiding only the direct or indirect environmental effects for the parts of the project which it decides to carry out or approve. The San Diego Water Board independently reviewed and concluded that the 2018 Final EIR/EIS adequately disclosed and evaluated the impacts to hydrology and water quality.

C. State and Federal Laws, Regulations, Policies, and Plans

1. **Water Quality Control Plan.** The San Diego Water Board adopted a *Water Quality Control Plan for the San Diego Basin* (Basin Plan) on September 8, 1994 that designates

[4] A copy of the Final EIR/EIS, dated February 27, 2018 is available at: https://www.sandiego.gov/public-utilities/sustainability/pure-water-sd/reports

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. Subsequent revisions to the Basin Plan have also been adopted by the San Diego Water Board and approved by the State Water Board. Requirements in this Order implement the Basin Plan. Beneficial uses applicable to Miramar Reservoir are as follows:

Table F-2. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Miramar Reservoir [within Miramar Reservoir Watershed (Hydrologic Area 906.10)]	Existing surface water beneficial uses: Municipal and domestic supply (MUN); Industrial service supply (IND); Contact water recreation (REC-1)[1]; Non-contact recreation (REC-2); Warm freshwater habitat (WARM); Wildlife habitat (WILD); Hydropower generation (POW)

1. Fishing from shore or boat are allowed by the City, but other REC-1 uses are prohibited by the City.

2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. Approximately 40 criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the State. The CTR was amended on February 13, 2001. These rules contain federal water quality criteria for priority pollutants.

3. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000, with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the San Diego Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control.

4. **Antidegradation Policy.** Federal regulation 40 CFR section 131.12 requires that the State water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution 68-16, *Statement of Policy with Respect to Maintaining High Quality of Waters in California.* Resolution 68-16 is deemed to incorporate the federal antidegradation policy where the federal policy applies under federal law. Resolution 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The San Diego Water Board's Basin Plan implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR section 131.12 and State Water Board Resolution 68-16.

5. **Anti-Backsliding Requirements.** Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 CFR section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in future iterations of an

NPDES permit must be as stringent as those in the previous permit with some exceptions in which limitations may be relaxed.

6. **Endangered Species Act Requirements.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code, §§ 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. §§ 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

7. **Title 22/Surface Water Augmentation Regulations.** The State Water Board amended title 22, division 4, chapters 3 and 17 of the CCR for the purpose of establishing regulations governing the planned placement of recycled water into a surface water reservoir that is used as a source of domestic drinking water supply; known as surface water augmentation. This Order incorporates treatment criteria and monitoring and reporting requirements from sections 60320.300 through 60320.330 of title 22 of the CCR. The *Title 22 Engineering Report* for the Facility addressing protection of public health was also reviewed and accepted by the DDW.[5]

8. **State Recycled Water Policy.** The purpose of the *Policy for Water Quality Control for Recycled Water (*Recycled Water Policy) to increase the use of recycled water from municipal wastewater sources in a manner that implements state and federal water quality laws. The Recycled Water Policy provides direction to the 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 Recycled Water Policy was first adopted on February 3, 2009; and amended on January 22, 2013 and December 11, 2018. The 2018 Amendment included permitting guidance for reservoir augmentation projects, and updates monitoring requirements for contaminants of emerging concern (CECs) in recycled water used for reservoir water augmentation. This Order includes monitoring requirements for CECs which are consistent with the Recycled Water Policy.

D. Impaired Water Bodies on the CWA section 303(d) List

On July 30, 2015, the USEPA approved the list of impaired water bodies, prepared by the State Water Board pursuant to the CWA section 303(d), which are not expected to meet applicable water quality standards after implementation of technology-based effluent limitations (TBELS) for point sources. Miramar Reservoir is not on the 303(d) list.

E. Other Plans, Polices, and Regulations

1. **Secondary Treatment Regulations.** Part 133 of 40 CFR establishes the minimum levels of effluent quality to be achieved by secondary treatment. These limitations, established by the USEPA, are incorporated into this Order, except where more stringent limitations are required by other applicable plans, policies, or regulations.

2. **Storm Water.** Sewage treatment works with a design flow of 1.0 MGD or greater are required to comply with Water Quality Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, *Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activity, Excluding Construction Activities*. The Discharger

[5] The Title 22 Engineering Report, North City Pure Water Project, is available on the City of San Diego website at: https://www.sandiego.gov/public-utilities/sustainability/pure-water-sd/reports

shall file a Notice of Intent within 60 days of adoption of this and comply with Order No. 2014-0057-DWQ or the Discharger shall provide certification to the San Diego Board that all storm water is captured and treated onsite and no storm water is discharged or allowed to run offsite from the Facility.

3. **Pretreatment**. Discharges of pollutants that may interfere with operations of a POTW are regulated by USEPA's pretreatment regulations at 40 CFR part 403. These regulations require Dischargers to develop and implement pretreatment programs that impose limitations on industrial users (IUs) of the POTWs.

IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the CFR: 40 CFR section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR section 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

This Order establishes discharge prohibitions for the Facility as described below and in section III of this Order. Discharges from the Facility to surface waters in violation of prohibitions contained in this Order are violations of the CWA and therefore are subject to third party lawsuits. Discharges from the Facility to land in violation of prohibitions contained in this Order are violations of the Water Code and are not subject to third party lawsuits under the CWA because the Water Code does not contain provisions allowing third party lawsuits.

1. **Discharge Prohibition III.A.** The discharge of waste not treated by secondary, tertiary, and advanced treatment processes, and not in compliance with the effluent limitations specified in section IV.A of this Order, and/or to a location other than Discharge Point No. 001, unless specifically regulated by this Order or separate waste discharge requirements, is prohibited. This prohibition is intended to ensure that partially or untreated wastewater is not discharged from the Facility.

2. **Discharge Prohibition III.B.** The Discharger must comply with Discharge Prohibitions contained in chapter 4 of the Basin Plan, incorporated into this Order as fully set forth herein and summarized in Attachment G, as a condition of this Order. The Discharge prohibitions in the Basin Plan are applicable to any person,[6] as defined by section 13050(c) of the Water Code, who is a citizen, domiciliary, or political agency or entity of California whose activities in California could affect the quality of waters of the State within the boundaries of the San Diego Region.

B. Technology-Based Effluent Limitations (TBELs)

1. Scope and Authority

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR section 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must

[6] Pursuant to Section 13050 (c) of the Water Code "person" includes any city, county, district, the state, and the United States, to the extent authorized by federal law.

meet minimum federal technology-based requirements based on Secondary Treatment Standards specified in 40 CFR part 133.

Regulations promulgated in 40 CFR section 125.3(a)(1) require technology-based effluent limitations (TBELS) for municipal dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The CWA established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of the CWA requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the USEPA Administrator.

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

In compliance with 40 CFR sections 122.45(f)(1) and 423.15, mass-based limitations have also been established in this Order for conventional, nonconventional, and toxic pollutants, with some exceptions. Section 122.45(f)(2) of 40 CFR allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass-based limitations provided in 40 CFR section 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH.

Mass-based effluent limitations were calculated using the following equation:

lbs/day = flow (MGD) x pollutant concentration (mg/L) x 8.34

2. Applicable TBELs

Technology-based regulations, specified in 40 CFR part 133, are summarized in Table F-3:

Table F-3. Secondary Treatment Standards

Parameter	Units	Average Monthly	Average Weekly
BOD_5	mg/L	30	45
	% Removal	≥85	--
TSS	mg/L	30	45
	% Removal	≥85	--
pH	Standard units	6.0 to 9.0 at all times[1]	

1. pH effluent limit of 6.5-8.5 established in this Order based on the WQO for pH for inland surface waters.

a. **Secondary Treatment Standards (BOD_5, TSS, and pH)**: As described above, the secondary treatment standards in 40 CFR part 133 establish the minimum level of effluent quality attainable by secondary treatment in terms of BOD_5, TSS, and pH.

Numeric effluent limitations for BOD_5 and TSS, including percent removal requirements, have been established in this Order based on the secondary treatment standards in 40 CFR part 133.

The secondary treatment standards in 40 CFR part 133 require the pH of the effluent to be no lower than 6.0 standard units and no higher than 9.0 standard units. This Order establishes effluent limitations for pH based on the WQOs for pH for inland surface waters specified in the Basin Plan, which are more stringent than the secondary treatment standards in 40 CFR part 133.

Applicable TBELs specified in this Order are summarized in Table F-4:

Table F-4. Summary of Applicable TBELs Specified in the Order

Parameter	Units	Average Monthly	Average Weekly	Daily Maximum
Flow	MGD	---	---	34
BOD_5	mg/L	30	45	---
	lbs/day	14,000[1]	21,000[1]	---
	% Removal	≥85	--	--
TSS	mg/L	30	45	---
	lbs/day	14,000[1]	21,000[1]	---
	% Removal	≥85	--	--

1. Mass emission rates for BOD_5 and TSS were calculated using the following equation: (lbs/day) = 8.34 x Q x C), where Q is the average flow for the North City Water Reclamation Plant (56.7 MGD) and C is the concentration (mg/L).

b. **Flow:** This Order establishes an average monthly flow of 32.8 MGD from Facility.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and 40 CFR section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

Section 122.44(d)(1)(i) of 40 CFR requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. This is referred to as “reasonable potential”. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using the following:

- USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information;
- An indicator parameter for the pollutant of concern; or
- A calculated numeric water quality criterion, such as a proposed State criterion or policy interpreting the State’s narrative criterion, supplemented with other relevant information, as provided in section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan. This process is also intended to achieve applicable WQOs and criteria that are contained in other State plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

The Basin Plan designates beneficial uses, establish WQOs, and contains implementation programs and policies to achieve those objectives for all waters.

a. **Basin Plan.** The beneficial uses applicable to Miramar Reservoir are summarized in Table F-2 of this Fact Sheet. The Basin Plan includes both narrative and numeric WQOs applicable to the receiving waters. Effluent limits based on the following applicable Basin Plan WQOs have been included in this Order:

i. pH. The Basin Plan establishes the following WQO for the pH for inland surface waters: "*In inland surface waters the pH shall not be depressed below 6.5 nor raised above 8.5*". As discussed in section IV.B.2.a of this Fact Sheet, the Basin Plan WQO for pH is more stringent than the secondary treatment standards for pH in 40 CFR part 133.

ii. Biostimulatory Substances: The Basin Plan establishes the following WQOs for biostimulatory susbstances, "*Inland surface waters, bays and estuaries and coastal lagoon waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total phosphorus (P) concentrations shall not exceed 0.05 milligrams per liter (mg/L) in any stream at the point where it enters any standing body of water, nor 0.025 mg/L in any standing body of water. A desired goal in order to prevent plant nuisance in streams and other flowing waters appears to be 0.1 mg/L total P. These values are not to be exceeded more than 10% of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of N:P = 10:1, on a weight to weight basis shall be used.*"

iii. Turbidity. Table 3-2 of the Basin Plan establishes a WQO of 20 Nephelometric Turbidity Units (NTU) for turbidity for inland surface waters in the Miramar Reservoir Hydrologic Area not to be exceeded more than 10 percent of the time during any one year. However, the Basin Plan also includes a more stringent turbidity WQO of 5.0 NTU for waters such as Miramar Reservoir which are designated for use as domestic and municipal supply (based on the secondary Maximum Contaminant Level, MCL for turbidity).

iv. Ammonia. The Basin Plan establishes a WQO of 0.025 mg/L for unionized ammonia in inland surface waters, bays, and estuaries.

v. Toxicity. The Basin Plan establishes a narrative WQO for toxicity which states that, "*All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.*"

vi. Primary and Secondary MCLs. Miramar Reservoir is designated in the Basin Plan for use as domestic or municipal supply. As a result, the Basin Plan incorporates the following Maximum Contaminant Levels (MCLs) by reference as WQOs for waters designated for use as domestic or municipal water (shown in table F-5):

a. Primary MCLs for Organic Chemicals (specified in Table 64444-A of section 64444 of title 22 of the CCR.

b. Primary MCLs for Inorganic Chemicals (specified in Table 64431-A of section 64431 of title 22 of the CCR).

c. Secondary MCLs (specified in Table 64449-A of section 64449 of title 22 of the CCR)

d. Radionuclides in tables 64442 and 64443 of title 22 of the CCR.

The incorporation of MCLs by reference in the Basin Plan is prospective including future changes to the incorporate provisions as the changes take effect.

Table F-5 provides a summary of the most stringent Basin Plan WQOs that apply to Miramar Reservoir:

Table F-5. Summary of Basin Plan WQOs

Parameter	Units	Criteria	Source of Criteria
Chloride	mg/L	250[1]	Secondary MCL and Basin Plan Table 3-2
Total Dissolved Solids	mg/L	500[1]	Secondary MCL and Basin Plan Table 3-2
Sulfate	mg/L	250[1]	Secondary MCL and Basin Plan Table 3-2
Boron	mg/L	0.75[1]	Basin Plan Table 3-2
Percent Sodium	%	60[1]	Basin Plan Table 3-2
Odor	none	None[1]	Basin Plan Table 3-2
pH	standard units	6.5 – 8.5	Basin Plan Page 3-26
Total Residual Chlorine	µg/L	11 (chronic criterion), 19 (acute criterion)	Interpretation of narrative Basin Plan criteria based on EPA's National Recommended Water Quality Criteria for the protection of aquatic life
Total Trihalomethanes	mg/L	0.08	Primary MCL and Basin Plan Page 3-34[1]
Total Phosphorus	mg/L	0.025[1,2]	Basin Plan Table 3-2
Total Nitrogen	mg/L	2.0[2]	Basin Plan Table 3-2
Ammonia, un-ionized	mg/L	0.025	Basin Plan Page 3-6
Fluoride	mg/L	1.0[1]	Basin Plan Table 3-2
Iron, Total Recoverable	mg/L	0.3[1]	Basin Plan Table 3-2
Manganese	mg/L	0.05[1]	Basin Plan Table 3-2
Methylene Blue Active Substances (MBAS)	mg/L	0.5[1]	Basin Plan Table 3-2
Dissolved Oxygen	mg/L	>5.0	Basin Plan Page 3-25
Antimony	mg/L	0.006	Primary MCL and Basin Plan Table 3-4[3]
Arsenic	mg/L	0.05	Primary MCL and Basin Plan Table 3-4[3]
Asbestos	million fibers per liter	7	Primary MCL and Basin Plan Table 3-4[3]

Parameter	Units	Criteria	Source of Criteria
Barium	mg/L	1	Primary MCL and Basin Plan Table 3-4[3]
Beryllium	mg/L	0.004	Primary MCL and Basin Plan Table 3-4[3]
Cadmium	mg/L	0.005	Primary MCL and Basin Plan Table 3-4[3]
Chromium	mg/L	0.05	Primary MCL and Basin Plan Table 3-4[3]
Cyanide	mg/L	0.15	Primary MCL and Basin Plan Table 3-4[3]
Fluoride	mg/L	2.0	Primary MCL and Basin Plan Table 3-4[3]
Mercury	mg/L	0.002	Primary MCL and Basin Plan Table 3-4[3]
Nickel	mg/L	0.1	Primary MCL and Basin Plan Table 3-4[3]
Nitrate (as NO3)	mg/L	45.0	Primary MCL and Basin Plan Table 3-4[3]
Nitrate + Nitrite (sum as nitrogen)	mg/L	10.0	Primary MCL and Basin Plan Table 3-4[3]
Nitrite (as nitrogen)	mg/L	1.0	Primary MCL and Basin Plan Table 3-4[3]
Selenium	mg/L	0.05	Primary MCL and Basin Plan Table 3-4[3]
Thallium	mg/L	0.002	Primary MCL and Basin Plan Table 3-4[3]
Benzene	mg/L	0.001	Primary MCL and Basin Plan Table 3-5[4]
Carbon Tetrachloride	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
1,2-Dichlorobenzene	mg/L	0.6	Primary MCL and Basin Plan Table 3-5[4]
1,4-Dichlorobenzene	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
1,1-Dichloroethane	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
1,2-Dichloroethane	mg/L	0.0005	Primary MCL and Basin Plan Table 3-5[4]
cis-1,2-Dichloroethylene	mg/L	0.006	Primary MCL and Basin Plan Table 3-5[4]
trans-1,2-Dichloroethylene	mg/L	0.01	Primary MCL and Basin Plan Table 3-5[4]
1,2-Dichloropropane	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
1,3-Dichloropropene	mg/L	0.0005	Primary MCL and Basin Plan Table 3-5[4]
Ethylbenzene	mg/L	0.3	Primary MCL and Basin Plan Table 3-5[4]
Methyl-tert-butyl ether	mg/L	0.013	Primary MCL and Basin Plan Table 3-5[4]
Monochlorobenzene	mg/L	0.07	Primary MCL and Basin Plan Table 3-5[4]

Parameter	Units	Criteria	Source of Criteria
Styrene	mg/L	0.1	Primary MCL and Basin Plan Table 3-5[4]
1,1,2,2-Tetrachloroethane	mg/L	0.001	Primary MCL and Basin Plan Table 3-5[4]
Tetrachloroethylene	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
Toluene	mg/L	0.15	Primary MCL and Basin Plan Table 3-5[4]
1,2,4-Tricholorobenezene	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
1,1,1-Tricholoroethane	mg/L	0.200	Primary MCL and Basin Plan Table 3-5[4]
1,1,2-Tricholoroethane	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
Trichloroethylene	mg/L	0.005	Primary MCL and Basin Plan Table 3-5[4]
Trichlorofluoromethane	mg/L	0.15	Primary MCL and Basin Plan Table 3-5[4]
1,1,2-Trichloro-1,2,2-Trifluroethane	mg/L	1.2	Primary MCL and Basin Plan Table 3-5[4]
Vinyl Chloride	mg/L	0.0005	Primary MCL and Basin Plan Table 3-5[4]
Xylenes	mg/L	1.750*	Primary MCL and Basin Plan Table 3-5[4]
Alachlor	mg/L	0.002	Primary MCL and Basin Plan Table 3-5[4]
Atrazine	mg/L	0.001	Primary MCL and Basin Plan Table 3-5[4]
Bentazon	mg/L	0.018	Primary MCL and Basin Plan Table 3-5[4]
Benzo(a)pyrene	mg/L	0.0002	Primary MCL and Basin Plan Table 3-5[4]
Carbofuran	mg/L	0.018	Primary MCL and Basin Plan Table 3-5[4]
Chlordane	mg/L	0.0001	Primary MCL and Basin Plan Table 3-5[4]
2,4,D	mg/L	0.07	Primary MCL and Basin Plan Table 3-5[4]
Dalapon	mg/L	0.2	Primary MCL and Basin Plan Table 3-5[4]
Dibromochloropropane	mg/L	0.0002	Primary MCL and Basin Plan Table 3-5[4]
Di(2-ethylhexyl)adipate	mg/L	0.4	Primary MCL and Basin Plan Table 3-5[4]
Di(2-ethylhexyl)phthalate	mg/L	0.004	Primary MCL and Basin Plan Table 3-5[4]
Dinoseb	mg/L	0.007	Primary MCL and Basin Plan Table 3-5[4]
Diquat	mg/L	0.02	Primary MCL and Basin Plan Table 3-5[4]
Endothall	mg/L	0.1	Primary MCL and Basin Plan Table 3-5[4]

Parameter	Units	Criteria	Source of Criteria
Endrin	mg/L	0.002	Primary MCL and Basin Plan Table 3-5[4]
Ethylene Dibromide	mg/L	0.00005	Primary MCL and Basin Plan Table 3-5[4]
Glyphosate	mg/L	0.7	Primary MCL and Basin Plan Table 3-5[4]
Heptachlor	mg/L	0.00001	Primary MCL and Basin Plan Table 3-5[4]
Heptachlor Epoxide	mg/L	0.00001	Primary MCL and Basin Plan Table 3-5[4]
Hexachlorobenzene	mg/L	0.001	Primary MCL and Basin Plan Table 3-5[4]
Hexachlorocyclopentadiene	mg/L	0.05	Primary MCL and Basin Plan Table 3-5[4]
Lindane	mg/L	0.0002	Primary MCL and Basin Plan Table 3-5[4]
Methyoxyclor	mg/L	0.03	Primary MCL and Basin Plan Table 3-5[4]
Molinate	mg/L	0.02	Primary MCL and Basin Plan Table 3-5[4]
Oxamyl	mg/L	0.05	Primary MCL and Basin Plan Table 3-5[4]
Pentachorophenol	mg/L	0.001	Primary MCL and Basin Plan Table 3-5[4]
Picloram	mg/L	0.5	Primary MCL and Basin Plan Table 3-5[4]
Polychlorinated Biphenyls	mg/L	0.0005	Primary MCL and Basin Plan Table 3-5[4]
Simazine	mg/L	0.004	Primary MCL and Basin Plan Table 3-5[4]
Thiobencrab	mg/L	0.07	Primary MCL and Basin Plan Table 3-5[4]
Toxaphene	mg/L	0.003	Primary MCL and Basin Plan Table 3-5[4]
2,3,7,8-TCDD (Dioxin)	mg/L	3E-08	Primary MCL and Basin Plan Table 3-5[4]
2,3,5-TP (Silvex)	mg/L	0.05	Primary MCL and Basin Plan Table 3-5[4]
Aluminum	mg/L	0.2	Secondary MCL and Table 3-6 of Basin Plan[5]
Color	mg/L	15	Secondary MCL and Table 3-6 of Basin Plan[5]
Copper	mg/L	1.0	Secondary MCL and Table 3-6 of Basin Plan[5]
Corrosivity	mg/L	Noncorrosive	Secondary MCL and Table 3-6 of Basin Plan[5]
Methyl-tert-butyl ether	mg/L	0.005	Secondary MCL and Table 3-6 of Basin Plan[5]
Silver	mg/L	0.1	Secondary MCL and Table 3-6 of Basin Plan[5]
Thiobencarb	mg/L	0.001	Secondary MCL and Table 3-6 of Basin Plan[5]

Parameter	Units	Criteria	Source of Criteria
Turbidity	mg/L	5	Secondary MCL and Table 3-6 of Basin Plan[5]
Zinc	mg/L	5	Secondary MCL and Table 3-6 of Basin Plan[5]
Phenolic compounds	ug/L	1.0	Basin Plan Page 3-30
Gross Alpha Particle Activity (Excluding Radon and Uranium)	picocuries per liter (pCi/L)	15	Primary MCL and Basin Plan Page 3-31[6]
Combined Radium 226 and 228	pCi/L	5	Primary MCL and Basin Plan Page 3-31[6]
Uranium	pCi/L	20	Primary MCL and Basin Plan Page 3-31[6]
Strontium-90	pCi/L	8	Primary MCL and Basin Plan Page 3-31[7]
Tritium	pCi/L	20,000	Primary MCL and Basin Plan Page 3-31[7]
Beta/photon emitters	pCi/L	4 millirem/year annual dose equivalent to the total body or any internal organ	Primary MCL and Basin Plan Page 3-31[7]

1. Not to be exceeded more than 10% of the time.
2. Based on footnote a of Table 3-2 of Basin Plan which states: "*Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total Phosphorus (P) concentrations shall not exceed 0.05 mg/l in any stream at the point where it enters any standing body of water, nor 0.025 mg/l in any standing body of water. A desired goal in order to prevent plant nuisances in streams and other flowing waters appears to be 0.1 mg/l total P. These values are not to be exceeded more than 10% of the time unless studies of the specific body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of N: P=10:1 shall be used. Note - Certain exceptions to the above WQOs are described in Chapter 4 in the sections titled Discharges to Coastal Lagoons from Pilot Water Reclamation Projects and Discharges to Surface Waters".*
3. Waters designated for use as domestic or municipal supply shall not contain concentrations of inorganic chemicals in excess of the MCLs set forth in Table 64431-A of title 22 of the CCR.
4. Waters designated for use as domestic or municipal supply shall not contain concentrations of organic chemicals in excess of the MCLs set forth in Table 64444-A of title 22 of the CCR.
5. Waters designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs set forth in Table 64449-A of title 22 of the CCR.
6. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of MCLs set forth in Table 64442 of title 22 of the CCR.
7. Waters designated for use as domestic or municipal supply shall not contain concentrations of radionuclides in excess of MCLs set forth in Table 64443 of title 22 of the CCR.

b. **USEPA Water Quality Criteria.** USEPA's *National Recommended Water Quality Criteria for Protection of Aquatic Life* establishes an acute criterion of 19 µg/L for total residual chlorine in freshwater and a chronic criterion of 11 µg/L for total residual chlorine in freshwater.

c. **Part 3 of the ISWEBE Plan.** The State Water Board adopted Resolution No. 2018-0038[7] establishing *Part 3 of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays and Estuaries of California -Bacteria Provisions and a Water Quality Standards Variance Policy* (Part 3 of the ISWEBE Plan) on August 7, 2018, which became effective upon approval by the Office of Administrative Law and USEPA.

i. Bacteria. Part 3 of the ISWEBE Plan establishes updated WQOs for freshwaters based on a risk protection level of 32 illnesses per 1,000 recreators for the protection of the contact recreation beneficial use (REC-1) in waterbodies. The bacteria WQOs established in Part 3 of the ISWEBE Plan rely on Escherichia coli (E-coli) as the sole indicator of pathogens in freshwater:

"*The bacteria water quality objective for all waters where the salinity is equal to or less than 1 part per thousand 95 percent or more of the time during the calendar year is a six week rolling geometric mean of E-coli not to exceed 100 colony forming units (CFU) per 100 milliliters (mL), calculated weekly, and a statistical threshold value of 320 CFU/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner."*

The WQOs in Part 3 of the ISWEBE supersede the bacteria WQOs specified in the Basin Plan for surface waters designated for contact recreation. As a result, this Order establishes effluent and receiving water limits for bacteria based on Part 3 of the ISWEBE Plan.

d. **CTR/NTR.** The CTR and NTR specifies numeric aquatic life and human health criteria for numerous priority pollutants. These criteria apply to inland surface waters and enclosed bays and estuaries. Some human health criteria are for consumption of "water and organisms" and others are for consumption of "organisms only."

A hardness value of 100 mg/L as calcium carbonate (CaCO3) was used for calculating water quality criteria for hardness dependent priority pollutants and for evaluating reasonable potential and establishing effluent limitations for those pollutants.[8]

Since this is a new facility, effluent data from pilot studies conducted at the Discharger's WDPF from 2011-2012 and 2016-2017 were used by the San Diego Water Board in determining the need for WQBELs. Applicable CTR/NTR criteria and results of the Reasonable Potential Analysis (RPA) used for determining the need for WQBELs are summarized in Table F-6 of this Fact Sheet.

e. **Surface Water Augmentation Regulations/Recycled Water Criteria.** The surface water augmentation regulations govern the planned placement of recycled water into a surface water reservoir that is used as a source of drinking water supply.

As a source of drinking water supply, the advanced treated recycled water is subject to further treatment by a public water system's surface water treatment plant before being delivered to customers for human consumption. Because the treated recycled

[7] State Water Board Resolution No. 2018-0038 establishing Part 3 of the ISWEBE Plan was adopted by the State Board on August 7, 2018 and became effective under State law upon approval by the Office of Administrative Law on February 4, 2019 and for federal CWA purposes upon approval by USEPA on March 27, 2019.

[8] CTR/NTR criteria is contained in 40 CFR section 131.38. Footnote b to Table 2 of paragraph (b) (2) of 40 CFR section 131.38 specifies a hardness value of 100 mg/L can be used in determining conversion factors for water quality criteria for hardness dependent priority pollutants.

water is being used to supplement a source of drinking water, it is cogent to require monitoring for advanced treated recycled water that is similar to monitoring required for typical drinking water sources. Such monitoring will verify whether the contaminant concentrations of advanced treated recycled water are below the primary and secondary drinking water standards, and will verify that the existing surface water reservoir is not being degraded as a source of drinking water.

The surface water augmentation regulations further address chemicals of concern that are present or can occasionally occur in municipal wastewater. These chemicals, lacking regulatory drinking water limits, are commonly characterized as CECs, and are primarily controlled with a combination of reverse osmosis and advanced oxidation treatment. In particular, relatively high concentrations of organic carbon are found in treated secondary municipal wastewater, with a correlation existing between the concentration of CECs and the measurement of bulk organic matter. In order to produce water that is free of harmful concentrations of organic chemicals and produce a source a source of raw surface water that is at least as protective as other high quality surface water sources available in California, section 60320.302 of title 22 of the CCR includes treatment techniques to specify a level of technological performance which the SWSAP-WRA must follow to ensure control of the contaminant.

Section 60320.308 of title 22 of the CCR establishes treatment techniques to address pathogenic organisms present in the municipal wastewater that is to be treated and used for augmenting a reservoir that is used as a drinking water source. As with any source of drinking water, pathogenic microorganisms pose significant acute health risks, if left untreated. Establishing water quality standards for pathogenic organisms is not feasible or practicable due to the scope of pathogenic organisms and the inability to measure, in a practical manner, the concentration of organisms at the low levels that correspond to acceptable illness risk. The regulations state the following minimum required $\log_{10}$ reduction of pathogenic organisms: 12 log reduction of enteric virus, 10 log reduction of *Giardia* cysts, and 10 log reduction of *Cryptosporidium* oocysts, which is an overall treatment objective for assuring a drinking water ultimately being produced is consistent with drinking water standards. To satisfy the $\log_{10}$ reduction requirements, the SWSAP WRA is required to demonstrate that its SWSAP treatment processes can reliably achieve the $\log_{10}$ reduction by providing evidence for each treatment process in a form of a report (study) and identify the means by which the treatment processes will be verified as operating as intended, on an on-going basis during operation. The Discharger's Title 22 Engineering Report documents $\log_{10}$ reduction of pathogenic organisms through the secondary/tertiary treatment processes at the NCWRP, treatment processes at the NCFWF, and chlorination in the North City Pure Water pipeline. Internal monitoring points are included in this Order to verify that the treatment processes are operating as intended.

3. Determining the Need for WQBELs

The San Diego Water Board conducted a reasonable potential analysis (RPA) using data gathered from the WPDF to determine the need for WQBELs in accordance with 40 CFR section 122.44(d) and guidance for statistically determining the "reasonable potential" for a discharged pollutant to cause or contribute to an exceedance of WQOs, as provided in section 1.3 of the SIP. Analyses results of effluent samples collected from the WPDF from 2011-2012 and 2016-2017 were used in the RPA.

Although the SIP applies directly to the implementation of CTR priority pollutants, the State Water Board has held that Regional Boards may use the SIP as guidance for all

water quality-based toxics control. The SIP states in the introduction: "*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency*." As a result, the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR toxic constituents.

The SIP methodology specifies determining the maximum effluent concentration (MEC) and projecting receiving water concentrations. The projected receiving water concentrations are then compared to the lowest appropriate WQO or criterion to determine the potential for an exceedance of that objective and the need for an effluent limitation. During the RPA the MECs were compared to WQOs established for protection of aquatic life and human health, which include water quality criteria for priority pollutants established in the CTR, Basin Plan WQOs, and MCLs established in title 22 of the CCR. Based on step 4 of the SIP, effluent limitations are required for constituents in which the MEC exceeds the lowest applicable WQO or criterion. As a result, this Order establishes effluent limitations for any constituent in which the MEC exceeded the lowest applicable WQO or criterion (see Table F-7 of this Fact Sheet). In addition, pursuant to step seven of section 1.3 of the SIP, in instances where the MEC does not exceed the lowest applicable WQO or criterion, the San Diego Water Board can still conclude that a WQBEL is required. This section of the SIP specifies that information such as water quality and beneficial uses of the receiving water; and potential toxic impact of the discharge may be used in determining if a WQBEL is required notwithstanding analysis conducted in preceding steps of section 1.3 of the SIP (steps 1-6 of section 1.3 of the SIP). As a result, effluent limitations have been included in the Order for total residual chlorine and ammonia due to their potential toxic effects.

Section 60320.312 of title 22 of the CCR requires periodic monitoring of advanced treated recycled water delivered to augmented reservoirs for the following constituents for which MCLs or action levels are specified in title 22 of the CCR:

- Inorganic chemicals in Table 64431-A
- Radionuclide chemicals in Tables 64442 and 64443
- Organic chemicals in Table 64444-A
- Disinfection byproducts in Table 64533-A
- Lead and copper in section 64678
- Secondary MCLs in Tables 64449-A and B

During the RPA the MEC did not exceed the MCL for any of the title 22 constituents for which data was available. However, based on step seven of section 1.3 of the SIP, this Order establishes effluent limitations based on MCLs or action levels (see Table 5 of the Order) for the title 22 constituents described above to ensure protection of the municipal and domestic supply beneficial use of Miramar Reservoir. These effluent limitations are necessary because advanced treated recycled water discharged to Miramar Reservoir will serve as a source of drinking water supply for the City's Miramar Drinking Water Treatment Plant.

Step 8 of section 1.3 of the SIP states: *"If data are unavailable or insufficient, as described in section 1.2, to conduct the above analysis for the pollutant, or if all reported detection limits of the pollutant in the effluent are greater than or equal to the C value, the RWQCB shall require additional monitoring for the pollutant in place of a water quality-based effluent limitation. Upon completion of the required monitoring, the RWQCB shall use the gathered data to conduct the analysis in Steps one through seven above and determine if a water quality-based effluent limitation is required. If upon completion of the monitoring required by Step 8 and the subsequent analysis in Steps*

one through seven, a specific pollutant was not detected in any effluent or if ambient background sample and applicable detection limits are greater than or equal to the C value, the RWQCB may require periodic monitoring of the pollutant."

Based on step 8 of section 1.3 of the SIP, the Monitoring and Reporting Program (MRP, Attachment E) of this Order requires monitoring for all CTR/NTR constituents for which effluent data from the WPDF was insufficient or unavailable. The MRP also requires monitoring for constituents that were reported as non-detect (ND) but for which the reported Method Detection Limit (MDL) exceeded the lowest applicable WQO or criterion. This Order does not assign WQBELs for these constituents but does require monitoring which will be used for conducting a RPA in the next permit cycle to determine whether effluent limitations are necessary.

Section 1.4.2 of the SIP establishes procedures for granting dilution ratios and mixing zones based on the assimilative capacity of the receiving water. The Discharger's ROWD specifies that it used a three dimensional hydrodynamic and water quality model to demonstrate that it will achieve a dilution ratio of 10 parts dilution water (reservoir water) to 1 part effluent (10:1) for a 24-hour pulse of advanced treated recycled water. The ROWD states that the 10:1 dilution ratio will be achieved for the range of anticipated reservoir operating conditions at a 99.9 degree of confidence. Because Miramar Reservoir is a still waterbody and will ultimately be comprised entirely of effluent from the Facility, the San Diego Water Board has determined that a dilution ratio is not appropriate at this time. However, the San Diego Water Board may reopen this Order if new information determines that dilution or a mixing zone is appropriate (see section VI.C.1.j of the Order).

A summary of the RPA results based on effluent data collected from the WPDF is presented in Table F-6 of this Fact Sheet.

Table F-6. RPA for CTR/NTR Constituents, Basin Plan Constituents, and Constituents with MCLs

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Antimony	µg/L	6	Primary MCL and Basin Plan	0.04	No, however, effluent limitation established[1]
Arsenic	µg/L	50	Primary MCL and Basin Plan	0.036	No, however, effluent limitation established[1]
Barium	µg/L	0.001	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Beryllium	µg/L	4	Primary MCL and Basin Plan	0.088	No, however, effluent limitation established[1]
Cadmium	µg/L	2.46	CTR/NTR	0.02	No, however, effluent limitation established[1]

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Chromium (III)	µg/L	207	CTR/NTR	0.074	No
Chromium (VI)	µg/L	11	CTR/NTR	ND (MDL = 0.16)	No
Total Chromium	µg/L	50	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Copper	µg/L	9.3	CTR/NTR	0.27	No, however, effluent limitation established[1]
Lead	µg/L	3.2	CTR/NTR	0.011	No, however, effluent limitation established[1]
Mercury	µg/L	0.05	CTR/NTR	0.004	No, however, effluent limitation established[1]
Nickel	µg/L	52	Primary MCL and Basin Plan	ND (MDL = 0.13)	No, however, effluent limitation established[1]
Selenium	µg/L	5	CTR/NTR	0.28	No, however, effluent limitation established[1]
Silver	µg/L	4.1	CTR/NTR	0.027	No, however, effluent limitation established[1]
Thallium	µg/L	1.7	Primary MCL and Basin Plan	0.009	No, however, effluent limitation established[1]
Zinc	µg/L	120	CTR/NTR	1.1	No, however, effluent limitation established[1]
Cyanide	µg/L	5.2	CTR/NTR	2.7	No, however, effluent limitation established[1]
Asbestos	µg/L	7,000,000	Primary MCL and Basin Plan	0.2	No, however, effluent limitation established[1]
Dioxin TEQ (303d listed)	µg/L	No Criteria	No Criteria	No Data	No, however, effluent limitation established[1]
Acrolein	µg/L	320	CTR/NTR	No Data	No, however, effluent

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
					limitation established[1]
Acrylonitrile	µg/L	0.059	CTR/NTR	No Data	No, however, effluent limitation established[1]
Benzene	µg/L	1	Primary MCL and Basin Plan	0.15	No, however, effluent limitation established[1]
Bromoform	µg/L	4.3	CTR/NTR	0.19	No, however, effluent limitation established[1]
Carbon Tetrachloride	µg/L	0.25	CTR/NTR	0.12	No, however, effluent limitation established[1]
Chlorobenzene	µg/L	680	CTR/NTR	0.15	No, however, effluent limitation established[1]
Chlorodibromomethane	µg/L	0.401	CTR/NTR	ND (MDL = 0.5)	MDL>C
Chloroethane	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
2-Chloroethylvinyl Ether	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Chloroform	µg/L	No Criteria	No Criteria	1.1	No Criteria[2]
Dichlorobromomethane	µg/L	0.56	CTR/NTR	0.59	Yes, MEC>C
1,1-Dichloroethane	µg/L	5	Primary MCL and Basin Plan	0.12	No, however, effluent limitation established[1]
1,2-Dichloroethane	µg/L	0.38	CTR/NTR	0.12	No, however, effluent limitation established[1]
1,1-Dichloroethylene	µg/L	0.057	CTR/NTR	ND (MDL = 0.16)	No, however, effluent limitation established[1]
1,2-Dichloropropane	µg/L	0.52	CTR/NTR	0.13	No, however, effluent limitation established[1]
1,3-Dichloropropylene	µg/L	0.5	Primary MCL and Basin Plan	0.15	No, however, effluent limitation established[1]
Ethylbenzene	µg/L	300	Primary MCL and Basin Plan	0.21	No, however, effluent limitation established[1]

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Methyl Bromide	µg/L	48	CTR/NTR	0.1	No
Methyl Chloride	µg/L	No Criteria	No Criteria	0.1	No Criteria[2]
Methylene Chloride (Dichloromethane)	µg/L	4.7	CTR/NTR	0.59	No
1,1,2,2-Tetrachloroethane	µg/L	0.17	CTR/NTR	ND (MDL = 0.2)	No, however, effluent limitation established[1]
Tetrachloroethylene	µg/L	0.8	CTR/NTR	0.18	No, however, effluent limitation established[1]
Toluene	µg/L	150	Primary MCL and Basin Plan	0.14	No, however, effluent limitation established[1]
cis-1,2-Dichloroethylene	µg/L	6	Primary MCL and Basin Plan	0.11	No, however, effluent limitation established[1]
1,2-Trans-Dichloroethylene	µg/L	10	Primary MCL and Basin Plan	0.11	No, however, effluent limitation established[1]
1,1,1-Trichloroethane	µg/L	200	Primary MCL and Basin Plan	0.11	No, however, effluent limitation established[1]
1,1,2-Trichloroethane	µg/L	0.6	CTR/NTR	0.19	No, however, effluent limitation established[1]
Trichloroethylene	µg/L	2.7	CTR/NTR	0.18	No, however, effluent limitation established[1]
Vinyl Chloride	µg/L	0.5	Primary MCL and Basin Plan	0.18	No, however, effluent limitation established[1]
Xylenes (m,p)	µg/L	1750	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Alachlor	µg/L	2	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Atrazine	µg/L	1	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Bentazon	µg/L	18	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Benzo(a)Pyrene	µg/L	0.0044	CTR/NTR	ND (MDL = 0.07)	No, however, effluent limitation established[1]
Carbofuran	µg/L	18	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
2,4-D	µg/L	70	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Dalapon	µg/L	200	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Dibromochloropropane	µg/L	0.2	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Di(2-ethylhexyl)adipate	µg/L	400	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Di(2-ethylhexyl)phthalate	µg/L	4	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Dinoseb	µg/L	7	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Diquat	µg/L	20	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Endothall	µg/L	100	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Endrin	µg/L	2	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Ethylene Dibromide	µg/L	0.05	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Glyphosate	µg/L	700	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Heptachlor	µg/L	0.01	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Heptachlor Epoxide	µg/L	0.01	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Hexachlorobenzene	µg/L	0.00075	CTR/NTR	ND (MDL = 0.003)	MDL > C
Hexachlorocyclopentadiene	µg/L	50	Primary MCL and Basin Plan	0.014	No
Lindane	µg/L	0.2	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Methyoxyclor	µg/L	30	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Molinate	µg/L	20	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Oxamyl	µg/L	50	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Pentachorophenol	µg/L	1	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Picloram	µg/L	500	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
PCBs sum (303d listed)	µg/L	0.00017	CTR/NTR	ND (MDL = 0.049)	No, however, effluent limitation established[1]
Simazine	µg/L	4	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Thiobencrab	µg/L	70	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Toxaphene	µg/L	0.0002	CTR/NTR	ND (MDL = 0.066)	No, however, effluent limitation established[1]
2,3,7,8-TCDD (Dioxin) (303d listed)	µg/L	1.3E-08	CTR/NTR	No Data	No, however, effluent limitation established[1]
2,4,5-TP (Silvex)	µg/L	50	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
2-Chlorophenol	µg/L	120	CTR/NTR	No Data	No Data[2]
2,4-Dichlorophenol	µg/L	93	CTR/NTR	0.51	No
2,4-Dimethylphenol	µg/L	540	CTR/NTR	No Data	No Data[2]
2-Methyl-4,6-Dinitrophenol	µg/L	13.4	CTR/NTR	0.14	No
2,4-Dinitrophenol	µg/L	70	CTR/NTR	No Data	No Data[2]
2-Nitrophenol	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
4-Nitrophenol	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
3-Methyl-4-Chlorophenol	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Pentachlorophenol	µg/L	0.28	CTR/NTR	0.04	No
Phenol	µg/L	21,000	CTR/NTR	2.6	No
2,4,6-Trichlorophenol	µg/L	2.1	CTR/NTR	No Data	No Data[2]
Acenaphthene	µg/L	1200	CTR/NTR	No Data	No Data[2]
Acenaphthylene	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Anthracene	µg/L	9,600	CTR/NTR	No Data	No Data
Benzidine	µg/L	0.00012	CTR/NTR	No Data	No Data
Benzo(a)Anthracene	µg/L	0.0044	CTR/NTR	No Data	No Data
Benzo(b)Fluoranthene	µg/L	0.0044	CTR/NTR	No Data	No Data
Benzo(ghi)Perylene	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Benzo(k)Fluoranthene	µg/L	0.0044	CTR/NTR	ND (MDL = 0.09)	MDL > C[2]
Bis(2-Chloroethoxy)Methane	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Bis(2-Chloroethyl)Ether	µg/L	0.031	CTR/NTR	No Data	No Data[2]
Bis(2-Chloroisopropyl)Ether	µg/L	1,400	CTR/NTR	No Data	No Data[2]
Bis(2-Ethylhexyl)Phthalate	µg/L	1.8	CTR/NTR	1.1	No
4-Bromophenyl Phenyl Ether	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Butylbenzyl Phthalate	µg/L	3,000	CTR/NTR	No Data	No Data[2]
2-Chloronaphthalene	µg/L	1,700	CTR/NTR	No Data	No Data[2]
4-Chlorophenyl Phenyl Ether	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Chrysene	µg/L	0.0044	CTR/NTR	No Data	No Data[2]
Dibenzo(a,h)Anthracene	µg/L	0.0044	CTR/NTR	No Data	No Data[2]
1,2-Dichlorobenzene	µg/L	600	Primary MCL and Basin Plan	0.19	No
1,3-Dichlorobenzene	µg/L	400	CTR/NTR	No Data	No Data[2]
1,4-Dichlorobenzene	µg/L	5	Primary MCL and Basin Plan	0.18	No
3,3-Dichlorobenzidine	µg/L	0.04	CTR/NTR	No Data	No Data[2]
Diethyl Phthalate	µg/L	23,000	CTR/NTR	0.15	No

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Dimethyl Phthalate	µg/L	31,3000	CTR/NTR	0.18	No
Di-n-Butyl Phthalate	µg/L	2,700	CTR/NTR	2.2	No
2,4-Dinitrotoluene	µg/L	0.11	CTR/NTR	No Data	No Data[2]
2,6-Dinitrotoluene	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
Di-n-Octyl Phthalate	µg/L	No Criteria	No Criteria	No Data	No Criteria[2]
1,2-Diphenylhydrazine	µg/L	0.04	CTR/NTR	No Data	No Data
Fluoranthene	µg/L	300	CTR/NTR	No Data	No Data
Fluorene	µg/L	1300	CTR/NTR	No Data	No Data
Hexachlorobutadiene	µg/L	0.44	CTR/NTR	No Data	No Data
Hexachloroethane	µg/L	1.9	CTR/NTR	No Data	No Data[2]
Indeno(1,2,3-cd) Pyrene	µg/L	0.0044	CTR/NTR	No Data	No Data[2]
Isophorone	µg/L	8.4	CTR/NTR	No Data	No Data[2]
Naphthalene	µg/L	No Criteria	No Criteria	0.12	No Criteria[2]
Nitrobenzene	µg/L	17	CTR/NTR	No Data	No Data
N-Nitrosodimethylamine	µg/L	0.00069	CTR/NTR	0.00001	No
N-Nitrosodi-n-Propylamine	µg/L	0.005	CTR/NTR	0.00035	No
N-Nitrosodiphenylamine	µg/L	5	CTR/NTR	No Data	No Data[2]
Phenanthrene	µg/L	No Criteria	No Criteria	No Data	No Data[2]
Pyrene	µg/L	960	CTR/NTR	No Data	No Data[2]
1,2,4-Trichlorobenzene	µg/L	5	Primary MCL and Basin Plan	0.17	No
Aldrin	µg/L	0.00013	CTR/NTR	ND (MDL = 0.049)	MDL > C[2]
alpha-BHC	µg/L	0.0039	CTR/NTR	No Data	No Data[2]
beta-BHC	µg/L	0.014	CTR/NTR	No Data	No Data[2]
gamma-BHC (Lindane)	µg/L	0.019	CTR/NTR	0.0015	No
delta-BHC	µg/L	No Criteria	No Criteria	No Data	No Data[2]
Chlordane (303d listed)	µg/L	0.00057	CTR/NTR	ND (MDL = 0.066)	MDL > C[2]
4,4-DDT (303d listed)	µg/L	0.00059	CTR/NTR	No Data	No Data[2]
4,4-DDE	µg/L	0.00059	CTR/NTR	No Data	No Data[2]
4,4-DDD	µg/L	0.00083	CTR/NTR	No Data	No Data[2]
Dieldrin (303d listed)	µg/L	0.00014	CTR/NTR	No Data	No Data[2]
alpha-Endosulfan	µg/L	0.056	CTR/NTR	No Data	No Data[2]
beta-Endosulfan	µg/L	0.056	CTR/NTR	No Data	No Data[2]
Endosulfan Sulfate	µg/L	110	CTR/NTR	No Data	No Data[2]
Endrin	µg/L	0.036	CTR/NTR	0.002	No, however, effluent limitation established[1]
Endrin Aldehyde	µg/L	0.76	CTR/NTR	No Data	No, however, effluent limitation established[1]
Heptachlor	µg/L	0.00021	CTR/NTR	ND (MDL = 0.0009)	No, however, effluent limitation established[1]
Heptachlor Epoxide	µg/L	0.0001	CTR/NTR	ND (MDL = 0.0011)	No, however, effluent

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
					limitation established[1]
Aluminum	µg/L	200	Secondary MCL and Basin Plan	11	No, however, effluent limitation established[1]
Ammonia, Un-ionized	mg/L	0.025	Basin Plan	0.79	No, however, effluent limitation established[1]
Chloride	mg/L	250	Secondary MCL and Basin Plan	4.3	No, however, effluent limitation established[1]
Iron, Total Recoverable	mg/L	0.3	Secondary MCL and Basin Plan	<0.01	No, however, effluent limitation established[1]
Manganese	mg/L	0.05	Secondary MCL and Basin Plan	<0.005	No, however, effluent limitation established[1]
Odor Threshold	None	None	Basin Plan	No Data	No, however, effluent limitation established[1]
Methylene Blue-Activated Substances (MBAS)	mg/L	0.5	Secondary MCL and Basin Plan	<0.019	No, however, effluent limitation established[1]
Total Residual Chlorine		0.011	USEPA Criteria	No Data	No, however, effluent limitation established[1]
Total Dissolved Solids	mg/L	500[3], 1000 (upper limit) [3]	Secondary MCL and Basin Plan	19	No, however, effluent limitation established[1]
Sulfate	mg/L	250[3]	Secondary MCL and Basin Plan	1.1	No, however, effluent limitation established[1]
Boron	mg/L	0.75[3]	Basin Plan	0.29	No
Fluoride	mg/L	1.0[3]	Basin Plan	<1.0	No
Percent Sodium	%	60[3]	Basin Plan	14	No
pH	standard units	6.5 – 8.5	Basin Plan	7.5 – 8.5	No
Gross Alpha Particle Activity (Excluding Radon and Uranium)	pCi/L	15	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]

Parameter	Units	Selected Criteria (C)	Source of Criteria	Maximum Effluent Concentration (MEC)	Reasonable Potential?
Combined Radium 226 and 228	pCi/L	5	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Uranium	pCi/L	20	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Strontium-90	pCi/L	8	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Tritium	pCi/L	20,000	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Beta/photon emitters	millirem/year	4	Primary MCL and Basin Plan	No Data	No, however, effluent limitation established[1]
Phosphorus, Total (as P)	mg/L	0.025[3,4]	Basin Plan	0.92	No, however, effluent limitation established[1]
Nitrate (as NO3)	mg/L	45.0	Primary MCL and Basin Plan	1.4	No, however, effluent limitation established[1]
Nitrate + Nitrite (sum as nitrogen)	mg/L	10.0	Primary MCL and Basin Plan	1.12	No, however, effluent limitation established[1]
Nitrogen, Total (as N)	mg/L	2.0[3,4]	Basin Plan	2.2	No, however, effluent limitation established[1]
Color	ADMI Units	15	Secondary MCL and Basin Plan	<3.0	No, however, effluent limitation established[1]
Dissolved Oxygen	mg/L	>5.0	Basin Plan	N/A	No
Total Trihalomethanes[5]	mg/L	80	Primary MCL and Basin Plan	0.002	No, however, effluent limitation established[1]

1. Based on step 7 of section 1.3 of the SIP, this Order establishes an effluent limitation based on the MCL to ensure protection of the domestic and municipal supply beneficial use of Miramar Reservoir.
2. Based on step 8 of section 1.3 of the SIP, the MRP of this Order requires monitoring for CTR/NTR constituents in which data was insufficient or unavailable, and for constituents reported as ND for which the MDL exceeded the lowest applicable WQO or criteria (C).
3. Concentrations not to be exceeded more than 10 percent of the time during any one-year period.

4. The Basin Plan does not establish analogous concentration values for total nitrogen, but establishes that natural ratios of nitrogen to phosphorus (N:P) are to be identified through monitoring and upheld.
5. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.

4. RPA Results

Based on the RPA, this Order includes WQBELs for dichlobromomethane, un-ionized ammonia, total residual chlorine, total phosphorus, total nitrogen, chronic toxicity.

WQBELs are required for dichlobromomethane because the MEC for this constituent exceeds the lowest applicable WQO or criterion. As a result, this Order establishes an average monthly effluent limitation (AMEL) and a maximum daily effluent limitation (MDEL) for dibromochloromethane based on the CTR/NTR criterion.

WQBELs are required for un-ionized ammonia because the MEC for this constituent exceeds the lowest applicable WQO or criterion. As a result, this Order establishes an AMEL for ammonia based on the WQO for un-ionized ammonia in the Basin Plan.

WQBELs are required for total chlorine residual pursuant to step 7 of section 1.3 of the SIP because of the potential toxic effects of chlorine on aquatic life if the Facility fails to adequately dechlorinate the effluent. As a result, this Order establishes an AMEL and an MDEL for total residual chlorine which are derived from USEPA's *National Recommended Water Quality Criteria for Protection of Aquatic Life* for total residual chlorine in freshwater, and calculated using the SIP procedure described in section IV.C.5 of this Fact Sheet.

WQBELs are required for phosphorus because the MEC exceeds the threshold phosphorus value of 0.025 mg/L for phosphorus in a standing body of water established in the Basin Plan WQOs for biostimulatory substances. This Order establishes an AMEL for total phosphorus of 0.025 mg/L to ensure conformance with the Basin Plan numerical phosphorus WQO for a standing body of water. The Basin Plan states, "*Inland surface waters, bays and estuaries and coastal lagoon waters shall not contain biostimulatory substances in concentrations that promote aquatic growth to the extent that such growths cause nuisance or adversely affect beneficial uses. Concentrations of nitrogen and phosphorus, by themselves or in combination with other nutrients, shall be maintained at levels below those which stimulate algae and emergent plant growth. Threshold total phosphorus (P) concentrations shall not exceed 0.05 milligrams per liter (mg/L) in any stream at the point where it enters any standing body of water, nor 0.025 mg/L in any standing body of water. A desired goal in order to prevent plant nuisance in streams and other flowing waters appears to be 0.1 mg/L total P. These values are not to be exceeded more than 10% of the time unless studies of the specific water body in question clearly show that water quality objective changes are permissible and changes are approved by the Regional Board. Analogous threshold values have not been set for nitrogen compounds; however, natural ratios of nitrogen to phosphorus are to be determined by surveillance and monitoring and upheld. If data are lacking, a ratio of N:P = 10:1, on a weight to weight basis shall be used.*"

This Order establishes an AMEL for total nitrogen of 2 mg/L which represents a nitrogen: phosphorus ratio (N:P ratio) of 80:1. The Basin Plan WQOs for biostimulatory substances do not include threshold values for nitrogen. Instead, the Basin Plan WQOs for biostimulatory substances allows the San Diego Water Board the flexibility to assess the N:P ratios on a site-by-site basis and establish project-specific N:P ratios for any given receiving water in lieu of a N:P ratio of 10:1. Actual and modeling data provided by the City between 2004 and 2015 report that N:P ratios in Miramar Reservoir have ranged from 30:1 to 386:1. However, the historical N:P ratios in Miramar Reservoir have

largely been a function of the imported water delivered to the reservoir and are not significantly influenced by tributary runoff. As a result, "natural" ratios of N:P do not exist within Miramar Reservoir within the meaning of the WQO. Miramar Reservoir N:P ratios reflect "managed" conditions that are dependent on the sources and quality of outside water supplies delivered to the Reservoir. Establishing an AMEL for total nitrogen of 2 mg/L is thus consistent with the Basin Plan mandate that N:P ratios in receiving waters should be identified and upheld as:

- Miramar Reservoir N:P ratios are a function of City management actions (e.g., dependent on the supplies stored in the reservoir by the City) and are not influenced by tributary runoff;
- Historic N:P ratios in Miramar Reservoir have exceeded 100: 1 (e.g., phosphorus-limited conditions),
- Substituting advanced treated recycled water for imported water in Miramar Reservoir will sustain these high N:P ratios and historic phosphorus-limited conditions,
- Typical advanced treated recycled water total phosphorus concentrations will be less than 0.01 mg/L, resulting in N:P ratios that exceed 100: 1; and
- The proposed NPDES monthly average effluent limits of 0.025 mg/L for total phosphorus and 2 mg/L for total nitrogen represent an N:P ratio of 80:1.

WQBELS are required for chronic toxicity pursuant to step 7 of section 1.3 of the SIP due to potential synergistic or additive toxic effects of effluent from POTWs on receiving waters. Effluent from POTWs is inconsistent and may have a mixture of known and unknown pollutants that could have synergistic or additive toxic effects on receiving waters. The mixture of known and unknown pollutants may come from nonresidential and residential sources in the Discharger's service area. Increased or unknown pollutants could be introduced into the Discharger's POTWs from nonresidential or residential sources in the future that have synergistic or additive toxic effects. Additionally, if a toxic effect is discovered in the receiving water, the results of the whole effluent testing (WET) may be useful for identifying the source of the toxicity. As a result, this Order establishes effluent limitations for chronic toxicity.

During the RPA the MEC did not exceed the MCL for any of the title 22 constituents (see section IV.C.3 and Table F-6 of this Fact Sheet) for which data was available. However, based on step seven of section 1.3 of the SIP, this Order establishes effluent limitations based on MCLs or action levels specified in title 22 of the CCR (see Table 5 of the Order) to ensure protection of the municipal and domestic supply beneficial use of Miramar Reservoir. These effluent limitations are necessary because advanced treated recycled water discharged to Miramar Reservoir will serve as a source of drinking water supply for the City's Miramar DWTP.

For parameters that do not have reasonable potential, this Order includes desirable MECs which were derived using effluent limitation determination procedures described below and are referred to in this Order as "performance goals". The San Diego Water Board will use the results for informational purposes only, not compliance determinations. The performance goals are not WQBELs and are therefore not enforceable. The Discharger is required to monitor for these constituents as stated in the MRP (Attachment E) of this Order in order to gather data for use in RPAs for future permit reissuances.

5. WQBEL Calculations

a. If reasonable potential exists to exceed an applicable WQO or criterion, then a WQBEL must be established in accordance with one or more of the three procedures contained in section 1.4 of the SIP. These procedures include the following:

   i. If applicable and available, use the WLA established as part of a TMDL;

   ii. Use of a steady-state model to derive MDELs and AMELs; and

   iii. Where sufficient effluent and receiving water data exist, use of a dynamic model, which has been approved by the San Diego Water Board.

b. This Order has established performance goals using the same procedures. The performance goals are summarized in section IV.E of this Fact Sheet.

c. WQBELs for dichlorobromomethane are calculated following the procedures in section 1.4 of the SIP. Additionally, performance goals for the remaining CTR/NTR parameters are calculated based on section 1.4 of the SIP. Where an applicable primary MCL or secondary MCL is more stringent than a CTR/NTR parameter, the MCL is used as the applicable human health criteria for the CTR/NTR parameter.

d. WQBELs Calculation Example

   Final WQBELs for dichlorobromomethane have been calculated. The process for developing these limitations and performance goals is consistent with section 1.4 of the SIP.

   Step 1: For each constituent requiring an effluent limitation (or to calculate a performance goal), identify the applicable WQO or criteria. For each criterion, determine the effluent concentration allowance (ECA) using the following steady state equation:

   ECA = C + D(C-B) when C>B, and

   ECA = C when C≤B,

   Where C = The priority pollutant criterion/objective, adjusted if necessary for hardness, pH, and translators.

   D = The dilution credit.

   B = The ambient background concentration.

   As discussed in section IV.C.3 of this Fact Sheet, sufficient supporting information is not currently available to justify dilution or a mixing zone for the Facility's discharge to the Miramar Reservoir; therefore:

   ECA = C

   For dichlorobromomethane, the applicable water criteria are:

   ECA_{acute} = no criteria

   $ECA_{chronic}$ = no criteria

   $ECA_{human\ health}$ = 0.56

   Step 2: For each ECA based on an aquatic life criterion, the long-term average discharge condition (LTA) is determined by multiplying the ECA times a factor (multiplier), which adjusts the ECA to account for effluent variability. The multiplier

varies depending on the coefficient of variation (CV) of the data set and whether it is an acute or chronic criterion/objective. Table 1 of the SIP provides pre-calculated values for the multipliers based on the value of the CV. When the data set contains less than 10 sample results, or 80 percent or more of the data are reported as not detected (ND), the CV is set equal to 0.6. For dichlorobromomethane, there were 14 sample results and 71 percent of the sample results were reported as ND. As a result, the CV was calculated as 0.38 by dividing the standard deviation by the mean. Derivation of the multipliers is presented in section 1.4 of the SIP. Dichlorobromomethane does not have an applicable aquatic life criterion.

Step 3: WQBELs, including AMELs and MDELs, are calculated using the most limiting (the lowest) LTA. The LTA is multiplied times a factor that accounts for averaging periods and exceedance frequencies of the effluent limitations, and, for the AMEL, the effluent monitoring frequency. Here, the monitoring frequency is set equal to 4 (n = 4). The 99th percentile occurrence probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. Table 2 of the SIP presents the MDEL and AMEL multipliers as a function of the CV. When the data set contains less than 10 sample results, or when 80 percent or more of the data set is reported as non-detect (ND), the CV is set equal to 0.6. Otherwise, the CV is calculated as the standard deviation divided by the mean.

Step 4: When the most stringent water quality criterion is a human health criterion, the AMEL is set equal to the ECA, and the MDEL is calculated by multiplying the ECA times the ratio of the MDEL multiplier to the AMEL multiplier. Final WQBELs for dichlorobromomethane are determined as follows:

Table F-7. Summary of CTR/NTR-based Limitation Calculations

Parameter	ECA (µg/L)	MDEL/AMEL Multiplier[1]	MDEL (µg/L)	AMEL (µg/L)
Dichlorobromomethane	0.56	2.2/1.3 = 1.6	0.92	0.56

1. Multiplier based on the calculated CV value of 0.38.

A summary of applicable CTR/NTR effluent limitations is provided below:

Table F-8. CTR/NTR-based Effluent Limitations

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily
Dichlorobromomethane	µg/L	0.56	---	0.92
	lbs/day	0.15	---	0.25

6. Basin Plan Based Effluent Limitations

This Order establishes effluent limitations for un-ionized ammonia, nitrogen, phosphorus, and pH based on Basin Plan WQOs (shown in Table F-9 of this Fact Sheet) which are protective of beneficial uses and water quality of Miramar Reservoir. The AMEL of 0.025 mg/L for total phosphorus is based on the WQO for phosphorus, while the AMEL of 2 mg/L for total nitrogen to ensure historic N:P ratios in Miramar Reservoir are maintained. A summary of applicable Basin Plan based effluent limitations is provided below:

Table F-9. Basin Plan Based Effluent Limitations

Parameter	Units	Average Monthly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH[1]	standard units	---	---	6.5	8.5
Ammonia, Un-Ionized (as N)[2]	mg/L	---	0.025	---	---
	lbs/day	---	6.8	---	---
Total Phosphorus[2]	mg/L	0.025	---	---	---
	lbs/day	6.8	---	---	---
Total Nitrogen[2]	mg/L	2.0	---	---	---
	lbs/day	550	---	---	---

1. Compliance with effluent limitations for pH measured at Monitoring Location INT-003.
2. Compliance with effluent limitations for un-ionized ammonia, nitrogen, and phosphorus measured at Monitoring Location EFF-001.

7. Effluent Limitations Derived from Title 22 and the Basin Plan

As described in section IV.C.3 of this Fact Sheet this Order establishes effluent limitations based on MCLs or action levels from title 22 of the CCR to ensure protection of the domestic and municipal supply beneficial use of Miramar Reservoir. The Basin Plan incorporates MCLs by reference as WQOs for waters designated for use as domestic or municipal water supply. A summary of effluent limitations based on MCLs or action levels from title 22 of the CCR is provided in Tables F-10 and F-11:

Table F-10. Effluent Limitations Based on Basin Plan and Title 22 at Monitoring Location EFF-001[1,2]

Parameter	Units	Average Monthly
BASED ON MCLS FOR INORGANIC CHEMICALS (TABLE 64431-A OF TITLE 22 OF THE CCR)		
Aluminum	mg/L	1
	lbs/day	270
Antimony	mg/L	0.006
	lbs/day	1.6
Arsenic	mg/L	0.05
	lbs/day	14
Asbestos	million fibers per liter	7
Barium	mg/L	1
	lbs/day	270
Beryllium	mg/L	0.004
	lbs/day	1.1
Cadmium	mg/L	0.005
	lbs/day	1.4
Chromium	mg/L	0.05
	lbs/day	14
Cyanide	mg/L	0.15
	lbs/day	41
Fluoride	mg/L	2.0
	lbs/day	550

Parameter	Units	Average Monthly
Mercury	mg/L	0.002
	lbs/day	1
Nickel	mg/L	0.1
	lbs/day	27
Nitrate (as N)	mg/L	10
	lbs/day	2,700
Nitrite (as N)	mg/L	1
	lbs/day	270
Nitrate + Nitrite (as N)	mg/L	10
	lbs/day	2,700
Perchlorate	mg/L	0.006
	lbs/day	1.6
Selenium	mg/L	0.05
	lbs/day	14
Thallium	mg/L	0.002
	lbs/day	0.55
BASED ON MCLS FOR VOLATILE ORGANIC CHEMICALS (TABLE 64444-A OF TITLE 22 OF THE CCR)		
Benzene	mg/L	0.001
	lbs/day	0.27
Carbon Tetrachloride	mg/L	0.0005
	lbs/day	0.14
1,2-Dichlorobenzene	mg/L	0.6
	lbs/day	160
1,4-Dichlorobenzene	mg/L	0.005
	lbs/day	1.4
1,1-Dichloroethane	mg/L	0.005
	lbs/day	1.4
1,2-Dichloroethane	mg/L	0.0005
	lbs/day	0.14
1,1-Dichloroethylene	mg/L	0.006
	lbs/day	1.6
cis-1,2-Dichloroethylene	mg/L	0.006
	lbs/day	1.6
trans-1,2-Dichloroethylene	mg/L	0.01
	lbs/day	2.7
Dichloromethane	mg/L	0.005
	lbs/day	1.4
1,2-Dichloropropane	mg/L	0.005
	lbs/day	1.4
1,3-Dichloropropene	mg/L	0.0005
	lbs/day	0.14
Ethylbenzene	mg/L	0.3
	lbs/day	82

Parameter	Units	Average Monthly
Methyl-tert-butyl ether	mg/L	0.013
	lbs/day	3.6
Monochlorobenzene	mg/L	0.07
	lbs/day	19
Styrene	mg/L	0.1
	lbs/day	27
1,1,2,2-Tetrachloroethane	mg/L	0.001
	lbs/day	0.27
Tetrachloroethylene	mg/L	0.005
	lbs/day	41
Toluene	mg/L	0.15
	lbs/day	38
1,2,4-Tricholorobenezene	mg/L	0.005
	lbs/day	1.4
1,1,1-Tricholoroethane	mg/L	0.200
	lbs/day	55
1,1,2-Tricholoroethane	mg/L	0.005
	lbs/day	1.4
Trichloroethylene	mg/L	0.005
	lbs/day	1.4
Trichlorofluoromethane	mg/L	0.15
	lbs/day	41
1,1,2-Trichloro-1,2,2-Trifluroethane	mg/L	1.2
	lbs/day	330
Vinyl Chloride	mg/L	0.0005
	lbs/day	0.14
BASED ON MCLS FOR SYNTHETIC ORGANIC CHEMICALS (TABLE 64444-A OF TITLE 22 OF THE CCR)		
Xylenes	mg/L	1.750[3]
	lbs/day	480
Alachlor	mg/L	0.002
	lbs/day	0.55
Atrazine	mg/L	0.001
	lbs/day	0.27
Bentazon	mg/L	0.018
	lbs/day	4.9
Benzo(a)pyrene	mg/L	0.0002
	lbs/day	0.050
Carbofuran	mg/L	0.018
	lbs/day	5.0
Chlordane	mg/L	0.0001
	lbs/day	0.027

Parameter	Units	Average Monthly
2,4,D	mg/L	0.07
	lbs/day	19
Dalapon	mg/L	0.2
	lbs/day	55
Dibromochloropropane	mg/L	0.0002
	lbs/day	0.055
Di(2-ethylhexyl)adipate	mg/L	0.4
	lbs/day	110
Di(2-ethylhexyl)phthalate	mg/L	0.004
	lbs/day	1.1
Dinoseb	mg/L	0.007
	lbs/day	1.9
Diquat	mg/L	0.02
	lbs/day	5.5
Endothall	mg/L	0.1
	lbs/day	27
Endrin	mg/L	0.002
	lbs/day	0.55
Ethylene Dibromide	mg/L	0.00005
	lbs/day	0.014
Glyphosate	mg/L	0.7
	lbs/day	190
Heptachlor	mg/L	0.00001
	lbs/day	0.027
Heptachlor Epoxide	mg/L	0.00001
	lbs/day	0.0027
Hexachlorobenzene	mg/L	0.001
	lbs/day	0.27
Hexachlorocyclopentadiene	mg/L	0.05
	lbs/day	14
Lindane	mg/L	0.0002
	lbs/day	0.055
Methyoxyclor	mg/L	0.03
	lbs/day	8.2
Molinate	mg/L	0.02
	lbs/day	5.5
Oxamyl	mg/L	0.05
	lbs/day	14
Pentachorophenol	mg/L	0.001
	lbs/day	0.27
Picloram	mg/L	0.5

Parameter	Units	Average Monthly
	lbs/day	130
Polychlorinated Biphenyls	mg/L	0.0005
	lbs/day	0.13
Simazine	mg/L	0.004
	lbs/day	1.0
Thiobencrab	mg/L	0.07
	lbs/day	19
Toxaphene	mg/L	0.003
	lbs/day	082
1,2,3-Trichloropropane	mg/L	5E-06[4]
	lbs/day	0.0014
2,3,7,8-TCDD (Dioxin)	mg/L	3E-08[4]
	lbs/day	8.2E-06[4]
2,4,5-TP (Silvex)	mg/L	0.05
	lbs/day	14
BASED ON MCLS FOR RADIONUCLIDES (TABLE 64442 OF TITLE 22 OF THE CCR)		
Gross Alpha Particle Activity (Excluding Radon and Uranium)	picocuries per liter (pCi/L)	15
Combined Radium 226 and 228	pCi/L	5
Uranium	pCi/L	20
Strontium-90	pCi/L	8
Tritium	pCi/L	20,000
Beta/photon emitters	pCi/L	4 millirem/year annual dose equivalent to the total body or any internal organ
BASED ON SECONDARY MCLS (TABLES 64449-A AND 64449-B OF TITLE 22 OF THE CCR)		
Aluminum	mg/L	0.2
	lbs/day	55
Color	Units	15
Copper	mg/L	1.0
	lbs/day	270
Foaming agents (Methylene Blue Activated Substances)	mg/L	0.5
	lbs/day	140
Iron	mg/L	0.3
	lbs/day	82
Manganese	mg/L	0.05
	lbs/day	14
Methyl-tert-butyl ether (MTBE)	mg/L	0.005
	lbs/day	1.4
Odor – Threshold	Units	3
Silver	mg/L	0.1
	lbs/day	27
Thiobencarb	mg/L	0.001

Parameter	Units	Average Monthly
	lbs/day	0.27
Turbidity	Units	5
Zinc	mg/L	5.0
	lbs/day	1,400
Total Dissolved Solids	mg/L	1,000
	lbs/day	270,000
Chloride	mg/L	250
	lbs/day	68,000
Sulfate	mg/L	250
	lbs/day	68,000
BASED ON ACTION LEVEL (SECTION 64678 OF TITLE 22 OF THE CCR)		
Lead	mg/L	0.015
	lbs/day	4.1

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. MCL is for either a single isomer or the sum of the isomers.
4. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10E-02 or 0.061, 6.1E+02 represents 6.1 x 10E+02 or 610, and 6.1E+00 represents 6.1 x 1E+00 or 6.1.

Table F-11. Effluent Limitations for Disinfection Byproducts at Monitoring Location EFF-002[1,2]

Parameter	Units	Average Monthly[2]
BASED ON MCLS FOR DISINFECTION BYPRODUCTS (TABLE 64533-A OF TITLE 22 OF THE CCR)		
Total Trihalomethanes • Bromodichloromethane • Bromoform • Chloroform • Dibromochloromethane	mg/L	0.080[3]
	lbs/day	22
Haloacetic Acids (HAA5) • Monochloroacetic acid • Dichloroacetic acid • Trichloroacetic acid • Monobromoacetic acid • Dibromoacetic acid	mg/L	0.060[4]
	lbs/day	16
Bromate	mg/L	0.010
	lbs/day	2.7
Chlorite	mg/L	1.0
	lbs/day	270

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this

Order.

2. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. The average monthly effluent limitation applies to total trihalomethanes which represents the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane.
4. The average monthly effluent limitation applies to HAA5 which represents the sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.

8. Whole Effluent Toxicity (WET)

a. The WET testing protects receiving waters from the aggregate toxic effect of a mixture of pollutants in the effluent. Because of the nature of discharges into the POTW sewershed, it is possible that toxic constituents could be present in the effluent or could have synergistic or additive effects.

The Basin Plan defines toxicity as the adverse response of organisms to chemical or physical agents.

The Basin Plan establishes a narrative WQO for toxicity which states that all waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life.

b. As part of the WPDF pilot studies, the Discharger conducted five chronic toxicity tests and two acute toxicity tests. Acute toxicity testing included 96-hour bioassays using *Ceriodaphnia dubia* (water flea) and *Pimephales promelas* (fathead minnow). Chronic toxicity testing included 7-day bioassays using *Ceriodaphnia dubia* for survival and reproduction, *Pimephales promelas* for survival and growth, and *Selenastrum capricornutum* (green algae) for cell growth. The Discharger reported an acute toxicity value of 0.41 acute toxicity units (TUa) for one of the tests and an acute toxicity value of 0 TUa for the second test. The Discharger reported chronic toxicity values of 1.0 chronic toxicity units (TUc) for all five chronic toxicity tests performed. Indicator organisms were exposed to 100 percent effluent during the acute and chronic toxicity tests performed during the WPDP pilot study, and no detrimental effects were observed.

For this Order, chronic toxicity in the discharge is evaluated using USEPA's 2010 Test of Significant Toxicity (TST) hypothesis testing approach at the discharge "in-stream" waste concentration (IWC), as described in section VII.O of this Order and section III.C of the MRP (Attachment E). The TST statistical approach is described in the *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010), Appendix A, Figure A-1 and Table A-1. The TST null hypothesis shall be "mean discharge IWC response ≤ 0.75 × mean control response." A test that rejects this null hypothesis shall be reported as "Pass." A test that does not reject this null hypothesis shall be reported as "Fail." The chronic toxicity effluent limitation is expressed as "Pass" for each maximum daily individual result. The Discharger shall also report the "Percent Effect" as part of chronic toxicity result.

This Order contains a reopener to require the San Diego Water Board to modify the effluent limitations for toxicity, if necessary, to make it consistent with any new policy, law, or regulation.

c. Although the Basin Plan specifies that compliance with the narrative WQOs for toxicity shall be evaluated with a 96-hour acute bioassay, effluent limitations and monitoring for acute toxicity are not established in this Order. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a short or a longer exposure period of time and may measure mortality, reproduction, and growth. A chemical at a low concentration could have chronic effects but no acute effects until the chemical was at a higher concentration. Thus, chronic toxicity is a more stringent requirement than acute toxicity. To ensure the aggregated impacts of pollutants present within the Discharger's effluent does not result in the presence of toxicity within the receiving water, this Order establishes effluent limitations for chronic toxicity.

d. Diamond *et al.* (2013) examined the side-by-side comparison of No-Observed-Effect-Concentration (NOEC) and TST results using California chronic toxicity test data (including data from POTWs) for the *West Coast marine methods* and test species required under this Order. See Table 1 (method types 1 through 5) on page 1103 in Diamond D, Denton D, Roberts, J, Zheng L. 2013. *Evaluation of the Test of Significant Toxicity for Determining the Toxicity of Effluents and Ambient Water Samples*. Environ Toxicol Chem 32:1101-1108. This comparison shows that while the TST and NOEC statistical approaches perform similarly most of the time, the TST performs better in identifying toxic and nontoxic samples, a desirable characteristic for chronic toxicity testing conducted under this Order. This examination also signals that the test methods' false positive rate (β no higher than 0.05 at a mean effect of 10%) and false negative rate (α no higher than 0.05 (0.25 for topsmelt) at a mean effect of 25%) are indeed low. This highlights that using the TST in this Order provides increased assurance that statistical error rates are more directly addressed and accounted for in decisions regarding chronic toxicity in the discharge. As a result, the San Diego Water Board is exercising its discretion to use the TST statistical approach for this discharge.

In January 2010, USEPA published a guidance document entitled; USEPA Regions 8, 9 and 10 Toxicity Training Tool, which among other things discusses permit limitation expression for chronic toxicity. The document acknowledges that NPDES regulations at 40 CFR section 122.45(d) require that all permit limits be expressed, unless impracticable, as an average weekly effluent limitation (AWEL) and AMEL for POTWs. Following section 5.2.3 of the Technical Support Document (TSD), the use of an AWEL is not appropriate for WET. In lieu of an AWEL for POTWs, USEPA recommends establishing a MDEL for toxic pollutants and pollutants in water quality permitting, including WET. This is appropriate for two reasons. The basis for the average weekly requirement for POTWs derives from secondary treatment regulations and is not related to the requirement to ensure achievement of water quality standard. Moreover, an average weekly requirement comprising up to seven daily samples could average out daily peak toxic concentrations for WET and, therefore, the discharge's potential for causing acute and chronic effects would be missed. It is impracticable to use an AWEL, because short-term spikes of toxicity levels that would be permissible under the 7-day average scheme would not be adequately protective of all beneficial uses. The MDEL is the highest allowable value for the discharge measured during a calendar day or 24-hour period representing a calendar day. The AMEL is the highest allowable value for the average of daily discharges obtained over a calendar month. For WET, this is the average of individual WET test results for that calendar month. However, in cases where a chronic mixing zone is not authorized, EPA Regions 8, 9 and 10 continue to recommend that the AMEL for chronic WET should be expressed as a median

monthly effluent limitation (MMEL). As noted in section IV.C.7.b of this Fact Sheet, the data for the WPDP pilot study for the NCPWF showed no toxicity and this Order establishes a MDEL for chronic toxicity.

Later in June 2010, USEPA published a guidance document titled, *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (USEPA 833-R10-003, June 2010), in which they recommended the following: "Permitting authorities should consider adding the TST approach to their implementation procedures for analyzing valid WET data for their current NPDES WET Program." The TST approach is another statistical option for analyzing valid WET test data. Use of the TST approach does not result in any changes to USEPA's WET test methods. Section 9.4.1.2 of USEPA's *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA/821/R-02/013, 2002), recognizes that, "the statistical methods recommended in this manual are not the only possible methods of statistical analysis." The TST approach can be applied to acute (survival) and chronic (sublethal) endpoints and is appropriate to use for both freshwater and marine USEPA WET test methods.

The USEPA's WET testing program and acute and chronic WET methods rely on the measurement result for a specific test endpoint, not upon achievement of specified concentration-response patterns to determine toxicity. USEPA's WET methods do not require achievement of specified effluent or ambient concentration-response patterns prior to determining that toxicity is present.[9] Nevertheless, USEPA's acute and chronic WET methods require that effluent and ambient concentration-response patterns generated for multi-concentration acute and chronic toxicity tests be reviewed—as a component of test review following statistical analysis—to ensure that the calculated measurement result for the toxicity test is interpreted appropriately. (USEPA-821-R-02-012, section 12.2.6.2; USEPA-821-R-02-013, section 10.2.6.2). In 2000, USEPA provided guidance for such reviews to ensure that test endpoints for determining toxicity based on the statistical approaches utilized at the time the guidance was written (no-observed-effect-concentration (NOEC), percent waste giving 50 percent survival of test organisms (lethal concentration 50, LC 50), effects concentration at 25 percent (EC25) were calculated appropriately (USEPA 821-B-00-004).

USEPA designed its 2000 guidance as a standardized step-by step review process that investigates the causes for ten commonly observed concentration-response patterns and provides for the proper interpretation of the test endpoints derived from these patterns for NOECs, LC 50, and EC25, thereby reducing the number of misclassified test results. The guidance provides one of three determinations based on the review steps: that calculated effect concentrations are reliable and should be reported, that calculated effect concentrations are anomalous and should be explained, or that the test was inconclusive and should be repeated with a newly collected sample. The standardized review of the effluent and receiving water concentration-response patterns provided by USEPA's 2000 guidance decreased discrepancies in data interpretation for NOEC, LC 50, and EC25 test results, thereby lowering the chance that a truly non-toxic sample would be misclassified and reported as toxic.

[9] See, Supplementary Information in support of the Final Rule establishing WET test methods at 67 Fed. Reg. 69952, 69963, Nov. 19, 2002.

Appropriate interpretation of the measurement result from USEPA's TST statistical approach ("Pass"/"Fail") for effluent and receiving water samples is, by design, independent from the concentration-response patterns of the toxicity tests for those samples. Therefore, when using the TST statistical approach, application of USEPA's 2000 guidance on effluent and receiving waters concentration-response patterns will not improve the appropriate interpretation of TST results as long as all Test Acceptability Criteria (TAC) and other test review procedures—including those related to quality assurance for effluent and receiving water toxicity tests, reference toxicity tests, and control performance (mean, standard deviation, and coefficient of variation)—described by the WET test methods manual and TST guidance, are followed. The 2000 guidance may be used to identify reliable, anomalous, or inconclusive concentration-response patterns and associated statistical results to the extent that the guidance recommends review of test procedures and laboratory performance already recommended in the WET test methods manual. The guidance does not apply to single-concentration (IWC) and control statistical t-tests and does not apply to the statistical assumptions on which the TST is based. The San Diego Water Board will not consider a concentration-response pattern as sufficient basis to determine that a TST test result for a toxicity test is anything other than valid, absent other evidence. In a toxicity laboratory, unexpected concentration-response patterns should not occur with any regular frequency and consistent reports of anomalous or inconclusive concentration-response patterns or test results that are not valid will require an investigation of laboratory practices.

Any Data Quality Objectives or Standard Operating Procedure used by the toxicity testing laboratory to identify and report valid, invalid, anomalous, or inconclusive effluent or receiving water toxicity test measurement results from the TST statistical approach which include a consideration of concentration-response patterns and/or Percent Minimum Significant Differences (PMSDs) must be submitted for review by the San Diego Water Board, in consultation with USEPA, and the State Water Board's Quality Assurance Officer and Environmental Laboratory Accreditation Program (ELAP) (40 CFR section 122.44(h)). As described in the bioassay laboratory audit directives to the San Jose Creek Water Quality Laboratory from the State Water Board dated August 7, 2014, and from the USEPA dated December 24, 2013, the PMSD criteria only apply to compliance for NOEC and the sublethal endpoints of the NOEC, and therefore are not used to interpret TST results.

D. Final Effluent Limitation Considerations

1. Anti-Backsliding Requirements

NPDES permits must conform with Anti-backsliding requirements discussed in section III.C.5 of this Fact Sheet. These Anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. Because this is a new NPDES permit and this discharge has not previously been subject to WDRs or NPDES permitting requirements, Anti-backsliding requirements do not apply.

2. Antidegradation Policies

The WDRs for the Discharger must conform with antidegradation requirements discussed in section III.C.4 of this Fact Sheet. The antidegradation policies require that beneficial uses and the water quality necessary to maintain those beneficial uses in the receiving waters of the discharge shall be maintained and protected, and, if existing water quality is better than the quality required to maintain beneficial uses, the existing water quality shall be maintained and protected unless allowing a lowering of water

quality is necessary to accommodate important economic and social development or consistent with maximum benefit to the people of California. When a significant lowering of water quality is allowed by the San Diego Water Board, an antidegradation analysis is required in accordance with the State Water Board's Administrative Procedures Update (July 2, 1990), *Antidegradation Policy Implementation for NPDES Permitting*.

As part of its ROWD, the Discharger conducted an antidegradation analysis in accordance with applicable guidance and policies. The anti-degradation analysis concluded that the discharge from the Facility will not result in a lowering of water quality for any of the following parameters: physical parameters, dissolved minerals, oxygen parameters, pathogens, toxics, phosphorus, and algae. While a slight increase in reservoir total nitrogen concentrations are projected, any effects associated with this increased nitrogen concentration are considered to be minor and will not result in water quality lower than applicable standards. Further, proposed nitrogen concentrations are in keeping with implementing the Basin Plan objective that historic phosphorus-limited conditions in Miramar Reservoir be upheld.

In considering the Discharger's ROWD, including its antidegradation analysis, and applicable antidegradation policies, the San Diego Water Board independently concluded the proposed discharge will result in the best practicable treatment or control of the discharge necessary to ensure an absence of nuisance conditions, result in the highest water quality consistent with the maximum benefit to the people of the State, and will not unreasonable affect present and anticipated beneficial uses. Therefore, the requirements of this Order are consistent with federal and State antidegradation requirements.

3. Stringency of Requirements for Individual Pollutants

This Order contains both TBELs and WQBELs for individual pollutants. This Order establishes TBELs for BOD_5 and TSS which implement the minimum applicable federal technology-based requirements. The San Diego Water Board has considered the factors listed in Water Code section 13241.1 in establishing these requirements.

WQBELs have been derived to implement WQOs that protect beneficial uses. Both the beneficial uses and the WQOs were approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR section 131.38. The procedures for calculating the individual WQBELs for priority pollutants are based on the CTR implemented by the SIP, which was approved by USEPA on May 18, 2000. Most beneficial uses and WQOs contained in the Basin Plan were approved under State law and submitted to and approved by USEPA prior to May 30, 2000. Any WQOs and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR section 131.21(c)(1). The remaining WQOs and beneficial uses implemented by this Order were approved by USEPA and are applicable water quality standards pursuant to 40 CFR section 131.21(c)(2). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

E. Notification Levels (NLs)

NLs are health-based advisory levels established by the DDW for non-regulated chemicals in drinking water that lack MCLs. Chemicals for which notification levels are established may eventually be regulated by MCLs (through a formal regulatory process), depending on the extent of contamination occurrences, the levels observed, and the risk to human health.

Sources of drinking water in California are subject to periodic on-going monitoring of chemicals and contaminants – more so when the source is vulnerable to contamination or there is a known presence of contaminants. Section 60320.320 of title 22 of the CCR requires monitoring of contaminants with NLs to be protective of public health. The initial source for this SWSAP is municipal wastewater; an atypical source of drinking water. It is prudent and consistent to have monitoring requirements specific to those additional chemicals and contaminants that may be present in municipal wastewater. The monitoring of additional chemicals addresses the uncertainty regarding the presence of unregulated contaminants, affirms the efficacy of the treatment processes, and could potentially help determine the origin of such chemicals if found in the augmented surface water reservoir.

Section III.B of the MRP (Attachment E) requires monitoring of the effluent for constituents with NLs pursuant to section 60320.302 (h) of title 22 of the CCR. Section III.B.3.b of the MRP (Attachment E) requires the Discharger to conduct additional monitoring pursuant to section 60320.320 (b) of title 22 of the CCR when a NL is exceeded.

Table F-12. NLs at Monitoring Location EFF-001[1]

Parameter	Units	Instantaneous Maximum
Boron	mg/L	1
	lbs/day	270
n-Butylbenzene	mg/L	0.26
	lbs/day	71
sec-Butylbenzene	mg/L	0.26
	lbs/day	71
tert-Butylbenzene	mg/L	0.26
	lbs/day	71
Carbon disulfide	mg/L	0.16
	lbs/day	44
Chlorate	mg/L	0.8
	lbs/day	220
2-Chlorotoluene	mg/L	0.14
	lbs/day	38
4- Chlorotoluene	mg/L	0.14
	lbs/day	38
Dichlorodifluoromethane (Freon 12)	mg/L	1
	lbs/day	270
Isopropylbenzene	mg/L	0.77
	lbs/day	210
Manganese	mg/L	0.5
	lbs/day	140
Methyl isobutyl ketone (MIBK)	mg/L	0.12
	lbs/day	33
Naphthalene	mg/L	0.017
	lbs/day	4.7
n-Propylbenzene	mg/L	0.26

Parameter	Units	Instantaneous Maximum
	lbs/day	71
Tertiary butyl alcohol (TBA)	mg/L	0.012
	lbs/day	3.3
1,2,4-Trimethylbenzene	mg/L	0.33
	lbs/day	90
1,3,5-Trimethylbenzene	mg/L	0.33
	lbs/day	90
1,4-Dioxane	mg/L	0.001
	lbs/day	0.30
Ethylene Glycol	mg/L	14
	lbs/day	3800
Formaldehyde	mg/L	0.1
	lbs/day	27
Perfluorooctanoic Acid (PFOA)	mg/L	0.0000051
	lbs/day	0.0014
Perfluorooctanesulfonic Acid (PFOS)	mg/L	0.0000065
	lbs/day	0.0018
N-nitrosodiethylamine (NDEA)	mg/L	0.00001
	lbs/day	0.0027
N-nitrosodimethylamine (NDMA)	mg/L	0.00001
	lbs/day	0.0027
N-nitrosodi-n-propylamine (NDPA)	mg/L	0.00001
	lbs/day	0.0027
Diazinon	mg/L	0.0012
	lbs/day	0.30
Propachlor	mg/L	0.09
	lbs/day	25
RDX	mg/L	0.0003
	lbs/day	0.08
2,4,6 Trinitrotoluene (TNT)	mg/L	0.001
	lbs/day	0.27
HMX (Octogen)	mg/L	0.35
	lbs/day	96
Vanadium	mg/L	0.05
	lbs/day	14

1. All MER limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).

F. Performance Goals

Constituents that do not have reasonable potential to cause or contribute to an exceedance of WQOs have been assigned performance goals. Performance goals serve to maintain existing treatment levels and effluent quality and support state and

federal antidegradation policies. Additionally, performance goals provide all interested parties with information regarding the expected level of pollutants in the discharge that should not be exceeded in order to maintain the WQOs established in the Basin Plan. Performance goals are not limitations or standards for the regulation of the discharge. Effluent concentrations above the performance goals will not be considered as violations of this Order but serve as indicators that the effluent may be causing or contributing to a water quality standard exceedance in the receiving waters. Repeated exceedances of performance goals may prompt the San Diego Water Board to reopen and amend this Order to replace performance goals for constituents of concern with effluent limitations, or the San Diego Water Board may coordinate such actions with the next permit reissuance.

The performance goals for CTR/NTR constituents were calculated using the SIP procedure described in section IV.C.5 of this Fact Sheet. A CV of 0.6 was assumed in determining the performance goals, which is the CV recommended in the SIP when there are less than ten samples in the dataset. A summary of performance goals at Monitoring Location EFF-001 is provided in Table F-13:

Table F-13. Performance Goals at Monitoring Location EFF-001[1]

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]	Instantaneous Maximum
BASED ON BASIN PLAN OBJECTIVES[4]				
Percent Sodium	%	---	---	60[5]
Chromium III, Total Recoverable[6]	µg/L	1.69E+02	3.39E+02	---
	lbs/day	4.63E+01	9.28E+01	---
BASED ON OBJECTIVES FOR THE PROTECTION OF AQUATIC LIFE				
alpha Endosulfan	µg/L	4.57E-02	9.18E-02	---
	lbs/day	1.25E-02	2.51E-02	---
beta Endosulfan	µg/L	4.57E-02	9.18E-02	---
	lbs/day	1.25E-02	2.51E-02	---
BASED ON OBJECTIVES FOR THE PROTECTION OF HUMAN HEALTH				
alpha-BHC	µg/L	3.90E-03	7.84E-03	---
	lbs/day	1.07E-03	2.14E-03	---
beta-BHC	µg/L	1.40E-02	2.81E-02	---
	lbs/day	3.83E-03	7.70E-03	---
gamma-BHC (Lindane)	µg/L	1.90E-02	3.82E-02	---
	lbs/day	5.20E-03	1.04E-02	---
Endosulfan Sulfate	µg/L	1.10E+02	2.21E+02	---
	lbs/day	3.01E+01	6.05E+01	---
Endrin Aldehyde	µg/L	7.60E-01	1.53E+00	---
	lbs/day	2.08E-01	4.18E-01	---
Acrolein	µg/L	3.20E+02	6.43E+02	---
	lbs/day	8.75E+01	1.76E+02	---
Acenaphthene	µg/L	1.20E+03	2.41E+03	---
	lbs/day	3.28E+02	6.60E+02	---
Anthracene	µg/L	9.60E+03	1.93E+04	---
	lbs/day	2.63E+03	5.28E+03	---
Bis(2-chloroisopropyl)ether	µg/L	1.40E+03	2.81E+03	---
	lbs/day	3.83E+02	7.70E+02	---
Bis(2-ethylhexyl)phthalate	µg/L	1.80E+00	3.62E+00	---
	lbs/day	4.92E-01	9.90E-01	---

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]	Instantaneous Maximum
Butylbenzyl Phthalate	µg/L	3.00E+03	6.03E+03	---
	lbs/day	8.21E+02	1.65E+03	---
2-Chloronaphthalene	µg/L	1.70E+03	3.42E+03	---
	lbs/day	4.65E+02	9.35E+02	---
Chrysene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Dibenzo(a,h)anthracene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Mercury, Total Recoverable	µg/L	5.00E-02	1.01E-01	---
	lbs/day	1.37E-02	2.75E-02	---
Di-n-butyl Phthalate	µg/L	2.70E+03	5.43E+03	---
	lbs/day	7.39E+02	1.48E+03	---
1,3-Dichlorobenzene	µg/L	4.00E+02	8.04E+02	---
	lbs/day	1.09E+02	2.20E+02	---
Diethyl Phthalate	µg/L	2.30E+04	4.62E+04	---
	lbs/day	6.29E+03	1.26E+04	---
Dimethyl Phthalate	µg/L	3.13E+05	6.29E+05	---
	lbs/day	8.56E+04	1.72E+05	---
4,6-Dinitro-2-Methylphenol	µg/L	1.34E+01	2.69E+01	---
	lbs/day	3.67E+00	7.37E+00	---
2,4-Dinitrophenol	µg/L	7.00E+01	1.41E+02	---
	lbs/day	2.54E+01	5.11E+01	---
Fluoranthene	µg/L	3.00E+02	6.03E+02	---
	lbs/day	8.21E+01	1.65E+02	---
Fluorene	µg/L	1.30E+03	2.61E+03	---
	lbs/day	3.56E+02	7.15E+02	---
Nitrobenzene	µg/L	1.70E+01	3.42E+01	---
	lbs/day	4.65E+00	9.35E+00	---
Acrylonitrile	µg/L	5.90E-02	1.19E-01	---
	lbs/day	1.61E-02	3.24E-02	---
Aldrin	µg/L	1.30E-04	2.61E-04	---
	lbs/day	3.56E-05	7.15E-05	---
Benzidine	µg/L	1.20E-04	2.41E-04	---
	lbs/day	3.28E-05	6.60E-05	---
Bis(2-chloroethyl) Ether	µg/L	3.10E-02	6.23E-02	---
	lbs/day	8.48E-03	1.70E-02	---
Carbon Tetrachloride	µg/L	2.50E-01	5.03E-01	---
	lbs/day	6.84E-02	1.37E-01	---
4,4'-DDT	µg/L	5.90E-04	1.19E-03	---
	lbs/day	1.61E-04	3.24E-04	---
4,4'-DDE	µg/L	5.90E-04	1.19E-03	---
	lbs/day	1.61E-04	3.24E-04	---
4,4'-DDD	µg/L	8.30E-04	1.67E-03	---
	lbs/day	2.27E-04	4.56E-04	---
3,3'-Dichlorobenzidine	µg/L	4.00E-02	8.04E-02	---
	lbs/day	1.09E-02	2.20E-02	---
Methylene Chloride (Dichloromethane)	µg/L	4.70E+00	9.45E+00	---
	lbs/day	1.29E+00	2.58E+00	---
1,2-Dichloropropane	µg/L	5.20E-01	1.05E+00	---
	lbs/day	1.42E-01	2.86E-01	---
Dieldrin	µg/L	1.40E-04	2.81E-04	---
	lbs/day	3.83E-05	7.70E-05	---

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]	Instantaneous Maximum
2,4-Dinitrotoluene	µg/L	1.10E-01	2.21E-01	---
	lbs/day	3.01E-02	6.05E-02	---
1,2-Diphenylhydrazine	µg/L	4.00E-02	8.04E-02	---
	lbs/day	1.09E-02	2.20E-02	---
Hexachlorobutadiene	µg/L	4.40E-01	8.84E-01	---
	lbs/day	1.20E-01	2.42E-01	---
Hexachloroethane	µg/L	1.90E+00	3.82E+00	---
	lbs/day	5.20E-01	1.04E+00	---
Methyl Bromide	µg/L	4.80E+01	9.65E+01	---
	lbs/day	1.31E+01	2.64E+01	---
Isophorone	µg/L	8.40E+00	1.69E+01	---
	lbs/day	2.30E+00	4.62E+00	---
Indeno(1,2,3-cd) Pyrene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
N-nitrosodi-N-propylamine	µg/L	5.00E-03	1.01E-02	---
	lbs/day	1.37E-03	2.75E-03	---
N-nitrosodiphenylamine	µg/L	5.00E+00	1.01E+01	---
	lbs/day	1.37E+00	2.75E+00	---
Pyrene	µg/L	9.60E+02	1.93E+03	---
	lbs/day	2.63E+02	5.28E+02	---
1,1,2,2-Tetrachloroethane	µg/L	1.70E-01	3.42E-01	---
	lbs/day	4.65E-02	9.35E-02	---
Tetrachloroethylene	µg/L	8.00E-01	1.61E+00	---
	lbs/day	2.19E-01	4.40E-01	---
Trichloroethylene	µg/L	2.70E+00	5.43E+00	---
	lbs/day	7.39E-01	1.48E+00	---
2-Chlorophenol	µg/L	1.20E+02	2.41E+02	---
	lbs/day	3.28E+01	6.60E+01	---
2,4-Dichlorophenol	µg/L	9.30E+01	1.87E+02	---
	lbs/day	2.54E+01	5.11E+01	---
2,4-Dimethylphenol	µg/L	5.40E+02	1.09E+03	---
	lbs/day	1.48E+02	2.97E+02	---
Phenol	µg/L	2.10E+04	4.22E+04	---
	lbs/day	5.74E+03	1.15E+04	---
1,1,2-Trichloroethane	µg/L	6.00E-01	1.21E+00	---
	lbs/day	1.64E-01	3.30E-01	---
2,4,6-Trichlorophenol	µg/L	2.10E+00	4.22E+00	---
	lbs/day	5.74E-01	1.15E+00	---
Benzo(a)Anthracene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Benzo(b)Fluoranthene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---
Benzo(k)Fluoranthene	µg/L	4.40E-03	8.84E-03	---
	lbs/day	1.20E-03	2.42E-03	---

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the

value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10E-02 or 0.061, 6.1E+02 represents 6.1 x 10E+02 or 610, and 6.1E+00 represents 6.1 x 1E+00 or 6.1.

4. Basin Plan-based performance goals are based on Basin Plan criteria for Miramar Reservoir and Title 22 pollutant MCLs.
5. Not to be exceeded more than 10 percent of the time during any one-year period.
6. Dischargers may, at their option, meet this limitation (or apply this performance goal) as a total chromium limitation (or performance goal).

A summary of performance goals at Location EFF-02 is provided in Table F-14:

Table F-14. Performance Goals at Monitoring Location EFF-002[1]

Parameter	Units[1]	Average Monthly[2,3]	Maximum Daily[2,3]
Chlorodibromomethane	µg/L	4.01E-01	8.06E-01
	lbs/day	1.10E-01	2.20E-01
N-nitrosodimethylamine	µg/L	6.90E-04	1.39E-03
	lbs/day	1.89E-04	3.79E-04
Bromoform	µg/L	4.30E+00	8.64E+00
	lbs/day	1.18E+00	2.36E+00

1. See Attachment A for definitions of abbreviations and a glossary of common terms used in this Order.
2. All mass emission rate (MER) limitations in lbs/day, were calculated based on the following equation: MER (lbs/day) = 8.34 x Q x C, where Q is the permitted flow for the Facility (32.8 MGD) and C is the concentration (mg/L).
3. Scientific "E" notation is used to express certain values. In scientific "E" notation, the number following the "E" indicates that position of the decimal point in the value. Negative numbers after the "E" indicate that the value is less than 1, and positive numbers after the "E" indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10E-02 or 0.061, 6.1E+02 represents 6.1 x 10E+02 or 610, and 6.1E+00 represents 6.1 x 1E+00 or 6.1.

G. Interim Effluent Limitations – Not Applicable

H. Land Discharge Specifications – Not Applicable

V. RATIONALE FOR RECEIVING WATER LIMITATIONS

CWA section 303(a-c), requires states to adopt water quality standards, including criteria necessary to protect beneficial uses. The San Diego Water Board adopted water quality criteria as WQOs in the Basin Plan. This Order contains receiving surface water limitations for Miramar Reservoir which incorporate Basin Plan numeric and narrative WQOs for bacterial, physical, chemical, and biological characteristics.

Section V.A.2.a of this Order specifies that pH of receiving waters shall not be changed more than 0.5 pH units from "normal ambient" pH values. Over time Miramar Reservoir will be almost exclusively comprised of advanced treated recycled water. At that time, "normal ambient" pH values will be determined based on existing pH values in Miramar Reservoir and not on historic pH values.

This Order establishes dissolved oxygen (D.O) receiving water limitations based on the Basin Plan WQO for D.O in inland surface waters (see section V.A.13 of Order). The D.O receiving water limitations do not apply within the deeper layer of Miramar Reservoir (hypolimnion) when naturally occurring seasonal thermal stratification could cause the hypolimnion to be oxygen deprived at certain times of the year. From mid-winter until late spring the water column is well mixed, and water quality conditions are uniform throughout the Reservoir. Beginning in late spring, this condition changes as surface water warms and stratified conditions develop within the Reservoir.

In a stratified condition, the hypolimnion remains cold and becomes oxygen deprived (anoxic), while the surface layer of the Reservoir (epilimnion) warms considerably and remains oxygenated (oxic).

VI. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR section 122.42, are provided in the Standards Provisions (Attachment D). The Discharger must comply with all standard provisions and with those additional conditions that are applicable under section 122.42.

Sections 122.41(a)(1) and (b) through (n) of 40 CFR establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. Section 123.25(a)(12) of 40 CFR allows the State to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR sections 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

B. Special Provisions

1. Reopener Provisions

This Order may be re-opened and modified, revoked and reissued, or terminated in accordance with the provisions of 40 CFR parts 122, 123, 124, and 125. The San Diego Water Board may reopen the permit to modify permit conditions and requirements. Causes for modifications include, but are not limited to, revisions to effluent limitations; receiving water requirements; monitoring and reporting requirements; participation in regional or water body monitoring coalition as determined by the San Diego Water Board; or adoption of new or revised regulations, water quality control plans, or policies by the State Water Board or the San Diego Water Board, including revisions to the Basin Plan.

2. Special Studies and Additional Monitoring Requirements

a. Spill Prevention and Response Plans

The CWA largely prohibits any discharge of pollutants from point sources to waters of the United States except as authorized under an NPDES permit. In general, any point source discharge of sewage effluent to waters of the United States must comply with technology-based, secondary-treatment standards, at a minimum, and any more stringent requirements necessary to meet applicable water quality standards and other requirements. The unpermitted discharge of wastewater to waters of the United States is illegal under the CWA. Further, the Basin Plan prohibits discharges of waste to land, except as authorized by WDRs or the terms described in Water Code section 13264. The Basin Plan also prohibits the unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system. Further, Discharge Prohibition III.A of this Order prohibits the discharges of wastes in a manner or to a location which have not been specifically authorized by this Order and for which valid WDRs are not in force.

Sanitary collection and treatment systems experience periodic failures resulting in discharges that may affect waters of the United States and/or State. There are

many factors which may affect the likelihood of a spill. To ensure appropriate funding, management, and planning to reduce the likelihood of a spill, and to increase spill preparedness, this Order requires the Discharger to maintain and implement Spill Prevention and Response Plans.

b. **Spill Reporting Requirements**

To determine compliance with Discharge Prohibition III.A and provide appropriate notification to the general public for the protection of public health, spill reporting requirements have been established in section VI.C.2.b of this Order.

c. **DDW Specifications and Requirements**

This Order includes treatment, design, and operational requirements from DDW's conditional acceptance letter (dated July 12, 2019) after review of the Discharger's Title 22 Engineering Report to ensure the Discharger complies with Surface Water Augmentation criteria in title 22 of the CCR.

d. **Reservoir Nutrient Management Plan**

Section VI.C.2.d of this Order requires the Discharger to develop and submit a reservoir nutrient management plan. The reservoir nutrient management plan must include preventive and corrective actions that the Discharger will implement to ensure that nutrients in advanced treated recycled water discharged to the Miramar Reservoir do not stimulate algae and emergent plant growth to the extent that it causes nuisance conditions or adversely affects beneficial uses of the reservoir. The preventive and corrective actions must ensure that the nutrients in the discharge do not adversely affect any of the beneficial uses of the reservoir (which include municipal and domestic supply, marine habitat, and wildlife habitat). Preventive and corrective actions may include but are not limited to the following: additional treatment, aeration of the reservoir, additional monitoring, notification of the public and regulatory agencies, management of vegetation within the reservoir, and decoupling the reservoir from the Miramar DWTP.

3. Best Management Practices and Pollution Prevention

The Discharger is required to minimize the discharge of pollutants consistent with the requirements of section 2.4.5.1 of the SIP. The goal of the Pollutant Minimization Program is to reduce all potential sources of a priority pollutant through pollutant minimization strategies to maintain the effluent concentration at or below WQBELs.

4. Construction, Operation, and Maintenance Specifications

a. This Order includes provisions to ensure that new treatment facilities and expansions of existing treatment facilities are completely constructed and operable prior to initiation of the discharge from the new or expanded facilities.

b. This Order includes provisions to ensure the Facility is protected against the impact of storm events.

c. This Order adds a provision to ensure the Facility is protected against regional impacts due to climate change (e.g., sea level rise and floods).

d. This Order adds a provision based on the requirements of 40 CFR section 122.41(e) to ensure the Facility has adequate power.

e. Operation and Maintenance (O&M). Section 122.41(e) of 40 CFR requires proper O&M of permitted wastewater systems and related facilities to achieve compliance

with permit conditions. An up-to-date O&M Manual is an integral part of a well-operated and maintained facility.

5. Special Provisions for Publicly-Owned Treatment Works (POTWs)

a. **Biosolids**. Solids from the Facility will be conveyed to the Metro Biosolids Center for treatment and disposal. The use and disposal of biosolids is regulated under federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR part 503. The Discharger is required to comply with the standards and time schedules contained in 40 CFR part 503. Section VI.C.5.a.viii of this Order requires the Discharger to submit an annual biosolids report. A similar requirement is included in the NPDES permits for all the Discharger's POTWs. The Discharger may submit a single annual biosolids report under the NPDES permit for the E.W Blom Point Loma Wastewater Treatment Plant to cover all its POTWs since biosolids from all the Discharger's POTWs are sent to the Metro Biosolids Center for treatment and disposal.

Title 27, division 2, subdivision 1, commencing with section 20005 of the CCR establishes approved methods for the disposal of collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes. Requirements to ensure the Discharger disposes of solids in compliance with state and federal regulations have been included in this Order.

b. **Collection System.** The State Water Board issued Order 2006-0003-DWQ, *General Waste Discharge Requirements for Sanitary Sewer Systems* (Statewide General SSO Order) on May 2, 2006. The State Water Board amended the MRP for the Statewide General SSO Order through Order WQ 2013-0058-EXEC on August 6, 2013. The Statewide General SSO Order requires public agencies that own or operate sanitary sewer systems comprised of more than one mile of pipes or sewer lines to enroll for coverage and comply with the Statewide General SSO Order. The Statewide General Order requires agencies to develop sanitary sewer management plans and report all sanitary sewer overflows, among other requirements and prohibitions.

The Statewide General Order contains requirements for O&M of collection systems and for reporting and mitigating sanitary sewer overflows that are more extensive, and therefore, more stringent than the requirements under federal standard provisions. The Discharger and public agencies that are discharging wastewater into the Facility's collection system were required to obtain enrollment for regulation under the Statewide General Order by December 1, 2006.

The San Diego Water Board issued Order No. R9-2007-0005, *Waste Discharge Requirements for Sewage Collection Agencies in the San Diego Region* (Regional General SSO Order). Order No. R9-2007-0005 prohibits any discharge of sewage at any point upstream of a POTW and supplements the Statewide General SSO Order. Agencies that are enrolled under the Statewide General SSO Order are also required to comply with the Regional General SSO Order.

c. **Pretreatment.** The federal CWA section 307(b), and federal regulations, 40 CFR part 403, require POTWs to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal and prevent pass through of pollutants that exceed water quality objectives, standards, or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR part 403.

The Discharger's implementation and enforcement of its approved pretreatment program is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the San Diego Water Board, the State Water Board, or USEPA may take enforcement actions against the Discharger as authorized by the CWA and Water Code.

The Discharger implements a single pretreatment system for the sewershed for all its POTWs. As a result, this Order includes pretreatment requirements that are similar to other POTWs owned and operated by the Discharger.

6. Other Special Provisions

a. **Statewide General Drinking Water Permit.** The North City Pure Water Pipeline will convey advanced treated recycled water from the NCPWF to Miramar Reservoir. Discharges from the pipeline other than to Miramar Reservoir at Discharge Point No. 001 are subject to regulation under Order WQ 2014-0194-DWQ, *Statewide NPDES Permit for Drinking Water System Discharges to the Waters of the United States* (Statewide General Drinking Water Permit). Such discharges from the North City Pure Water Pipeline to the City's municipal separate storm water system (MS4) resulting in a discharge to surface waters may occur during planned maintenance and cleaning of the North City Pure Water Pipeline. Section VI.C.6.a. of this Order requires the Discharger to obtain permit coverage for such discharges under, and comply with, the terms of the Statewide General Drinking Water Permit, and any reissuance.

7. Compliance Schedules – Not Applicable

VII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

CWA section 308 and 40 CFR sections 122.41(h), (j)-(l), 122.44(i), and 122.48 require that all NPDES permits specify monitoring and reporting requirements. Water Code sections 13267 and 13383 also authorize the San Diego Water Board to establish monitoring, inspection, entry, reporting, and recordkeeping requirements. The MRP (Attachment E) establishes monitoring, reporting, and recordkeeping requirements that implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP (Attachment E) for this Facility. The Discharger is required to use both Clean Water Act methods specified in 40 CFR part 136 and drinking water methods specified in 40 CFR part 141. Analyses using the Clean Water Act methods are not required if the equivalent drinking water methods are more sensitive.

A. Core Monitoring Requirements

1. Influent Monitoring

Influent monitoring is required to determine the effectiveness of the source control program, to assess the performance of treatment facilities, and to evaluate compliance with TBELs for percent removal of BOD_5 and TSS.

2. Internal Monitoring

Internal monitoring is required to determine compliance with effluent limitations that apply to effluent from specific treatment processes, determine compliance with treatment requirements, and measure performance of individual treatment processes.

3. Effluent Monitoring

Effluent monitoring is required to determine compliance with the conditions of this Order, to identify operational problems, and to provide sufficient data for conducting a RPA for subsequent orders. Effluent monitoring also provides information on wastewater

characteristics and flows for use in interpreting water quality and biological data. This Order also includes monitoring for chemical constituents with MCLs, Action Levels, and DDW NLs based on Surface Water Augmentation criteria specified in title 22 of the CCR.

4. Whole Effluent Toxicity (WET) Testing Requirements

Chronic toxicity effluent limitations and monitoring requirements have been established in this Order. An acute toxicity test is conducted over a short time period and measures mortality. A chronic toxicity test is conducted over a longer period of time and may measure mortality, reproduction, and growth. Chronic toxicity is a more stringent requirement than acute toxicity. A chemical at a low concentration can have chronic effects but no acute effects until it gets to the higher level. For this Order, chronic toxicity in the discharge is evaluated using USEPA's 2010 TST hypothesis testing approach, and is expressed as "Pass" or "Fail" for the median monthly summary results and "Pass" or "Fail" and "Percent Effect" for each individual chronic toxicity result. The chronic toxicity effluent limitations protect the narrative water quality objective in the Basin Plan.

If a routine chronic toxicity test results in a "Fail" at the instream waste concentration, this Order requires the Discharger to conduct a maximum of two chronic toxicity tests in the same calendar month to evaluate compliance with the MMEL. A TRE is required when the Discharger has any combination of two or more MDEL or MMEL violations within a single calendar month or within two successive calendar months. In addition, if other information indicates toxicity (e.g., results of additional monitoring, fish kills, intermittent recurring toxicity, etc.), then the San Diego Water Board may require a TRE. If a TRE is required, the Discharger is required to submit a TRE work plan in accordance with USEPA guidance which shall include: further steps taken by the Discharger to investigate, identify, and correct the causes of toxicity; actions the Discharger will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions. This provision also includes requirements to conduct the TRE/TIE process in accordance with the submitted work plan if the results of toxicity testing exceed the effluent limitations for toxicity. The rationale for WET testing has been discussed in section IV.C.8 of this Fact Sheet.

5. Constituents of Emerging Concern Monitoring Requirements

Constituents of Emerging Concern (CECs) include a broad range of unregulated chemicals found in recycled water. This Order implements the monitoring requirements for CECs contained in the Recycled Water Policy, as amended on December 11, 2018. The monitoring requirements for CECs, surrogates, and bioanalytical screening tools are separated into three phases: 1) initial assessment monitoring phase, 2) baseline monitoring phase, 3) standard operation monitoring phase. The purpose of phased monitoring is to allow monitoring requirements for health-based CECs, performance indicator CECs, surrogates, and bioanalytical screening tools to be refined based on the monitoring results and findings of the previous phase.

As specified in the DDW conditional acceptance letter, this Order requires internal monitoring for NDMA, sucralose, and sulfamethoxazole at monitoring location INT-008 in addition to monitoring location INT-006 required by the Recycled Water Policy.

B. Receiving Water Monitoring Requirements

1. Surface Water

a. Water Quality Monitoring

This Order establishes monitoring requirements to evaluate compliance with applicable WQOs and criteria, evaluate the impact of the discharge on biological

productivity and limnology of Miramar Reservoir, and evaluate whether or not the discharge affects biostimulatory conditions within Miramar Reservoir.

b. **Fish Monitoring**

This Order requires Creel Censuses to evaluate changes to the recreational fisheries at Miramar Reservoir. Miramar Reservoir is designated for contact and non-contact recreation and hosts a productive recreational fishery. The low concentration of nutrients in the effluent has the potential to alter the biological productivity in the reservoir, which could reduce the available food for sportfish. Recreational fish catch statistics can be used as a surrogate for fishery health.

This Order also requires fish liver tissue monitoring to determine if pollutants are bioaccumulating in fish species commonly targeted by recreational fishers, except for species commonly stocked/planted at Miramar Reservoir (e.g., trout). Many pollutants discharged into receiving waters have the potential to bioaccumulate and persist in tissues of aquatic organisms, including fishes. Chemical pollutants that bioaccumulate tend to biomagnify as they pass through the aquatic food chain. Therefore, fish monitoring data is required to assess the human health risks for individuals who may consume fish and to assess trends of contaminants levels in fish tissue over time.

2. Groundwater – Not Applicable

C. Regional Monitoring Requirements

The Discharger is encouraged to participate with other regulated entities, other interested parties, and the San Diego Water Board in development and implementation of new and improved regional or watershed monitoring and assessment programs for surface waters in the San Diego Region and discharges to those waters. The intent of regional monitoring activities is to maximize efforts of all monitoring partners using a more cost-effective monitoring design and to best utilize the pooled resources of the region.

Refer to section V of the MRP (Attachment E).

D. Special Study Requirements

1. Climate Change Action Plan

"Governor Newsom's Executive Order N-10-19 directs state agencies to prepare a water resiliency portfolio that meets the needs of California's communities, economy, and environment. The State Water Board's Resolution No. 2017-0012 and the San Diego Water Board's Resolution No. R9-2018-0051 require a proactive approach to climate change in all State and regional actions.

Changing climate conditions may fundamentally alter the way publicly-owned treatment works are designed and operated. Climate change research indicates the overarching driver of change is increased atmospheric carbon dioxide (CO_2) from human activity. The increased CO_2 emissions trigger changes to climatic patterns, which may lead to more erratic rainfall and local weather patterns (Δ Weather Patterns), increase flooding, pollutant transportation, and sediment erosion, trigger a gradual warming of freshwater temperatures (Δ Water Temperature) resulting in stronger water column stratification, reduced mixing, and changes to water chemistry, and increase incidence of harmful algal blooms. The changes to weather patterns may affect the Facilities (e.g., flooding, increased influent flows during wet weather, and heat waves). The changes to the water temperature may affect how the receiving waters reacts to the discharges. This Order

requires the Discharger to prepare and submit a Climate Change Action Plan (CCAP) within three years of the effective date of this Order.

Refer to section VI.A of the MRP (Attachment E).

2. Outfall and Diffuser Report

The annual inspection of outfall structures is required to ensure a periodic assessment of the integrity of the outfall pipes and ballasting system.

Refer to section VI.B of the MRP (Attachment E).

3. DDW Monitoring and Reporting

Title 22 Division 4, Article 5.3. Indirect Potable Reuse: Surface Water Augmentation require SWSAP WRAs to conduct monitoring and report monitoring results. DDW, through its conditional acceptance letter, specifies necessary SWSAP specific reporting and monitoring requirements based on the SWSAP WRA's proposal to meet the Surface Water Augmentation criteria, as a part of recommendations to the San Diego Water Board for protection of public health pursuant to the Water Code section 13523.

E. Other Monitoring Requirements

1. Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program

Under the authority of section 308 of the CWA (33 U.S.C. section 1318), USEPA requires major and selected minor dischargers under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) the Discharger can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) as required by the waiver issued by USEPA to the State Water Board, the Discharger can submit the results of the most recent Water Pollution Performance Evaluation Study from its own laboratories or its contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Discharger shall ensure that the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to USEPA's DMR-QA Coordinator and Quality Assurance Manager.

Refer to section I.I of the MRP (Attachment E).

VIII. PUBLIC PARTICIPATION

The San Diego Water Board has considered the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the adoption process, the San Diego Water Board staff has developed a Tentative Order and has encouraged public participation in the adoption process by providing a period of a minimum of 30 days for public review and comment on the Tentative Order.

A. Notification of Interested Parties

The San Diego Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit written comments and recommendations. Notification was provided by posting a Notice of Public

Hearing and Opportunity to Comment and the tentative WDRs on the San Diego Water Board's website for the duration of the public comment period. The Tentative Order was posted on the San Diego Water Board website and emailed to the Discharger and all known interested parties on January 27, 2020.

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

B. 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 Office at the San Diego Water Board at 2375 Northside Drive, Suite 100, San Diego, CA 92108. http://www.waterboards.ca.gov/sandiego/

To be fully responded to by staff and considered by the San Diego Water Board, the written comments were due at the San Diego Water Board office by 5:00 p.m. on February 26, 2020.

C. Public Hearing

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

Date:	May 13, 2020
Time:	9 a.m.
Location:	California Regional Water Quality Control Board Regional Board Meeting Room 2375 Northside Drive, Suite 100, San Diego, CA 92108

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

D. Reconsideration of Waste Discharge Requirements

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

By mail: State Water Resources Control Board Office of Chief Counsel P.O. Box 100, 1001 I Street Sacramento, CA 95812-0100	In Person: State Water Resources Control Board Office of Chief Counsel 1001 I Street Sacramento, California 95814
By email: waterqualitypetitions@waterboards.ca.gov	By fax: (916) 341-5199

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

E. Information and Copying

The ROWD, other supporting documents, and comments received are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday

through Friday. Copying of documents may be arranged through the San Diego Water Board by calling 619-516-1990.

F. Register of Interested Persons

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the San Diego Water Board, reference this Facility, and provide a name, address, and phone number.

G. Additional Information

Requests for additional information or questions regarding this order should be directed to Fisayo Osibodu at 619-521-8036 or Olufisayo.Osibodu@waterboards.ca.gov.

ATTACHMENT G – BASIN PLAN DISCHARGE PROHIBITIONS

I. BASIN PLAN DISCHARGE PROHIBITIONS

A. The discharge of waste to waters of the State in a manner causing, or threatening to cause a condition of pollution, contamination or nuisance as defined in Water Code section 13050, is prohibited.

B. The discharge of waste to land, except as authorized by Waste Discharge Requirements (WDRs) of the terms described in Water Code section 13264 is prohibited.

C. The discharge of pollutants or dredged or fill material to waters of the United States except as authorized by a National Pollutant Discharge Elimination System (NPDES) permit or a dredged or fill material permit (subject to the exemption described in Water Code section 13376) is prohibited.

D. Discharges of recycled water to lakes or reservoirs used for municipal water supply or to inland surface water tributaries thereto are prohibited, unless this San Diego Water Board issues an NPDES permit authorizing such a discharge; the proposed discharge has been approved by the State Water Board Division of Drinking Water (DDW); and the operating agency of the impacted reservoir; and the Discharger has an approved fail-safe long-term disposal alternative.

E. The discharge of waste to inland surface waters, except in cases where the quality of the discharge complies with applicable receiving water quality objectives, is prohibited. Allowances for dilution may be made at the discretion of the San Diego Water Board. Consideration would include streamflow data, the degree of treatment provided and safety measures to ensure reliability of facility performance. As an example, discharge of secondary effluent would probably be permitted if streamflow provided 100:1 dilution capability.

F. The discharge of waste in a manner causing flow, ponding, or surfacing on lands not owned or under the control of the discharger is prohibited, unless the discharge is authorized by the San Diego Water Board.

G. The dumping, deposition, or discharge of waste directly into waters of the State, or adjacent to such waters in any manner which may permit its being transported into the waters, is prohibited unless authorized by the San Diego Water Board.

H. Any discharge to a storm water conveyance system that is not composed entirely of storm water is prohibited unless authorized by the San Diego Water Board. [The federal regulations, 40 CFR 122.26(b)(13), define storm water as storm water runoff, snow melt runoff, and surface runoff and drainage. 40 CFR 122.26(b)(2) defines an illicit discharge as any discharge to a storm water conveyance system that is not composed entirely of storm water except discharges pursuant to an NPDES permit and discharges resulting from firefighting activities.] [Section 122.26 amended at 56 FR 56553, November 5, 1991; 57 FR 11412, April 2, 1992].

I. The unauthorized discharge of treated or untreated sewage to waters of the State or to a storm water conveyance system is prohibited.

J. The discharge of industrial wastes to conventional septic tank/ subsurface disposal systems, except as authorized by the terms described in Water Code section 13264, is prohibited.

K. The discharge of radioactive wastes amenable to alternative methods of disposal into the waters of the State is prohibited.

L. The discharge of any radiological, chemical, or biological warfare agent into waters of the State is prohibited.

M. The discharge of waste into a natural or excavated site below historic water levels is prohibited unless the discharge is authorized by the San Diego Water Board.

N. The discharge of sand, silt, clay, or other earthen materials from any activity, including land grading and construction, in quantities which cause deleterious bottom deposits, turbidity or discoloration in waters of the State or which unreasonably affect, or threaten to affect, beneficial uses of such waters is prohibited.

ATTACHMENT H – ANALYTICAL METHODS FOR CTR/NTR PRIORITY POLLUTANTS AND OTHER TOXIC POLLUTANTS

The following table lists the suggested analytical methods and minimum levels (MLs) for toxic pollutants that shall be used, unless otherwise specified.

For priority pollutant monitoring, when there is more than one ML value for a give substance, the Discharger may select any of the analytical methods cited in the following table for compliance determination, or any other method described in Code of Federal Regulations, title 40 (40 CFR) part 136 or approved by USEPA if authorized by the San Diego Water Board. However, the ML must be below the effluent limitation and water quality objective. If no ML value is below the effluent limitation and water quality objective, then the method must achieve an ML no greater than the lowest ML value indicated in the table below. All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

List of Monitoring Parameters and Analytical Methods

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/L)											
			GC	GCMS	LC	Color (AMDI Color Units)	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
1.	Antimony	204.2					10	5	50	0.5	5	0.5		1000
2.	Arsenic	206.3				20		2	10	2	2	1		1000
3.	Beryllium						20	0.5	2	0.5	1			1000
4.	Cadmium	200 or 213					10	0.5	10	0.25	0.5			1000
5a.	Chromium (III)	SM 3500												
5b.	Chromium (VI)	SM 3500				10	5							1000
	Chromium (total)[3]	SM 3500					50	2	10	0.5	1			1000
6.	Copper	200.9					25	5	10	0.5	2			1000
7.	Lead	200.9					20	5	5	0.5	2			10,000
8.	Mercury	1631 (note)[4]												
9.	Nickel	249.2					50	5	20	1	5			1000
10.	Selenium	200.8 or SM 3114B or C						5	10	2	5	1		1000
11.	Silver	272.2					10	1	10	0.25	2			1000
12.	Thallium	279.2					10	2	10	1	5			1000
13.	Zinc	200 or 289					20		20	1	10			

[1] The suggested method is the USEPA Method unless otherwise specified (SM = Standard Methods). The Discharger may use another USEPA-approved or recognized method if that method has a level of quantification below the applicable water quality objective. Where no method is suggested, the Discharger has the discretion to use any standard method.

[2] MLs are from the State Implementation Policy. They are the concentration of the lowest calibration standard for that technique based on a survey of contract laboratories. Laboratory techniques are defined as follows: GC = Gas Chromatography; GCMS = Gas Chromatography/Mass Spectrometry; LC = High Pressure Liquid Chromatography; Color = Colorimetric; FAA = Flame Atomic Absorption; GFAA = Graphite Furnace Atomic Absorption; ICP = Inductively Coupled Plasma; ICPMS = Inductively Coupled Plasma/Mass Spectrometry; SPGFAA = Stabilized Platform Graphite Furnace Atomic Absorption (i.e., USEPA 200.9); Hydride = Gaseous Hydride Atomic Absorption; CVAA = Cold Vapor Atomic Absorption; DCP = Direct Current Plasma.

[3] Analysis for total chromium may be substituted for analysis of chromium (III) and chromium (VI) if the concentration measured is below the lowest hexavalent chromium criterion (11 ug/l).

[4] The Discharger shall use ultra-clean sampling (USEPA Method 1669) and ultra-clean analytical methods (USEPA Method 1631) for mercury monitoring. The minimum level for mercury is two ng/l (or 0.002 ug/l).

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/L)											
			GC	GCMS	LC	Color (AMDI Color Units)	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
14.	Cyanide	SM 4500 CN^- C or I				5								
15.	Asbestos (only required for dischargers to MUN waters)[5]	0100.2 [6]												
16.	2,3,7,8-TCDD and 17 congeners (Dioxin)	1613												
17.	Acrolein	603	2.0	5										
18.	Acrylonitrile	603	2.0	2										
19.	Benzene	602	0.5	2										
33.	Ethylbenzene	602	0.5	2										
39.	Toluene	602	0.5	2										
20.	Bromoform	601	0.5	2										
21.	Carbon Tetrachloride	601	0.5	2										
22.	Chlorobenzene	601	0.5	2										
23.	Chlorodibromomethane	601	0.5	2										
24.	Chloroethane	601	0.5	2										
25.	2-Chloroethylvinyl Ether	601	1	1										
26.	Chloroform	601	0.5	2										
75.	1,2-Dichlorobenzene	601	0.5	2										
76.	1,3-Dichlorobenzene	601	0.5	2										
77.	1,4-Dichlorobenzene	601	0.5	2										
27.	Dichlorobromomethane	601	0.5	2										
28.	1,1-Dichloroethane	601	0.5	1										
29.	1,2-Dichloroethane	601	0.5	2										
30.	1,1-Dichloroethylene or 1,1-Dichloroethene	601	0.5	2										
31.	1,2-Dichloropropane	601	0.5	1										
32.	1,3-Dichloropropylene or 1,3-Dichloropropene	601	0.5	2										
34.	Methyl Bromide or Bromomethane	601	1.0	2										
35.	Methyl Chloride or Chloromethane	601	0.5	2										
36.	Methylene Chloride or Dichlorormethane	601	0.5	2										
37.	1,1,2,2-Tetrachloroethane	601	0.5	1										
38.	Tetrachloroethylene	601	0.5	2										
40.	1,2-Trans-Dichloroethylene	601	0.5	1										
41.	1,1,1-Trichloroethane	601	0.5	2										
42.	1,1,2-Trichloroethane	601	0.5	2										
43.	Trichloroethene	601	0.5	2										
44.	Vinyl Chloride	601	0.5	2										
45.	2-Chlorophenol	604	2	5										
46.	2,4-Dichlorophenol	604	1	5										
47.	2,4-Dimethylphenol	604	1	2										
48.	2-Methyl-4,6-Dinitrophenol or Dinitro-2-methylphenol	604	10	5										

[5] MUN = Municipal and Domestic Supply. This designation, if applicable, is in the Findings of the permit.

[6] Determination of Asbestos Structures over 10 [micrometers] in Length in Drinking Water Using MCE Filters, USEPA 600/R-94-134, June 1994.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/L)											
			GC	GCMS	LC	Color (AMDI Color Units)	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
49.	2,4-Dinitrophenol	604	5	5										
50.	2-Nitrophenol	604		10										
51.	4-Nitrophenol	604	5	10										
52.	3-Methyl-4-Chlorophenol	604	5	1										
53.	Pentachlorophenol	604	1	5										
54.	Phenol	604	1	1		50								
55.	2,4,6-Trichlorophenol	604	10	10										
56.	Acenaphthene	610 HPLC	1	1	0.5									
57.	Acenaphthylene	610 HPLC		10	0.2									
58.	Anthracene	610 HPLC		10	2									
60.	Benzo(a)Anthracene or 1,2 Benzanthracene	610 HPLC	10	5										
61.	Benzo(a)Pyrene	610 HPLC		10	2									
62.	Benzo(b)Fluoranthene or 3,4 Benzofluoranthene	610 HPLC		10	10									
63.	Benzo(ghi)Perylene	610 HPLC		5	0.1									
64.	Benzo(k)Fluoranthene	610 HPLC		10	2									
74.	Dibenzo(a,h)Anthracene	610 HPLC		10	0.1									
86.	Fluoranthene	610 HPLC	10	1	0.05									
87.	Fluorene	610 HPLC		10	0.1									
92.	Indeno(1,2,3-cd) Pyrene	610 HPLC		10	0.05									
100.	Pyrene	610 HPLC		10	0.05									
68.	Bis(2-Ethylhexyl)Phthalate	606 or 625	10	5										
70.	Butylbenzyl Phthalate	606 or 625	10	10										
79.	Diethyl Phthalate	606 or 625	10	2										
80.	Dimethyl Phthalate	606 or 625	10	2										
81.	Di-n-Butyl Phthalate	606 or 625		10										
84.	Di-n-Octyl Phthalate	606 or 625		10										
59.	Benzidine	625		5										
65.	Bis(2-Chloroethoxy)Methane	625		5										
66.	Bis(2-Chloroethyl)Ether	625	10	1										
67.	Bis(2-Chloroisopropyl)Ether	625	10	2										
69.	4-Bromophenyl Phenyl Ether	625	10	5										
71.	2-Chloronaphthalene	625		10										
72.	4-Chlorophenyl Phenyl Ether	625		5										
73.	Chrysene	625		10	5									
78.	3,3'-Dichlorobenzidine	625		5										
82.	2,4-Dinitrotoluene	625	10	5										
83.	2,6-Dinitrotoluene	625		5										
85.	1,2-Diphenylhydrazine (note)[7]	625		1										
88.	Hexachlorobenzene	625	5	1										
89.	Hexachlorobutadiene	625	5	1										
90.	Hexachlorocyclopentadiene	625	5	5										

[7] Measurement for 1,2-Diphenylhydrazine may use azobenzene as a screen: if azobenzene is measured at >1 ug/L, then the Discharger shall analyze for 1,2-Diphenylhydrazine.

CTR No.	Pollutant/Parameter	Analytical Method[1]	Minimum Levels[2] (µg/L)											
			GC	GCMS	LC	Color (AMDI Color Units)	FAA	GFAA	ICP	ICP MS	SPGFAA	HYD RIDE	CVAA	DCP
91.	Hexachloroethane	625	5	1										
93.	Isophorone	625	10	1										
94.	Naphthalene	625	10	1	0.2									
95.	Nitrobenzene	625	10	1										
96.	N-Nitrosodimethylamine	625	10	5										
97.	N-Nitrosodi-n-Propylamine	625	10	5										
98.	N-Nitrosodiphenylamine	625	10	1										
99.	Phenanthrene	625		5	0.05									
101.	1,2,4-Trichlorobenzene	625	1	5										
102.	Aldrin	608	0.005											
103.	α-BHC	608	0.01											
104.	β-BHC	608	0.005											
105.	γ-BHC (Lindane)	608	0.02											
106.	δ-BHC	608	0.005											
107.	Chlordane	608	0.1											
108.	4,4'-DDT	608	0.01											
109.	4,4'-DDE	608	0.05											
110.	4,4'-DDD	608	0.05											
111.	Dieldrin	608	0.01											
112.	Endosulfan (alpha)	608	0.02											
113.	Endosulfan (beta)	608	0.01											
114.	Endosulfan Sulfate	608	0.05											
115.	Endrin	608	0.01											
116.	Endrin Aldehyde	608	0.01											
117.	Heptachlor	608	0.01											
118.	Heptachlor Epoxide	608	0.01											
119-125	PCBs: Aroclors 1016, 1221, 1232, 1242, 1248, 1254, 1260	608	0.5											
126.	Toxaphene	608	0.5											

ATTACHMENT I – MAXIMUM CONTAMINANT LEVELS AND ACTION LEVELS

Maximum Contaminant Levels (MCLs) and action levels established in title 22 of the CCR are listed in the tables below. Additional monitoring is required for exceedances of MCLs and action levels as described in section III.C.3 of Attachment E (MRP).

Table I-1. MCLs for Inorganic Chemicals (From Table 64431-A of Title 22 of the CCR)

Parameter	Units	MCL
Aluminum	milligrams per liter (mg/L)	1
Antimony	mg/L	0.006
Arsenic	mg/L	0.010
Asbestos (MFL = million fibers per liter; for fibers >10 microns long)	MFL	7 MFL
Barium	mg/L	1
Beryllium	mg/L	0.004
Cadmium	mg/L	0.005
Chromium, Total	mg/L	0.05
Cyanide	mg/L	0.15
Fluoride	mg/L	2
Mercury (inorganic)	mg/L	0.002
Nickel	mg/L	0.1
Nitrate (as nitrogen, N)	mg/L	10 as N
Nitrite (as N)	mg/L	1 as N
Nitrate + Nitrite (as N)	mg/L	10 as N
Perchlorate	mg/L	0.006
Selenium	mg/L	0.05

Table I-2. Action Levels for Lead and Copper (From Section 64678 of Title 22 of the CCR)

Parameter	Units	Action Level
Lead	mg/L	0.015
Copper	mg/L	1.3

Table I-3. MCLs for Organic Chemicals (From Table 64444-A of Title 22 of the CCR)

VOLATILE ORGANIC CHEMICALS		
Parameter	**Units**	**MCL**
Benzene	mg/L	0.001
Carbon tetrachloride	mg/L	0.0005
1,2-Dichlorobenzene	mg/L	0.6
1,4-Dichlorobenzene	mg/L	0.005
1,1-Dichloroethane	mg/L	0.005
1,2-Dichloroethane	mg/L	0.0005
1,1-Dichloroethylene	mg/L	0.006
cis-1,2-Dichloroethylene	mg/L	0.006
trans-1,2-Dichloroethylene	mg/L	0.01
Dichloromethane	mg/L	0.005
1,2-Dichloropropane	mg/L	0.005
1,3-Dichloropropene	mg/L	0.0005
Ethylbenzene	mg/L	0.3
Methyl-tert-butyl ether	mg/L	0.013
Monochlorobenzene	mg/L	0.07
Styrene	mg/L	0.1
1,1,2,2-Tetrachloroethane	mg/L	0.001

VOLATILE ORGANIC CHEMICALS		
Parameter	**Units**	**MCL**
Tetrachloroethylene (PCE)	mg/L	0.005
Toluene	mg/L	0.15
1,2,4-Trichlorobenzene	mg/L	0.005
1,1,1-Trichloroethane (1,1,1-TCA)	mg/L	0.200
1,1,2-Trichloroethane (1,1,2-TCA)	mg/L	0.005
Trichloroethylene (TCE)	mg/L	0.005
Trichlorofluoromethane (Freon 11)	mg/L	0.15
1,1,2-Trichloro-1,2,2-Trifluoroethane (Freon 113)	mg/L	1.2
Vinyl chloride	mg/L	0.0005
Xylenes	mg/L	1.750[1]
SYNTHETHIC ORGANIC CHEMICALS		
Alachlor	mg/L	0.002
Atrazine	mg/L	0.001
Bentazon	mg/L	0.018
Benzo(a)pyrene	mg/L	0.0002
Carbofuran	mg/L	0.018
Chlordane	mg/L	0.0001
Dalapon	mg/L	0.2
1,2-Dibromo-3-chloropropane (DBCP)	mg/L	0.0002
2,4-Dichlorophenoxyacetic acid (2,4-D)	mg/L	0.07
Di(2-ethylhexyl)adipate	mg/L	0.4
Di(2-ethylhexyl)phthalate (DEHP)	mg/L	0.004
Dinoseb	mg/L	0.007
Diquat	mg/L	0.02
Endothal	mg/L	0.1
Endrin	mg/L	0.002
Ethylene dibromide (EDB)	mg/L	0.00005
Glyphosate	mg/L	0.7
Heptachlor	mg/L	0.00001
Heptachlor epoxide	mg/L	0.00001
Hexachlorobenzene	mg/L	0.001
Hexachlorocyclopentadiene	mg/L	0.05
Lindane	mg/L	0.0002
Methoxychlor	mg/L	0.03
Molinate	mg/L	0.02
Oxamyl	mg/L	0.05
Pentachlorophenol	mg/L	0.001
Picloram	mg/L	0.5
Polychlorinated biphenyls (PCBs)	mg/L	0.0005
Simazine	mg/L	0.004
Thiobencarb	mg/L	0.07
Toxaphene	mg/L	0.003
1,2,3-Trichloropropane	mg/L	0.000005
2,3,7,8-TCDD (Dioxin)	mg/L	3E-8[2]
2,4,5-TP (Silvex)	mg/L	0.05

1. MCL is for either a single isomer or the sum of the isomers.
2. Scientific “E” notation is used to express certain values. In scientific “E” notation, the number following the “E” indicates that position of the decimal point in the value. Negative numbers after the “E” indicate that the value is less than 1, and positive numbers after the “E” indicate that the value is greater than 1. In this notation a value of 6.1E-02 represents 6.1 x 10E-02 or 0.061, 6.1E+02 represents 6.1 x 10E+02 or 610, and 6.1E+00 represents 6.1 x 1E+00 or 6.1.

Table I-4. MCLs for Radionuclides (From Tables 64442 and 64443 of Title 22 of the CCR)

Parameter	Units	MCL
Gross Alpha Particle Activity (Excluding Radon and Uranium)	picocuries per liter (pCi/L)	15
Combined Radium 226 and 228	pCi/L	5
Uranium	pCi/L	20
Strontium-90	pCi/L	8
Tritium	pCi/L	20,000
Beta/photon emitters	pCi/L	4 millirem/year annual dose equivalent to the total body or any internal organ

Table I-5. Secondary MCLs (From Tables 64449-A and B of Title 22 of the CCR)

Parameter	Units	MCL
Aluminum	mg/L	0.2
Color	Units	50
Copper	mg/L	1.0
Foaming agents (Methylene Blue Activated Substances)	mg/L	0.5
Iron	mg/L	0.3
Manganese	mg/L	0.05
Methyl-tert-butyl ether (MTBE)	mg/L	0.005
Odor – Threshold	Units	3
Silver	mg/L	0.1
Thiobencarb	mg/L	0.001
Turbidity	Nephelometric Turbidity Units	5
Zinc	mg/L	5.0
Total Dissolved Solids	mg/L	1,000 (upper range)
Chloride	mg/L	250 (recommended)
Sulfate	mg/L	250 (recommended)

Table I-6. MCLs for Disinfection Byproducts (From Table 64533-A of Title 22 of the CCR)

Parameter	Units	MCL
Total Trihalomethanes • Bromodichloromethane • Bromoform • Chloroform • Dibromochloromethane	mg/L	0.080[1]
Haloacetic Acids (HAA5) • Monochloroacetic acid • Dichloroacetic acid • Trichloroacetic acid • Monobromoacetic acid • Dibromoacetic acid	mg/L	0.060[2]
Bromate	mg/L	0.010
Chlorite	mg/L	1.0

1. MCL applies to total trihalomethanes which represents the sum of bromodichloromethane, bromoform, chloroform, and dibromochloromethane.
2. MCL applies to HAA5 which represents the sum of monochloroacetic acid, dichloroacetic acid, trichloroacetic acid, monobromoacetic acid, and dibromoacetic acid.